CENTRAL CITY 2035

Volume 5
IMPLEMENTATION PLAN

Proposed Draft
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Bureau of Planning and Sustainability
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Portland's Central City 2035 Plan proposes changes to create a prosperous, healthy, equitable and resilient urban core.

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ACKNOWLEDGEMENTS

This plan is the culmination of work over the past five years on the Central City Concept Plan, three quadrant plans (North/Northeast Quadrant Plan, West Quadrant Plan, Southeast Quadrant Plan), Natural and Scenic Resources inventories, and the Bonus and Transfer Study. Many thanks to the thousands of stakeholders who participated in those processes and whose contributions helped to shape this plan.

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Various consultants contributed to the development of the Central City Concept Plan, three quadrant plans (North/Northeast Quadrant Plan, West Quadrant Plan, Southeast Quadrant Plan), Natural and Scenic Resources inventories, and the Bonus and Transfer Study. We are grateful for their technical assistance and for helping facilitate our advisory committee and public events.

Funding

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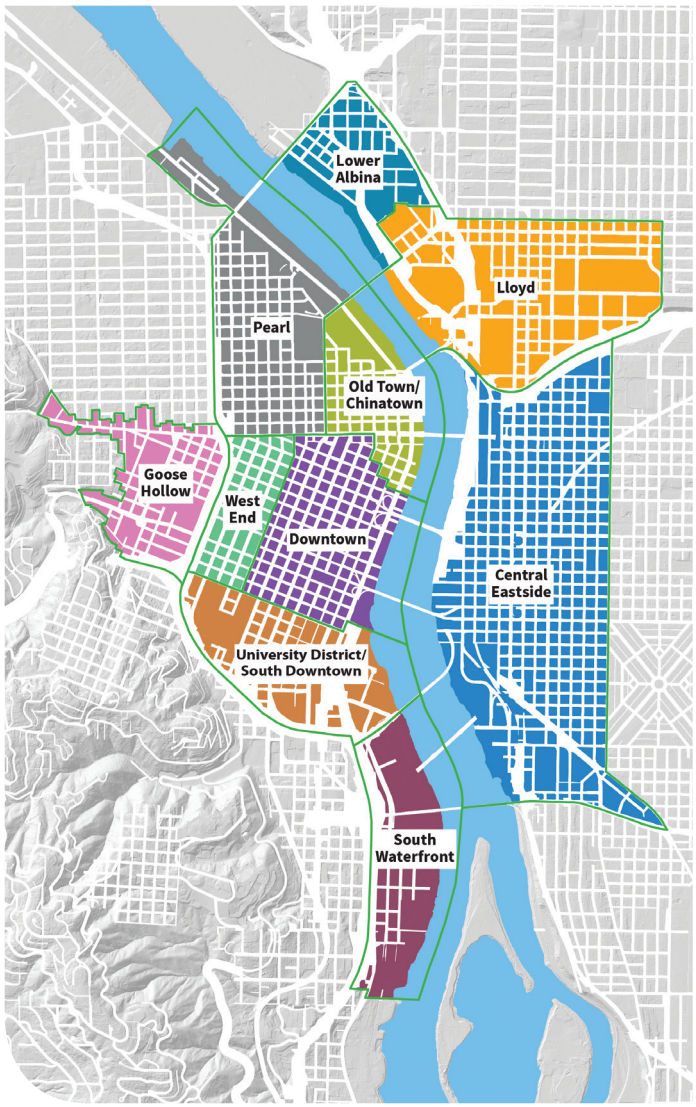

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PERFORMANCE TARGETS

BUREAU WORK PLANS / ACTIONS CHARTS

THE “GREEN LOOP”

Central City 2035 Performance Targets

1. Introduction

The power of a plan lies in its implementation. At a basic level, implementation can be seen as the translation of an action item (which itself implements policies) into a project and the eventual completion of that project. As a long-term plan ages, it's reasonable to assume that ideas, needs and technologies will also change. As such, it's important understand the overarching aims of the plan, and evaluate what happens on-the-ground against those aims.

Several performance targets are being proposed for adoption through a non-binding resolution as part of the CC2035 Plan. The targets will help measure the City's progress toward achieving the aims of the CC2035 Plan and will allow the City to adjust its course after 5, 10 or 15 years of plan implementation. For example, if we realize we're not meeting the tree canopy target, the City could choose to fund additional street tree plantings. Targets are proposed for:

- Transportation
- Jobs and Housing
- Riverbank Enhancement
- Ecoroofs
- Tree Canopy
- Public Space

While some targets are straightforward to set and measure, others such as the tree canopy and public space targets, required extensive research and represent a new standard for Portland. For the latter, this document includes the methodologies or other supporting documentation as attachments. As new technology and information develops, these methodologies should be reassessed and improved upon.

Attachments

The following attachments are provided in support of the targets in this section:

1. Riverbank Enhancement: Detailed memo from BPS staff
2. Ecoroof: Detailed memo from BES staff
3. Tree Canopy: Detailed memo from BPS staff
4. Public Space: Brief memo outlining ongoing work by staff from multiple bureaus

2. Targets

Transportation

By 2035, at least 80 percent of commute trips to and from the Central City will be by non-single occupancy vehicle (SOV).

The targets for trips by non-SOVs by subdistrict are shown below:

Subdistrict	Target
Downtown	85%
West End	85%
Goose Hollow	75%
The Pearl	80%
Old Town/Chinatown	85%
Lower Albina	55%
Lloyd	75%
Central Eastside	65%
South Waterfront	75%
University District / S. Downtown	80%

Jobs and Housing

The recently adopted and updated Central City is expected to have 174,000 jobs and 60,400 housing units by 2035. These projections and the region's urban form are guided by plans developed by the regional government, Metro. Each jurisdiction within the region, including the City of Portland, is responsible for implementing the regional growth concept in their local Comprehensive Plan. For more information, visit Metro's website: www.oregonmetro.gov.

Allocating Jobs and Housing to Areas

To help us understand what these forecasts might mean for Portland and Portland's Central City, the City uses a tool called the Buildable Lands Inventory (BLI). This tool helps the City identify the amount of development capacity that exists within a given area. Development capacity is defined as the likely number of new dwelling units or jobs that can be accommodated in the city under existing regulations, considering existing and planned infrastructure.

The Comprehensive Plan, under consideration at City Council right now, guides approximately 30 percent of new growth to the Central City. The BLI then identifies lands within the Central City that could potentially be developed or redeveloped should a market demand exist. Finally, the forecast numbers are allocated to different Central City districts based on how much development capacity exists in each, as determined by the BLI. For more information on the BLI, visit the project website at http://www.portlandonline.com/portlandplan/bli.

Subdistrict	Jobs		Households	
	2010	2035	2010	2035
Downtown	47,700	55,200	1,900	4,600
West End	6,900	9,900	3,400	6,800
Goose Hollow	4,800	7,300	3,500	4,900
The Pearl	10,600	14,700	5,300	11,600
Old Town/ Chinatown	5,700	8,200	2,200	3,900
Lower Albina	2,100	2,300	100	300
Lloyd	16,800	25,800	1,000	9,000
Central Eastside	16,700	25,000	1,000	7,900
South Waterfront	1,600	11,200	1,300	5,100
University District / S. Downtown	10,500	14,400	3,100	6,200
Central City Total	123,400	174,000	22,800	60,400

Riverbank Enhancement

By 2035, 12,600 linear feet of new riverbank enhancement (32% of the Central City riverfront) and the restoration of at least five riverbank restoration sites will be completed in the Central City.

The targets by ownership are shown below:

Riverbank / Ownership Type	Existing Unenhanced* (linear feet)	Enhancement Target* (linear feet)	Change
City of Portland			
Vegetated or Beach w/ slope < 30%"	3,550	2,490	+ 70%
Tom McCall Waterfront Park Seawall	5,200	200	+ 3%
Centennial Mills	690	200	+ 29%
Other Public Ownership			
Vegetated or Beach w/ slope < 30%"	5,340	3,740	+ 70%
Private Redevelopment			
Vegetated or Beach w/ slope < 30%"	4,630	4,170	+ 90%
City-Private Partnerships			
Vegetated or Beach w/ slope < 30%"	11,460	1,800	+ 16%

* These figures are only for land deamed feasible for enhancement. See Riverbank Enhancement chapter.

More information can be found in the supporting documents at the end of this section.

Ecoroofs

By 2035, there will be a total of 408 acres of ecoroofs in the Central City. Targets have not been set by subdistrict.

Priority Targets	Existing Building Acres	Redevelopment Acres	Total Acres
Highest 1% priority	23.8	4.1	27.9
Highest 5%	119.1	20.4	139.5
Highest 10%	238.3	40.8	279.1
Highest 15%	357.4	61.2	418.6
Highest 25%	595.7	102.0	697.7

More information can be found in the supporting documents at the end of this section.

Tree Canopy

Rather than develop a target, BPS developed two scenarios that could result in different tree canopy ranges. These scenarios will be discussed through the public hearings and work session process and then a final option will be selected. This approach is being used because the options result in significantly different ranges.

				Baseline Future Tree Canopy Scenario2		CC2035 Plan Scenario Results & Draft Tree Canopy Targets3	
CC Subdistrict		Subdistrict Area1 (acres)	Existing tree canopy	LOW	HIGH	LOW	HIGH
Central Eastside	acres	706	53.0	53.9	61.3	61.8	72.9
	%		7.5%	7.6%	8.7%	8.7%	10.3%
Lloyd District	acres	385	61.2	54.8	64.1	60.2	70.7
	%		15.9%	14.2%	16.6%	15.6%	18.4%
Lower Albina	acres	138	8.3	9.1	9.2	9.8	10.0
	%		6.1%	6.6%	6.7%	7.1%	7.3%
Downtown	acres	222	45.3	46.1	49.6	48.5	52.1
	%		20.4%	20.7%	22.3%	21.8%	23.4%
Goose Hollow	acres	175	36.9	32.6	36.8	34.4	38.6
	%		21.2%	18.7%	21.1%	19.7%	22.1%
Old Town/Chinatown	acres	130	21.8	21.4	23.2	22.6	24.5
	%		16.7%	16.5%	17.8%	17.4%	18.8%
Pearl District	acres	277	28.7	52.7	58.8	57.2	65.5
	%		10.4%	19.0%	21.3%	20.7%	23.7%
South Downtown/ University	acres	218	53.1	46.7	53.7	48.1	55.6
	%		24.3%	21.4%	24.6%	22.1%	25.5%
South Waterfront	acres	177	16.2	19.1	36.9	25.2	47.3
	%		9.1%	10.8%	20.8%	14.2%	26.7%
West End	acres	95	14.8	17.3	18.3	18.2	19.3
	%		15.5%	18.2%	19.2%	19.1%	20.2%
Central City Total	**acres**	**2,523**	**339.4**	**353.6**	**411.8**	**385.9**	**456.3**
	%		**13.5%**	**14.0%**	**16.3%**	**15.3%**	**18.1%**

[1] Does not include water; [2] Includes existing tree canopy; [3] Includes existing and baseline tree canopy.

More information can be found in the supporting documents at the end of this section.

Public Space

One measure of the success of the Central City is the amount of time people spend in its urban spaces. More people spending more time in the Central City reflects a certain level of comfort, interest and variety offered by the character of the public realm and the desire of Portlanders to experience it. There are a range of different types of public urban spaces in the Central City, including parks or open areas, streets or rights-of-way, reconfigured segments of streets, building setbacks and others. Inspired by efforts in the city of Copenhagen, Denmark, staff are in the process of developing a similar performance measure for the Central City – a first for Portland and a unique measure among US cities.

The methodology for this target is under development by an interagency team that includes the Bureaus of Transportation (PBOT) Planning and Sustainability (BPS) and Environmental Services (BES) as well as the Portland Parks and Recreation (PPR), among other partners.

At this point, an aspirational target has been set to increase the amount of time people spend in the Central City's public spaces by 20% by 2035.

More information can be found in the supporting documents at the end of this section.

3. Supporting Documents

Riverbank Enhancement Methodology

As part of the Central City 2035 plan, targets related to many topics (e.g., jobs, parking, tree canopy) are being proposed. City Council will adopt these targets by resolution and the targets will serve to help the city evaluate if the plan is being achieved as envisioned. The targets are non-binding. However, measuring how we are doing after 5, 10 or 15 years of plan implementation will help the city adjust its course. For example, the city could choose to fund additional street tree plantings in areas not meeting the tree canopy target.

A technical team with staff from Bureau of Planning and Sustainability (BPS), Bureau of Environmental Services (BES), and Portland Parks (Parks) developed an updated methodology for setting riverbank enhancement and restoration targets in the Willamette River Central Reach. The methodology was adopted by resolution in June 2015.

Definitions

Riverbank or river enhancement is a process to improve/enhance/heighten functions of *existing habitat*. Enhancement does not increase the size of a habitat area.

> For example, a site includes shallow water with no in-water structure and a river bank that has a 30% slope and vegetated with invasive plants. Enhancement actions would include installing root wads, large wood and other beneficial structure in the shallow water and revegetating the bank with a mix of native riparian plants.

Riverbank or river restoration is when habitat is re-established on a site or a portion of a site. Restoration increases the size of the habitat area or reintroduces habitat functions that are currently absent.

> For example, taking the same site as above, restoration actions would include laying back the river bank to make it less steep, moving non-habitat uses (e.g., a trial) further from the river and vegetating the bank with native plants. The size of the habitat area would be increased.

In both enhancement and restoration areas, long-term maintenance is a vital component to ensure the actions are successful.

Riverbank Enhancement Goals and Actions

The following Central City wide goals, policies and actions pertain to in-water and riverbank enhancement. There are specific district actions in some case; however, the overall intention is that riverbank enhancement occur everywhere there is an opportunity.

CC2035 Goal I: Protect and improve in-water and riverbank habitat, water quality and flood storage capacity to make and keep the river healthy for fish, wildlife and people.

CC2035 Policy In-water Habitat: Maintain and enhance in-water habitat throughout the Central Reach and focus on two-three specific shallow water habitat restoration areas to promote the conservation and restoration of fish and wildlife populations.

CC2035 Action WR2: Enhance and create connectivity between in-water, river bank and upland areas to maintain and improve fish and wildlife habitat.

Examples of riverbank enhancement actions include:

- Removing invasive, non-native plants and installing native or appropriate climate-adaptive vegetation. A mix of trees, shrubs and ground cover is appropriate; however, an enhancement action does not have to include large structure vegetation. For example, along the Greenway Trail there are developed viewpoints at which people can stop and enjoy views of the river, bridges and the city skyline. An enhancement action in front of a developed viewpoint could include removing Himalayan blackberries and planting native spirea, nokta rose and snow berry shrubs that will not grow tall and block the view. That said, enhancement actions that include large structure vegetation will result in additional functional improvements to the habitat. Therefore, trees should be included in enhancement areas to the maximum extent practicable.

- In some sections of riverbank, the soil type, amount of moisture and steepness of slope may make it difficult to establish vegetation. There are bioengineering techniques that could be used in these situations. Installing small terraces or planting wells creates less steep locations where soil can be brought in and then planted. These types of enhancement actions do not constitute restoration unless the overall habitat footprint is increased.

- Removing rip rap or other materials that are no long necessary to stabilize the riverbank and planting native, or appropriate climate-adaptive vegetation. Some locations along the Central Reach riverbank are less steep and include a mix of rip rap and other unconsolidated fill (e.g., broken concrete or asphalt). For a variety of reasons, that material may no longer be necessary to stabilize the riverbank and could be removed and the bank planted. Removal of the rip rap may require re-engineering or grading the riverbank. Re-engineering the riverbank does not constitute restoration until either the overall footprint of the habitat is increased and/or a function that is not currently present at the site is re-established (e.g., water storage).

Riverbank restoration includes the same actions as enhancement; however, there would be additional actions that either increase the footprint or width of the habitat area or re-establish a functions not currently present at the site. Examples of riverbank restoration actions include:

- Laying back the riverbank to reduce its steepness while simultaneously moving non-habitat uses and development further away from the river. The riverbank would also be revegetated with

native or appropriate climate-adaptive vegetation. This action would increase the width of the functioning riparian area.

- Removing or breeching a levee or other flood control structure and/or removing fill to re-establish flooding within the historic floodplain of the river. Flooding contributes to a number of important riparian functions including nutrient cycling, sediment transfer, habitat creation and maintenance and water storage.

Existing Conditions

The existing riverbank conditions are presented below. The riverbank data was produced by the Bureau of Environment Services and is maintained by Bureau of Planning and Sustainability. The riverbank data is divided into these six categories:

1) Vegetated with any mix of native or non-native/invasive plants
2) Non-vegetated and stabilized with rip rap or unconsolidated fill with an estimated slope less than 30% steep
3) Non-vegetated and stabilized with rip rap or unconsolidated fill with an estimated slope 30% or greater (steeper)
4) Stabilized with pilings,
5) Stabilized with seawall
6) Beach

5.5 Table 1 presents the linear feet of existing riverbank by ownership of the land.

5.5 Table 1: Central City Existing Riverbank Conditions

Riverbank	Ownership	North/Northeast Quadrant (ln ft)	West Quadrant (ln ft)	Southeast Quadrant (ln ft)	Total (ln ft)
Vegetated	Public	1,019	3,959	3,344	8,321
	Private	1,607	8,141	2,349	12,098
Beaches	Public	0	455	186	642
	Private	0	899	0	899
Non-vegetated; rip rap; unconsolidated fill less than 30% slope	Public	337	24	524	886
	Private	184	970	259	1,414
Non-vegetated; rip rap; unconsolidated fill 30% or greater slope	Public	135	0	1,527	1,663
	Private	3,224	1,186	572	4,982
Pilings	Public	0	960	159	1,119
	Private	552	545	0	1,097
Seawall	Public	0	5,193	451	5,644
	Private	0	451	0	451
Sub-Total	**Public**	1,492	10,592	6,191	18,275
	Private	5,567	12,192	3,180	20,940
Total		**7,058**	**22,785**	**9,372**	**39,215**

Of the total riverbank in the Central City, 39,270 linear feet, 53% is privately owned and 47% is owned by the City of Portland or other public entities such as Oregon Department of Transportation (ODOT). The Eastbank Esplanade, which represents nearly 6,000 linear ft of riverbank, is located almost entirely on ODOT right-of-way but is managed by Portland Parks and Recreation.

Based on the *Central City Development Capacity Study* (2011), approximately 4,960 linear feet of private property, 13% of the riverbank, is likely to redevelop by 2035.[1] The remaining 15,980 linear feet is not expected to redevelop by 2035. This is important because the Greenway requirements apply during redevelopment; outside of redevelopment there is no requirement to enhance the riverbank.

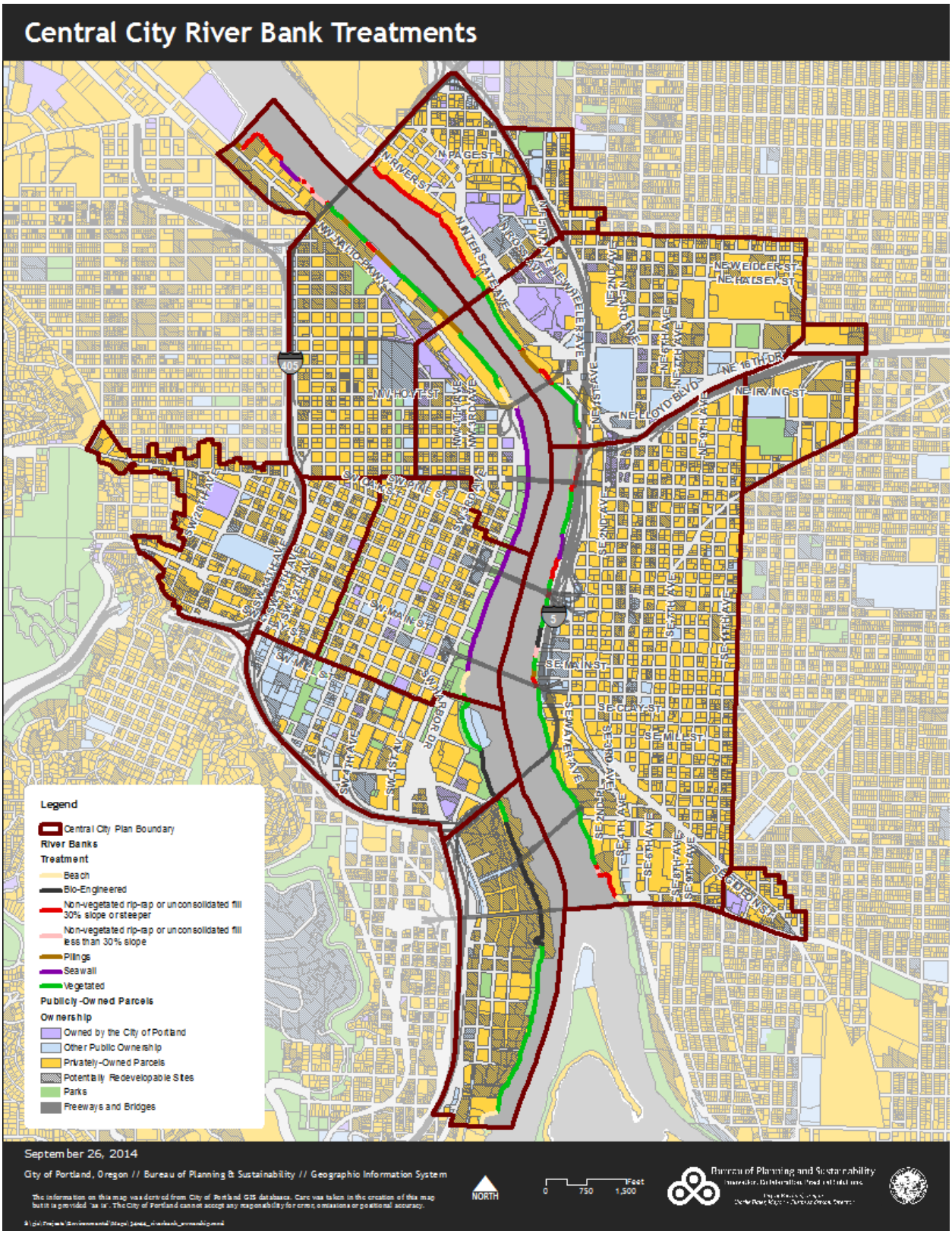
Restoring riverbanks and in-water habitat will be most successful where the existing conditions include relatively shallow water, which is critical factor for ESA-listed fish species. It would be very difficult to attempt to create a new shallow water area without the river washing it away. There are seven (7) locations in the Central City with existing shallow water where restoration might occur:

- Centennial Mills
- McCormick Pier
- I84/I5 Interchange Area (near Duckworth Dock)
- Eastbank Crescent (Morrison Bridge to Hawthorn Bridge)
- Hawthorne Bowl
- Eastbank Crescent (near Hollman Dock)
- Ivon Street Area

Portions of these restoration opportunity areas overlap with areas counted in this memo towards riverbank enhancement. A separate memo is being produced that explores restoration concepts. If restored, the linear feet of restoration should be counted towards meeting the riverbank enhancement target.

The map on the following page shows existing riverbank conditions, the public and private ownership of land, and parcels that are likely to redevelop by 2035.

[1] Portions of South Waterfront are subject to a development agreement. As part of that agreement riverbank enhancement has already been completed and redevelopment of the parcels is underway. In addition, clean-up activities have been completed at the Zidell property. These areas are not included in the linear feet of parcels likely to redevelop by 2035.


Central City River Bank Treatments
Legend
Central City Plan Boundary
River Banks
Treatment
Beach
Bio-Engineered
Non-vegetated rip-rap or unconsolidated fill 30% slope or steeper
Non-vegetated rip-rap or unconsolidated fill less than 30% slope
Pilings
Seawall
Vegetated
Publicly-Owned Parcels
Ownership
Owned by the City of Portland
Other Public Ownership
Privately-Owned Parcels
Potentially Redevelopable Sites
Parks
Freeways and Bridges
September 26, 2014
City of Portland, Oregon // Bureau of Planning & Sustainability // Geographic Information System
NORTH
0
750
1,500
Feet
Bureau of Planning and Sustainability

Methodology

Riverbank Enhancement

In order to set a target, reasonable assumptions must be made about how much of the riverbank can be enhanced to support a mix of native vegetation by 2035.

Below are assumptions regarding the types of riverbank that could be enhanced using a mix of native and appropriate climate-adaptive vegetation:

Vegetated Riverbanks

It is assumed that any riverbank with existing vegetation can be enhanced because these areas, through on-going maintenance, can support a mix of native vegetation. The underlining riverbank treatment may be riprap or other fill material.

Riverbank with an existing condition of "bioengineered" are vegetated but are assumed to have already been enhanced.

Beaches

Areas that are beach also tend to have less steep slopes, allowing for accumulation of sand and silt to maintain the beach. It is assumed that the riverbank above the beach can be enhanced to support a mix of native vegetation. Beaches also represent opportunity areas for in-water enhancement; however, in-water enhancement is not included in the target for riverbank enhancement.

Non-vegetated, Rip Rap, or Unconsolidated Fill Less than 30% Slope

It is assumed that riverbanks that are not currently vegetated with an underlying treatment of rip rap or unconsolidated fill and have a slope less than 30% can be enhanced. Through bioengineering and ongoing maintenance, these banks should support a mix of native vegetation.

Non-vegetated, Rip Rap, or Unconsolidated Fill 30% or Greater Slope

It is assumed that riverbanks that are not vegetated with an underlying treatment of rip rap or unconsolidated fill and have a slope of 30% or greater cannot support a mix of native vegetation because the soil will not retain the necessary moisture to support native species.

Pilings and Seawall

Riverbanks stabilized with pilings or seawall cannot be planted with native vegetation. However, there are innovative approaches to installing habitat along seawalls that are being tested in other locations. Such approaches include floating habitat mats and underwater planted habitat walls.

In summary, the riverbanks that are assumed to have the potential for successful enhancement actions are those that are:

1) **vegetated**
2) **beaches**
3) **non-vegetated, rip rap or unconsolidated fill with less than 30% slope, and**

4) a few, small innovative approaches along a seawall.

All other riverbanks types are assumed to not support ehancement actions, though restoration actions may be appropriate.

Below are assumptions about the amount of enhancement likely to occur based on property ownership. The assumptions are applied to only the riverbank types that have the potential to support enhancement actions.

Publicly Owned

Publicly owned riverbank can be enhanced. The City of Portland owns or manages parks and recreational facilities, such as the Eastbank Esplanade and Hawthorne Bowl. Other riverbank that is publically owned includes Oregon Department of Transportation, Multnomah County, Metro and public rights-of-way.

Considering the existing uses of these properties and how much land is available for habitat enhancement actions, staff assumes that:

- 70% of riverbanks owned by the City of Portland will be enhanced, and
- 70% of the riverbanks owned by other public entities will be enhanced.

There are many current and desired uses on public property including events (e.g., Blues Festival), boating, swimming, walking and biking. Those activities can have negative impacts on habitat. There are ways to design or program a site to reduce the impacts; however, staff were conservative regarding how much area could be dedicated to habitat.

It is assumed that some habitat enhancement will occur along the Tom McCall Waterfront Park seawall. Being conservative, staff assume that 200 linear feet of enhancement will occur along some portions of the seawall.

Centennial Mills is owned by the City of Portland. Although most of the riverbank at the site is pilings or two steep for enhancement, it is assumed that if the pilings are removed, the riverbank behind the pilings would be enhanced. Staff assume that 200 linear feet of enhancement will occur at the Centennial Mills site. Additional restoration actions may also be appropriate for this site.

Privately Owned Parcels that are Likely to Redevelop

Based on the *Central City Development Capacity Study* (2011), 4,960 linear feet of private property, 13% of the riverbank, is likely to redevelop by 2035, excluding portions of South Waterfront that have already been enhanced. Of that 4,630 linear feet is vegetated, beach or non-vegetated, rip rap or unconsolidated fill and less than 30% slope. It is assumed that 90% of the 4,630 linear feet will be enhanced by 2035. (FROM BELOW) Staff looked at those properties, considered the desired uses, such as connecting the Greenway Trail, and how much land may be available for habitat enhancement or restoration actions.

Staff assumed that, through compliance with the Willamette Greenway Plan, the riverbanks on private property will be enhanced during redevelopment. Sites with river-dependent uses, such as a dock that is required for loading/unloading goods and services, would retain some riverbank for that purpose; however, through redevelopment much of the riverbank would be enhanced. Sites without river-dependent uses could be fully enhanced.

Partnerships with Private Property

There are 15,980 linear feet of privately owned riverbank that are not likely to redevelop by 2035; 11,460 of which is vegetated, beach, or non-vegetated, rip rap or unconsolidated fill and less than 30% slope. The City and property owners could proactively partner to enhance the riverbanks. There are some grants available riparian enhancement. Staff assume that 1,800 linear feet of enhancement could be accomplished through partnerships with private property.

Riverbank Enhancement Targets

Based on the methodology above, including which riverbanks can support enhancement actions and assumptions about property ownership, the targets for riverbank enhancement in the Central City are:

City or Portland Ownership		
Vegetated/Beach/<30%	Total = 3,550 ln ft	Target = 2,490 ln ft
Tom McCall Waterfront Park Seawall	Total = 5,200 ln ft	Target = 200 ln ft
Centennial Mills	Total = 690 ln ft	Target = 200 ln ft
Other Public Ownership		
Vegetated/Beach/<30%	Total = 5,340 ln ft	Target = 3,740 ln ft*

*Note – This includes the Eastbank Esplanade, which is on ODOT right-of-way but managed by City of Portland.

Private Redevelopment		
Vegetated/Beach/<30%	Total = 4,630 ln ft	Target = 4,170 ln ft
City/Private Partnerships	Total = 11,460 ln ft	Target = 1,800 ln ft

Riverbank Enhancement Target = 12,600 linear feet (41% of riverbanks that meet the criteria for enhancement; 32% of all Central City riverbanks, regardless of bank type or likeliness to redevelop)

Riverbank Restoration

Restoring riverbanks and in-water habitat will be most successful where the existing conditions include relatively shallow water, which is critical factor for ESA-listed fish species. It would be very difficult to attempt to create a new shallow water area without the river washing it away.

Within the Central Reach there are seven (7) locations with existing shallow water where restoration might occur:

- Centennial Mills
- McCormick Pier
- I-5/I-84 Interchange
- Eastbank Esplanade
- Hawthorne Bowl
- Eastbank Crescent
- Cottonwood Bay

There are other goals and priorities for each of these sites including boating, commerce, swimming, events, etc. For restoration to be successful, public access to the restoration area must be limited, thus uses within a single site will be need to be split. In addition, a feasibility study would need to be completed to determine what restoration actions can occur or the cost to restore (note – some areas may require contamination clean-up prior to restoration).

It is assumed that by 2035, at least five (5) of the seven (7) opportunity areas could be restored. The other opportunity sites could be enhanced and contribute towards meeting the enhancement target.

Riverbank Restoration Target = at least five sites

Implementation Cost Estimates

Estimating enhancement and restoration costs is difficult because each site will require different actions. Without specific project sites and knowing details about underlying soil, amount of overbuild and armoring, structures and other information, many assumptions must be made. What is presented below is intended to give a ball-park estimate regarding riverbank *enhancement* costs in the Central City. Restoration costs are not estimated here because the engineering and construction costs are too site-specific.

Some general assumptions have been made about enhancement sites in the Central City:

1. Enhancement sites would be clean; no contamination clean up would be necessary.
2. No real estate acquisition is necessary. The owner of the property would perform the enhancement work on-site.
3. No utility movement or relocation would necessary.
4. All actions will require long term managements and maintenance.

Much research has been done over the years to estimate the cost of riverbank enhancement actions. The primary source of information use here is the *River Plan/North Reach Willamette River Mitigation In-Lieu Fees Technical Report* produced by Tetra Tech, Inc. (October 2010). The in-lieu fees report evaluated three sites in the Portland Harbor and broke out costs by the actions taken to restore the site. The costs are based primarily on prior US Army Corps of Engineer or City of Portland Environmental Services and Portland Transportation projects.

Riverbank enhancement in other documents is knows as riparian enhancement. The riparian area is the land adjacent to a river, stream, drainageway or wetland. Riparian areas in the Central City include a mix of habitat types: floodplain, sparsely vegetated, grassland, shrubland (includes blackberries) and woodland. The estimated costs in the Tetra Tech memo considered all habitat within the riparian area together, which results in a wide range of costs. For example, in some cases bioengineering or grading to create terraces or planting wells would be necessary and some case not.

The total costs for enhancement actions within the riparian area for the three Portland Harbor sites researched in the Tetra Tech memo was $10 to $97 per square foot; an average of $45 per square foot.

5.5 Table 2: Riparian Enhancement Cost Estimates (Tetra Tech, 2010)	
Line Item	**Average Unit Costs**
Site Preparation	$380,000 - $2.1M
Erosion Control	$3.50 / square foot
Structure Removal	$200 / ton
Grading	$35 / ton
Revegetation	$22,000 / acre
Markups	$4.6M - $16M

Long-term maintenance is also a requirement for any enhancement action to be successful. As part of the West Hayden Island project, the City of Portland Bureau of Environmental Services estimated the long-term maintenance costs for a riparian forest. The cost was based on their experience with multiple enhancement and restoration actions throughout Portland. Again, there is a mix of habitat types in the Central City, not just forest; however, this estimate provides a conservative ball-park estimate. The estimate is $230/acre; however, the first 5 years will cost more and the out years will cost less. Maintenance is calculated for 100 years, discounted every year, and then reported in 2012 dollars.

Note, all of these estimates are per unit, such a square footage or ton. It is not possible to do a direct calculation without knowing how large each enhancement site is. Therefore, the purposes of coming up with an estimate, it is assumed that the width of any given enhancement area in the Central City is 50 feet. There are wider enhancement areas, such as the Hawthorne Bowl, and narrow enhancement areas, such as portions of the East bank Esplanade.

Using these numbers and assumptions, the range of costs to achieve the riverbank enhancement targets are:

City or Portland Ownership	Total = 144,500 sq ft	Initial Cost = $1.4M – 14M	Maintenance = $1M
Other Public Ownership	Total = 187,000 sq ft	Initial Cost = $1.9M - $18M	Maintenance = $1.1M
Private Redevelopment	Total = 207,500 sq ft	Initial Cost = $2.1M - $20M	Maintenance = $1.4M
City/Private Partnerships	Total = 90,000 sq ft	Initial Cost = $1M - $8.7M	Maintenance = $0.5M

MEMORANDUM

Date: June 17, 2015

To: BPS Central City 2035 Planning Team

From: Matt Burlin

CC: Jane Bacchieri, Paul Ketcham, Kaitlin Lovell, Dawn Uchiyama

Subject: Setting Ecoroof Targets for the Central City 2035 Plan

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As part of the Central City 2035 plan, targets related to many topics (e.g., jobs, parking, tree canopy) are being proposed. City Council will adopt these targets by resolution, and the targets will serve to help the city know if the plan is being achieved as envisioned. The targets are non-binding. However, measuring how we are doing after 5, 10 or 15 years of plan implementation will help the city adjust its course.

1. Background

Ecoroofs replace conventional roofing with a vegetated roof system that slows and retains stormwater runoff. An ecoroof consists of a layer of vegetation and growing medium on top of a synthetic, waterproof membrane. In addition to decreasing stormwater runoff, ecoroofs can insulate buildings and save energy, reduce air pollution, absorb carbon dioxide, cool urban temperatures. Ecoroofs also increase habitat for birds and pollinators and can provide much needed greenspace for people in highly urbanized areas of Portland.

In 2008, as part of the Grey to Green Initiative, Environmental Services (BES) administered a direct financial incentive to increase ecoroof implementation on non-City property. In five years, the program supported the construction of 135 ecoroofs totaling 8.37 acres. The $1.9M of incentive funding leveraged an addition $6M in private investment[1]. These construction projects created jobs and helped build capacity in the green roof industry despite slowing development trends due to the economic recession.

The ecoroof incentive is now closed; however, ecoroofs remain a tool in the stormwater management toolbox. With 12,500 acres of roof area in Portland, ecoroofs are an important tool to address stormwater system capacity issues as well as other common urban challenges associated with expansive impervious area, dense development and watershed health such as energy use, carbon dioxide, and urban heat island mitigation.

[1] Cost Analysis for the Portland Ecoroof Incentive. December 2014. http://www.portlandoregon.gov/bes/article/522382

2. Planning Context for Ecoroof Targets

Ecoroofs are a key component of green infrastructure and are referenced in several city planning documents (listed in Appendix A). As part of the CC2035, many watershed and green infrastructure elements have been converted to actions with short term and long term targets. Examples include tree canopy expansion and linear feet of riverbank enhancement.

The Stormwater Management Manual and that ecoroofs are one mechanism that can be used to meet the requirements of the manual. Within the Central City, where lot-line to lot-line development is allowed, there is often not room on a site for stormwater management and ecoroofs become the only viable options. While the focus and establishment of an ecoroof target has been driven by stormwater system needs, the outcome will help other city bureaus focused on those additional benefits of green infrastructure including the Climate Action Plan.

3. Baseline Conditions for Targets

An analysis of ecoroof potential in the Central City 2035 Plan will be limited to the opportunity for retrofits (existing building inventory) and new construction (potential for development or redevelopment).

Existing roof coverage was calculated using building data[2] via the City of Portland GIS HUB. Using these data, the total roof area for the Central City is 2,383 acres, which is % of the whole area (minus the Willamette River). Ecoroofs on existing buildings will likely have more structural and cost limitations, though a complete structural analysis is necessary to indicate potential on the site scale. This analysis assumes that all existing buildings have the potential for an ecoroof, and that site conditions will be assessed in a later exercise.

As of May 2015, there are 93 ecoroofs in the Central City totaling 13.9 acres, or roughly 0.6% of the Central City roof area.

4. Methodology

The Ecoroof Prioritization Strategy (EPS) is an existing tool, developed by BES staff, that provides a framework for selecting optimal ecoroof locations across the City of Portland. The EPS can be used to guide program outreach, policy and code development, and inform watershed and citywide planning efforts. The purpose of EPS is to develop a strategic approach to identify areas where ecoroof applications would provide the greatest benefit to Portland's storm and sewer infrastructure, watershed health, and community livability.

4.1 Process

The EPS process develops and assigns a composite value of total potential ecoroof benefit for every building and underutilized lot in the city, allowing a comparative analysis across the city, watershed, or neighborhood. For the purpose of this analysis, the process was modified to prescribe an ecoroof target in the Central City:

a. **Collect data layers that convey storm, sewer, watershed, and community livability needs.** Collect all the GIS data sets available that quantify each of the multiple benefits

[2] Metadata: http://www.portlandmaps.com/metadata/index.cfm?action=DisplayLayer&header=no&DatasetName=building_footprints_pdx

provided by ecoroofs. It's unlikely all relevant data sets exist, so this step will be continuous as more or better data is made available.

b. **Document relevance of ecoroof benefits addressing those needs.** Data sets vary in their relevance and applicability to ecoroof benefits, so the EPS documents the data source and all assumptions made for each driver.
c. **Apply value to benefits provided through ecoroof application for each driver.** The EPS applies a qualitative numeric value for each benefit provided.
d. **Calculate total potential for ecoroof application meeting all drivers for all parts of the city.** With each data set given a numeric value, they are compiled to show total benefit from all data sets for all parts of the city.
e. **Identify areas where ecoroof application would have the greatest value.** Once the data sets are compiled into a composite score, identify hot spots across the city and flag buildings and underutilized lots in those areas. The result is a comprehensive inventory of buildings city-wide that provide the greatest ecoroof potential.

4.2 Supporting Data

Ecoroof value was assessed by combining qualitative values from available data sets including combined sewer capacity risk, water quality, habitat connectivity, environmental protection zones, and urban heat island. For the purpose of this analysis, sewer and storm system needs were given a higher weight than other drivers to ensure that ecoroof targets meet stormwater and sewer system capacity goals, with value added for additional the benefits identified through the analysis. More information on supporting data can be found in Appendix B.

4.3 Identifying Target Inventory

a. **Identify existing buildings that are high targets.** The next step was to apply composite scores to all Central City buildings. The analysis identified 2,763 buildings totaling 2,383 acres (mean building size 37,509 ft²).

b. **Identify lots that are high targets and likely to be redeveloped**. The Development Capacity GIS Model[3] is a tool developed by the Bureau of Planning and Sustainability to inform the development of the Portland Plan. Using the model, it is possible to identify underutilized lots across the city that are likely to be developed or redeveloped and may be opportunities for ecoroofs. For all underutilized lots (excluding single-family residential), a composite score was calculated using the same analysis in the previous section. Within the Central City the analysis identified 1,359 lots likely to be developed totaling 408 acres (mean lot size 13,079 ft²).

c. **Preform sensitivity Analysis.** The EPS assigns priority to high value buildings and redevelopment opportunities. Using a sensitivity analysis of the highest priorities allows us to set the target at a realistic level.

[3] City of Portland Development Capacity Analysis. City of Portland Bureau of Planning and Sustainability. May 2010.

Priority Targets	Ex.Building Acres	Redevelopment Acres	Total Acres
Highest 1% priority	23.8	4.1	27.9
Highest 5%	119.1	20.4	139.5
Highest 10%	238.3	40.8	279.1
Highest 15%	357.4	61.2	418.6
Highest 25%	595.7	102.0	697.7

4.4 Additional Considerations

Developing a 2035 target should consider several factors:

- Annual ecoroof implementation to date: Since, 2004, the City of Portland has seen 19 acres of ecoroofs installed, or 1.9 acres per year. Annual implementation has increased. In the last five years, average annual ecoroof implementation was over 2.3 acres. In that same timeframe the ecoroof incentive supported an average of 1.7 acres per year.
- The recession had a huge impact on development, which affected the available opportunities for ecoroof construction. As development trends improve, we can expect opportunities to increase.
- While it's unclear if other American cities have comparable targets, a survey of green roof programs in cities like Portland may allow comparison. Green Roofs for Healthy Cities, an international trade association, summarizes annual ecoroof implementation for their North American constituents. In 2013, GRHC reported 10% growth in the green roof industry, and have reported double-digit growth every year for the last decade.[4]
- Technological advancements that expand the applicability of ecoroofs is expected. The industry is already responding to structural and economic limits to implementation. Thinner, lighter-weight, lower-cost, minimal-irrigation designs are making ecoroofs more possible on more types of buildings, and this trend is likely to continue.
- The uncertainties of climate change will mean that resources to combat warmer and wetter seasons will be more limited. Roof space may become a more important asset in managing our storm and sewer systems.
- Ecoroofs may be more applicable in areas of the Central City that expect redevelopment or present constraints for ground-level stormwater management. Further analysis of Central City quads will permit the assignment of ecoroof targets on that scale.

5. Recommended Ecoroof Targets

Evaluating existing conditions, the above considerations, and analysis through the Ecoroof Prioritization Model, the recommended overall ecoroof target for the Central City is 15% of total area or approximately 18% of existing or redeveloped roof area by 2035. This target equates to 408 acres of green roofs by 2035. Variations in district character may result in the concentration of green roof areas in certain districts. Next steps will include a finer analysis and an assessment of opportunity for and limits to implementation.

[4] 2013 Annual Green Roof Industry Survey. Green Roofs for Healthy Cities. April 2014
http://www.greenroofs.org/resources/GreenRoofIndustrySurveyReport2013.pdf

Ecoroof costs vary considerably depending on design, a building's structural capacity (for retrofits), and site conditions. As part of the Ecoroof Incentive Program (2008-2013)[5] BES conducted a cost analysis of 109 incentive projects to identify relationships to installation type, land use, size of roof, and other characteristics. The analysis found that the average cost for ecoroof construction was $10.34 per square foot. Incentive funding contributed $1.9 million and leveraged an additional $6 million for total construction costs of around $8 million from 2008 to 2015.

Total construction costs to meet 15% coverage target by 2035 would be approximately $178 million, or $8.9 million per year. This cost would be bore by private development during the construction of new buildings or reroofing of existing buildings in the Central City. However, research shows that through energy savings, improved roof durability, reduced stormwater fees, and several other benefits, the costs would be paid off in just over 6 years[6]. A more robust economic analysis is recommended to determine the true potential for ecoroofs in the Central City and the appropriate tools needed to reach 2035 targets.

[5] http://www.portlandoregon.gov/bes/article/522380

[6] The Benefits and Challenges of Green Roofs on Public and Commercial Buildings: A Report of the United States General Services Administration. May 2011
http://www.gsa.gov/portal/mediaId/158783/fileName/The_Benefits_and_Challenges_of_Green_Roofs_on_Public_and_Commercial_Buildings.action

Ecoroof Target
APPENDIX A: Supporting City Planning Documents

Portland Watershed Management Plan
The Portland Watershed Management Plan (PWMP) uses comprehensive approach to meet state and federal regulations for water quality and endangered species protection. Ecoroofs help to implement the stormwater management strategy of the PWMP.

Portland Plan
The Portland Plan, adopted in 2012, includes…

H-3 Continue to manage and invest in quality basic public services. These services include public safety, emergency services, transportation and transit, drinking water, sewer, stormwater and green infrastructure, parks and natural areas and civic buildings.

H-24 Develop the network of habitat connections, neighborhood greenways and plan for civic corridors as a spine of Portland's civic, transportation and green infrastructure systems. Enhance safety, livability and watershed health and catalyze private investment and support livability.

P-10 Continue to promote innovation in public projects related to transportation and environmental services, including the following: (1) green infrastructure approaches as part of cleaning up the Willamette River, (2) an innovative active transportation system transit, walking, use of mobility devices, biking, car and bike sharing, etc., and (3) urban parks and natural areas. These will enhance the livability of the city and give Portland a competitive advantage in retaining and attracting an educated, productive workforce.

Climate Action Plan

Central City 2035
The following Central City goals, policies and actions pertain to ecoroofs. There are specific district actions in some cases; however, the overall intention is that increasing ecoroof coverage occurs throughout the Central City.

Willamette River

Policy 45. Water Quality. Improve the quality of stormwater runoff from the street using stormwater management tools such as bioswales and street trees. Increase the use of ecoroofs, green walls and rain gardens with redevelopment.

Action WR3: Improve water quality in the Willamette River by integrating green infrastructure and urban design.

Urban Design

Policy 48. Signature open spaces. Advance the Central City's iconic interconnected system of parks, trails, and natural areas by offering a wide range of social, recreational, contemplative and respite functions to serve an increasingly diverse population of residents, workers and visitors.

Action UD1: Develop incentives to encourage publicly accessible, private plazas, ecoroofs and pocket parks as new development occurs.

Health and the Environment

Goal R: Advance the Central City as a living laboratory that demonstrates how the design and function of a dense urban center can provide equitable benefits to human health, the natural environment and the local economy.

Policy 56. Green infrastructure. Expand the use of green infrastructure, such as trees, vegetation, swales and ecoroofs, as a component of the Central City's overall infrastructure system.

Policy 59. Green Infrastructure. Increase the use of ecoroofs, vertical gardens, sustainable site development, landscaped setbacks and courtyards, living walls and other vegetated facilities to manage stormwater, improve the pedestrian environment, reduce the heat island effect, improve air and water quality and create habitat for birds and pollinators on new buildings.

Policy 61. Upland Habitat Connections. Create an upland wildlife habitat corridor using street trees, native vegetation in landscaping, public open spaces and ecoroofs that provides a connection for avian and pollinator species between the West Hills and Willamette River.

Ecoroof Target
APPENDIX B: Supporting Data

A. Storm and Sewer Infrastructure

Ecoroofs help to retain and slow stormwater runoff from roofs and thus can assist in reducing the timing and volume of stormwater managed by the storm and sewer pipe system.

1. Present Worth of Capacity Deficiency Risk - These data, shown in Figure 4-10 of the March 2012 City of Portland System Plan[7], show the geographic distribution of capacity deficiency risk within the BES service area (combined and sanitary sewer basins) in terms of 100 year present worth value. This capacity deficiency risk includes basement sewer back up risk and the risk of future CSOs.
2. Municipal Separate Storm Sewer System (MS4) Drainage sub-basins - MS4 sub-basins will generate runoff that drains into waterways. Ecoroofs on these buildings will reduce the volume of stormwater runoff from roofs, and the remaining volume will be cooler and potentially cleaner when it leaves the roof.

B. Watershed Health

Ecoroofs are part of the Stormwater Management Strategy in the Portland Watershed Management Plan to improve hydrologic function and watershed health[8]. The impervious area reduction from ecoroof installations can reduce stormwater runoff volume and reduce impacts to ecologically sensitive areas and those prone to landslide risk.

1. Habitat Connectivity - The 2011 Terrestrial Ecology Enhancement Strategy[9] (TEES) identifies ecoroofs as a tool to address barriers to or gaps in habitat connectivity. Ecoroofs provide habitat for insects and birds, and help connect habitat corridors and fill gaps. For the purpose of this analysis, all buildings within 50 feet of habitat corridors, gaps, or anchors will be valued as providing habitat benefit.
2. Environmental Zones[10] - Environmental zones protect resources and functional values that have been identified by the City as providing benefits to the public. For properties developing in an e-zone, minimal site enhancements include the removal of impervious surface and installation of native plants. For the purpose of this analysis, all surveyed buildings within 100 feet of designated environmental zones will be valued positively based on the reduction and removal of roof runoff.

C. Community Livability

Ecoroofs provide an additional suite of benefits to community livability and health, including air quality, cooling, and aesthetics. Data are limited for these drivers.

1. Urban Heat Island - Through evapotranspiration and shading of the roof membrane, ecoroofs reduce heat transfer between buildings and the atmosphere, which helps to

[7] City of Portland System Plan: Combined and Sanitary Sewer Elements: Executive Report. March 2012
[8] Actions for Watershed Health: 2005 Portland Watershed Management Plan. City of Portland Environmental Services, 2005
[9] Terrestrial Ecology Enhancement Strategy. City of Portland, Oregon. June, 2011. http://www.portlandoregon.gov/bes/article/354986
[10] Overlay Zones, BPS website. http://www.portlandoregon.gov/bps/article/64465

reduce the temperature in urban centers, particularly in dense urban areas with high impervious area and low vegetation. GIS data modeled and provided by Portland State University show that the warmest areas of Portland's heat islands are in the Central City, industrial areas, and along major arterials, and are more than 2°C warmer. For the purpose of this analysis, all surveyed buildings within these areas will be valued positively for reducing roof contribution to temperature increases.

Central City 2035 Proposed Draft – Tree Canopy Scenarios and Targets

Executive Summary

Introduction

The Proposed Draft Central City 2035 Plan presents draft tree canopy targets for the Central City as a whole and each of its subdistrict.

The draft tree canopy targets were informed through the development of two future tree canopy scenarios for the Central City. The scenarios were developed by the Bureau of Planning and Sustainability, in collaboration with staff from the Bureau of Environmental Services, Portland Parks and Recreation/Urban Forestry, and the Portland Bureau of Transportation.

- The ***Baseline Future Tree Canopy Scenario (Baseline Scenario)*** calculated the tree canopy impact of anticipated future development and investments based on current policies, regulations, and programs.

- The ***Central City 2035 Future Tree Canopy Scenario (Central City 2035 Scenario)*** estimates the impact of new policies, regulations, and investments proposed in the draft plan, or expected through implementation of the plan. Assumptions were developed to estimate the tree canopy impacts associated with:
    - Increasing tree canopy in the Green Loop and on "Flexible" streets.
    - Investment in an expanded street tree planting program.
    - Optional front building setbacks on certain streets (aka, "required building lines")
    - Incorporation of trees on buildings, including podiums, roofs, and other locations.
    - New Central City Master Plan path.
    - Several planned new parks.
    - Expanded river setback and required plantings.
    - Investments in riverbank enhancement.

The scenarios are intended to:

a. Estimate how tree canopy will change given proposed policies, regulations, investments, and anticipated future development. Separate estimates were produced for trees in public rights-of-way, tax lots and parks.
b. "Reality check" the preliminary tree canopy targets in the quadrant plans using GIS models.
c. Compare the Central City 2035 with existing policies and practices, in terms of tree canopy.
d. Respond to anticipated stakeholder questions and concerns.
e. Inform other future projects and program decisions.

Meeting the tree canopy targets

The tree canopy targets proposed in the Proposed Draft Central City 2035 Plan are based on the results of the *Central City 2035 Plan Scenario.* Staff believes that these targets are both aspirational and achievable. Meeting these targets will require significant changes in current regulations and substantial public investment above and beyond current levels. Investments by the City in terms of regulatory implementation and enforcement, tree planting and other green infrastructure improvements will be needed to achieve the targets.

It should be noted that the draft tree canopy targets are based on estimates of canopy associated with mature trees. In reality, even if all of the policies, regulations, and investments assumed for the Central City 2035 Scenario are implemented, many existing trees and trees that are planted between now and 2035 will not reach maturity until after 2035. Therefore, the tree canopy targets may not be fully met until after 2035. The sooner the policies, regulations, and investments are implemented, the more tree canopy will accrue by 2035.

These draft tree canopy targets may be further refined based on input received on this draft, as well as further discussion on the constraints associated with vaults and voids and other topics.

Scenario Results and Recommendations

The analysis indicates that many more acres of tree canopy in the Central City will be generated between now and 2035. Still, given the size of the Central City, projected canopy increases generally translate to a modest increase in the percentage of tree canopy percentage over the area.

The analysis highlights key challenges associated with increasing Central City tree canopy, including:

- Extensive existing development in the Central City.
- Proposed zoning that continues to allow 100 percent lot coverage in much of the Central City to support housing, employment, public transit, and a quality pedestrian environment.
- Existing exemptions from Title 11 Tree Preservation and Tree Density standards in certain zones.
- Constraints on planting street trees, including physical barriers, narrow planting strips, funding limitations, and property owner resistance to planting street trees.

The Baseline Scenario estimates that Central City tree canopy will increase by 14.2 to 72.4 acres, or from roughly 13.5 percent to between 14.0 and 16.3 percent under current policies, regulations and investment levels. Projected increases are associated primarily with assumed tree canopy growth in the Pearl and South Waterfront districts where existing trees have been planted relatively recently. Other canopy gains are associated with investments in street tree planting and new parks. Tree canopy is projected to increase incrementally in most subdistricts, though the increases vary by subdistrict. In a few subdistricts, tree canopy is projected to decrease in the "Low" estimate. Only one subdistrict (Goose Hollow) is projected to decrease in the "High" canopy estimate. Variability in canopy among the Central City districts is expectedd to continue under the Baseline Scenario, in large part due to existing variability.

The *Central City 2035 Plan Scenario* projects an increase of 46.5 to 117.4 acres in total across the Central City, relative to existing canopy. This would increase total Central City tree canopy from the existing 13.5 percent, to between 15.3 and 18.1 percent. The scenario also demonstrates that:

- Variability in tree canopy between districts is expected to continue. Tree canopy in the Central Eastside, a district characterized by some of the lowest existing canopy levels, is expected to add an additional 8.8 to 19.9 acres over the life of the plan, representing an increase of between 1.2 and 2.8 percent. In the Pearl and South Waterfront Districts, tree canopy is projected to increase dramatically – roughly doubling or more in canopy percentage – largely as a result of the growth of existing trees. Tree canopy in subdistricts with high percentages of tree canopy, including Goose Hollow, the West End and South Downtown/University, is projected to remain generally consistent with the Baseline Scenario.

- The Central City 2035 Scenario estimates that future tree canopy will be at or above the 10 – 15 percent Central City canopy target contained in the Portland Plan. Similarly, the Central City 2035 targets would be generally consistent with those proposed in the quadrant plans. However, the canopy targets for three

subdistricts – Lower Albina, South Downtown/Waterfront, and Downtown – have been lowered slightly to better account for constraints on increasing tree canopy in these areas.

- Overall, the strategies included in this analysis represent a diverse mix of proactive City investments and public-private partnerships, regulatory mechanisms, and market-based (non-regulatory) conditions. Attention and effort will be needed to ensure: 1) strategic preservation and planting of trees throughout the Central City, and 2) expanded space and subsurface soil volume to plant and establish trees, including a diversity of small, medium, and large trees. Investment in additional proactive street tree planting, streetscape improvements (e.g., Green Loop), proposed riverbank enhancements, and new parks will be critical in achieving this goals.

The future tree canopy results and proposed Central City 2035 tree canopy targets are presented below.

				Baseline Future Tree Canopy Scenario[2]		**CC2035 Plan Scenario Results & Draft Tree Canopy Targets[3]**	
CC Subdistrict		**Subdistrict Area[1] (acres)**	**Existing tree canopy**	**LOW**	**HIGH**	**LOW**	**HIGH**
Central Eastside	acres	706	53.0	53.9	61.3	61.8	72.9
	%		*7.5%*	*7.6%*	*8.7%*	*8.7%*	*10.3%*
Lloyd District	acres	385	61.2	54.8	64.1	60.2	70.7
	%		*15.9%*	*14.2%*	*16.6%*	*15.6%*	*18.4%*
Lower Albina	acres	138	8.3	9.1	9.2	9.8	10.0
	%		*6.1%*	*6.6%*	*6.7%*	*7.1%*	*7.3%*
Downtown	acres	222	45.3	46.1	49.6	48.5	52.1
	%		*20.4%*	*20.7%*	*22.3%*	*21.8%*	*23.4%*
Goose Hollow	acres	175	36.9	32.6	36.8	34.4	38.6
	%		*21.2%*	*18.7%*	*21.1%*	*19.7%*	*22.1%*
Old Town/Chinatown	acres	130	21.8	21.4	23.2	22.6	24.5
	%		*16.7%*	*16.5%*	*17.8%*	*17.4%*	*18.8%*
Pearl District	acres	277	28.7	52.7	58.8	57.2	65.5
	%		*10.4%*	*19.0%*	*21.3%*	*20.7%*	*23.7%*
South Downtown/ University	acres	218	53.1	46.7	53.7	48.1	55.6
	%		*24.3%*	*21.4%*	*24.6%*	*22.1%*	*25.5%*
South Waterfront	acres	177	16.2	19.1	36.9	25.2	47.3
	%		*9.1%*	*10.8%*	*20.8%*	*14.2%*	*26.7%*
West End	acres	95	14.8	17.3	18.3	18.2	19.3
	%		*15.5%*	*18.2%*	*19.2%*	*19.1%*	*20.2%*
Central City Total	**acres**	***2,523***	**339.4**	**353.6**	**411.8**	**385.9**	**456.3**
	%		***13.5%***	***14.0%***	***16.3%***	***15.3%***	***18.1%***

[1] Does not include water; [2] Includes existing tree canopy; [3] Includes existing and baseline tree canopy.

Central City Tree Canopy Scenarios and Targets – Report

Table of Contents

I. Introduction

A. Overview

This report presents the general approach used to generate future tree canopy scenarios and proposed tree canopy targets for this Proposed Draft. The methodology, the tree canopy targets, and the report text have been refined since the Discussion Draft to reflect incorporation of new LiDAR tree canopy data, a number of other analyses, and consideration of stakeholder comments.

Several additional options were evaluated for illustrative purposes, or to inform projects outside of the Central City 2035 plan, including future updates to Title 11, Trees. These options are described in Appendix A.

B. Tree Canopy Benefits, Plans, and Policies

Tree canopy provides numerous environmental, aesthetic, public health, and economic benefits. Trees help clean and cool the air and water, contribute to the quality of neighborhoods, business districts, and pedestrian environments, and provide important habitat in the city. In *Portland's Urban Forest Canopy,* (Portland Parks and Recreation, 2007) the annual benefits of Portland's public trees are estimated, including air cleaning and carbon sequestration ($1 million), stormwater processing ($11 million), increased property resale values ($13 million), and reduced energy costs ($750,000), for an estimated total annual benefit of over $27 million. Per tree values differ based on species, size, and age of the tree, with larger trees providing more benefits. On average, one public tree in Portland will return $3.81 in environmental and aesthetic benefits for every dollar invested. Portland's public trees, including street trees and park trees, are estimated to have a replacement value of over $2.3 billion, with the replacement value of private trees estimated to be $2.6 billion.

Tree canopy targets for Portland were first established in the 2004 Urban Forestry Management Plan (UFMP). The UFMP set a 15 percent tree canopy coverage target for commercial/industrial/institutional areas. The UFMP states, "There are some areas — such as downtown commercial areas — where it may not be possible to attain this level of coverage. Other areas may be able to achieve a much higher canopy cover." The UFMP establishes a 35 percent canopy target for rights-of-way, a 35-40 percent canopy target for residential areas, and a 30 percent canopy target for parks. The UFMP does not include a citywide canopy target; however, when the targets for different development types are aggregated and applied across the entire area of the city, the average is 33 percent.

The Portland Plan, adopted in 2012, calls for tree canopy to cover at least one-third of the city, on average, by 2035. The Portland Plan also identifies measures of success, including a Central City tree canopy target of 10 – 15 percent and a minimum of 20 – 25 percent tree canopy in all residential neighborhoods. The Central City canopy target reflects the fact that the Central City is highly urbanized, with development that is commonly lot-line to lot-line. This is in contrast with residential or less intensive non-residential areas where there is often more room for trees in yards and landscaped areas.

The City's Climate Change Preparation Strategy, adopted by the City Council in 2015, also features tree preservation and planting as a tool to help meet key objectives and strategies such as decreasing the urban heat island effect and increasing the resilience of the built environment to increased winter rainfall. Actions defined in the strategy include implementing the UFMP, using trees and other green infrastructure to reduce impervious area, and maintaining tree canopy in parks.

Left: SE 2nd Avenue in the Central Eastside Industrial Subdistrict. Right: Tree canopy along SW Oak Street on the border of the Downtown and Old Town/Chinatown districts.

The following draft Central City 2035 policies establish the explicit intention to increase and improve the quality of tree canopy, or call for places and amenities that are anticipated to include tree canopy. Most of these policies were included in the Central City Concept Plan, N/NE Quadrant Plan, West Quadrant Plan, and/or SE Quadrant Plan. Some have been revised since, or are presented in the Proposed Draft for the first time. Note: This is not an exhaustive list of all relevant policies in the Proposed Draft.

1. Central City-wide policies

Policy2.1 Complete neighborhoods. Ensure Central City neighborhoods have access to essential public services, including public schools, parks, open space and recreation opportunities, community centers, urban canopy and amenities such as neighborhood-serving retail and commercial services that support sustainable and diverse community structure.

Policy 3.6 Street diversity. Differentiate the character of key streets to offer a diversity of urban experiences and connections, reflect the character of unique districts and expand open space and recreation functions in the right-of-way where possible.

Policy 3.7 Streetscape. Improve the street environment and pedestrian experience by providing urban greenery and community uses of the right-of-way and by integrating high-density uses.

Policy 4.2 Willamette River recreation. Provide for safe, enjoyable and valuable active and passive recreational experiences for all users on, along and in the river. Enhance the interconnected system of parks, trails, docks, natural areas and destinations adjacent to and within the river.

Policy 4.6 Watershed health and native species recovery.

a. **Watershed Health.** Improve the quality, quantity, connectivity and overall function of the ecological system including upland, riparian and in-water habitat to protect public health and support the conservation and restoration of native fish and wildlife populations.

d. **Stormwater Management.** Reduce stormwater entering into the separated sewer system.

e. **Riverbank enhancement targets.** Strive to meet Central City targets related to riverbank enhancement and restoration.

Policy4.11 Low impact development. Incorporate low-impact design in new and replacement docks and require appropriate setback distances for new development near the river.

Policy 5.2 Central, connected Willamette River. Create a network of open space and tree canopy corridors to make ecological and design connections to the river.

Policy 5.5 Large site development. Encourage redevelopment of large sites that includes new compatible uses, green buildings and equity considerations, scenic resource preservation, new pedestrian connections through the site, strong street presence, green infrastructure, and new open space amenities.

Policy 5.10 Street hierarchy and development character. Establish a more intentional street hierarchy with a greater diversity of street characters, distinguishing three main types: retail/commercial, boulevard and flexible.

Policy 5.12 "Green Loop" concept. Create a "Green Loop" that connects east and west side neighborhoods to open spaces and the Willamette River, with high quality bicycle accommodations, tree canopy, innovative, park-like pedestrian environments, and wildlife habitat connections. Enhance connections to the "Green Loop" alignment on key corridors throughout the Central City to improve access, create activity nodes and support neighborhood attractions and economic development.

Policy 5.17 Open space network. Beyond signature open spaces, acquire new parks and open spaces and expand opportunities in existing parks and open spaces to meet the needs of Central City residents, workers and visitors for both passive and active recreation, especially in areas zoned for high density, mixed use development. Enhance the network by improving connections among parks, open spaces, and the riverfront. Encourage the provision of publicly accessible private plazas and pocket parks with new development.

Policy 6.2 Climate change resilience. Support planning, service system upgrades, and infrastructure in the Central City to anticipate, respond to, and reduce the risks and adverse impacts associated with evolving climate change conditions.

b. **Heat island.** Encourage site designs, building designs and vegetation that reduce the adverse impacts of urban heat islands on public health and safety, especially those affecting more vulnerable communities.

c. **Fish and wildlife habitat.** Improve the quality, diversity, connectivity, safety, and accessibility of terrestrial and aquatic wildlife habitat areas.

Policy 6.3 Multiple functions. Encourage green infrastructure, parks, open space, and recreation opportunities in the Central City that serve multiple functions to provide capacity during flood event, improve stormwater management, reduce heat island effects, create pockets of fish and wildlife refuge, and provide places of respite and recreation for employees, residents and visitors.

Policy 6.4 Green infrastructure. Increase the use of trees, ecoroofs, vertical gardens, sustainable site development, landscaped setbacks and courtyards, living walls and other vegetated facilities to manage stormwater, improve the pedestrian environment, reduce heat island effects, improve air and water quality and create habitat for birds and pollinators.

Policy 6.8 Upland habitat connections. Create an upland wildlife habitat corridor using trees, native vegetation in landscaping, public open spaces ecoroofs, and bird safe building design and practices that provide a safe, functional connection for avian and pollinator species between the West Hills, Mt. Tabor, Powell Butte, Rocky Butte and the Willamette River.

Policy 6.9 Strategic tree canopy enhancement. Plant trees on tax lots, in parks and public spaces, and along rights-of-way, throughout the Central City to meet urban forestry and other Central City goals and guiding principles including resiliency, human and environmental health, livability, equity, and active transportation.

a. **Tree priorities.** Encourage planting and preservation of large, healthy non-nuisance trees, native trees, and climate change-resilient trees.

b. **Tree Diversity.** Improve tree species and age diversity throughout the Central City.

c. **Heritage trees.** Encourage the protection of designated Heritage and Landmark Trees.

d. **Tree Canopy.** Support progress toward meeting Central City tree canopy targets.

Policy 6.10 Effective tree planting. Optimize tree planting opportunities and conditions throughout the Central City.

a. **Tree size.** Require that trees planted along rights-of-way are as large as is appropriate for the planting space.

b. **Soil volume.** Encourage the provision of increased subsurface soil volumes to improve tree health and increase tree canopy coverage, especially in conjunction with development and infrastructure improvement project design and construction.

c. **Tree accommodation.** Encourage wider sidewalk corridor furnishing zones and other right-of-way design elements (e.g., medians, bulb-outs) to facilitate planting and accommodation of larger canopy tree species.

d. **Innovative design.** Encourage innovative design strategies that accommodate existing healthy non-nuisance trees on site and incorporate new trees on sites and buildings. Trees on buildings may be placed on balconies and podium roof decks, planted in conjunction with an ecoroof, or in other locations.

Policy 6.12 City investment in street trees. Invest in street trees as a valuable public infrastructure asset.

a. **Multiple benefits.** Plant street trees to provide multiple benefits, including stormwater management, quality pedestrian environment, reduction in urban heat island, and wildlife habitat.

b. **Maintenance.** Support innovative approaches, including public/private partnerships, to ensure adequate long-term maintenance of street trees to address tree-related concerns such as sidewalk repair.

2. Central City subdistrict-specific policies

Policy 3.CE-3 Green Streets. Strategically support the enhancement of east-west city walkways and bikeways to serve the multiple objectives of travel, stormwater management, open space and recreation, and placemaking. Routes should also strengthen connections to the river and riverfront. Green Streets should be chosen to avoid significantly impacting freight movement as identified by Transportation System Plan freight designations.

Policy 5.UD-3 Montgomery Green Street. Support development of the SW Montgomery Green Street as a key east-west green connection from the West Hills and Goose Hollow to the Willamette River.

Policy 4.DT-1b Governor Tom McCall Waterfront Park – Watershed health and native species recovery. Enhance watershed health and conditions for native species by: incorporating native vegetation and large canopy trees into landscaping within the park and public rights-of-way next to the park; improving in-water habitat complexity and increasing flood capacity at the Hawthorne Bowl; and exploring innovative technologies for adding habitat features along the seawall.

Policy 5.GH-2 Natural features. Enhance existing natural features resulting from the district's proximity to the West Hills, such as the varied topography, trees, and vegetation.

Policy 5.GH-4 Open space network. Enhance existing open spaces, including Collins Circle, Firefighters Park and the stadium plazas to be more usable, engaging spaces and improve access to Washington Park. Support the inclusion of publicly accessible green open space in the redevelopment of Lincoln High School.

Policy 5.PL-4 Open space network. Require the development of publicly accessible open space at the Centennial Mills and US Postal Service sites as part of redevelopment to provide linkages to street tree canopy and other open spaces.

Policy 5.LD-5 Open space network. Develop a signature sequence of open spaces, linked through a pedestrian wayfinding system that serves the Central Lloyd area, becomes a primary organizing structure for new development, and offers a diversity of character, experiences, and recreational functions for district residents, workers and visitors.

Policy 6.LD-2 Sullivan's Gulch. Enhance natural resources within Sullivan's Gulch to improve its function as a habitat corridor, reduce the risk of wildfire and landslide, and maintain and enhance public views, while providing flexibility to incorporate a recreation trail.

Policy 6.CE-1 Freight-compatible green infrastructure. Plan for the development of green infrastructure, in the public right-of-way and on private property, taking into account freight street hierarchy by prioritizing city walkways and bikeways and mixed-use corridors for improvements such as trees and living walls throughout the district. Support the industrial area's functional relationship to the river.

Policy 6.CE-2 Strategic tree canopy enhancement. Promote planting, district-wide, and especially along mixed use commercial corridors with higher employment densities and residential uses, and along pedestrian and bike corridors. Select trees and locations that provide adequate clearance for freight movement on streets prioritized for freight mobility.

C. Stakeholder Input and Preliminary Tree Canopy Targets

Community stakeholders expressed a range of viewpoints relating to trees in the Central City during the quadrant planning efforts. Some stakeholders supported ambitious targets that call for significant increases in Central City tree canopy and the benefits it provides, including air cooling, stormwater management, aesthetic beauty, improved pedestrian environment, and habitat for birds and pollinators. Others expressed concern about potential constraints and conflicts between land uses and trees, such as impacts on freight movement and visibility and obscuring storefronts and signs.

The Portland City Council endorsed preliminary "potential tree canopy" targets developed in conjunction with the North/Northeast, West, and Southeast quadrant plans. Those preliminary tree canopy targets reflected 2007 Metro vegetation data for existing tree canopy. However, the tree canopy targets in the quadrant plans were developed using a largely qualitative assessment of potential future tree canopy. A key assumption during quadrant planning was that future tree canopy would come primarily from additional trees in Central City rights-of-way (ROW). Those analyses relied on the 2004 UFMP targets, particularly the 35 percent ROW tree canopy target, to derive the preliminary tree canopy targets. The quadrant plans also included a draft methodology to guide additional refinements to the canopy targets prior to adoption of the Central City 2035 Plan.

In response to those preliminary targets some stakeholders requested a more rigorous, in-depth analysis to confirm that the targets are appropriate and feasible, and to be clearer about how and where Central City tree canopy would change in the future.

Since adoption of the quadrant plans, the Bureau of Planning and Sustainability (BPS) has worked with Portland Parks and Recreation (PP&R), the Bureau of Environmental Services (BES), and the Portland Bureau of Transportation (PBOT) to develop a more rigorous methodology for producing Central City future tree canopy scenarios and targets. The scenarios estimated how different policy, regulatory, and investment choices may affect tree canopy, including those in the draft Central City 2035 Plan.

The future tree canopy scenarios informed the development of the draft canopy targets in this plan. The methodology used aims to understand existing conditions and establish aspirational but attainable targets. The scenarios are meant to reflect both constraints and conflicts that may limit tree canopy as well as opportunities to expand canopy, including several ambitious strategies that would require significant investment.

During public review of the Discussion Draft, several stakeholders commented on the tree canopy target report, including staff from City bureaus and several community members. Comments ranged from

specific suggested edits to broad policy issues and concerns. Examples include concern regarding the canopy impact of recent City restrictions on planting street trees in narrow planting strips, interest in innovative street and development design to preserve large healthy trees and incorporate new trees, and impact of new development on designated Landmark trees and Heritage Trees. Questions were also raised about proposed policies to ensure adequate sub-surface soil volume for newly planted trees. There is increasing concern about the impact of underground vaults and voids that encroach into the sidewalk corridor on capacity for new street trees.

One overarching question was whether the Central City 2035 Tree Canopy Targets are aspirational, or whether they rely on current conditions or the status quo. Some felt the canopy targets should be based on the amount of canopy needed to attain specific benefits or ecosystem services. In response, it is important to emphasize that the Central City 2035 Tree Canopy Targets represent substantial changes from current conditions. Meeting these targets will require significant changes in current regulations and substantial public investment above and beyond current levels. The first step toward meeting the targets will be adoption of the Central City 2035 Plan. However, it will also take continued long-term investment in regulatory implementation and enforcement, tree planting and other green infrastructure improvements to achieve the projected tree canopy "lift."

Further, the canopy targets are intended to be aspirational, practical, and achievable, within the context of the Central City 2035 Plan. The canopy targets were not developed to provide tree-related benefits "in a vacuum." Rather, the targets are intended to support, integrate and balance multiple citywide and Central City-specific goals and policies by employing a suite of creative, forward-thinking land use and infrastructure planning based approaches.

In the future, if new goals are established for tree canopy to achieve specific benefits in the city, these targets could be revisited. However, tools that go beyond the Central City 2035 Plan purview will likely be needed to further enhance tree canopy.

The plan has been updated to address a number of comments received. Some comments may also be addressed in the future when the Central City Design Guidelines are updated. The approach taken to develop the scenarios and targets is described in the next section of this report.

II. Analysis

A. General Approach, Key Assumptions, and Scenario Concepts

As noted above, the Proposed Draft presents future tree canopy scenarios that have been developed to estimate how different policy, regulatory and investment options would affect tree canopy in the Central City. The analysis produced a "Baseline" scenario and a "Central City 2035 Plan" scenario, and associated canopy targets for each. The scenarios are intended to:

- Estimate how tree canopy will change given different policies, regulations, and investments, as well as anticipated future development.
- Use GIS and a rigorous modeling approach to provide a clear and reasonable rationale for tree canopy targets and "reality check" preliminary tree canopy targets produced during quadrant planning.
- Allow a comparison between current policies and practices and the Central City 2035 Plan, in terms of tree canopy.
- Provide information in response to anticipated stakeholder questions and concerns.
- Inform other future projects and program decisions.

Several additional options outside the Central City 2035 Plan were evaluated that are not included in the proposed tree canopy target package. These strategies, including in Appendix A, are intended to be illustrative and/or to inform future projects, such as updates to Title 11, Trees.

Given the diverse landscape and land uses in the Central City, future tree canopy was estimated for each subdistrict within the Central City. Estimates were produced for trees in public rights-of-way, tax lots and parks. Scenarios reflect the following key data and analysis tools:

- Existing tree canopy data. The 2007 vegetation data used to develop the preliminary tree canopy targets in the Discussion Draft have been replaced with 2014 LiDAR vegetation data in this draft. This greatly improves the accuracy of information on existing tree canopy.

- Field survey data relating to tree planting spaces along Central City rights-of-way.

- GIS modeling to estimate changes in tree canopy associated with assumed future:

    - Proactive tree planting projects on Central City rights-of-way.
    - Development and redevelopment. This includes changes in tree canopy on tax lots and along rights-of-way.
    - Proactive riverbank enhancements.

- Tree canopy assumptions for existing and planned parks and public spaces in the Central City.

Although some key assumptions vary between the scenarios, several fundamental tenets apply across the scenarios, including:

- Tree canopy estimates developed for the scenarios represent anticipated canopy when trees reach full maturity. It is assumed that the policies, regulations, and investments included in the

scenarios are in effect or take place within the 20-year Central City 2035 Plan timeframe. However, not all existing or future trees will reach maturity within that timeframe. Given the variability and uncertainty associated with when new trees have been or will be planted, which species of trees have been or will be planted, and how long it takes for trees to mature, it is not feasible to estimate how much canopy will actually exist in the Central City in 2035. In addition, tree canopy is affected by tree mortality, due to natural attrition, vandalism, impacts from cars and trucks, etc. For example, if an older, larger ROW or landscape tree dies and is replaced promptly, as required by code, with a younger, smaller tree, there will be a lag time until mature canopy is reached again. Therefore, the results of the future tree canopy scenarios reflect a longer timeframe than the Central City 2035 Plan. That said, the sooner enhanced regulations and investments are implemented, the more canopy will be established by 2035, and the sooner the City will reach its long-term mature canopy goals.

- Assumptions underlying the scenarios are applied generally at the Central City subdistrict scale, and do not, except in limited instances, apply to individual sites.

- Although each scenario estimates future tree canopy associated with trees planted in rights-of-way, on tax lots, and in parks and open spaces, it is understood that the canopy associated with these trees may cover a mix of these property types. Therefore the results of the scenarios are more robust when aggregated across these property types and presented at subdistrict levels

- It is assumed that trees planted along rights-of-way are comprised of the largest tree species allowed given the width of the planting strip.

- It is recognized that existing and future trees will grow and die and be replaced in a "dynamic equilibrium." Therefore it is assumed that existing tree canopy remains constant except where changes are modeled to reflect impacts on tree canopy as a result of development and redevelopment, proactive investments in street tree planting, or management of public parks. It is also assumed that trees planted in the future on streets or sites will be replaced in a timely manner if they are severely damaged or die. The tree canopy estimates do not reflect potential attrition.

- Per the Portland Parks and Recreation Urban Forestry Street Tree Planting Standards (updated February 2016), planting spaces must be equal to or greater than three feet wide to accommodate a small street tree. Additionally, for those areas along the sidewalk requiring concrete cutouts, the minimum cutout size is four feet. Therefore planting spaces that do not meet these standards have been removed from the estimates of ROW planting spaces provided below.

- It is assumed that development and redevelopment in the Central City through 2035 will take place on vacant and under-utilized sites identified in the Recommended Buildable Lands Inventory (BLI).

Left: Recently planted street trees; Right: More mature street trees.

"Baseline" Future Tree Canopy Scenario

The Baseline Future Tree Canopy Scenario (Baseline Scenario) is intended to reflect future canopy in the Central City if existing policies, regulations, and investment levels were maintained to the year 2035.

Baseline Scenario components for trees in rights-of-way include:

a. New street trees associated with anticipated new development on Central City vacant and underutilized sites identified in the Buildable Lands Inventory. The analysis also reflects current streetscape and street tree planting policies (e.g., minimum pedestrian through-zone, furnishing zone width, sidewalk dedication requirements, etc.).

b. Street tree growth in recently developed/redeveloped areas, specifically the Pearl District and South Waterfront, which contain a large number of recently planted street trees. In these areas, the GIS existing tree canopy layer does not represent expected future canopy and additional modeling has been done to project future canopy when street trees reach full maturity. It is understood that all subdistricts contain some proportion of recently-planted trees but the Pearl District and South Waterfront are characterized by a comparatively large amount of recently-planted trees that must be specifically accounted for.

c. Continuation of periodic, proactive City street tree planting projects. The City currently offers to plant street trees free of cost based on property owner agreement to accept and maintain the trees.

Baseline Scenario components associated with trees on tax lots include:

d. Changes in tree canopy associated with future development sites in the Central City. Again these sites would include vacant and underutilized sites identified in the BLI. The analysis reflects current zoning code (Title 33) and tree code (Title 11) allowances and requirements (e.g., building coverage, landscaping, and tree planting/density). It should be noted that development may result in net tree canopy increases or decreases.

e. Trees on new buildings. Placing trees on buildings to provide on-site amenities for building users is becoming more common in some urban areas. Trees can be installed on shared areas atop podiums and on rooftops, providing building occupants with additional access to shade and green spaces, and other ecosystem service benefits. A number of projects in Portland have incorporated trees on buildings and the Baseline Scenario recognizes this growing trend by including an estimate of trees placed on buildings as part of future development/redevelopment within the Central City.

f. Optional front building setbacks for new development (aka "Required Building Lines"). The current zoning code (Title 33) includes provisions allowing building setbacks along primary lot frontages when lots are developed or redeveloped. In zones that currently allow lot-line-to-lot-line development, setbacks would provide more space for street trees to grow larger. Setbacks may also provide room for additional trees to be planted within the setback itself. In these cases, encouraging the incorporation of adequate subsurface soil volume will facilitate planting of larger trees and healthy tree growth over time.

The Baseline Scenario also includes estimated future canopy associated with management of existing public parks and public spaces:

g. Baseline tree canopy in existing parks and public spaces. Portland Parks and Recreation (PP&R) has produced preferred canopy ranges for City-managed parks and public spaces in the Central City. The preferred canopy ranges reflect consideration of current and desired park uses, maintenance, and security issues, along with goals for improved tree canopy quantity and quality.

Central City 2035 Plan Future Tree Canopy Scenario

The tree canopy targets proposed in this draft are based on the *Central City 2035 Plan Future Tree Canopy Scenario* (Central City 2035 Scenario).

The Central City 2035 Scenario incorporates the same basic components as the Baseline Scenario. However, assumptions were changed to reflect proposed or otherwise anticipated changes in existing policies, regulations, and investments associated with adoption and implementation of the Central City 2035 Plan.

Central City 2035 Plan Scenario components for trees in rights-of-way include:

a. Streetscape improvements for the Green Loop. The Green Loop is envisioned as a 6-mile signature linear park and active transportation path that will bring new life and energy to the Central City.

The Green Loop concept will promote more walking, biking, rolling, jogging and public transit trips, contributing to a smaller city-wide carbon footprint.

b. Flexible Street Design. An intentional street hierarchy, including "Retail/Commercial," "Boulevard," and "Flexible" street types, is one of six "big ideas" for Central City 2035 that informed development of the plan's goals, policies and implementing actions. The Proposed Draft Policy 5.10 calls to "establish a more intentional street hierarchy with a greater diversity of street characters, distinguishing three main types: retail/commercial, boulevard and flexible." The flexible street designation is intended for low volume, low speed quiet streets where visible green features, including larger canopy/spreading trees, are encouraged. The intention of both the Green Loop and flexible streets is to create a safer, greener environment for bicyclists and pedestrians. This may include physical separation of travel modes, unique street furnishings, connected canopy, and other innovative design elements that provide safe and attractive pedestrian, jogging and bicycle connections.

c. Investment in street tree planting. Increased investment, over and above Baseline Scenario levels, is needed to help meet a broad range of Citywide and Central City-specific goals and policies proposed in the Central City 2035 Plan. It is envisioned that the City would invest additional resources to offer trees free of charge to willing property owners on a more frequent basis than assumed for the Baseline Scenario. For this scenario it is assumed that property owners would continue to be responsible for tree maintenance.

Central City 2035 Plan Scenario components associated with trees on tax lots include:

d. Optional landscaped building setback streets. The Proposed Draft includes new landscaped setback streets under the Required Building Lines section. Along these streets, optional setbacks must be landscaped. The intention is to incorporate more trees within the setback itself. Landscaped setbacks may also provide an opportunity to use root channels, structural systems, or other methods to supplement the volume of soil available to street trees by connecting them to the additional soil volume under the setback. Additional soil volume allows for planting of larger trees and improved tree health over time.

e. Additional trees on new buildings. Policies in the Central City 2035 Plan support the inclusion of trees on buildings, in addition to those at grade and in the right-of-way. Therefore an increase in the amount of trees placed on buildings has been assumed as a result of the plan. The Central City 2035 Plan is assumed to double the tree canopy provided on buildings, when compared to the Baseline Scenario.

f. Central City Master Plan Sites. The Proposed Draft includes a required master plan process on master plan sites identified in Map 510-7 (1&2). This process will also be an option available for development on sites at least 80,000 square feet in size. The master plan approach is intended to promote innovative site designs, including a dynamic public realm with parks and open spaces, pedestrian walkways, plazas, private streets, and trees, while also providing greater efficiency and flexibility for the property owner during the development process.

Central City 2035 Scenario also includes estimated future canopy associated with new public parks and public spaces:

g. Planned Central City parks and public spaces. The Central City 2035 planning process has identified a number of parks that are anticipated to be developed during the planning horizon. These parks have not yet been master planned, but are expected in this analysis to provide opportunities for additional tree canopy, per Parks and Recreation estimates.

Other components of the Central City 2035 Plan Scenario include:

h. Expanded Willamette River setback. The Proposed Draft includes an expanded river setback to improve the quality and functionality of river access and natural resource protection. Planting requirements will be updated and will result in additional tree canopy.

i. Riverbank enhancements. Riverbank enhancement targets were approved through the quadrant planning process. Future enhancements are envisioned as a combination of projects on City and other publicly-owned property, as well as public/private partnerships to enhance privately-owned property.

B. Methodology and Results

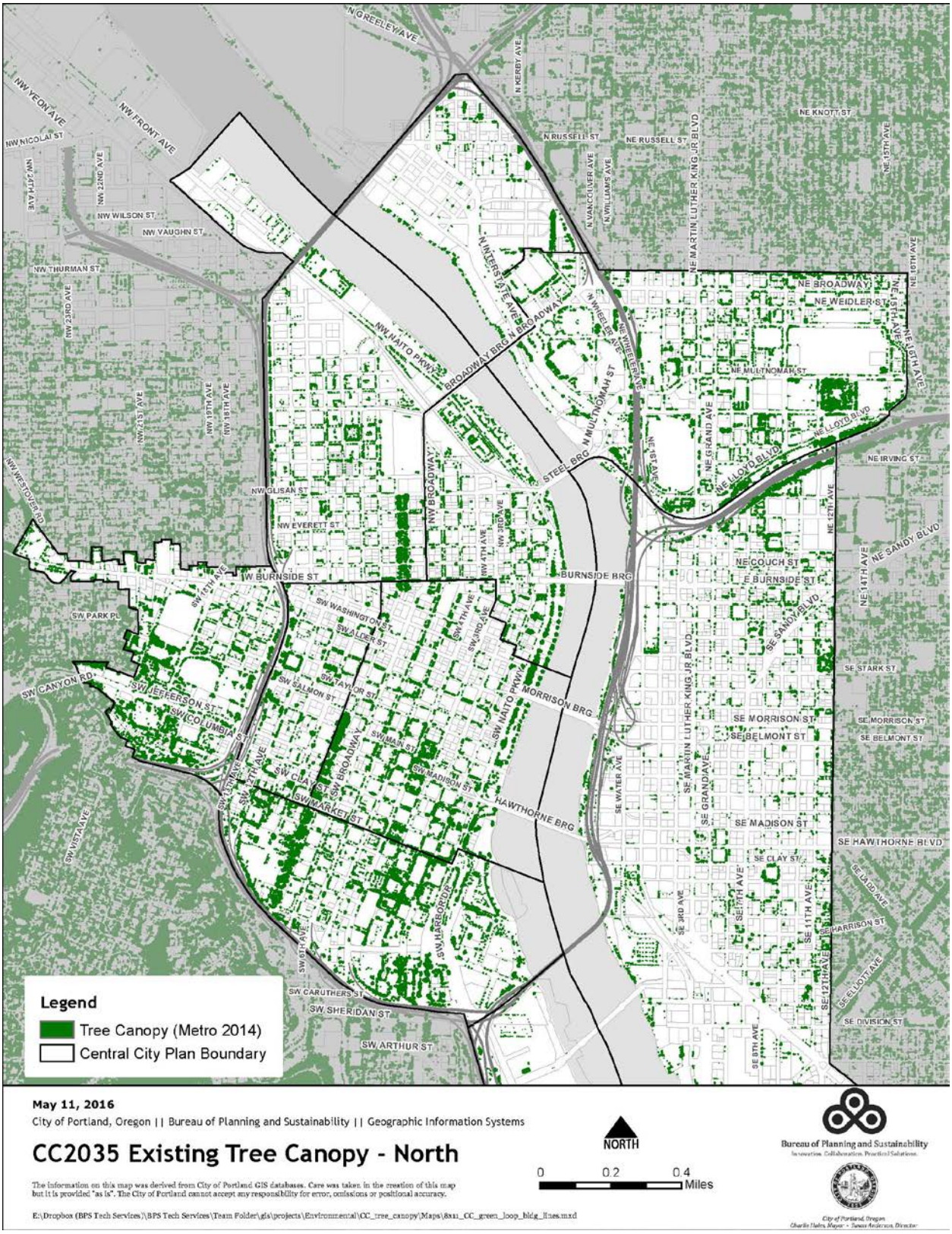
1. Baseline Future Tree Canopy Scenario

The Baseline Scenario provides a snapshot of what canopy might look like across the Central City if existing policies, regulations, and levels of investment were to persist through 2035. The Baseline Scenario reflects existing tree canopy and models anticipated changes in tree canopy in rights-of-way, on tax lots, and in parks/open spaces. It is assumed that anticipated future growth, development, and investment will play out in accordance with current policies and regulations (e.g., land use, zoning, sidewalk widths and street dedications) and programmatic practices (public investment in tree planting).

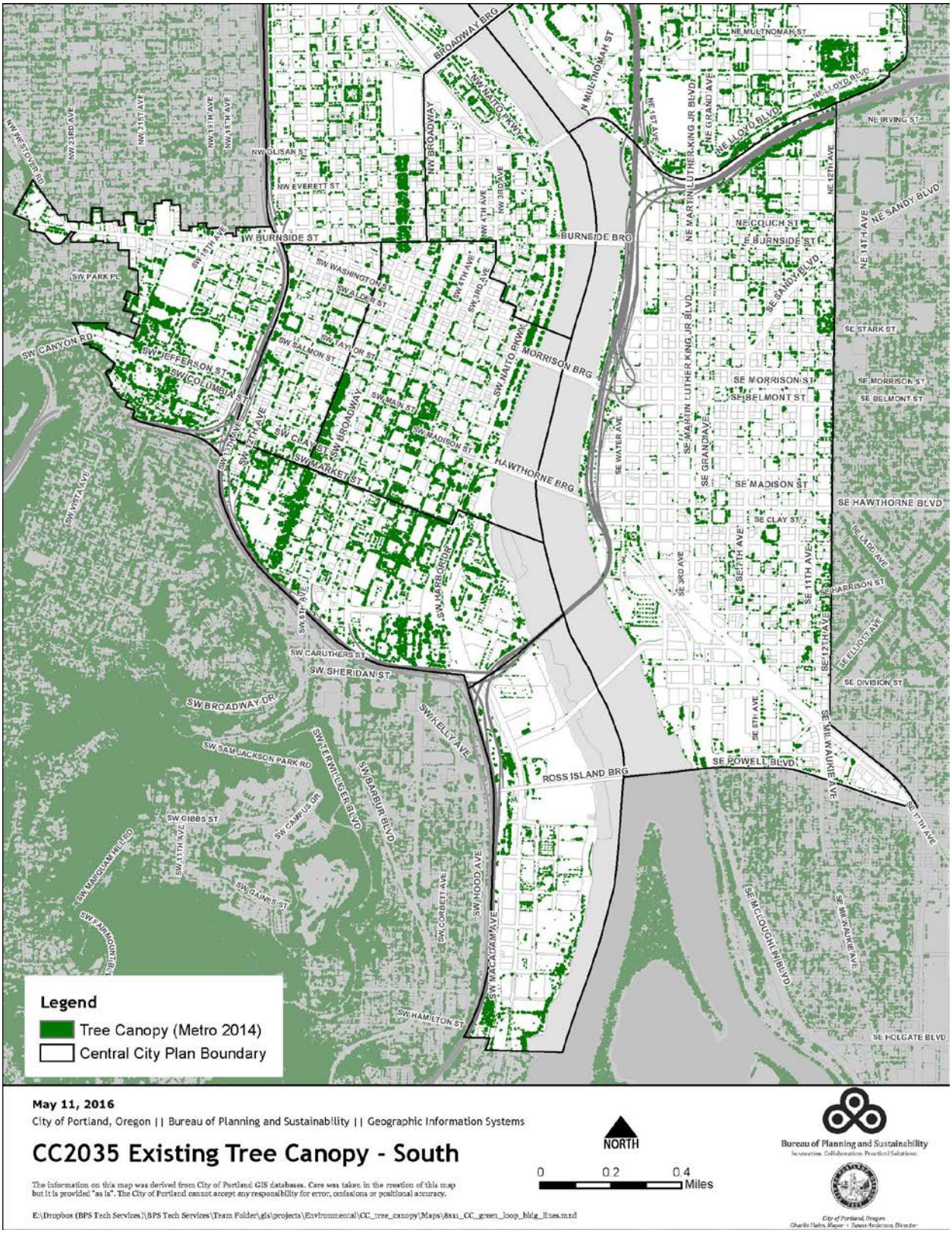
For the Baseline Scenario future tree canopy is estimated by adding or subtracting projected future canopy changes relative to existing tree canopy.

Existing tree canopy coverage was estimated using 2014 LiDAR data. Estimates have been created for: 1) Total existing tree canopy, by zone, by Central City subdistrict (excludes water), and 2) Existing tree canopy on lots designated as vacant or underutilized in the City of Portland's Draft Buildable Lands Inventory (BLI). Total existing tree canopy maps are presented below in TC-Figure 1 and TC-Figure 2.

TC-Figure 1. Central City Existing Tree Canopy – North



TC-Figure 2. Central City Existing Tree Canopy – South



As noted above, vegetation data used to develop the preliminary tree canopy targets in the Discussion Draft was updated with 2014 LiDAR vegetation data for this draft. This update greatly improves the accuracy of information on existing tree canopy as a result of the significantly higher resolution of the 2014 LiDAR data, when compared to the 2007 data used in the Discussion Draft. As a result of this greater resolution, a larger proportion of Central City trees were captured in the analysis. The 2014 data consistently captures smaller and individual trees, whereas 2007 data primarily recognized only medium and large trees or collections of trees.

Therefore the existing tree canopy included in this draft is higher than in the Discussion Draft. Only a portion of the difference in estimated tree canopy between 2007 and 2014 can be attributed to growth. The large majority of this increase is a result of the improved methodology and detail of the 2014 analysis. The estimated existing Central City tree canopy increased from 183.9 acres in the Discussion Draft to 339.4 acres in this draft, an increase of 155.5 acres. The 2014 data represents a far more accurate estimate of existing tree canopy and provides a more detailed understanding of existing conditions in the Central City.

The approaches used to estimate Baseline Scenario future tree canopy cover within rights-of-way (ROW), on tax lots, and in parks and public spaces are described below.

a. Baseline right-of-way tree canopy

This portion of the analysis involved estimating the expected increase in street trees as a result of existing policies and regulations. For the purposes of this analysis, it is assumed in most instances that existing street tree canopy will remain constant, recognizing that existing street trees will grow, die, and be replanted in a dynamic equilibrium. However, in the Pearl and South Waterfront subdistricts, which have recently undergone extensive redevelopment, street trees are still small and are expected to grow over time. For these subdistricts the baseline scenario incorporates estimates of future street tree canopy when trees are fully grown. This “tree canopy capacity” estimate is based on the existing planting spaces and planting strip codes referenced in the next section. Modeled ROW canopy capacity replaces existing ROW canopy in these subdistricts.

As noted above, it is understood that many ROW trees will not reach full maturity by 2035 and this mature canopy capacity extends beyond the 20-year plan timeframe.

i) ROW tree data

BES provided data on existing street trees and potential street tree planting spaces in the Central City for use in this analysis. The BES street tree survey, conducted between 2010 and 2014, identifies the number of planting spaces with existing trees and the number of potential planting spaces by street address (see TC-Table 1).

TC-Table 1. Existing and Potential ROW Planting Spaces by Subdistrict

Geography	Area (acres)[1]	Existing (Planted) ROW Planting Spaces	Potential ROW Planting Spaces, Total	Potential ROW Planting Spaces, w/o A & B Strips[2]	Total ROW Planting Spaces	Existing Stocking Level[3]
Central Eastside	706	2,071	2,167	1,354	3,425	60%
Lloyd District	385	1,600	516	474	2,074	77%
Lower Albina	138	141	187	126	267	53%
Downtown	222	1,748	579	510	2,258	77%
Goose Hollow	175	793	375	325	1,118	71%
Old Town/Chinatown	130	939	184	152	1, 091	86%
Pearl District	277	1,795	482	380	2,175	83%
South Downtown/University	218	915	81	76	991	92%
South Waterfront	177	483	155	116	599	81%
West End	95	639	355	319	958	67%
Central City Total	***2,523***	***11,124***	***5,081***	***3,912***	***15,036***	***74%***

[1] Does not include water.

[2] Note: The Urban Forestry Program recently changed the City's planting standards such that planting in spaces less than 3' wide ("A strips") or in spaces less than 4' wide that would require a concrete cutout ("B strips") is no longer allowed. Accordingly, potential planting spaces in A strips and in B strips that need a cutout are not included. In addition, because the data were collected by address rather than at block scale, the identified planting spaces may overestimate actual spaces.

[3] Based on data collected between 2010 and 2014.

The BES survey assigns planting strip codes that reflect planting strip width and the presence or absence of overhead high voltage wires. Planting strip codes are associated with different tree size categories (small, medium, or large) that are appropriate to plant in that space. The canopy areas associated with small, medium, and large trees (shown in TC-Table 2) are based on categories provided by Portland Parks and Recreation, Urban Forestry program.

These three tree size categories are a proxy for the more diverse range of tree shapes and sizes that exist currently and will be planted in the future. The BES survey also denotes planting strips and sidewalk corridors that are too narrow for potential tree plantings. These records were assigned no potential future tree plantings in this analysis.

This information is summarized in TC-Table 2.

TC-Table 2. Planting Strip Codes and Tree Size

Planting Strip Code[1]	Planting Strip Width[1]	High-Voltage Overhead Wires[1]	Potential Tree Size[2]	Potential Tree Canopy Diameter[2]	Potential Tree Canopy Area (sq ft)
A	2.3-2.9'	with or without	No Tree	0	0
B	3.0-3.9' – concrete cutout needed	with or without	No Tree	0	0
B	3.0-3.9' – concrete cutout not needed	with or without	Small	20'	314
C	4.0-5.9'	without	Medium	40'	1,256
D	4.0-5.9'	with			
F	6' and greater	with			
E	6.0-8.4'	without	Large	60'	2,826
G	8.5' and greater	without			
X	<2.3' OR sidewalk corridor <8.5'	with or without	No Tree	0	0
MS	Based on average planting strip code[3]				
U/UC	Unspecified	Unspecified	Based on average tree size by subdistrict[4]		

[1] BES, Planting Strip Guide For Inspectors 2014.

[2] Urban Forestry, Street Tree Inventory Data Available Site Codes; City of Portland Urban Forestry Street Tree Planting Standards (updated Feb 10, 2016); Urban Forestry, personal communication.

[3] MS code indicated an address with more than two frontages; an A-X planting strip code was assigned to each frontage and listed in a notes column during data collection. This analysis used the average tree size based on the A-G codes across all frontages.

[4] U/UC code indicated an unimproved site without or with a curb. This analysis assumed the average tree size based on the average planting strip width by subdistrict.

BPS conducted additional analyses to fill in data gaps for portions of the Central City 2035 planning area that BES did not canvass during the survey (approx. 9.4 percent of total addresses), or portions where BES did canvas but did not note planting strip width. Where BES did not canvas, BPS applied the average tree sizes and average number of existing and potential tree planting spaces per tax lot for each base zone to estimate the number of planting spaces. This information is presented in Appendix B at the end of this document.

ii) Baseline right-of-way tree canopy associated with development and redevelopment

Estimating how ROW tree canopy might change with anticipated development and redevelopment in the Central City was based on information from the City's recently updated BLI. The BLI identifies vacant and underutilized lots where development or redevelopment is expected to occur between now and 2035. TC-Table 3 shows the estimated number of existing street trees and potential planting spaces associated with the vacant and underutilized BLI sites. It is interesting to note that the potential ROW planting spaces associated with these BLI sites represents approximately 33 percent of the total potential planting sites in the Central City.

TC-Table 3. Existing and Potential Planting Spaces Associated with BLI Sites, by Subdistrict

Geography	Subdistrict Area (acres)	BLI Sites Area (acres)	Existing (Planted) Planting Spaces Abutting BLI Sites	Potential Planting Spaces Abutting BLI Sites	Total Planting Spaces Abutting BLI Sites	Total Potential ROW Planting Spaces	BLI Potential Planting Spaces as % of Total Potential ROW Planting Spaces
Central Eastside	706	110	434	447	881	1,354	33%
Lloyd District	385	77	505	198	703	474	42%
Lower Albina	138	3	13	25	38	126	20%
Downtown	222	21	207	99	306	510	19%
Goose Hollow	175	24	194	127	321	325	39%
Old Town/ Chinatown	130	19	203	29	232	152	19%
Pearl District	277	67	250	166	416	380	44%
South Downtown/ University	218	37	225	48	273	76	63%
South Waterfront	177	91	152	54	206	116	47%
West End	95	13	110	109	219	319	34%
Central City Total	***2523***	***461***	***2293***	***1302***	***3595***	***3,912***	***33%***

For the Baseline Scenario, it is assumed that the existing street trees associated with BLI-designated vacant and underutilized sites in the Central City will be retained or replaced. It is also assumed that 70 percent of the potential planting spaces associated with Central City BLI-designated vacant and underutilized sites, when they are developed, will be planted with trees according to the adjacent planting strip category. It is further assumed that properties with "A strips" or "B strips" requiring cutouts will be upgraded through development so that they are wide enough to accommodate a tree.

Only 70 percent of the potential planting spaces associated with BLI sites were assumed to be planted due to the variety conflicts and constraints that affect street tree planting. A 30 percent constraint was applied to account for known and potential constraints to street tree planting and root growth. A key constraint is the impact of underground vaults and voids. Other constraints include driveways and curb cuts, conflicts with other sidewalk furnishings, existing water facilities (mains, meters, and hydrants), and conflicts with trees on freight streets. Some of these constraints can be addressed, at least in part, through effective planning and design but, in general, they represent a challenge to street tree planting on development sites. This constraint is also intended to help account for potential over-estimates in the BES ROW tree planting space survey data, as noted in TC-Table 1.

To inform development of the 30 percent constraint BPS evaluated the extent of sub-surface encroachment associated with vaults and voids, using GIS data layers for tax lots and vaults and voids. This analysis involved generating hypothetical average sidewalk corridor widths by subdistrict. Estimated existing encroachments between underground vaults and sidewalk corridors vary by

subdistrict, and range from 0 to 32 percent. This included an assumed 5 foot buffer around existing vaults and voids. It is not possible to determine the extent to which these existing encroachments affect potential tree planting spaces as the data does not include specific locational information for the potential tree planting spaces. It is also not possible to predict future encroachments associated with new vaults and voids. However, based on anecdotal information from PBOT staff, vaults are an increasingly-common barrier to planting street trees, as utility infrastructure is more frequently placed in the right-of-way to serve more dense mixed-use development.

In addition to the 30 percent constraint described above, the street tree canopy estimates have been further adjusted to reflect constraints associated with buildings that abut the sidewalk corridor. Existing base zones throughout much of the Central City allow 100 percent building coverage (i.e. lot-line to lot-line). These zones generally do not require landscaping except where a property abuts a residential zone. Buildings constructed up to the sidewalk typically keep the street trees from growing to their full capacity. For purposes of this analysis, ROW tree canopy estimates have been reduced by 20 percent for medium trees and 30 percent for large trees located in specified zones. These adjustments were derived assuming a typical 12 foot wide sidewalk corridor and calculating the appropriate canopy reduction in the area of a circle/circle segment.

Street trees abutting lot-line-to-lot-line development.

b. Baseline investments in street tree planting

The Baseline Scenario reflects an assumption that the City will continue a proactive level of investment in street tree planting in the Central City between now and 2035. It is assumed that the City will periodically offer trees to be planted free of cost, at the adjacent property owner's discretion. And, per current city policy, the ongoing maintenance for the tree is the responsibility of the adjacent property owner.

The additional increment of tree canopy associated with this proactive investment in street tree planting reflects response rates to recent BES planting efforts in the Central Eastside. For the Baseline Scenario it is assumed that the City will invest in one additional planting initiative or project, per Central City subdistrict, over the Central City 2035 planning horizon. This assumption takes into consideration the number of subdistricts in the Central City and that City-sponsored street tree planting projects will also be taking place outside the Central City during the same time period.

It is further assumed that each planting project will involve reaching out to property owners and offering to provide and plant trees at no cost during two consecutive years. Based on the recent planting effort in the Central Eastside, it is expected that each project would result in planting a total of 20 percent of the potential planting spaces over the two year period, on average, for each subdistrict. This analysis does not include potential planting spaces abutting BLI lots, which were accounted for in section b. ii, above.

Based on recent Urban Forestry Program policy, potential planting spaces less than three feet wide ("A strips") as well as potential cutouts less than four feet wide ("B cutouts") were not included in this analysis.[1] This is a change from the approach used for the Discussion Draft. It should be noted that the data indicates front strip/space width, side strip/space width, and whether or not concrete removal is needed; it does not, however, differentiate whether the concrete removal is required on the front, side, or both. For the purposes of this analysis, all potential spaces less than four feet wide (B) with a "yes" in the concrete removal required column were removed. This may be an overestimate of actual B cutout spaces.

Staff conducted a preliminary estimate of planting and establishment costs associated with continuing current street tree planting efforts. Based on recent contractor estimates provided by BES staff, assuming 20 percent of the potential planting spaces associated with non-BLI lots are planted with trees, the cost of procuring, planting and servicing trees during a three-year establishment period would be approximately $648,585, or roughly $1,242 per tree. This includes labor, materials, soil amendment, tree stock, root barrier, and concrete cut costs (including the cut itself, the permit, and concrete disposal costs).

c. Baseline tax lot tree canopy

For the Baseline Scenario, existing canopy on tax lots is assumed to remain constant in "dynamic equilibrium," except for tree canopy on Central City BLI-designated vacant and underutilized sites. These sites are expected to develop or redevelop during the Central City 2035 planning horizon, which will affect tree canopy on tax lots as well as in the ROW.

Low and high estimates of potential future tree canopy on BLI sites after development were produced for each base zone within the different Central City subdistricts. Estimates reflect the area of these sites and existing zoning (Title 33) and Title 11 tree density (planting) standards. Existing tree canopy on BLI sites

[1] To account for A and B cutout potential planting spaces associated with properties that have more than two sides (given an "MS" code), an equal distribution of potential planting spaces was assumed for each side. For MS coded properties that lacked planting strip codes, the average percent of A and B cutout spaces was applied. These estimated MS A and B cutout potential planting spaces were removed from the analysis.

was subtracted from the modeled low and high range estimates by subdistrict to estimate the incremental future change in tree canopy associated with anticipated future development and redevelopment.

For BLI vacant and underutilized parcels that are zoned CX, EX, IG1, or IH, the low potential canopy estimate is zero, as these zones have no minimum landscaping requirement and allow a maximum building coverage of 100 percent (see TC-Table 4 below). In addition, Title 11 Tree Preservation and Tree Density (planting) standards do not apply in these zones. The high estimates reflect average existing tree canopy on fully developed (non-BLI) sites in these zones. The high estimate assumes tree canopy could be maintained through a combination of voluntary tree preservation and planting as sites develop or redevelop.

TC-Table 4. Existing Zoning and Tree Standards, by Zone

Zone	Total Area of BLI Sites (acres)	Area as % of Total BLI Sites	Max Building Coverage Limit (Title 33)	Min Landscaped Area (Title 33)	Min Landscaping Abutting R Zoned Lot (Title 33)	Min Building Setback – Street Lot Line (Title 33)	Max Building Setback – Transit Street or Ped District (Title 33)	Tree Density (Planting) Standard (Title 11)
CX	249.7	54.21%	No limit	None	5 ft. at L3	0	10 ft.	Exempt
EX	77.9	16.91%	100% of site area	None	5 ft. at L3	0	10 ft.	Exempt
IG1	76.4	16.58%	100% of site area	None	5 ft. at L3	0	None	Exempt
RX	24.4	5.29%	100% of site area	None		0	10 ft.	20%
IH	9.8	2.13%	100% of site area	None	10 ft. at L3	5 ft.	None	Exempt
EG2	9.3	2.03%	85% of site area	15% of site area	10 ft. at L3	25 ft.	None	10% (industrial) 15% (commercial)
EG1	5.7	1.24%	85% of site area	15% of site area	5 ft. at L3	5 ft.	10 ft.	10% (industrial) 15% (commercial)
RH	4.4	0.96%	85% of site area	15% of site area		0	20 ft.	20%
R1	2.4	0.51%	60% of site area	20% of site area		3 ft.	20 ft.	20%
CG	0.7	0.15%	85% of site area	15% of site area	5 ft. at L3	0	10 ft.	15%

The low and high tax lot canopy estimates for each of these zones were adjusted to account for zoning provisions that require a minimum landscaped area along the tax lot abutment with residential parcels.

The landscaping standard abutting residential is L3, which requires one large tree per 30 linear feet, one medium tree per 22 linear feet, or one small tree per 15 linear feet. It is assumed that canopy covers 100 percent of the required landscaped area along the abutting residential tax lot. This increment is incorporated into the low and high estimates for each tax lot.

For BLI-designated vacant and underutilized parcels that are zoned EG1 and EG2, the low baseline future tree canopy estimate is 10 percent of the total tax parcel area and the high estimate is 15 percent. This reflects the existing 85 percent maximum building coverage and 15 percent minimum landscaping requirements in the Zoning Code for EG1 and EG2 zones. The City's L1 landscaping standard applies in these zones and establishes tree planting requirements based on the width of the landscaped area and tree size. Tree canopy coverage will vary depending on the width of landscaped area, with a higher percentage of canopy cover for narrower landscaped areas. These assumptions also reflect Title 11 Tree Density standards which require 10 percent minimum future tree area for industrial sites and 15 percent for commercial/retail/office/mixed use development or a fee in lieu of planting. Revenues from these fees go to the City's Tree Fund which the City uses to plant trees within the same watershed where development took place. It is assumed that trees preserved to meet Title 11 Tree Preservation Standards would contribute to meeting Tree Density standards as well.

For BLI parcels that are zoned RX, R1, and RH, the low baseline future tree canopy estimate is 10 percent of the tax lot area and the high estimate is 20 percent of the tax lot area or the average existing tree canopy on fully developed (non BLI) sites in these zones, whichever is greater. This reflects the existing 20 percent minimum landscaping requirement for R1 and 15 percent minimum landscaping requirement for RH. The City's L1 landscape requirements also apply in the R1 and RH zones. In addition, Title 11 tree density standards require a 20 percent minimum future canopy coverage for sites in multi-family residential zones or payment of a fee in lieu of planting to the City's Tree Fund. The low baseline estimate reflects an assumption that many developers may choose to pay a fee in lieu of meeting density standards given relatively small sites and block sizes and relatively high property values.

In addition to the base zone-specific landscaping requirements, the Zoning Code also requires that development projects on sites with river frontage meet specific planting requirements within the existing 25-foot Willamette River setback. An additional 25 feet of river frontage serves as a proxy for the area between ordinary high water and top of bank. This is added to the 25-foot river setback area for a total of 50 feet of river frontage that is assumed for BLI-designated Central City lots abutting the Willamette River.

An additional increment of tree canopy was estimated for the river frontage on BLI-designated vacant and underutilized tax lots along the Willamette River that are not owned by Portland Parks and Recreation (PP&R-owned lots will be addressed below). This tree canopy is included in the low and high baseline future tree canopy estimates. For the low estimate, the tree canopy increment is assumed to be 40 percent of the area within the riverbank and river setback. For the high estimate, the increment is assumed to be 80 percent of the area within the riverbank and setback. This canopy range is based on the current river setback landscaping standard of one tree for every 20 feet of river frontage, acknowledging that, in many cases, trees will be clustered or a view corridor will need to be maintained. Existing tree canopy is subtracted from these amounts to calculate the incremental change associated with development or redevelopment. River setback landscaping requirements are in addition to any landscape requirements of other chapters of Title 33.

d. Trees on buildings

Throughout most of the Central City, it is challenging to incorporate trees on development sites given the density of development, zoning that allows 100 percent building coverage, and relatively small city blocks. That said, it is becoming more common for new projects to incorporate trees on buildings. Trees can be incorporated into shared areas atop podiums, on rooftops, and on balconies. A number of recent projects in the Central City have incorporated trees on buildings and it is important to recognize this growing trend. Therefore an estimate of trees placed on buildings in future projects was incorporated into the Baseline Scenario.

In determining this estimate, it was assumed that Central City non-Open Space BLI vacant and underutilized sites of at least 0.45 acres (i.e., half a typical downtown block) would be most likely to provide adequate podium and/or roof area to accommodate trees. All BLI sites at least 0.45 acres in size were identified and aggregated to determine the total area by subdistrict. Given that not all new buildings will incorporate trees it was assumed that a fraction of the area of the eligible sites would be available to incorporate trees on to new buildings (20 percent of area of non-industrial eligible parcels and 10 percent of the area of eligible industrial parcels, due to their unique project needs and design) The percentage was applied to the aggregate land areas, rather than individual parcels, to account for the fact that it is not possible to know which specific parcels will incorporate trees on buildings.

Using the parcel area estimates, the estimate of actual tree canopy was then calculated. As a first step an estimated 85 percent building coverage was applied to the parcel area to represent an expected amount of roof area. Based on the estimated building coverage, a Baseline tree canopy estimate was calculated. The Baseline Scenario assumed 5 percent tree canopy coverage on buildings, once these trees reach maturity.

e. Optional front building setbacks for new development

Current Title 33 Required Building Line standards allow buildings to be set back up to 12 feet from the street lot line for 75 percent of the lot line. In other words, the Required Building Line standards define the parameters for optional building setbacks on development sites. In all of the Central City, the code requires the optional setback to serve as an extension of the sidewalk. Within the South Waterfront Subdistrict, Title 33 allows an applicant to decide if the optional setback will serve as an extension of the sidewalk or be landscaped according to the L2 landscape standard. The Required Building Line standards are silent on the function of an optional setback for some parts of the Central City, such as industrial zones.

It is expected that most property owners and developers would not choose a setback given impacts on developable area and Portland's relatively small city blocks (200 feet x 200 feet). For the purpose of this exercise, it is assumed that 25 percent of new BLI developments would include a front setback. It is also assumed that constraints associated with vaults and voids and other physical impediments to street tree planting will continue to play a role in these areas.

An optional setback, whether an extension of the sidewalk or vegetated, would increase the space available for street tree canopy. Specific assumptions regarding street tree canopy include the following:

- 25 percent of the small potential planting spaces associated with the primary frontage of BLI sites, by subdistrict, would be able to accommodate medium trees. This would likely require the use of modular suspended pavement systems or structural soils to increase soil volume in narrow planting spaces.
- 25 percent of the medium potential planting spaces associated with the primary frontage of BLI sites in zones allowing 100 percent maximum building coverage and that have no landscaping requirements, by subdistrict, will regain the 20 percent canopy constraint subtracted in the "Baseline right-of-way tree canopy associated with development and redevelopment" analysis discussed in section b, ii above.
- 25 percent of the large potential planting spaces associated with the primary frontage of BLI sites in zones that allow 100 percent maximum building coverage and that have no landscaping requirements, by subdistrict, will regain 20 percent of the 30 percent canopy constraint subtracted in the "Baseline right-of-way tree canopy associated with development and redevelopment" analysis discussed in section b, ii above.
- The 30 percent constraint on planting due to vaults/voids and other constraints still applies.

Given the constraints on planting trees on Central City streets and tax lots, establishing tools and approaches to encourage expanded subsurface soil volumes is recommended. This will also be important for trees planted in setbacks that are required to serve as an extension of the sidewalk. This issue is addressed further in the Central City 2035 Plan future tree canopy scenario.

An optional setback would allow for additional tree canopy within the setback itself. For 25 percent of the BLI lots in each subdistrict, it is assumed that:

- A setback would be incorporated into future development on one frontage of the property, and
- One small tree would be planted within the setback for each of those sites. To account for both the extension of sidewalk and the landscaped setback options in the South Waterfront subdistrict, it was assumed that two small trees would be planted within the setback for each BLI site in the South Waterfront subdistrict.

It should be noted that the number of trees in the setback area may be more or less in certain areas or zones within the Central City. For example, the setback area in industrial zones is often used for storage and loading and may be less likely to have a tree.

f. Baseline tree canopy in existing parks and public spaces

To develop tree canopy estimates for existing City public parks and public spaces, Portland Parks and Recreation (PP&R) analyzed existing tree canopy and developed tree canopy ranges for 2035.

PP&R's Planning, Urban Forestry, Zone, and City Nature East staff conducted a tabletop exercise, using Google Maps (and Street View), Bing, City of Portland GIS data, and current canopy cover data in Central City parks. Staff viewed images of each existing Central City park and property boundaries, examined existing canopy cover at each Central City park, and discussed existing and future tree health/species mix, maintenance issues, programming issues, and unresolved issues from various perspectives.

From this exercise PP&R staff developed low and high estimates of future tree canopy cover for each existing Central City park. The results of this exercise are robust in that they reflect diverse professional opinions and perspectives among the PP&R program staff.

PP&R staff adjusted the future canopy estimates slightly between the Discussion Draft and the Proposed Draft to account for changes in existing canopy identified in the 2014 LiDAR data.

The latest PP&R future canopy estimates are presented in TC-Table 5.

TC-Table 5. Baseline Future Tree Canopy Estimates for Existing PP&R Parks/Open Spaces

Central City Subdistrict	Existing Park Area (acres)	Existing Park Canopy - 2014 (acres)	Baseline Future Canopy – LOW (acres)	Baseline Future Canopy – HIGH (acres)	Difference between LOW and Existing (acres)	Difference between HIGH and Existing (acres)
Central Eastside	9.09	2.1	2.47	3.00	0.37	0. 90
Lloyd District	4.54	3.43	2.72	3.33	-0.71	-0.10
Lower Albina	0.00	0.00	0.00	0.00	0.00	0.00
Downtown	23.12	8.95	8.60	11.18	-0.35	2.23
Goose Hollow	0.00	0.00	0.00	0.00	0.00	0.00
Old Town/Chinatown	11.02	3.87	4.07	4.78	0.19	0.91
Pearl District	8.14	2.57	2.93	3.53	0.36	0.96
South Downtown/University	17.58	7.61	8.44	9.69	0.84	2.08
South Waterfront	6.62	0.77	1.81	2.14	1.05	1.37
West End	0.00	0.00	0.00	0.00	0.00	0.00
Central City Total	***80.11***	***29.31***	***31.05***	***37.65***	***1.74***	***8.34***

For most Central City subdistricts, future canopy estimates would maintain or increase tree canopy. For a couple of subdistricts, the projected future canopy would result in a reduction in existing tree canopy. For these subdistricts PP&R identified parks with existing canopy levels that are higher than optimal to meet park use and management objectives. PP&R projected that future canopy levels in these subdistricts could be lower than existing levels.

It should be noted that potential specific tree-related plans or actions in Central City parks would be part of larger master planning efforts and will need to be considered carefully, with input from different PP&R program staff, other bureaus, and other stakeholders.

g. Baseline Scenario - Results

The Baseline Scenario projects an incremental increase in tree canopy across the Central City of 14 to 72.4 acres (an additional 0.5 to 2.8 percent), compared to existing tree canopy. Future canopy in the Baseline Scenario is projected to reach 14 to 16.3 percent. Tree canopy is also projected to increase incrementally in most subdistricts, though the increases vary by subdistrict. In a few subdistricts, tree canopy is projected

to decrease in the “Low” estimate. Only one subdistrict (Goose Hollow) is projected to decrease in the “High” canopy estimate.

The Baseline Scenario illustrates that much of the projected future tree canopy exists today and that substantial variability in the tree canopy across Central City subdistricts is expected to continue. A few subdistricts would continue to have less than ten percent tree canopy into the future, while others are projected to contain over twenty percent canopy coverage by 2035 given anticipated future growth under current regulations and programs.

Lower Albina is currently characterized by the lowest percentage and amount of tree canopy of any subdistrict and would be expected to continue to be so in both the Low and High Baseline estimates. The Central Eastside is by far the largest subdistrict, however it has the second lowest percentage of tree canopy in the Central City. In contrast, Goose Hollow, Downtown, and South Downtown/University subdistricts together are roughly equivalent in area to the Central Eastside Subdistrict and are characterized by roughly three times the tree canopy (in terms of percentage). A relatively large increase in tree canopy is projected for the Central Eastside, but the increase still represents a relatively small portion of this sizeable subdistrict.

The largest projected increases in tree canopy are associated with street tree growth that was estimated for the recently redeveloped Pearl District and the South Waterfront subdistricts. The next largest projected increase in tree canopy is associated with street trees planted in conjunction with development. Encouraging the provision of increased subsurface soil volumes for trees in conjunction with new development coverage would support this estimated additional canopy increment.

Tree canopy in most existing parks is projected to be maintained or to increase. Tree canopy in some parks may be reduced in the future, as demonstrated by the negative values in the “Low” estimate for parks in two subdistricts in TC-Table 6 below. Although existing parks are expected to maintain a relatively high percentage of tree canopy, parks make up a relatively small proportion of the total area of the Central City and its subdistricts.

The most substantial loss of tree canopy was projected for trees on tax lots expected to develop, as shown in the “Low” BLI canopy estimate. Tax lot tree canopy losses were projected for most Central City subdistricts. The largest losses in tree canopy in both BLI canopy estimates are projected for the Lloyd District, South Downtown/University, and Goose Hollow subdistricts. This projection reflects current zoning and Title 11 regulations, which allow lot-line-to-lot-line development and do not apply landscaping, tree preservation, or tree density (planting) requirements in zones comprising much of the Central City. Optional setbacks and trees on buildings are projected to add a small amount of tree canopy in the Baseline scenario. Additional tree growth in rights-of-way by expanded setbacks, trees on tax lots within the set back, and trees placed on buildings (e.g. podiums, rooftops, etc.) are each expected to add approximately two acres in the Central City.

TC-Table 6 presents the results of the Baseline Future Tree Canopy Scenario analyses.

TC-Table 6. Baseline Future Tree Canopy Scenario

				PROJECTED CHANGES IN TREE CANOPY (from existing canopy)										BASELINE FUTURE TREE CANOPY SCENARIO			
				ROW				BLI TAX LOTS				EXISTING PARKS		TOTAL					
Central City District	District Area[1] (acres)	Existing Canopy (2014) (acres)	Existing Tree Canopy as Percent of Total District	Investment: Street Tree Planting[2] (acres)	Districts with Recently Planted Street Trees (acres)	Street Trees Associated with New Development[3] (acres)	Optional Setbacks - Additional ROW Canopy (acres)	Optional Setbacks - Trees in Setback (acres)	Trees on Buildings (acres)	LOW[4] (acres)	HIGH[4] (acres)	LOW[5] (acres)	HIGH[5] (acres)	Total Canopy Change - LOW (acres)	Total Canopy Change - HIGH (acres)	Baseline Tree Canopy - LOW (acres)	Baseline Tree Canopy - HIGH (acres)	Baseline Tree Canopy - LOW (% of District Area)	Baseline Tree Canopy - HIGH (% of District Area)
Central Eastside	706	53.0	7.5%	1.6		2.6	1.0	0.4	0.2	-5.4	1.5	0.4	0.9	0.8	8.2	53.9	61.3	7.6%	8.7%
Lloyd District	385	61.2	15.9%	1.2		2.7	0.2	0.3	0.5	-10.6	-2.0	-0.7	-0.1	-6.4	2.9	54.8	64.1	14.2%	16.6%
Lower Albina	138	8.3	6.1%	0.4		0.4	0.0	0.0	0.0	-0.2	0.0	0.0	0.0	0.7	0.9	9.1	9.2	6.6%	6.7%
Downtown	222	45.3	20.4%	2.0		1.4	0.1	0.1	0.1	-2.5	-1.6	-0.3	2.2	0.8	4.3	46.1	49.6	20.7%	22.3%
Goose Hollow	175	36.9	21.2%	0.5		0.7	0.4	0.2	0.1	-6.3	-2.1	0.0	0.0	-4.3	-0.1	32.6	36.8	18.7%	21.1%
Old Town/Chinatown	130	21.8	16.7%	0.6		0.3	0.0	0.1	0.1	-1.7	-0.7	0.2	0.9	-0.4	1.4	21.4	23.2	16.5%	17.8%
Pearl District	277	28.7	10.4%	1.2	21.7	2.0	0.2	0.2	0.5	-2.2	3.4	0.4	1.0	24.0	30.1	52.7	58.8	19.0%	21.3%
South Downtown/University	218	53.1	24.3%	0.1		0.7	0.0	0.2	0.2	-8.5	-2.7	0.8	2.1	-6.4	0.6	46.7	53.7	21.4%	24.6%
South Waterfront	177	16.2	9.1%	0.3	4.3	0.5	0.0	0.2	0.7	-4.2	13.2	1.0	1.4	2.9	20.7	19.1	36.9	10.8%	20.8%
West End	95	14.8	15.5%	1.1		1.6	0.1	0.1	0.0	-0.4	0.6	0.0	0.0	2.5	3.6	17.3	18.3	18.2%	19.2%
Central City Total	***2,523***	***339.4***	***13.5%***	***9.1***	***26.1***	***13.0***	***2.1***	***1.9***	***2.4***	***-42.0***	***9.7***	***1.7***	***8.3***	***14.2***	***72.5***	***353.6***	***411.8***	***14.0%***	***16.3%***

1 Water not included

2 Additional canopy associated with city investment in street tree planting. The model assumes 20% of potential planting spaces in the ROW (not adjacent to BLI sites) would be planted by 2035 as a result of proactive city investment.

3 Additional canopy due to planting potential ROW planting spaces associated with development/redevelopment (BLI sites).

4 BLI tax lot analysis reflects canopy impact from zoning, landscape requirements, and landscaping the river setback.

5 Reflects PP&R preferred future tree canopy ranges for existing PP&R managed parks.

2. Central City 2035 Plan Future Tree Canopy Scenario and Tree Canopy Targets - Methodology and Results

The Central City 2035 Plan Future Tree Canopy Scenario (Central City 2035 Scenario) builds on the Baseline Scenario described above. Assumptions have been added or revised to reflect changes in policies, regulations, and levels of investment that are contained or called for in this Proposed Draft. Tree canopy projections from the Baseline Scenario serve as the starting point for the Central City 2035 Scenario; additional increments of canopy change were modeled as follows.

a. Streetscape improvements for the Green Loop

The Proposed Draft policies call for development of the Green Loop as a signature set of pedestrian and bicycle pathways and connections between public spaces, parks and the river. Development of the Green Loop will require substantial City investment in street tree planting and innovative streetscape improvements that will generate tree canopy along its alignment. Improvements could include planted medians and bulb-outs, lane or street conversions, and removal of pavement and tree planting along streets that are excessively wide or that have underutilized pockets (e.g., SE 7th Avenue and SE Washington Street). In addition to substantial City investment, development of the Green Loop is expected to be catalyzed through major development projects (e.g., the U.S. Postal Service site), major infrastructure projects (e.g., the NE 7th/8th Avenue I-84 bicycle and pedestrian bridge), and regional grants for multi-modal transportation.

To model anticipated increase in tree canopy associated with the Green Loop, it was assumed that 70 percent of the potential planting spaces along the Green Loop frontages associated with non-BLI lots would be planted during the Central City 2035 planning horizon. This reflects the 30 percent constraint applied in the Baseline Scenario, which is intended to account for an array of physical constraints on street tree planting. It was also assumed that trees would be planted in potential planting spaces along four of the east-west connector streets within the Central City boundary: SW Salmon Street, NW Flanders Street, SE Salmon Street, and NE Multnomah Street. In areas with multiple alignment options, average canopy capacity across all options was used.

Tree sizes and resulting canopy area were assigned based on planter strip size. Potential planting spaces that are less than three feet wide and those less than four feet wide that would require cutouts were not included in the analysis. Similar to the Baseline Scenario, the additional 20 percent canopy reduction for medium trees and 30 percent canopy reduction for large trees was applied in zones that allow lot-line to lot-line development. It should be noted that the Green Loop tree canopy modeling was based on a preliminary concept and is subject to change.

In addition to canopy associated with planting street trees in potential planting spaces along the Green Loop alignment, this scenario component assumes implementation of innovative street designs envisioned as part of the Green Loop and “street hierarchy & development character” concepts outlined in Volume 1 of the Proposed Draft (shown in TC-Figure 3 and TC-Figure 4). The street hierarchy and development character concept is intended to be more intentional about street character and includes a “Flexible Street” designation, where visible green features, including larger canopy/spreading trees, are

encouraged. The intention of both the Green Loop and Flexible Streets designation is to create a safer, greener environment for bicyclists and pedestrians.

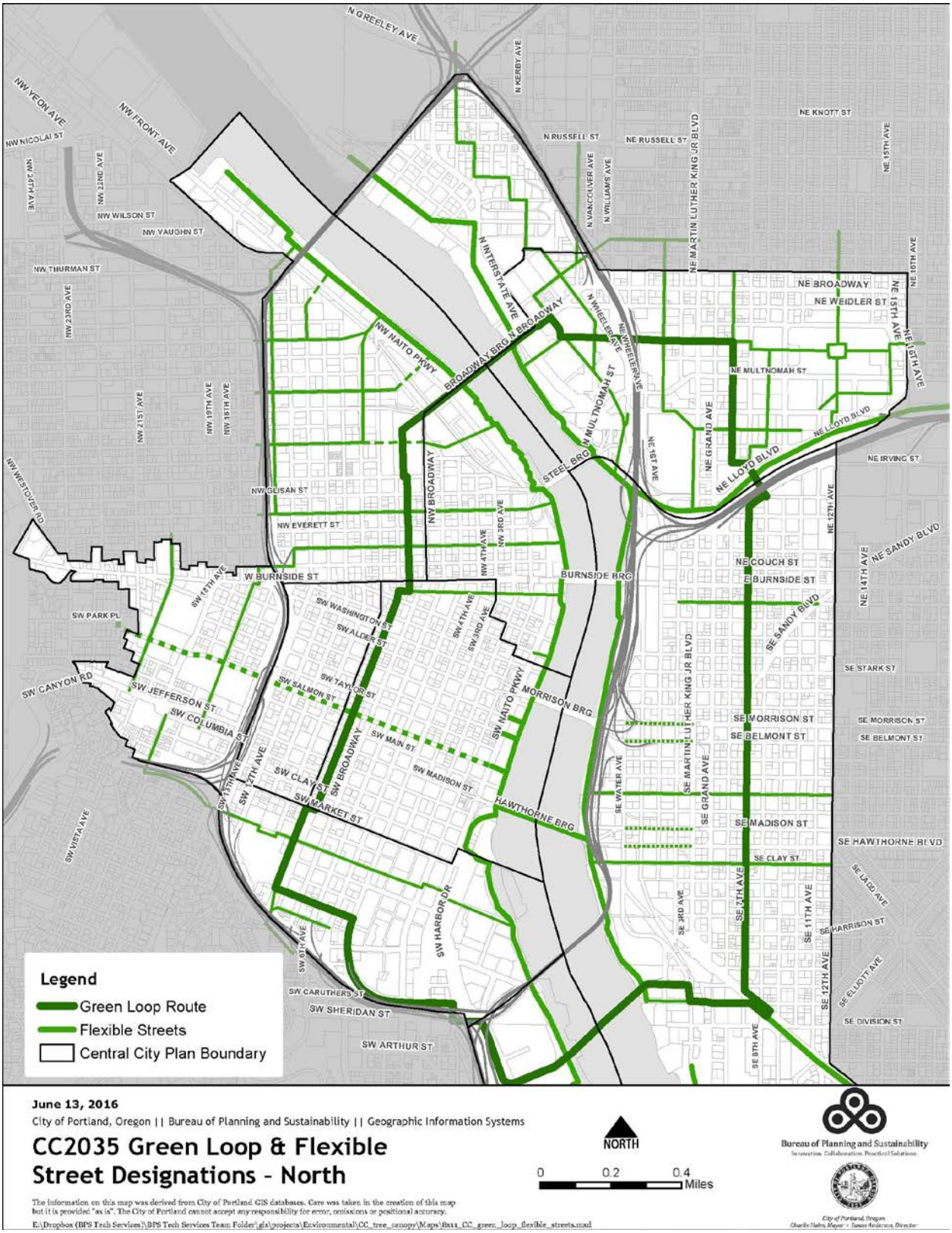
Central City 2035 policies further support these concepts and the accommodation of more trees. Policy 5.12, the Green Loop concept, calls for "innovative, park-like pedestrian environments and wildlife habitat connections" while Policy 6.10.c, Effective tree planting – Tree accommodation, encourages "wider sidewalk corridor furnishing zones and other right-of-way design elements (e.g., medians, bulb-outs) to facilitate planting and accommodation of larger canopy tree species."

Innovative street design actions might include closing off certain intersections that cross the Green Loop, allowing a large tree to be planted in the ROW; the addition of mid-block bulb-outs where larger trees could be planted; the removal of a parking lane and expansion of the sidewalk to allow for a double row of street trees; the addition of a planted median; or other innovative street designs that increase canopy.

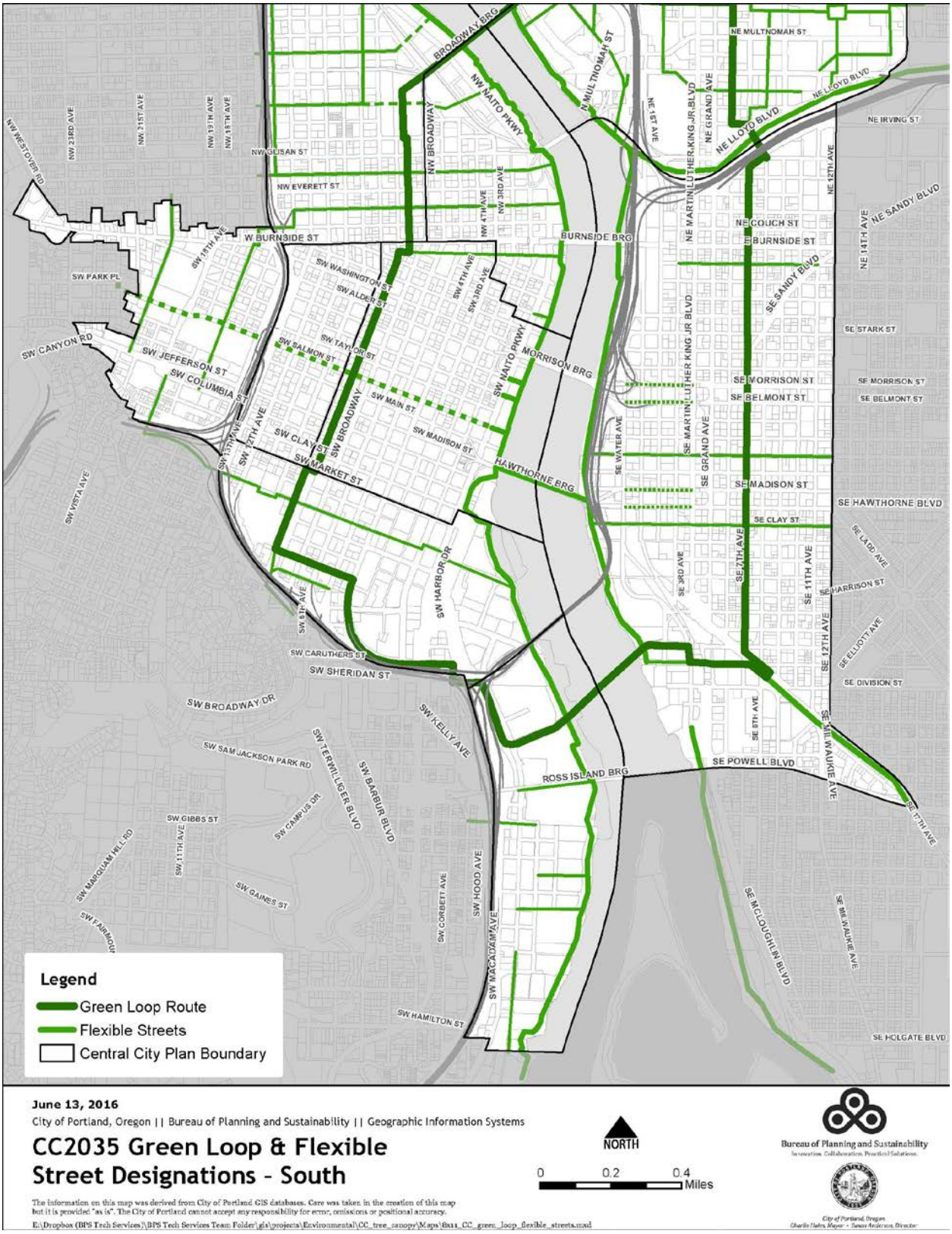
For this analysis, staff calculated the number of designated Flexible Street blocks along the Green Loop alignment, including seven east-west Flexible Street connectors (NW Flanders Street, SW Oak Street, SW Salmon Street, SW Montgomery Street, SE Ankeny Street, SE Salmon Street, and SE Clay Street), by subdistrict. The analysis excluded bridges and unbuilt connections along the Green Loop (e.g. the proposed bike/ped bridge over I-84). Average block area was then calculated by subdistrict, using the standard Central City block length of 200 feet multiplied by the standard ROW width of 60 feet.

It is not expected that every block of the Green Loop or flexible street connectors will include innovative street design elements between now and 2035. The sequencing of innovative street design related projects is likely to focus improvements in certain locations rather than distributing improvements throughout the Green Loop. As a result some blocks likely won't include new treatments for some time, while other blocks could receive fairly heavy design treatments. For purposes of this analysis, staff assumed an additional 20 percent of canopy area on half of the Green Loop and associated Flexible Street connector blocks, on average. This is roughly the canopy equivalent of adding two medium sized trees to half of the Green Loop/flexible connector blocks, or one medium sized tree to all of them.

TC-Figure 3. Central City 2035 Green Loop and Flexible Street Designations – North



TC-Figure 4. Central City 2035 Green Loop and Flexible Street Designations – South



b. Flexible street design

As noted above, Proposed Draft Policy 5.10 calls to "establish a more intentional street hierarchy with a greater diversity of street characters, distinguishing three main types: retail/commercial, boulevard and flexible." In addition to the flexible streets associated with the Green Loop, the Central City 2035 Plan's proposed street hierarchy and development character concept includes a number of other streets with a "flexible" designation. Flexible streets outside the Green Loop alignment account for just over half of the total flexible streets in the Central City. In some districts, such as Central Eastside and Downtown, the majority of flexible streets are associated with the Green Loop. However, in other districts, such as the Lloyd and the Pearl, the Green Loop flexible streets only account for a small portion of the total in the district.

Staff used the same approach to model canopy on these other flexible streets as was used for the Green Loop analysis (see section a., above). Like the Green Loop, improvements on flexible streets will require significant public investment and will likely be catalyzed by future private development and/or other infrastructure improvements.

c. Investment in street tree planting

The Central City 2035 Plan includes multiple goals and policies supporting increased tree canopy, quality pedestrian environments, and the Green Loop, as listed earlier in this report.

Additional City investment in street tree planting, over and above the Baseline Scenario, will be needed to implement these policies effectively. For this scenario it is assumed that the City will sponsor two, two-year street tree planting projects in each subdistrict by 2035, instead of the one tree planting project that was assumed for the Baseline Scenario. Like the Baseline Scenario, it is assumed that maintenance of future ROW trees will remain the responsibility of the adjacent property owner. For the Baseline Scenario it was assumed, based on previous City-sponsored tree planting projects, that one two-year planting project would fill 20 percent of the potential planting spaces with new trees. However, for this additional planting project, it is assumed that trees will be planted in 10 percent of the remaining potential planting spaces associated with non-BLI lots over the second two-year period. The shift from 20 percent to 10 percent during the second two-year planting project is intended to reflect diminishing returns noted with previous City planting efforts. As in the Baseline Scenario, potential planting spaces that are less than three feet wide and those less than four feet wide that would require cutouts were not included in the analysis.

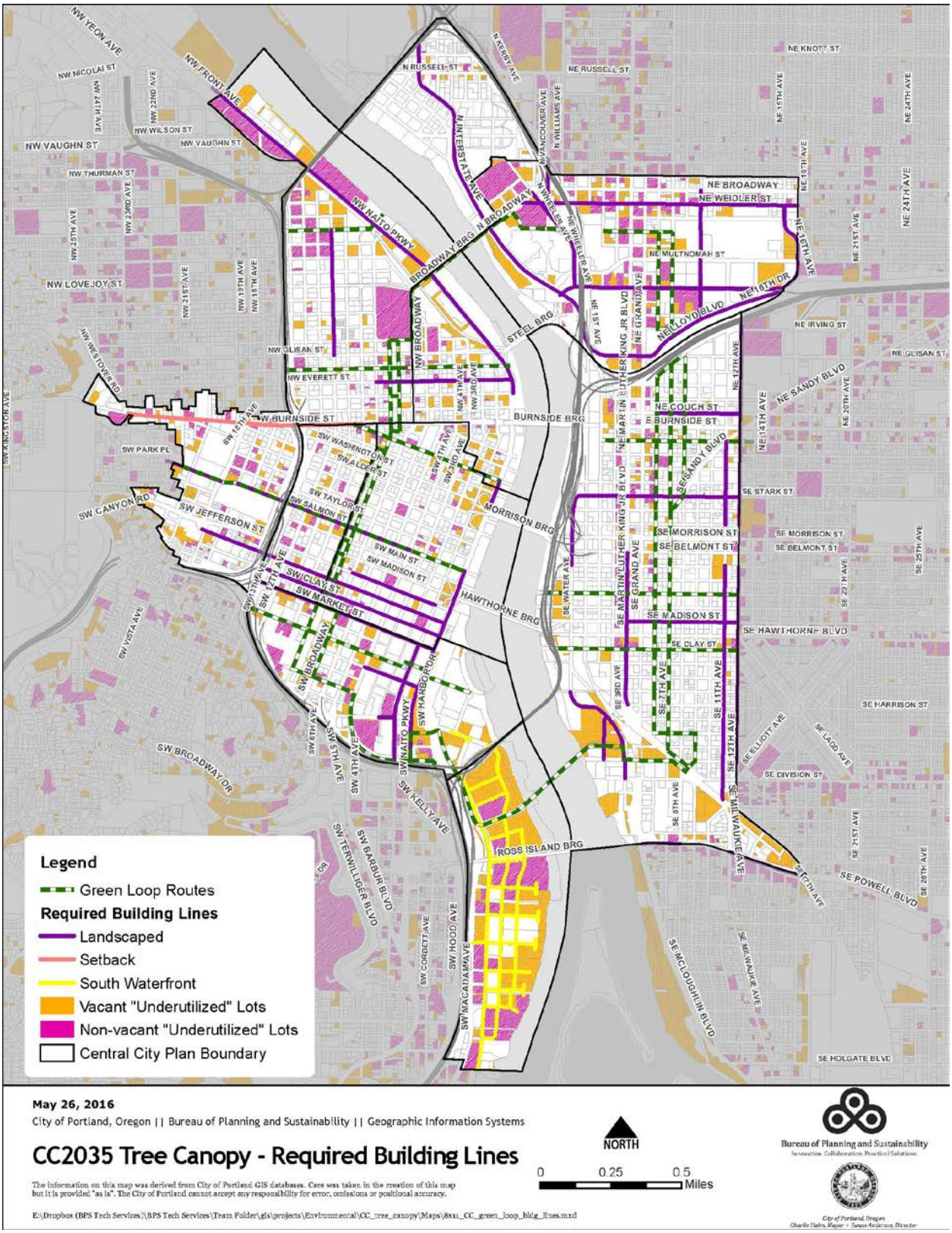
Staff conducted a preliminary analysis of planting and establishment costs associated with increased City investment in Central City street trees. Based on information provided by BES staff, it is estimated that a second planting project in which 10 percent of the potential planting spaces associated with non-BLI lots are planted would cost an additional $259,434 above the Baseline Scenario cost estimate, for a total of $908,019. This total includes the cost of procuring, planting, and a three-year establishment period for those trees, incorporating labor, materials, soil amendment, root barrier, tree stock, and concrete cut costs (including cut, permit, and concrete removal).

d. Optional Landscaped Building Setback Streets

The Proposed Draft includes revisions to the required building line standards. The revisions are intended to reflect the Street and Development Character concept from the quadrant plans. The major change is that on certain Central City streets, a front building setback, if chosen by the developer, must be landscaped. A new landscape standard for the setback area has been developed as a part of the Proposed Draft. The standard requires trees to be planted in the setback when a 12 foot setback is utilized. This requirement is incorporated into the methodology described below.

TC-Figure 5 below shows the Required Building Lines streets designated in the Proposed Draft code amendments and map. In the figure, landscape setback streets are identified.

TC-Figure 5. Central City Tree Canopy – Required Building Lines



Under the Baseline Scenario, it was assumed that 25 percent of new BLI developments would include a front setback, resulting in increased canopy from both ROW trees as well as potential new trees planted in the setback area. The Baseline Scenario further assumed that, for 25 percent of the BLI lots in each subdistrict, one small tree would be planted within the setback for each of those sites. For the Central City 2035 Scenario, it was assumed that, along the new landscaped streets, three small trees would be planted within the setback. Thus, the Central City 2035 Scenario estimated an additional two small trees within the optional setbacks along landscaped streets, when compared to the Baseline Scenario.

As mentioned in the optional front building setbacks section in the Baseline Scenario (Section 1, e), given the constraints on planting trees in the Central City, it is important to establish tools and approaches to ensure adequate subsurface soil volumes are provided in these setbacks to allow for medium and large trees to be planted and for improved tree health. The Proposed Draft includes a draft policy to encourage provision of adequate subsurface soil volumes especially for trees planted in conjunction with new development and infrastructure improvements. It is appropriate to focus this policy and associated implementing tools on development situations where extensive site grading is occurring and where the cost of materials and installation should be small when compared to total project costs.

Combination of street trees and trees planted in a building setback along SW Harrison Street.

e. Trees on buildings

The Baselines Scenario recognizes the growing trend of placing trees on buildings. The Central City 2035 Plan policies and implementing actions will directly and indirectly encourage innovative design approaches that are expected to increase the number of trees placed on buildings.

To account for these factors, Central City 2035 Scenario includes an additional increment of tree canopy from trees on buildings. The Central City 2035 Scenario utilizes the same methodology described in the

Baseline Scenario but increases the assumed tree canopy coverage on buildings from 5 percent to 10 percent.

f. Central City Master Plan sites

In support of Proposed Draft policies relating to large site development and the public realm, the Proposed Draft code includes a new Central City Master Plan process that would be required for master plan sites designated on Map 510-7 (1&2) and optional for non-industrial, non-open space BLI sites that are at least 80,000 square feet in size.

The master plan path provides developers of larger sites more flexibility and promotes innovative and sustainable site design, including identification of building locations, open space features, land uses, and phasing of development. Master plans will support functional connections with adjacent and nearby uses and infrastructure and the creation of dynamic public realms that include parks and open spaces, plazas, pedestrian walkways, trees, and other open space amenities.

A general approach was taken to estimate potential tree canopy across five of the six potential master plan sites that have been identified thus far. Tree canopy was estimated for the U.S. Postal Service based on more specific development plans for that site and is included in the Central City 2035 Scenario's planned parks analysis (see Subsection g, below). Tree canopy on the remaining five sites was modeled as follows. Per the master plan code language, 20 percent of the area of master plan sites would be devoted to the public realm, which could be comprised of park-like open spaces, pedestrian walkways, plazas, and/or private streets. Of the public realm, at least 50 percent must be in the form of parks or plazas. Tree canopy was then calculated for the remainder of the public realm per the master plan tree density standard, which requires a minimum of one tree per 1,000 square feet of park or plaza area.

The same approach was taken to model potential tree canopy for other Central City sites at least 80,000 sq ft in size. However since the Master Plan approach is optional for these sites, it was assumed that only 25 percent would opt to apply for a master plan. Also, a number of the 80,000 sq ft or greater BLI sites in South Waterfront include river frontage and portions of the planned South Waterfront Greenway Trail extensions. Future tree canopy associated with the South Waterfront Greenway Trail extensions was modeled under the planned parks section (see Subsection g, below), so the area of these extensions was removed from the total area of 80,000 sq ft or greater sites in South Waterfront. Potential future tree canopy was modeled on the remaining area.

Since all of the master plan sites and potential 80,000 sq ft or greater sites are BLI sites, existing tree canopy was already subtracted as part of the Baseline Scenario calculations. Thus, this analysis calculates the incremental change associated with required and optional master plan site. The master plan assumptions are based on a preliminary concept and are subject to change.

g. Planned Central City parks and public spaces

Policies in the Proposed Draft call for expanding the Central City parks and open spaces system and acquiring new parks. During the Central City quadrant planning processes, a number of potential new

parks and public spaces were identified, such as the South Waterfront Greenway north and south reach extensions, the PNCA and U.S. Postal Service north park blocks, and a series of new parks organized along an improved NE Clackamas Street.

For potential new parks in the Central City, Portland Parks and Recreation staff recommended applying the average of the range of preferred future canopy estimates developed for existing parks in the Baseline Scenario. This approaches recognizes that determining desirable and feasible tree canopy levels for future parks will require robust planning processes and consideration of factors that are not known at this time, such as desired park uses, landscape objectives, etc.

When PP&R acquires or redevelops park land in the Central City, incorporation of trees, along with other park needs, will be considered via a master planning process. In the meantime, for the purposes of this analysis, the average low and high preferred tree canopy ranges that PP&R prepared for existing Central City parks were applied to estimate future tree canopy for anticipated future Central City parks, based on anticipated future park area. The analysis for planned future parks included both PP&R-managed as well as other future potential private and/or other publicly managed parks.

Because specific locations are not yet known for many of these parks, it was not possible to subtract all existing canopy to estimate the net change in tree canopy. Thus, the overall increment of change modeled for planned parks may be an overestimate. In cases where a more specific location was known, such as the South Waterfront Greenway extensions and the Sullivan's Gulch Trail, existing canopy was removed.

For the South Waterfront Greenway extensions it was also necessary to account for tree canopy modeling already done for this area – specifically, tree canopy associated with an expanded river setback on BLI sites between the Marquam Bridge and SW Gibbs Street for the north extension and SW Lane Street and the Central City boundary at SW Hamilton Court for the south extension. The river setback analysis modeled incremental canopy change for a 50 foot setback plus a 25 foot proxy for the area between ordinary high and top-of-bank. For the future park analysis, an additional increment of canopy was added to the river setback analysis, assuming an additional 25 foot wide area along the length of the Greenway Trail expansion.

h. Expanded Willamette River setback

An expanded river setback (currently referred to as the Greenway Setback) is proposed in the Proposed Draft code. Expanding the setback from 25 feet to 50 feet, as proposed, would support numerous City policies calling for improved access to and along the river and for improved protection and enhancement of riparian ecological functions.

The 40 to 80 percent future tree canopy coverage range applied in the Baseline Scenario is applied to the 25-foot proxy for the riverbank plus the 50-foot setback area on BLI vacant and under-utilized sites with Willamette River frontage.

For the Proposed Draft, the canopy estimates for the area between ordinary high water and top-of-bank used in the Discussion Draft were re-evaluated to consider new data for top-of-bank. This data helped confirm that 25 feet was an appropriate proxy for the riverbank area.

i. Riverbank enhancements

The riverbank enhancement targets contained in Volume 5 are intended to improve fish and wildlife habitat, as well as overall riparian function along the Willamette River. These enhancements are assumed to occur on sites not identified as likely to develop (i.e., non-BLI lots). The proposed riverbank enhancement targets and associated tree canopy assumptions are as follows:

- City-owned and other publicly owned land not identified in the BLI: The proposed targets call for 70 percent of the linear feet of vegetated riverbank to be enhanced. Multiplying by 75 feet (which represents the 50 foot proposed setback area plus the 25 foot proxy between ordinary high and top-of-bank) gives the area of riverbank to be enhanced. Similar to the Baseline Scenario, the 40-80 percent future tree canopy coverage assumption is applied to estimate tree canopy in the river setback area. Existing canopy on City or other publicly-owned vegetated banks is subtracted from modeled low and high range estimates to calculate the incremental change.

- City/private partnerships on non-BLI sites: The proposed targets call for 1,800 linear feet of privately owned vegetated riverbank to be enhanced. It is assumed that this 1,800 linear feet will be distributed proportionally based on the percent of privately-owned vegetated riverbank contained in each subdistrict. The privately-owned linear feet estimate is multiplied by 75 feet to calculate the total enhancement area and then the 40-80 percent future tree canopy coverage is applied within that area.

  Specific locations of the 1,800 linear feet of enhancement generated by city/private partnerships are not known, so it is not possible to subtract existing tree canopy from the proposed enhancement area. However, the Central City 2035 Plan includes a new River Open Space Bonus which would allow property developers to choose to increase their setback width in exchange for increased FAR. The increased setback would have to be landscaped. For the purposes of this analysis, it was assumed that the existing tree canopy and any potential new canopy from the river open space bonus would be roughly equivalent and therefore no reduction in tree canopy has been made for existing trees in this enhancement area.

j. Central City 2035 Plan Scenario results and draft tree canopy targets

The future tree canopy estimates for the Central City 2035 Plan scenario are presented below and proposed as the Central City 2035 Plan tree canopy targets.

The targets represent a considerable increase in canopy relative to existing canopy, and compared to the Baseline Scenario as well. Under the Central City 2035 plan, tree canopy is projected to increase by 46.5 to 117.4 acres in total across the Central City relative to existing canopy (339.4 acres). This is equivalent to the area of between 51 to 128 downtown city blocks and represents an increase from 13.5 percent to as high as 18.1 percent Central City-wide.

The Central City 2035 Scenario also projects an increase of 35.2 to 49.0 acres overall tree canopy relative to the Baseline Scenario. This corresponds to an additional 1.3 to 4.1 percent increase in tree canopy. The total future canopy under the Central City 2035 Plan is projected to reach between 15.5 and 18.3 percent.

Variability in tree canopy by subdistrict is projected to continue under the Central City 2035 Plan. In the Central Eastside subdistrict tree canopy is projected to increase by approximately nine acres. This represents about a seventeen percent increase from existing conditions, bringing that subdistrict to between 8.7 and 10.3 percent tree canopy in the future. On the other hand, tree canopy in subdistricts with high percentages of tree canopy, including Goose Hollow, the West End and South Downtown/ University, is projected to remain relatively constant or increase slightly compared to existing canopy.

In the Central City 2035 Plan Scenario, tree canopy in the Lloyd District is projected to increase five to seven acres, or about 1.5 to two percent, when compared to the Baseline Scenario. This would bring total tree canopy in the Lloyd subdistrict to between 15.6 and 18.0 percent. An additional 6.1 to 10.4 acres of future tree canopy, or 3.6 to 5.9 percent, is projected for the South Waterfront subdistrict in the Central City 2035 Plan. This would bring total tree canopy in the subdstrict to between 14.2 and 26.7 percent. In other subdistricts, increases in canopy vary, ranging from about one to five additional acres in each subdistrict. Projected future tree canopy in the Lower Albina subdistrict is expected to increase by less than one percent. As a result, its future tree canopy percentage continues to be the lowest in this scenario, at 7.1 to 7.3 percent.

Approximately 10 to 13 acres of tree canopy is projected to be generated in conjunction with new development. This increase reflects the combined effect of the proposed expanded river setback and various City development-related code requirements for trees on ROW and tax lots. This increase also reflects assumed additional tree canopy associated with optional building setbacks and trees on buildings. Encouraging and providing incentives to maximum subsurface soil volumes in conjunction with development will support the incorporation of larger, healthier site trees and street trees.

Investments associated with future City street tree planting projects along with streetscape improvements along the Green Loop and as a part of flexible street design are projected to increase tree canopy by 16.3 acres. Almost 13 acres of this additional canopy is associated with assumed street tree investments along the Green Loop and in flexible streets. Investments in riverbank enhancement to meet Central City 2035 targets is projected to generate an additional 3 to 7. 5 canopy acres. While investment in new parks is projected to generate 2.6 to 8.1 more acres of canopy.

Overall, the strategies included in this analysis represent a diverse mix of proactive City investments and public-private partnerships, regulatory mechanisms, and market-based (non-regulatory) conditions. This combination of future actions provide a unique opportunity to create a unique tree canopy fabric spread throughout the Central City. City investments and public-private partnerships are projected to increase tree canopy between 21.9 and 31.9 acres, or between approximately 73 and 75 percent of the projected canopy increase. Tree canopy increases resulting from new codes and requirements would be expected to increase tree canopy by 8 to 10.7 acres, or between 26.8 and 25.1 percent of the projected low and high canopy increase, respectively. . The remainder of the estimated canopy increase is expected to be associated with trees on new buildings. Incorporation of trees on buildings is expected to result from both market demand and encouragement by the City as a part of plan implementation.

This mix of actions demonstrates the critical role the City will play – and substantial investment needed – to reach the Central City 2035 Plan tree canopy targets.

TC-Table 7 presents the results of the Central City 2035 Scenario analyses and associated tree canopy targets.

TC-Table 7. Central City 2035 Plan Scenario

				PROJECTED CHANGES IN TREE CANOPY (from Baseline Scenario)													CC2035 PLAN FUTURE TREE CANOPY TARGETS			
				ROW			TAX LOTS					PARKS		OTHER		TOTAL					
Central City District	District Area[1] (acres)	Baseline Canopy - LOW[2] (acres)	Baseline Canopy - HIGH[2] (acres)	Investment: Street Tree Planting[3] (acres)	Investment: Green Loop[4] (acres)	Investment: Flexible Street Design (acres)	Optional Front Setbacks - Landscaped Streets Tax Lots[5] (acres)	Master Plan and Large Development Sites[6] (acres)	Increased River Setback - LOW[7] (acres)	Increased River Setback - HIGH[7] (acres)	Trees on Buildings (acres)	Investment: New Parks - LOW[8] (acres)	Investment: New Parks - HIGH[8] (acres)	Investment: Riverbank Enhancement - LOW[9] (acres)	Investment: Riverbank Enhancement - HIGH[9] (acres)	Total Canopy Change - LOW (acres)	Total Canopy Change - HIGH (acres)	CC2035 Tree Canopy - LOW (acres)	CC2035 Tree Canopy - HIGH (acres)	CC2035 Tree Canopy - LOW (% of District Area	CC2035 Tree Canopy - HIGH (% of District Area)
Central Eastside	706	53.9	61.3	0.6	2.5	0.3	0.2	1.5	0.3	0.5	0.2	0.4	1.8	1.8	3.9	7.9	11.6	61.8	72.9	8.7%	10.3%
Lloyd District	385	54.8	64.1	0.5	0.7	1.8	0.2	1.2	0.0	0.0	0.5	0.4	1.5	0.2	0.3	5.4	6.6	60.2	70.7	15.6%	18.4%
Lower Albina	138	9.1	9.2	0.2	0.0	0.4	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.7	0.8	9.8	10.0	7.1%	7.3%
Downtown	222	46.1	49.6	0.8	1.2	0.2	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1	2.4	2.5	48.5	52.1	21.8%	23.4%
Goose Hollow	175	32.6	36.8	0.2	0.2	0.6	0.0	0.6	0.0	0.0	0.1	0.0	0.0	0.0	0.0	1.7	1.7	34.4	38.6	19.7%	22.1%
Old Town/Chinatown	130	21.4	23.2	0.2	0.3	0.4	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.2	0.3	1.2	1.3	22.6	24.5	17.4%	18.8%
Pearl District	277	52.7	58.8	0.5	0.7	1.4	0.1	0.2	0.6	1.1	0.5	0.4	1.6	0.3	0.6	4.5	6.6	57.2	65.5	20.7%	23.7%
South Downtown/University	218	46.7	53.7	0.1	0.9	0.3	0.1	0.2	0.0	0.0	0.2	0.0	0.0	-0.3	0.2	1.4	1.9	48.1	55.6	22.1%	25.5%
South Waterfront	177	19.1	36.9	0.1	0.2	0.3	0.0	0.5	1.9	3.9	0.7	1.5	2.7	0.8	1.9	6.1	10.4	25.2	47.3	14.2%	26.7%
West End	95	17.3	18.3	0.5	0.3	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.9	18.2	19.3	19.1%	20.2%
Central City Total	***2,523***	***353.6***	***411.8***	***3.6***	***7.0***	***5.7***	***0.9***	***4.3***	***2.8***	***5.5***	***2.4***	***2.6***	***8.1***	***3.0***	***7.5***	***32.3***	***45.0***	***385.9***	***456.8***	***15.3%***	***18.1%***

1 Water not included.
2 Includes existing tree canopy.
3 Additional canopy resulting from a second 2-year city street tree planting effort - an additional 10% of remaining potential planting spaces planted (not adjacent to BLI sites).
4 The Green Loop investment includes proactively planting 70% of potential planting spaces (non-BLI) along the Green Loop and four major east-west connectors, plus additional canopy due to innovative street design along the Green Loop and seven east-west connectors.
5 Optional setback associated with new (re)development (BLI sites). Increment of change based on new landscaped streets in CC2035 Plan; assumes two additional small trees in setback area on landscaped streets (baseline assumed one).
6 Includes canopy estimate on required master plan sites plus 25% of non-industrial BLI sites >80,000 square feet.
7 Additional canopy from increasing river setback from 25' to 50'. Also includes area between ordinary high water and top of bank, using 25 feet as a proxy.
8 Includes anticipated future parks (PP&R-managed and other). Note: Because specific locations/boundaries of planned parks are not known, existing canopy has not been subtracted from many of the planned parks. Thus, these numbers may overestimate canopy associated with new parks.
9 Additional canopy based on the 2035 riverbank enhancement targets. Includes canopy within 75' landward from ordinary high water.

The tree canopy estimates calculated for the Central City 2035 Plan Scenario are proposed to serve as the updated draft tree canopy targets for the Central City. These targets are aspirational and will be challenging to meet. However, they are achievable with effective implementation of the proposed package of regulatory changes and investments.

As demonstrated in TC-Table 8, the targets resulting from Central City 2035 Plan Scenario analysis are generally in line with preliminary tree canopy targets developed as a part of the quadrant plans. Overall, the potential tree canopy range for the Central City is generally consistent with the original targets. However, individual subdistricts vary in their consistency with the quadrant plan targets. Only the Old Town/Chinatown subdistrict Central City 2035 Plan target significantly exceeds the original target in the West Quadrant Plan. The Lower Albina, South Downtown/University, and Downtown subdistrict targets are lower than originally targeted during the West Quadrant planning effort. Central City 2035 Plan targets for all other subdistricts are generally consistent with the quadrant plan targets.

TC-Table 8. Comparison of Preliminary Tree Canopy Targets in Quadrant Plans and Central City 2035 Tree Canopy Targets

Geography	Quadrant Tree Canopy Targets (%)	Central City 2035 Tree Canopy Targets (%)
Central Eastside	10	8.7 – 10.3
Lloyd District	18	15.6 – 18.4
Lower Albina	10	7.1 – 7.3
Downtown	25	21.8 – 23.4
Goose Hollow	20	19.7 – 22.1
Old Town/Chinatown	10	17.4 – 18.8
Pearl District	20	20.7 – 23.7
South Downtown/University	30	22.1 – 25.5
South Waterfront	20	14.2 – 26.7
West End	20	19.1 – 20.2
Central City Totals	***17***	***15.3 – 18.1***

III. Conclusions and Recommendations

This analysis indicates that future tree canopy in the Central City is anticipated to increase and that the Proposed Draft Central City 2035 Plan will result in substantial increases in tree canopy over time. Furthermore the analysis demonstrates that the approaches included in the Central City 2035 Plan Scenario are likely to enable the Central City as a whole to reach the preliminary tree canopy targets estimated in the quadrant plans.

Reaching these targets will be challenging but they are achievable. A mix of tools will be needed. Proposed Central City 2035 policies and regulations will increase the amount of trees to be preserved or planted in conjunction with new development (e.g., river setback, landscaping, street trees, optional building setbacks, master plan sites). Substantial investment will be needed to fund proactive street tree planting, streetscape improvements (e.g., Green Loop and flexible streets), proposed riverbank enhancements, and new parks. In addition, tools are needed to ensure that, whenever possible, adequate sub-surface soil volumes are provided for future trees planted in tax lots, rights-of-way, and parks, particularly trees planted in conjunction with development or major infrastructure projects. Specific requirements aimed at increasing the provision of adequate subsurface soil volumes in conjunction with development and major infrastructure projects should be considered as a mechanism to facilitate the planting of medium or large trees. This could greatly increase tree canopy at maturity. This is especially important given planting constraints in the Central City.

With the intensity of development increasing in the Central City, the desire of developers to place building utility infrastructure (vaults/voids) in the ROW is becoming increasingly common, limiting the ability to provide multiple street trees along these blocks. This represents an area where competing City priorities intersect. As the Central City continues to grow over the life of the plan, ensuring provision of tree canopy will be critical. City staff should work to find creative solutions that balance the needs of more intense development with the provision of street trees. This is an important issue that should be discussed further with key City bureaus prior to the development of the Central City 2035 Plan Recommended Draft.

Additionally, to better position the City to achieve the Central City 2035 Plan targets, incentives for the preservation of existing healthy, non-nuisance trees should also be considered. Creative design approaches aimed at preserving existing trees, especially medium and large, healthy trees, should be strongly encouraged. Medium and large trees provide substantial ecosystem services that will take many years to replace after tree removal, even if a new tree is planted in its place. This issue is likely to be addressed as a part of a future review of Title 11, Trees.

TC-Table 9 compares future tree canopy scenario results with existing tree canopy, and presents the proposed Central City 2035 tree canopy targets.

TC-Table 9. Central City Tree Canopy Scenario Results and Draft Tree Canopy Targets

				Baseline Future Tree Canopy Scenario[2]		CC2035 Plan Scenario & Draft Tree Canopy Targets[3]	
CC Subdistrict		**Subdistrict Area[1] (acres)**	**Existing tree canopy**	**LOW**	**HIGH**	**LOW**	**HIGH**
Central Eastside	acres	706	53.0	53.9	61.3	61.8	72.9
	%		*7.5%*	*7.6%*	*8.7%*	*8.7%*	*10.3%*
Lloyd District	acres	385	61.2	54.8	64.1	60.2	70.7
	%		*15.9%*	*14.2%*	*16.6%*	*15.6%*	*18.4%*
Lower Albina	acres	138	8.3	9.1	9.2	9.8	10.0
	%		*6.1%*	*6.6%*	*6.7%*	*7.1%*	*7.3%*
Downtown	acres	222	45.3	46.1	49.6	48.5	52.1
	%		*20.4%*	*20.7%*	*22.3%*	*21.8%*	*23.4%*
Goose Hollow	acres	175	36.9	32.6	36.8	34.4	38.6
	%		*21.2%*	*18.7%*	*21.1%*	*19.7%*	*22.1%*
Old Town/Chinatown	acres	130	21.8	21.4	23.2	22.6	24.5
	%		*16.7%*	*16.5%*	*17.8%*	*17.4%*	*18.8%*
Pearl District	acres	277	28.7	52.7	58.8	57.2	65.5
	%		*10.4%*	*19.0%*	*21.3%*	*20.7%*	*23.7%*
South Downtown/University	acres	218	53.1	46.7	53.7	48.1	55.6
	%		*24.3%*	*21.4%*	*24.6%*	*22.1%*	*25.5%*
South Waterfront	acres	177	16.2	19.1	36.9	25.2	47.3
	%		*9.1%*	*10.8%*	*20.8%*	*14.2%*	*26.7%*
West End	acres	95	14.8	17.3	18.3	18.2	19.3
	%		*15.5%*	*18.2%*	*19.2%*	*19.1%*	*20.2%*
Central City Total	**acres**	***2,523***	**339.4**	**353.6**	**411.8**	**385.9**	**456.3**
	%		***13.5%***	***14.0%***	***16.3%***	***15.3%***	***18.1%***

[1] Does not include water; [2] Includes existing tree canopy; [3] Includes existing and baseline tree canopy.

A. Next Steps

A number of items are expected prior to the completion of the next draft (Recommended Draft) of this plan, including:

- Further discussions on tree constraints resulting from increased demand for utility infrastructure in the ROW.
- Consideration of additional strategies to increase subsurface soil volumes in conjunction with development and/or major infrastructure projects.
- Updates based on comments received on the Recommended Draft.

Appendix A. Alternative Options

In addition to the Baseline and Central City 2035 Plan scenarios, staff considered additional options to increase tree canopy that are not included in the Central City 2035 Scenario or the draft tree canopy targets.

These options are intended to be illustrative, providing information that will help respond to community interests or questions. These options are also intended to help inform potential future program decisions and planning efforts, including City street tree planting programs and updates to Title 11, Trees.

1. More parks and open spaces

It is plausible, if not likely, that over 20 years the Central City will accrue parks and open spaces beyond those called for in the Central City 2035 Plan. Such new parks and open spaces could be City owned or managed, or they could be privately owned or owned by another public agency.

However, any additional park-like open spaces would likely be modest in scale given high land values and competition for land in the Central City.

For this option, Portland Parks and Recreation staff recommended assuming an additional six acres of parks. It was assumed that these six acres of parks will be distributed proportionally across each of the subdistricts. Anticipated tree canopy was then calculated for each subdistrict using averages of PP&R's low and high preferred canopy ranges.

2. More investment in street trees

The Baseline and Central City 2035 Plan scenarios modeled expected increases in tree canopy associated with one and two two-year City-sponsored tree planting projects, respectively. Based on data collected by BES, the first of these two-year plantings could be expected to result in a 20 percent increase in the number of trees planted on non-BLI lots while the second was expected to result in a 10 percent increase.

This option estimates the maximum amount of additional street tree canopy that could be provided along rights-of-way were the City to undertake a more ambitious Central City street-tree planting program. Given planting constraints discussed earlier in the report, it is assumed that 70 percent of the potential ROW planting spaces could be planted by 2035 (100 percent minus the 30 percent planting constraint described in the scenario analysis above). Combined with existing trees this would total approximately 13,863 trees with a 92 percent future stocking level.

Planting 70 percent of the potential ROW planting spaces in the Central City would require additional funding and investment. However, based on past experience, it would also be challenging to plant this many trees given property owner resistance to planting trees. BES has documented that the responsibility and cost to maintain street trees is one of the main reasons that property owners choose not to plant additional street trees. If the City were to assume increased responsibility for the planting, establishment, and maintenance of street trees it is anticipated that property owners would be more receptive to new

street trees. In addition, the City would have a basis to plant trees without requiring prior property owner approval.

Based on information provided by staff from BES and PP&R, the cost of planting and establishing trees in 70 percent of the potential planting spaces associated with non-BLI lots would be $2,270,048. This is a $1,362,029 increase over the costs associated with the Central City 2035 Scenario. Planting and establishment costs include labor, materials, soil amendment, root barrier, tree stock, and concrete cut costs (including cut, permit, and concrete removal). Potential planting spaces that are less than three feet wide and those less than four feet wide that would require cutouts were not included in the analysis.

If the City were to assume responsibility for the expanded maintenance of existing and future street trees in the Central City (e.g., tree assessment and pruning), the annual cost is estimated to be $788,000 per year, assuming 70 percent of the potential spaces are planted (including those associated with both BLI and non-BLI sites).

3. Required building setbacks

The Central City 2035 Plan Scenario estimated changes in tree canopy associated with anticipated optional front building setbacks on future development sites. The plan would allow but not require front building setbacks in certain zones. This would provide flexibility while also supporting policies calling for active streetscapes and first floor uses.

Stakeholders have expressed interest in how additional setbacks or other tools could increase tree canopy on private property. This section describes three options developed to assess the tree canopy impact of requiring (rather than allowing) setbacks in the Central City. This evaluation is intended to be illustrative only, given that requiring setbacks would conflict with many Central City goals and policies.

The first option modeled changes in tree canopy assuming setbacks are required only along the Green Loop alignment, including the four primary east-west connections, and along all streets that would be required to do a landscaped setback under the proposed optional setback plan. The section of the Green Loop between SW Salmon Street and W Burnside Street was excluded from this analysis because it is the most urban section of the Green Loop and is less likely to include a setback.

Changes in canopy were modeled for both right-of-way trees and potential new trees within the setback area itself. For the Central City 2035 Plan Scenario it was assumed that with an optional setback code provision, 25 percent of the BLI-designated vacant and underutilized lots and BLI sites along the Green Loop would develop with setbacks. It was also assumed that for lots with setbacks, small potential front planting spaces could accommodate medium trees. A third assumption was that for lots developed with setbacks tree canopy of medium and large trees would no longer be as constrained by buildings. In other words, the 20 percent canopy reduction on medium trees and 20 of the 30 percent canopy reduction on large trees applied in zones allowing lot-line to lot-line development are eliminated and this canopy is regained (see Central City 2035 Scenario discussion above for more information).

For this “required setback” option, it was assumed that all of the BLI-designated vacant and underutilized sites along the Green Loop, four primary east-west connections, and streets where setbacks would need to be landscaped per the draft code would have a setback along the primary frontage. The 30 percent

overall constraint is still applied so that 70 percent of the potential ROW planting spaces associated with BLI sites are assumed to be planted in conjunction with future development. To estimate additional canopy within the setback it was assumed that there would be three small trees per BLI site.

The second option modeled anticipated changes in canopy if front setbacks were required for BLI-designated vacant and underutilized sites along all streets except those in industrial zones. In the third option, setback requirements would apply to all BLI sites in the Central City. Again, changes in canopy were modeled for both right-of-way trees and potential new trees within the setback area itself. The 30 percent overall constraint was applied so that 70 percent of the potential ROW planting spaces associated with BLI sites are assumed to be planted in conjunction with future development.

For these latter two options, tree canopy within the setback was estimated assuming one additional small tree per BLI site. This estimate is more conservative to reflect the likelihood that fewer trees would be planted outside the Green Loop and landscaped setback designated streets, particularly in industrial areas.

4. Apply Title 11 Tree Preservation and/or Tree Density (Planting) Standards in Zones that are Currently Exempt

Title 11 Tree Preservation and Tree Density Standards do not currently apply to industrial, commercial and employment zones that have no existing Title 33 landscaping requirements (IH, IG1, EX, CX, CS, and CM). These zones comprise a majority of the Central City area. The Title 11 Tree Preservation Standards also do not apply to developments with existing or proposed building coverage of 85 percent or more. For the Baseline and Central City 2035 scenarios it was therefore assumed that future development on BLI-designated vacant and underutilized lots in these zones could result in no (zero) tree canopy on the development sites. The zero tree canopy result is represented in the “low” estimates for these scenarios.

These exemptions were established in part because they were adopted when the City lacked a current Economic Opportunities Analysis and was therefore unable to fully examine and determine if additional tree regulations would affect employment land supply. The City has since produced a new Economic Opportunities Analysis that will allow this evaluation to take place.

The purpose of this option is to assess how tree canopy could change if the Title 11 Tree Preservation and/or Tree Density exemptions were eliminated. This was modeled as follows.

- For IG1 and IH, the new low canopy estimate is assumed to be five percent of the total area of BLI sites by subdistrict. This is based on the existing ten percent tree density standard that currently applies in other industrial zones. It is also assumed that any existing trees that are preserved would count toward the tree density requirement. The ten percent was lowered to five percent since applicants may choose to pay the fee in lieu of tree preservation and planting. Both five percent and ten percent were modeled and are incorporated into the summary table low and high, respectively.

- For CX and EX, the new low canopy estimate is assumed to be ten percent. This is based on the existing 15 percent minimum tree density standard that applies in other commercial zones. It is also assumed that existing trees that are preserved would count toward the tree density

requirement. The 15 percent was lowered to ten percent since applicants could choose to pay a fee in lieu of tree preservation and planting. Both ten percent and 15 percent were modeled and are incorporated into the summary table low and high, respectively.

One way to increase the benefit of applying the Tree Preservation and Tree Density standards in the Central City would be to require that fees-in-lieu be used to plant trees only in the Central City. This would provide additional revenue for the City to plant trees in the Central City or potentially to help pay for proactive riverbank enhancement.

5. Additional options to increase right-of-way tree canopy

The Central City 2035 Scenario incorporated various assumptions for trees in rights-of-way (ROW). Additional discussion of options to improve ROW tree canopy could address targeted planting of large trees, street bump outs, street diets, or replacing a traffic lane with a treed median, etc. on a larger subset of streets than just the flexible streets. Potential limitations on the placement of new vaults/voids under the sidewalk corridor would reduce constraints on street tree planting. In addition, the City could evaluate requiring ROW dedications to increase the width of the sidewalk corridor and facilitate tree planting and/or planting of larger trees. This would require examination of nexus and proportionality between new development/redevelopment and furnishing zone sidewalk dedications to provide more space for trees. (Note: These options were not modeled and are therefore not addressed in the results section below.)

Results

Of the alternative options considered, the largest projected tree canopy increases are associated with application of Title 11 Tree Preservation and Tree Density Standards in zones that are currently exempt from these standards. As demonstrated in TC-Table A-1 and TC-Table A-2, this change is projected to generate an additional 33 to 54 acres of tree canopy, or 1.3 to 2.1 percent across the Central City. Applying these standards would require amending Title 11 and an analysis of potential impacts on employment land supply in accordance with the City's Economic Opportunities Analysis. It is recommended that the exemptions from these standards be evaluated thoroughly during the next comprehensive update of Title 11, Trees. The impacts of revising or eliminating the exemptions should be considered, including tree canopy benefits and impacts on development potential and cost, housing affordability and other City goals and policies.

The next largest projected increase in tree canopy is associated with additional investment in street tree planting. This option is also projected to have significant future public costs associated with planting and maintaining the street trees. An ambitious planting project accompanied by public investment in street tree maintenance could add roughly 19 acres (0.8 percent) of tree canopy across the Central City. Such a project could make a big impact in terms of stormwater management, urban heat island, improved pedestrian experience, and other considerations. However, this option would also have significant public costs and would require a change in City policy, which currently assigns the responsibility of street tree maintenance to adjacent property owners. Committing City resources to maintain street trees in the Central City also raises equity issues, such as whether those public dollars could be better spent to

maintain street trees or provide other services in parts of the City with historically underserved or under-represented communities.

Additional front building setbacks or other tools to increase tree canopy on tax lots could provide some additional tree canopy; however, requiring building setbacks in the Central City would conflict with other Central City goals and policies. If front setbacks were required only along the Green Loop and associated connectors and streets, an additional 3.3 acres (0.13 percent) of tree canopy is estimated. If front setbacks were also required along streets in either non-industrial zones or along all other Central City streets, an additional 12.4 (0.1 percent) to 14.3 acres (0.5 percent), respectively, would be expected. This increase would come from street trees that can grow larger as well as trees planted in the setback itself.

The potential benefits of additional parks within the Central City were also investigated. Investments in new public or private parks, or park-like open spaces, are projected to increase Central City tree canopy by approximately 2 to 3 acres, or roughly 0.1 percent.

TC-Table A-1 and TC-Table A-2 present the results of the alternative options described in this section, alongside a comparison of existing tree canopy and Baseline and Central City 2035 scenarios.

TC-Table A-1. Alternative Future Tree Canopy Options (presented in acres)

							PROJECTED INCREMENTAL CHANGES IN TREE CANOPY (from CC2035 Scenario)										
							ROW				TAX LOTS					PARKS	
CC District	District Area[1] (acres)	Existing Canopy (2014) (acres)	Baseline Total Tree Canopy Acreage - LOW[2]	Baseline Total Tree Canopy Acreage - HIGH[2]	2035 Total Tree Canopy Acreage - LOW[3]	2035 Total Tree Canopy Acreage - HIGH[3]	Investment: Street Tree Planting[4] (acres)	Required Setbacks - Specified Streets and Green Loop - ROW Canopy[5] (acres)	Required Setbacks - All Streets Except Industrial- ROW Canopy[6] (acres)	Required Setbacks - All Streets - ROW Canopy[7] (acres)	Required Setbacks - Specified Streets and Green Loop - Setback Canopy[8] (acres)	Required Setbacks - All Streets Except Industrial - Setback Canopy[6] (acres)	Required Setbacks - All Streets - Setback Canopy[7] (acres)	Tree Density Standards in All Zones - LOW[9] (acres)	Tree Density Standards in All Zones - HIGH[10] (acres)	Investment: New Parks (additional) - LOW[11] (acres)	Investment: New Parks (additional) - HIGH[11] (acres)
Central Eastside	706	53.0	53.9	61.3	61.8	72.9	3.4	1.1	2.0	3.4	0.4	0.7	1.0	5.7	10.5	0.8	0.9
Lloyd District	385	61.2	54.8	64.1	60.2	70.7	2.5	0.0	0.9	0.9	0.3	0.7	0.7	6.9	10.6	0.6	0.7
Lower Albina	138	8.3	9.1	9.2	9.8	10.0	0.9	0.1	0.1	0.1	0.0	0.1	0.1	0.2	0.3	0.2	0.2
Downtown	222	45.3	46.1	49.6	48.5	52.1	4.2	0.1	0.6	0.6	0.1	0.4	0.4	2.0	3.0	0.1	0.2
Goose Hollow	175	36.9	32.6	36.8	34.4	38.6	1.1	0.0	1.6	1.6	0.1	0.5	0.5	1.3	2.0	0.1	0.1
Old Town/Chinatown	130	21.8	21.4	23.2	22.6	24.5	1.2	0.0	0.2	0.2	0.0	0.3	0.3	1.9	2.8	0.1	0.1
Pearl District	277	28.7	52.7	58.8	57.2	65.5	2.4	0.1	1.3	1.5	0.2	0.5	0.5	5.0	8.1	0.2	0.2
South Downtown/University	218	53.1	46.7	53.7	48.1	55.6	0.3	0.1	0.3	0.3	0.3	0.3	0.3	3.0	4.6	0.1	0.2
South Waterfront	177	16.2	19.1	36.9	25.2	47.3	0.6	0.0	0.6	0.6	0.0	0.2	0.2	7.0	11.5	0.1	0.1
West End	95	14.8	17.3	18.3	18.2	19.3	2.4	0.1	0.7	0.7	0.2	0.4	0.4	0.5	0.7	0.1	0.1
Central City Total	***2,523***	***339.4***	***353.6***	***411.8***	***385.9***	***456.8***	***19.0***	***1.6***	***8.3***	***9.8***	***1.7***	***4.1***	***4.5***	***33.4***	***54.1***	***2.3***	***2.8***

1 Water not included.
2 Includes existing tree canopy.
3 Includes existing and baseline tree canopy.
4 This is an incremental increase in tree canopy after the two modeled street tree investments (20% in baseline, plus another 10% of that in 2035). This brings the total percent of non-BLI potential planting spaces planted up to 70%.
5 This is an incremental increase in canopy if front setbacks were required on the Green Loop and streets where a setback would need to be landscaped (per Required Building Lines code). The assumptions are that small trees along these streets could be replaced with medium trees, and that medium trees would regain the 20% and large trees would regain 20 of the 30% lost due to buildings coming up to the lot line.
6 Required setbacks on all streets except industrial zones. Assumption of 10 foot setback for ROW calculations and 1 tree per non-OS BLI lot for tax lot calculations.
7 Required setbacks on all streets in all zones. Assumption of 10 foot setback for ROW calculations and 1 tree per non-OS BLI lot for tax lot calculations.
8 Required setbacks on the Green Loop and streets where a setback would need to be landscaped would also result in increased canopy within the setback itself. This assumes canopy associated with 3 small trees per BLI tax lot.
9 In zones with 100% building coverage and no landscaping requirements (CX, EX, IG1, and IH), the original calculations for canopy on BLI tax lots used zero as the minimum end of the range. This brings the minimum up to 5% for industrial and 10% for CX and EX to account for pay-in-lieu (reduces the minimum standard by 5%). Previous low range calculated on tax lots was subtracted to yield incremental increase.
10 In zones with 100% building coverage and no landscaping requirements (CX, EX, IG1, and IH), the original calculations for canopy on BLI tax lots used zero as the minimum end of the range. This brings the minimum up to 10% for industrial and 15% for CX and EX. Previous low range calculated on tax lots was subtracted to yield incremental increase.
11 An aspirational assumption of two additional acres of new parks per quad was used. New park acreage was proportionally allotted to districts within each quad based on area. PP&R's preferred Central City low and high canopy ranges were applied.

TC-Table A-2. Alternative Future Tree Canopy Options (presented as percent of district area)

							PROJECTED INCREMENTAL CHANGES IN TREE CANOPY (from CC2035 Scenario)										
							ROW				TAX LOTS					PARKS	
CC District	District Area[1] (acres)	Existing Canopy (2014)	Baseline Total Tree Canopy - LOW[2]	Baseline Total Tree Canopy - HIGH[2]	2035 Total Tree Canopy - LOW[3]	2035 Total Tree Canopy - HIGH[3]	Investment: Street Tree Planting[4]	Required Setbacks - Specified Streets and Green Loop - ROW Canopy[5]	Required Setbacks - All Streets Except Industrial- ROW Canopy[6]	Required Setbacks - All Streets - ROW Canopy[7]	Required Setbacks - Specified Streets and Green Loop - Setback Canopy[8]	Required Setbacks - All Streets Except Industrial - Setback Canopy[6]	Required Setbacks - All Streets - Setback Canopy[7]	Tree Density Standards in All Zones - LOW[9]	Tree Density Standards in All Zones - HIGH[10]	Investment: New Parks (additional) - LOW[11]	Investment: New Parks (additional) - HIGH[11]
Central Eastside	706	7.5%	7.6%	8.7%	8.7%	10.3%	0.5%	0.16%	0.29%	0.48%	0.06%	0.09%	0.15%	0.8%	1.5%	0.11%	0.13%
Lloyd District	385	15.9%	14.2%	16.6%	15.6%	18.4%	0.7%	0.01%	0.23%	0.23%	0.09%	0.18%	0.18%	1.8%	2.8%	0.15%	0.18%
Lower Albina	138	6.1%	6.6%	6.7%	7.1%	7.3%	0.6%	0.04%	0.10%	0.08%	0.03%	0.04%	0.06%	0.1%	0.2%	0.15%	0.18%
Downtown	222	20.4%	20.7%	22.3%	21.8%	23.4%	1.9%	0.06%	0.25%	0.25%	0.06%	0.19%	0.19%	0.9%	1.3%	0.06%	0.07%
Goose Hollow	175	21.2%	18.7%	21.1%	19.7%	22.1%	0.6%	0.00%	0.93%	0.93%	0.05%	0.28%	0.28%	0.7%	1.2%	0.06%	0.07%
Old Town/Chinatown	130	16.7%	16.5%	17.8%	17.4%	18.8%	1.0%	0.00%	0.13%	0.13%	0.03%	0.21%	0.21%	1.5%	2.2%	0.06%	0.07%
Pearl District	277	10.4%	19.0%	21.3%	20.7%	23.7%	0.9%	0.03%	0.47%	0.55%	0.08%	0.17%	0.18%	1.8%	2.9%	0.06%	0.07%
South Downtown/University	218	24.3%	21.4%	24.6%	22.1%	25.5%	0.1%	0.03%	0.12%	0.12%	0.12%	0.16%	0.16%	1.4%	2.1%	0.06%	0.07%
South Waterfront	177	9.1%	10.8%	20.8%	14.2%	26.7%	0.3%	0.00%	0.32%	0.32%	0.00%	0.12%	0.12%	3.9%	6.5%	0.06%	0.07%
West End	95	15.5%	18.2%	19.2%	19.1%	20.2%	2.5%	0.11%	0.75%	0.75%	0.17%	0.47%	0.47%	0.5%	0.7%	0.06%	0.07%
Central City Total	***2,523***	***13.5%***	***14.0%***	***16.3%***	***15.3%***	***18.1%***	***0.8%***	***0.06%***	***0.33%***	***0.39%***	***0.07%***	***0.16%***	***0.18%***	***1.3%***	***2.1%***	***0.09%***	***0.11%***

1 Water not included.

2 Includes existing tree canopy.

3 Includes existing and baseline tree canopy.

4 This is an incremental increase in tree canopy after the two modeled street tree investments (20% in baseline, plus another 10% of that in 2035). This brings the total percent of non-BLI potential planting spaces planted up to 70%.

5 This is an incremental increase in canopy if front setbacks were required on the Green Loop and streets where a setback would need to be landscaped (per Required Building Lines code). The assumptions are that small trees along these streets could be replaced with medium trees, and that medium trees would regain the 20% and large trees would regain 20 of the 30% lost due to buildings coming up to the lot line.

6 Required setbacks on all streets except industrial zones. Assumption of 10 foot setback for ROW calculations and 1 tree per non-OS BLI lot for tax lot calculations.

7 Required setbacks on all streets in all zones. Assumption of 10 foot setback for ROW calculations and 1 tree per non-OS BLI lot for tax lot calculations.

8 Required setbacks on the Green Loop and streets where a setback would need to be landscaped would also result in increased canopy within the setback itself. This assumes canopy associated with 3 small trees per BLI tax lot.

9 In zones with 100% building coverage and no landscaping requirements (CX, EX, IG1, and IH), the original calculations for canopy on BLI tax lots used zero as the minimum end of the range. This brings the minimum up to 5% for industrial and 10% for CX and EX to account for pay-in-lieu (reduces the minimum standard by 5%). Previous low range calculated on tax lots was subtracted to yield incremental increase.

10 In zones with 100% building coverage and no landscaping requirements (CX, EX, IG1, and IH), the original calculations for canopy on BLI tax lots used zero as the minimum end of the range. This brings the minimum up to 10% for industrial and 15% for CX and EX. Previous low range calculated on tax lots was subtracted to yield incremental increase.

11 An aspirational assumption of two additional acres of new parks per quad was used. New park acreage was proportionally allotted to districts within each quad based on area. PP&R's preferred Central City low and high canopy ranges were applied.

Appendix B. Average Street Tree Planting Spaces and Tree Sizes per Tax Lot

Subdistrict	Zone	Average Existing Trees Per Tax Lot	Average Potential Trees Per Tax Lot	Average Tree Size
CENTRAL EASTSIDE	CG	2	0	Small
CENTRAL EASTSIDE	EG1	1	1	Small
CENTRAL EASTSIDE	EG2	5	0	Small
CENTRAL EASTSIDE	EX	2	2	Small
CENTRAL EASTSIDE	IG1	2	2	Small
CENTRAL EASTSIDE	IH	0	1	Small
CENTRAL EASTSIDE	R1	1	1	Small
CENTRAL EASTSIDE	RX	2	1	Small
DOWNTOWN	CX	5	2	Medium
DOWNTOWN	OS	10	6	Medium
DOWNTOWN	RX	3	1	Medium
GOOSE HOLLOW	CX	3	1	Small
GOOSE HOLLOW	OS	22	12	Small
GOOSE HOLLOW	R1	1	1	Small
GOOSE HOLLOW	R2	0	0	Small
GOOSE HOLLOW	RH	3	3	Small
GOOSE HOLLOW	RX	5	1	Small
LLOYD DISTRICT	CX	7	2	Medium
LLOYD DISTRICT	EG1	0	7	Medium
LLOYD DISTRICT	IG1	1	2	Medium
LLOYD DISTRICT	OS	14	7	Medium
LLOYD DISTRICT	RH	2	1	Medium
LLOYD DISTRICT	RX	5	3	Medium
LOWER ALBINA	EX	2	1	Medium
LOWER ALBINA	IG1	1	2	Medium
LOWER ALBINA	IH	0	0	Medium
OLD TOWN / CHINATOWN	CX	5	1	Medium
OLD TOWN / CHINATOWN	RX	13	0	Medium
PEARL DISTRICT	CX	2	2	Medium
PEARL DISTRICT	EX	6	1	Medium
PEARL DISTRICT	IH	2	8	Medium
PEARL DISTRICT	OS	19	3	Medium
PEARL DISTRICT	RX	7	0	Medium
SOUTH DOWNTOWN/UNIVERSITY	CX	6	0	Medium
SOUTH DOWNTOWN/UNIVERSITY	OS	2	2	Medium
SOUTH DOWNTOWN/UNIVERSITY	RX	5	1	Medium
SOUTH WATERFRONT	CX	9	3	Medium
WEST END	CX	5	2	Medium
WEST END	EX	1	1	Medium
WEST END	RX	3	1	Medium

Central City Public Space Performance Target

By 2035, people will spend 20% more time in the Central City's public spaces.

INTRODUCTION

The Central City includes Portland's most urban and active spaces, ranging from Pioneer Courthouse Square to the Transit Mall to the Lloyd District. There are a range of different types of public urban spaces in the Central City, including parks or open areas, streets or rights-of-way, reconfigured segments of streets, building setbacks and others. The success of the Central City can be measured by the amount of time people spend in the Central City's urban spaces. More people spending more time in the Central City reflects a certain level of comfort, interest and variety offered by the character of the public realm and the desire of Portlanders to experience it.

Encouraging more Portlanders to spend more time in public spaces would also have transportation system benefits. Employees who choose to meet friends after work at a new park or go for an evening jog along an interesting path through the city reduce the demand on the surrounding street system during the peak rush hour, improving traffic flow.

Measuring the success of any part of the central city is complicated and requires a number of different types of analysis. Some components have data that is relatively easy to collect and calculate (e.g. jobs per acre, dollars spent in restaurants, Hotel occupancy) while others (amount of actual time people spend in parks) can be more difficult. It should be noted that the character of the public realm is profoundly affected by the adjacent building edges and functions, and so the use of the words "public realm" or "urban spaces" here is typically inclusive of the ground floor conditions of adjacent structures.

This target supports multiple goals and policies from the Central City 2035 Plan, calling for the creation of urban spaces that contribute to distinctive experiences in the Central City.

These goals and policies include:

REGIONAL CENTER

Goal 1.D The experience of the Central City's urban character and livability make it the leading location in the region for business and commercial activity and an attractive location for new development.

TRANSPORTATION

Policy 3.6 **Street Diversity.** Differentiate the character of key streets to offer a diversity of urban experiences and connections, reflect the character of unique districts and expand open space and recreation functions in the right-of-way where possible.

WILLAMETTE RIVER

Policy 4.1 **Portland's commons.** Promote improvements and activities on the riverfront and in the Willamette River to strengthen the physical, visual, and cultural connections between the river and the rest of the Central City. Increase public awareness of the river's historical, economic and ecological importance.

Policy 4.2 **Willamette River recreation.** Provide for safe, enjoyable and valuable active and passive recreational experiences for all users on, along and in the river. Enhance the interconnected system of parks, trails, docks, natural areas and destinations adjacent to and within the river.

URBAN DESIGN

Goal 5.C The Central City's public realm is characterized by human-scaled accessible streets, connections, parks, open space, and recreation opportunities that offer a range of different experiences for public interaction.

Policy 5.8 **Public realm.** Enhance the character and function of the public realm through design standards, guidelines, amenities and land uses that activate the pedestrian environment and encourage community gathering.

Policy 5.10 **Street hierarchy and development character.** Establish a more intentional street hierarchy with a greater diversity of street characters, distinguishing three main types: retail/commercial, boulevard and flexible.

Policy 5.12 **"Green Loop" concept.** Create a "Green Loop" that connects east and west side neighborhoods to open spaces and the Willamette River, with high quality bicycle accommodations, tree canopy, innovative, park-like pedestrian environments, and wildlife habitat connections. Enhance connections to the "Green Loop" alignment on key corridors throughout the Central City to improve access, create activity nodes and support neighborhood attractions and economic development.

Policy 5.16 **Signature open spaces.** Enhance the Central City's iconic interconnected system of parks, trails, and natural areas by offering a wide range of social, recreational, contemplative, respite and ecological functions to serve an increasingly diverse population of residents, workers and visitors.

Policy 5.17 **Open space network.** Beyond signature open spaces, acquire new parks and open spaces and expand opportunities in existing parks and open spaces to meet the needs of Central City residents, workers and visitors for both passive and active recreation, especially in areas zoned for high density, mixed use development. Enhance the network by improving connections among parks, open spaces, and the riverfront. Encourage the provision of publicly accessible private plazas and pocket parks with new development.

EXISTING CONDITIONS

Data covering a range of public realm elements will be collected and analyzed to determine a "baseline" case. Subsequent to establishment of the baseline dataset, new additions or alterations as developed by projects can be recorded and collated. Examples of data that could be collected include:

Transportation

- Linear feet of separated bicycle facilities
- Linear feet of multi-use paths
- Amount (sf) sidewalk
- Linear feet of reclaimed ROW for public use
- On-street parking utilization

Parks/open space

- Amount (acres) of parks/open space

Buildings

- Linear feet of "retail storefront" building edge type
- Amount (sf or acres) of outdoor café seating area
- Hours of operation for retail businesses along "retail streets"

Collecting data on the numbers of people using a control set of public spaces will be necessary to measure and meet this target. The control set of spaces will include a yet-to-be-determined collection of streets, pathways, plazas, seating areas, parks or other open spaces. Data collection will need to be accomplished over a period of time, or a number of hours, to track use of public spaces and the amount of time spent in them.

In addition, a recurring survey could query Portlanders as to their use of public spaces in the Central City and the longevity of their stay(s) in them. The survey results would augment data collection numbers recorded in the preceding paragraph.

METHODOLOGY

The methodology for this target is under development by an interagency team that includes the Bureaus of Transportation (PBOT) Planning and Sustainability (BPS) and Environmental Services (BES) as well as the Portland Parks and Recreation (PPR), among other partners. Staff will propose methodology prior to adoption of this CC2035 Plan.

TARGET

By 2035, people will spend 20% more time in the Central City's public spaces.

Bureau Work Plans/Action Charts

1. Introduction

The following tables outline CC2035 work plans for various implementing City bureaus, offices and organizations. Most actions were developed as part of the three quadrant processes - some actions apply Central City-wide while others apply only to a specified district. Staff expects to refine and simplify this work plan as CC2035 moves through the review process.

ACTION IDENTIFIER

Actions are identified using the Action Identifier that includes the first two columns of each table: Geography and Code.

The Geography column will either list "Central City" or one of its ten districts:

- Central Eastside
- Goose Hollow
- Lower Albina
- The Pearl
- South Waterfront
- Downtown
- Lloyd
- Old Town/Chinatown
- University District/ South Downtown
- West End

The Code column provides the action's unique identifier. Each code begins with two letters, which correspond to the policy area most closely related to the action. These six policy areas, and their corresponding letter code, are as follows:

- **RC** – Regional Center
- **HN** – Housing and Neighborhoods
- **TR** – Transportation
- **WR** – Willamette River
- **UD** – Urban Design
- **EN** – Health & Environment

The policy area code for each action is followed by a number. In order to avoid repetitive and confusing codes, the numbering system in this Action Table is different from what was used in the original Quadrant Plans and the Discussion Draft.

The new system lists the 10 districts alphabetically, and then lists the actions by policy area for each lead implementer. The numbering of actions does not in any way correlate to importance or a priority ranking system.

Lastly, some codes are followed by an asterisks (*), indicating that additional information on that action can be found in section 3 following the Action Tables. These explanations were for the most part pulled directly from the original quadrant plans.

TIMEFRAME

Each action identifies a proposed timeframe: Ongoing, 2 – 5 and 6 – 10 years.

IMPLEMENTER

Each action identifies one or more lead and partner implementers. Implementers include:

- Architectural Heritage Center **(AHC)**
- Central Eastside Industrial Council **(CEIC)**
- Department of Environmental Quality **(DEQ)**
- Downtown Neighborhood Association **(DNA)**
- Go Lloyd
- Goose Hollow Foothills League **(GHFL)**
- Lloyd District Community Association **(LDCA)**
- Lloyd EcoDistrict
- Metro
- Multnomah County **(County)**
- Northwest District Association **(NWDA)**
- Oregon Health and Science University **(OHSU)**
- Oregon Museum of Science and Industry **(OMSI)**
- Old Town / Chinatown Community Association **(OTCTCA)**
- Old Town Heritage Group **(OTHG)**
- Oregon Department of Transportation **(ODOT)**
- Pearl District Neighborhood Association **(PDNA)**
- Portland Bureau of Development Services **(BDS)**
- Portland Bureau of Emergency Management **(PBEM)**
- Portland Bureau of Environmental Services **(BES)**
- Portland Bureau of Planning and Sustainability **(BPS)**
- Portland Bureau of Transportation **(PBOT)**
- Portland Business Alliance **(PBA)**
- Portland Development Commission **(PDC)**
- Portland Fire and Rescue **(PFR)**
- Portland Housing Bureau **(PHB)**
- Portland Office of Management and Finance **(OMF)**
- Portland Office of Neighborhood Involvement **(ONI)**
- Portland Parks and Recreation **(PPR)**
- Portland Police Bureau **(PPB)**
- Portland Public Schools **(PPS)**
- Portland State University **(PSU)**
- Portland Water Bureau **(PWB)**
- Private
- Regional Arts and Culture Council **(RACC)**
- South Portland Neighborhood Association **(SPNA)**
- Travel Portland

- TriMet
- Workers' Rights Education Project **(VOZ)**

2. Action Tables by Lead Implementer

City Bureaus and Offices

Portland Bureau of Development Services (BDS)							
Action Identifier		**Implementation Actions**	**Timeline**			**Implementers**	
Geography	**Code**	**Action**	**2-5 years**	**6-20 years**	**Ongoing**	**Lead Implementers**	**Partner Implementers**
Citywide	EN9*	Amend the flood-related regulations and other guidelines to, a) help prevent or minimize the risk of flood damage to new, redeveloped and rehabilitated buildings located in the 100-year floodplain; b) avoid, minimize and mitigate the impacts of such development on floodplain functions; and, c) comply with updated NFIP requirements.	X			**BDS, BPS, BES**	
Citywide	TR118*	Adopt and implement a proposed administrative rule that establishes a formula for determining rough proportionality for major public trail exactions from specific proposed developments.	X			**BDS**	PBOT, PPR, City Attorneys
Central City	RC2	As development occurs and density increases, ensure that new construction and rehabilitation projects include both early warning systems (e.g., alarms and CO detectors) and fire protection equipment. Fire sprinklers help minimize the size, reducing the spread, therefore reducing the loss of life.			X	**BDS, PFR**	
Central Eastside	RC4*	Review and consider amendments to building code requirements applicable to non-industrial development along the IG1/EXd Interface throughout the district.	X			**BDS**	BPS

Portland Bureau of Development Services (BDS)							
Action Identifier		**Implementation Actions**	**Timeline**			**Implementers**	
Geography	**Code**	**Action**	**2-5 years**	**6-20 years**	**Ongoing**	**Lead Implementers**	**Partner Implementers**
Downtown	EN22	Locate all new, significant development west of Naito Pkwy outside of the floodplain.			X	**BDS, BPS**	Private
Old Town/Chinatown	RC55	Consider revising seismic regulations to allow for more incremental upgrades.	X			**BDS, PBEM**	

Portland Bureau of Emergency Management (PBEM)							
Action Identifier		**Implementation Actions**	**Timeline**			**Implementers**	
Geography	**Code**	**Action**	**2-5 years**	**6-20 years**	**Ongoing**	**Lead Implementers**	**Partner Implementers**
Central City	RC1	Consider requiring development projects that include public investment, pre-development and development assistance to include some level of seismic upgrading.	X			**PBEM, BPS**	PDC
Old Town/Chinatown	RC55	Consider revising seismic regulations to allow for more incremental upgrades.	X			**PBEM, BDS**	

Portland Bureau of Environmental Services (BES)							
Action Identifier		**Implementation Actions**	**Timeline**			**Implementers**	
Geography	**Code**	**Action**	**2-5 years**	**6-20 years**	**Ongoing**	**Lead Implementers**	**Partner Implementers**
Citywide	EN8*	Work with FEMA to update the Willamette River Flood Insurance Rate Map (FIRM) to meet any updated National Flood Insurance Program (NFIP) requirements that are issued in response to the NOAA Fisheries biological opinion.	X			**BES, BPS**	BES, BDS
Citywide	EN9*	Amend the flood-related regulations and other guidelines to, a) help prevent or minimize the risk of flood damage to new, redeveloped and rehabilitated buildings located in the 100-year floodplain; b) avoid, minimize and mitigate the impacts of such development on floodplain functions; and, c) comply with updated NFIP requirements.	X			**BES, BPS, BDS**	
Citywide	EN51*	Evaluate the potential for the establishment of a "mitigation bank" to offset future development in the 100-year floodplain.	X		X	**BES, BPS**	BDS
Central City	EN5	Implement projects that increase habitat in public rights-of-ways and development.			X	**BES, PBOT**	PPR
Central City	EN6	Develop a program to encourage solar energy on existing rooftops, including in combination with ecoroofs.	X			**BES, BPS**	
Central City	EN7	Improve water quality in the Willamette River by integrating green infrastructure with streetscape improvements in areas served by the separated storm system.		X		**BES**	PBOT, BPS, PPR
Central City	EN12	Develop strategies to increase the amount of green-infrastructure in areas served by the combined sewer system that have a risk of sewer backups.	X			**BES**	

Portland Bureau of Environmental Services (BES)							
Action Identifier		**Implementation Actions**	**Timeline**			**Implementers**	
Geography	**Code**	**Action**	**2-5 years**	**6-20 years**	**Ongoing**	**Lead Implementers**	**Partner Implementers**
Central City	EN14	Evaluate options to increase property owner interest in street tree planting, including potential public assistance with tree pruning or other tree-related maintenance.	X			**BES, PPR**	PBOT, BPS
Central City	TR6	Coordinate system planning efforts among city bureaus and potential private investors for green infrastructure improvements.			X	**BES, PBOT**	BPS
Central City	WR2	Enhance and create connectivity between in-water, river bank and upland areas to maintain and improve fish and wildlife habitat.			X	**BES, BPS, PPR**	Private
Central City	WR6*	Develop a strategy to address impacts on habitat and fish and wildlife within the Ross Island complex and Holgate Channel as part of River Plan/South Reach.	X			**BES, BPS**	PPR, State & Federal Agencies, Private
Central City	WR8	Create an inter-bureau, inter-agency team, modelled after the BES Streamlining Team, to provide coordinated environmental permit review for private development projects. This may require a fee-for-service in addition to individual permit fees.			X	**BES**	BPS, BDS, DSL, USACE, MOAA, ODFW
Central City	WR7*	Develop an action plan to enhance and restore fish and wildlife habitat throughout the Central Reach.	X			**BES, BPS**	BES, PPR, State & Federal Agencies, Private
Central Eastside	WR11*	Partner with property owners and other stakeholders to fund and implement a preferred concept plan for the Eastbank crescent that includes fish and wildlife habitat, boating, swimming, educational opportunities, and enhanced greenway trail.	X			**BES, BPS, PPR, PDC**	OMSI, Private

Portland Bureau of Environmental Services (BES)							
Action Identifier		**Implementation Actions**	**Timeline**			**Implementers**	
Geography	**Code**	**Action**	**2-5 years**	**6-20 years**	**Ongoing**	**Lead Implementers**	**Partner Implementers**
Central Eastside	WR12	Explore concepts and partnerships to enhance fish and wildlife habitat along Eastbank Esplanade between the Morrison and Hawthorne Bridges.			X	**BES, BPS, PPR**	PDC, OMSI, ODOT
Downtown	EN17	Improve in-water habitat at Hawthorne Bowl designing a restoration project that creates a separate fish habitat area from swimming and recreational areas.		X		**BES, PPR**	
Goose Hollow	UD32	Reduce the impacts to neighbors from I-405 noise and air pollution by installing green walls on new/redeveloped buildings and street trees where appropriate.		X		**BES, BPS**	
Lower Albina	EN32	Develop and implement a strategy to install community gathering spaces, trees, and other green infrastructure in existing streets and underutilized space within rights-of-way (e.g. freeway ROW, Broadway bridgehead, west end of Russell Street). Ensure improvements do not compromise operations for industrial businesses.		X		**BES**	PPR, UF, PBOT, PWB, ODOT, Private
Pearl	UD60	Integrate habitat, including rerouting and daylighting the end of Tanner Creek to create in-water and riparian habitat into development.		X		**BES**	PDC
University District/ South Downtown	UD64	Support further enhancements of the SW Montgomery Green Street.			X	**BES, BPS**	PPR, PBOT
West End	UD79	Reduce the impacts to neighbors from I-405 noise and air pollution by installing green walls on new/redeveloped buildings and street trees where appropriate.		X		**BES, BPS**	

Portland Bureau of Environmental Services (BES)							
Action Identifier		**Implementation Actions**	**Timeline**			**Implementers**	
Geography	**Code**	**Action**	**2-5 years**	**6-20 years**	**Ongoing**	**Lead Implementers**	**Partner Implementers**
West End	UD83	Develop and implement a strategy to encourage main-street friendly streetscape and green infrastructure improvements on SW Jefferson Street.	X			**BES, PBOT**	BPS

Portland Bureau of Planning and Sustainability (BPS)							
Action Identifier		**Implementation Actions**	**Timeline**			**Implementers**	
Geography	**Code**	**Action**	**2-5 years**	**6-20 years**	**Ongoing**	**Lead Implementers**	**Partner Implementers**
Citywide	EN8*	Work with FEMA to update the Willamette River Flood Insurance Rate Map (FIRM) to meet any updated National Flood Insurance Program (NFIP) requirements that are issued in response to the NOAA Fisheries biological opinion.	X			**BPS, BES**	
Citywide	EN9*	Amend the flood-related regulations and other guidelines to, a) help prevent or minimize the risk of flood damage to new, redeveloped and rehabilitated buildings located in the 100-year floodplain; b) avoid, minimize and mitigate the impacts of such development on floodplain functions; and, c) comply with updated NFIP requirements.	X			**BPS, BES, BDS**	
Citywide	EN51*	Evaluate the potential for the establishment of a “mitigation bank” to offset future development in the 100-year floodplain.	X		X	**BPS, BES**	BDS

Portland Bureau of Planning and Sustainability (BPS)							
Action Identifier		**Implementation Actions**	**Timeline**			**Implementers**	
Geography	**Code**	**Action**	**2-5 years**	**6-20 years**	**Ongoing**	**Lead Implementers**	**Partner Implementers**
Central City	EN1	Develop new regulatory and incentive tools to increase the use of green building technologies and innovative stormwater management techniques (e.g., ecoroofs, green walls, trees on private property, impervious surface standards), renewable energy and energy efficiency in both new development and rehabilitations.	X			**BPS**	BES, PPR
Central City	EN6	Develop a program to encourage solar energy on existing rooftops, including in combination with ecoroofs.	X			**BPS, BES**	
Central City	EN10	Explore opportunities for new multi-family and commercial development to create provisions for community gardens and food gardening.			X	**BPS**	Private
Central City	EN10	Explore opportunities for new multi-family and commercial property developments to consider building designs that allow for the capturing and reuse of water.			X	**BPS**	Private
Central City	EN13	Develop strategies to reduce nighttime lighting and sky glare to reduce impacts of building lighting on human health, wildlife and energy consumption.	X			**BPS, Private**	
Central City	EN3	Identify tree preservation and planting opportunities and implement strategies (e.g., street tree planting and maintenance programs) that meet multiple objectives, including reducing urban heat island, improving local air quality, intercepting rainfall to reduce stormwater runoff and providing habitat.			X	**BPS**	BES, PPR, BDS, PBOT, PWB, PDC

Portland Bureau of Planning and Sustainability (BPS)							
Action Identifier		**Implementation Actions**	**Timeline**			**Implementers**	
Geography	**Code**	**Action**	**2-5 years**	**6-20 years**	**Ongoing**	**Lead Implementers**	**Partner Implementers**
Central City	EN15	Analyze options to apply Title 11 Tree Preservation Standards and Tree Density Standards in commercial, employment, and industrial zones that are currently exempt from the standards. Consider benefits associated with additional tree canopy and impacts on development potential, housing affordability and other city goals and policies.	X			**BPS**	BES, BDS, PPR
Central City	HN2	Adopt inclusionary housing provisions to increase the supply of affordable housing.			X	**BPS, PHB**	
Central City	HN3	Develop a strategy for accommodating food cart pods as infill development displaces them.	X			**BPS**	PPR, Private
Central City	HN6	Explore options for new community center to serve entire Central City.		X		**BPS, PPR**	
Central City	RC1	Consider requiring development projects that include public investment, pre-development and development assistance to include some level of seismic upgrading.	X			**BPS, PBEM**	PDC
Central City	TR4	Explore funding mechanisms, phasing and the implementation of river transit in Central City.		X		**BPS, PBOT**	Private

Portland Bureau of Planning and Sustainability (BPS)							
Action Identifier		**Implementation Actions**	**Timeline**			**Implementers**	
Geography	**Code**	**Action**	**2-5 years**	**6-20 years**	**Ongoing**	**Lead Implementers**	**Partner Implementers**
Central City	UD1*	Update the Central City Fundamental Design Guidelines to incorporate guidance for bird-friendly building and lighting design, in general alignment with key elements of the City's adopted Green Building Policy. Incorporate Crime Prevention Through Environmental Design (CPTED) principles, wind-mitigating design principles for tall buildings, as well as pedestrian scale and livability considerations.	X			**BPS**	
Central City	UD2	Advocate for the passage of a state historic rehabilitation tax credit.			X	**BPS**	Non-profit, Private
Central City	UD3	Develop a strategy to implement the "Green Loop" through the Central City.	X			**BPS**	PBOT, PPR, BES
Central City	UD4*	Update the Historic Resources Inventory for the Central City, prioritizing the West End and Goose Hollow.	X			**BPS**	
Central City	WR2	Enhance and create connectivity between in-water, river bank and upland areas to maintain and improve fish and wildlife habitat.			X	**BPS, BES, PPR**	
Central City	WR3	Continue to periodically convene a Central Reach Working Group that includes NGOs, civil society groups, neighborhood associations to serve as a sounding board for staff on the development of river-related policies and implementation actions for the Central Reach of the Willamette River.			X	**BPS**	BES, PPR, BDS, PDC, PBOT
Central City	WR6*	Develop a strategy to address impacts on habitat and fish and wildlife within the Ross Island complex and Holgate Channel as part of River Plan/South Reach.	X			**BPS, BES**	PPR, State & Federal Agencies, Private

Portland Bureau of Planning and Sustainability (BPS)							
Action Identifier		**Implementation Actions**	**Timeline**			**Implementers**	
Geography	**Code**	**Action**	**2-5 years**	**6-20 years**	**Ongoing**	**Lead Implementers**	**Partner Implementers**
Central City	WR7*	Develop an action plan to enhance and restore fish and wildlife habitat throughout the Central Reach.	X			**BPS, BES**	PPR, State & Federal Agencies, Private
Central Eastside	RC3*	Review and consider amendments to development standards and design guidelines applicable to development along the IG1/EXd Interface throughout the district.	X			**BPS**	BDS
Central Eastside	TR12	Coordinate planning and implementation of green infrastructure and active transportation improvements on east-west streets and the "Green Loop".		X		**BPS**	PBOT, BES
Central Eastside	TR32	Require identification of how lighting within public realm and ground floor programming will be designed to create a safe and attractive environment for pedestrians through the day and night with an emphasis on hours of transit service as part of new Master Plan provisions for OMSI and Clinton Station areas.	X			**BPS**	PBOT, Private
Central Eastside	UD10*	Explore opportunities to create publicly accessible open space and recreational opportunities on public and private land throughout the Central Eastside.	X			**BPS,PPR, Private**	
Central Eastside	UD15	Develop a strategy to incorporate green-infrastructure, furnishings, wayfinding tools, and other elements to draw people to the river on key east-west routes leading to the Willamette River.	X			**BPS**	PBOT, BES
Central Eastside	UD16*	Explore a Green Loop alignment in the Central Eastside based on its ability to meet criteria developed for the district. Conduct analysis to identify potential route alignments and impacts to freight operations.	X			**BPS**	PBOT

Portland Bureau of Planning and Sustainability (BPS)							
Action Identifier		**Implementation Actions**	**Timeline**			**Implementers**	
Geography	**Code**	**Action**	**2-5 years**	**6-20 years**	**Ongoing**	**Lead Implementers**	**Partner Implementers**
Central Eastside	UD8	Update existing East Portland Grand Avenue Historic Design Guidelines.		X		**BPS**	BDS
Central Eastside	UD9	Update development regulations to support the Ground Floor Character Concept, including active use requirements and design guidelines.	X			**BPS**	
Central Eastside	UD11*	Develop an urban design concept and implementation strategy to enhance the role, use, and character of the historic main streets under the Morrison, Belmont, Madison, and Hawthorne Street viaducts, and the area under I-5.	X			**BPS, PBOT**	PDC
Central Eastside	WR9	Within the Willamette Greenway, but outside the Greenway setback, allow small commercial uses along or near the riverfront including food kiosks, bicycle and boat rentals and other retail that support an active riverfront in the Central Eastside.			X	**BPS**	PPR
Central Eastside	WR10	Increase the width of the greenway trail including possible separation of bicyclists and pedestrians especially north of the Tilikum Bridge area by OMSI as redevelopment happens.			X	**BPS**	PPR, PBOT
Central Eastside	WR11*	Partner with property owners and other stakeholders to fund and implement a preferred concept plan for the Eastbank crescent that includes fish and wildlife habitat, boating, swimming, educational opportunities, and enhanced greenway trail.	X			**BPS, PPR, PDC, BES**	OMSI, Private

Portland Bureau of Planning and Sustainability (BPS)							
Action Identifier		**Implementation Actions**	**Timeline**			**Implementers**	
Geography	**Code**	**Action**	**2-5 years**	**6-20 years**	**Ongoing**	**Lead Implementers**	**Partner Implementers**
Central Eastside	WR12	Explore concepts and partnerships to enhance fish and wildlife habitat along Eastbank Esplanade between the Morrison and Hawthorne Bridges.			X	**BPS, BES, PPR**	PDC, OMSI, ODOT
Downtown	EN22	Locate all new, significant development west of Naito Pkwy outside of the floodplain.			X	**BPS, BDS**	Private
Downtown	EN18	Consider seasonal restrictions on human activity in-water around the Hawthorne Bowl to minimize the impacts of boating and swimming on juvenile fish migration, if such activity is shown to create undesirable impacts.	X			**BPS**	PPR, BES, DSL, USACE, NOAA Fisheries, Marine Board
Downtown	EN19	Evaluate the feasibility of adding deep-water mooring structures at Hawthorne Bowl to reduce the impacts of boating and swimming on juvenile fish migration as part of an overall plan for the Hawthorne Bowl.	X			**BPS**	PPR, BES, DSL, USACE, NOAA Fisheries, Marine Board
Downtown	RC26	Study and revise, as needed, zoning regulations to allow overnight mooring for commercial boats/ships in Waterfront Park.	X			**BPS, PPR**	**DSL**
Downtown	RC20	Study the feasibility of accommodating regional cruise ship docking facilities along the seawall.	X			**BPS, PPR, Private**	
Downtown	RC18	Implement incentives that encourage new development, including targeted clusters of commercial development, in the Naito Parkway area.	X			**PDC, BPS**	

Portland Bureau of Planning and Sustainability (BPS)							
Action Identifier		**Implementation Actions**	**Timeline**			**Implementers**	
Geography	**Code**	**Action**	**2-5 years**	**6-20 years**	**Ongoing**	**Lead Implementers**	**Partner Implementers**
Downtown	RC19	Study the feasibility of removing or reconfiguring the ramps and approaches to the Morrison bridge to create more developable land parcels and improve multimodal connectivity to the river. Consider the impacts to providing southbound freeway access from the Central Eastside.	X			**BPS, PBOT, County**	
Downtown	RC24	Explore options for redeveloping the site occupied by the City-owned parking garage at SW 3rd and SW Alder. Provide public parking; add mixed use development including improved retail.		X		**BPS, PBOT, PDC**	
Downtown	RC17	Encourage redevelopment with key public attractions and mixed uses at the Morrison Bridgehead that connect to the river.	X			**BPS, Private, PBOT, PPR, PDC, County**	
Downtown	TR41	Study the feasibility of installing new or repurposing existing docks to accommodate commercial and recreational boating and river transit.	X			**BPS**	PPR, PBOT, PDC, Private
Downtown	UD17	Implement the Park Avenue Urban Design Vision (2004).			X	**BPS**	PBOT, PPR
Downtown	UD27	Develop a set of special design guidelines and streetscape improvements for the Cultural District.		X		**BPS**	PBOT, PPR, Private
Downtown	UD24*	Study the feasibility of creating an urban civic space at the intersection of West Burnside and Broadway.	X			**BPS**	PDC, PBOT, PPR

Portland Bureau of Planning and Sustainability (BPS)							
Action Identifier		**Implementation Actions**	**Timeline**			**Implementers**	
Geography	**Code**	**Action**	**2-5 years**	**6-20 years**	**Ongoing**	**Lead Implementers**	**Partner Implementers**
Goose Hollow	EN24	Encourage and promote an environmental "high performance area" on the redeveloped Lincoln High School site through incentives, public-private partnerships and/or master planning.			X	**BPS, PPS**	PDC
Goose Hollow	HN13	Develop and implement a strategy to encourage main street-friendly streetscape and stormwater management improvements on SW Jefferson Street. Explore the feasibility of burying utilities as part of improvements and planting additional trees.	X			**BPS, PBOT**	PGE, Private
Goose Hollow	RC29	Prepare a strategy to strengthen Retail Core connections on SW Yamhill between the West End and SW 18th; and to activate Salmon with additional retail.	X			**BPS, PDC**	
Goose Hollow	RC28	Work with developers and existing property owners (e.g., The Oregonian, TriMet) in the Hollow to encourage redevelopment in line with district goals.			X	**BPS, PDC, Private**	
Goose Hollow	RC31	Explore opportunities for activating the Providence Park street perimeter, particularly S.W. 18th, when events are not taking place.	X			**BPS, Private**	
Goose Hollow	UD32	Reduce the impacts to neighbors from I-405 noise and air pollution by installing green walls on new/redeveloped buildings and street trees where appropriate.		X		**BPS, BES**	
Goose Hollow	UD33	Develop a Neighborhood Park Strategy for the district that will accommodate projected residential and job density increases.		X		**BPS, PPR**	Private

Portland Bureau of Planning and Sustainability (BPS)							
Action Identifier		**Implementation Actions**	**Timeline**			**Implementers**	
Geography	**Code**	**Action**	**2-5 years**	**6-20 years**	**Ongoing**	**Lead Implementers**	**Partner Implementers**
Goose Hollow	UD35	Study the feasibility of moving or updating the PGE substation at SW 17th and Columbia to decrease its footprint, creating opportunities for development or park space.		X		**BPS, Private**	
Lloyd	EN27	Develop and implement a tree planting strategy for the Lloyd District. The strategy should identify available planting locations including streets and underutilized space within public rights-of-way.		X		**BPS, PPR**	UF, BES, BPS, PBOT, PWB, Private
Lloyd	EN25	Explore approaches to improve the environmental performance of the district. Possible tools include technical assistance and incentives for green infrastructure, energy retrofits, high performance new construction, renewable energy systems, connections to district energy, and reduced nighttime lighting. Seattle's "Green Factor" is an example of flexible regulations geared toward green infrastructure.	X			**BPS**	BDS, BES, EcoDistrict
Lloyd	EN30	Coordinate capital improvements and "green systems" planning with the work of the Lloyd EcoDistrict.			X	**BPS**	EcoDistrict
Lloyd	HN18	Address potential displacement of residents and businesses in the Lloyd District and in adjacent at risk neighborhoods, such as Eliot, through citywide programs developed as part of the Comprehensive Plan. Potential programs include housing and small business assistance programs targeted for areas at risk for displacement.			X	**BPS**	PHB, PDC, POE

Portland Bureau of Planning and Sustainability (BPS)							
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Geography	**Code**	**Action**	**2-5 years**	**6-20 years**	**Ongoing**	**Lead Implementers**	**Partner Implementers**
Lloyd	TR74	Explore water transportation options, including a Willamette River water taxi, and investigate the feasibility of a landing in the Lloyd District. Such a landing should include a safe and direct pedestrian connection to the Convention Center and the Rose Quarter.		X		**BPS**	PBOT, PPR, Private
Lloyd	UD40*	Update the Lloyd District's 1991 design guidelines: Special Design Guidelines for the Design Zone of the Lloyd District of the Central City Plan to reflect the district concept.	X			**BPS**	BDS, BES, PBOT, PDC
Lloyd	UD44	Work with property owners and developers to further the development of NE 7th and NE Multnomah as district retail/commercial streets.			X	**BPS**	PDC
Lloyd	UD42*	Work with the property owner/developer of the "Thunderbird" site to craft a development agreement that incorporates public open space and the greenway trail on the riverfront. See related action TR72.	X			**BPS**	PPR, BPS, ODOT, Private
Lloyd	UD39	Explore development of an implementation plan for establishing public parks, plazas and open spaces consistent with the district concept diagram and policies. Seek to time the development of the signature open space system on or near Clackamas concurrent with significant residential development in the district as they are proposed. If implementation of the parks plan will require new regulatory or incentive tools, BPS or another agency will lead the implementation plan process.	X			**BPS, PPR**	PDC

Portland Bureau of Planning and Sustainability (BPS)							
Action Identifier		**Implementation Actions**	**Timeline**			**Implementers**	
Geography	**Code**	**Action**	**2-5 years**	**6-20 years**	**Ongoing**	**Lead Implementers**	**Partner Implementers**
Lower Albina	EN34	Target outreach to industrial businesses regarding sustainable business practices.			X	**BPS**	
Lower Albina	EN33	Explore approaches to improve the environmental performance of the industrial district. Possible tools include incentives for green infrastructure, energy retrofits, high performance new construction, renewable energy systems, and connections to district energy		X		**BPS**	BDS, BES
Lower Albina	RC38	Identify potential brownfield sites and identify clean-up and redevelopment strategies to bring them back into economic use.	X			**BPS**	PDC, BES, Private
Lower Albina	UD49*	Encourage and assist Lower Albina property owners to nominate their historic properties for designation as landmarks.			X	**BPS**	AHC, SHPO, Eliot NA
Lower Albina	UD46*	Improve the design review approval criteria used for development proposals within the Russell Street Conservation District and design overlay zone within Lower Albina.	X			**BPS**	BDS
Old Town/Chinatown	HN19	Provide a housing tax abatement program for OT/CT.			X	**BPS, PHB**	County
Old Town/Chinatown	HN20	Encourage social service providers to locate queuing indoors.			X	**BPS**	PHB, County
Old Town/Chinatown	HN21	Encourage social service providers to locate retail uses on the ground floor with services above.			X	**BPS**	PHB, County

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Geography	**Code**	**Action**	**2-5 years**	**6-20 years**	**Ongoing**	**Lead Implementers**	**Partner Implementers**
Old Town/Chinatown	RC52	Develop and implement strategies, e.g. good neighbor agreements, to mitigate negative impacts of nightlife uses.			X	**BPS**	PDC
Old Town/Chinatown	TR89	Improve access through the US Postal Service site to Union Station as it redevelops.		X		**BPS**	PBOT, PDC
Old Town/Chinatown	UD54	Review and revise as appropriate the 4th Ave. "Bright Lights District" provisions of the Central City Fundamental Design Guidelines.	X			**BPS**	
Old Town/Chinatown	UD52	Update the National Register nomination for the New Chinatown/Japantown historic district. Review and revise as appropriate district boundaries, period and areas of significance, and list of contributing properties.		X		**BPS**	OTCTCA
Old Town/Chinatown	UD56	Explore opportunities for direct access to the Willamette River, (e.g. a beach), near the Steel Bridge.		X		**BPS**	PPR, Private, HAP, PWA
Pearl	EN39	Recognize the Brewery Blocks as a "high performance area" and encourage new adjacent development to build on the existing district energy system.			X	**BPS**	
Pearl	EN40	Encourage and promote an environmental "high performance area" on the redeveloped US Postal Service site through incentives, public-private partnerships and/or master planning.	X			**BPS**	PDC, BES
Pearl	HN24	Develop a new K-8 public school to serve the district.			X	**BPS**	PDC, PPS, Private
Pearl	RC66	Explore the possibility of building a public boat house.	X			**BPS**	PPR, Private

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Geography	**Code**	**Action**	**2-5 years**	**6-20 years**	**Ongoing**	**Lead Implementers**	**Partner Implementers**
University District/ South Downtown	HN27	Identify opportunities for locating a new public school within the district, particularly an elementary school and/or middle school.		X		**BPS, PPS**	PSU
University District/ South Downtown	HN26	Develop a district retail strategy.	X			**BPS, PSU, PBA, PDC, Private**	
University District/ South Downtown	RC67	Develop incentives to foster partnerships between PSU and private development.	X			**BPS**	PSU, PDC, Private
University District/ South Downtown	TR108	Implement the "Green Loop" Concept through the district, connecting the Tilikum Crossing Bridge to the South Park Blocks, and locations further north as well as improved opportunities for habitat movement.	X			**BPS**	PBOT, PPR, BES
University District/ South Downtown	UD64	Support further enhancements of the SW Montgomery Green Street.			X	**BPS, BES**	PPR, PBOT
University District/ South Downtown	UD69	Complete a Development Opportunity Strategy for the remnant properties on SW Naito/Harbor Drive.	X			**BPS**	PDC
University District/ South Downtown	UD65*	Review and update South Auditorium Plan District development standards and guidelines, specifically those related to landscaping and setback requirements.	X			**BPS**	PDC, BDS
University District/ South Downtown	UD61	Develop a district open space strategy that emphasizes ways to better use and access existing space while exploring opportunities for new spaces (e.g., potential freeway caps, "Green Loop")	X			**BPS**	PPR

Portland Bureau of Planning and Sustainability (BPS)							
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Geography	**Code**	**Action**	**2-5 years**	**6-20 years**	**Ongoing**	**Lead Implementers**	**Partner Implementers**
University District/ South Downtown	UD68	Collaborate with PSU on historic preservation efforts.			X	**BPS, PSU**	SHPO
South Waterfront	EN46	Explore district energy opportunities in the northern half of district and consider how such systems might be connected to the southern half of the district.			X	**BPS**	
South Waterfront	EN47	Promote low-impact development strategies that minimize impervious areas, use multi-objective stormwater management systems, create water-quality friendly streets and parking lots and enhance natural area revegetation.			X	**BPS, PDC**	BES, PBOT
West End	EN49	Encourage the continued improvement and expansion of the Brewery Blocks' district energy system, along with other opportunities for locally produced distributed energy, e.g., solar, wind, combined heat and power, sewer heat recovery and geothermal exchange.			X	**BPS**	
West End	HN34	Explore opportunities for shared community use of PSU and Lincoln HS recreational facilities.	X			**BPS**	PPR, PSU, PPS
West End	RC81	Develop a package of streetscape improvements for the cultural district to enhance the pedestrian experience between attractions including OHS, the Art Museum and the Arlene Schnitzer Concert Hall.		X		**BPS, PBOT, PPR, Private**	
West End	RC80	Explore options for redeveloping the site occupied by the City-owned parking garage at SW 10th and Yamhill, including improved ground-floor retail presence.	X			**BPS, PBOT, PDC, OMF, Private, DNA**	

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Geography	**Code**	**Action**	**2-5 years**	**6-20 years**	**Ongoing**	**Lead Implementers**	**Partner Implementers**
West End	UD78*	Review and revise as appropriate the two National Register Multiple Property Documentation forms for Downtown development to encompass a broader range of potential historic resources in the West End.	X			**BPS**	
West End	UD79	Reduce the impacts to neighbors from I-405 noise and air pollution by installing green walls on new/redeveloped buildings and street trees where appropriate.		X		**BPS, BES**	
West End	UD81	Develop a set of special design guidelines and streetscape improvements for the Cultural District.	X			**BPS**	PBOT

Portland Development Commission (PDC)							
Action Identifier		**Implementation Actions**	**Timeline**			**Implementers**	
Geography	**Code**	**Action**	**2-5 years**	**6-20 years**	**Ongoing**	**Lead Implementers**	**Partner Implementers**
Central Eastside	RC5	Continue efforts and initiatives within the Central City to organize and locate day laborer services, such as VOZ, that provide safe places for worker rights, education, and outreach and that protect the rights of laborers.	X			**PDC, VOZ**	

Portland Development Commission (PDC)							
Action Identifier		**Implementation Actions**	**Timeline**			**Implementers**	
Geography	**Code**	**Action**	**2-5 years**	**6-20 years**	**Ongoing**	**Lead Implementers**	**Partner Implementers**
Central Eastside	RC6	Initiate catalytic redevelopment projects along the Portland-Milwaukie light rail alignment to complement institutional growth and employment in research and development and other high tech industrial sectors.	X			**PDC**	Private
Central Eastside	RC7	Support the growth and expansion of the Innovation Quadrant and economic opportunities associated with the growth of major institutions (such as OMSI, OHSU, PCC, and PSU), with an emphasis on partnerships and collaborations that facilitate economic development that supports the quadrant and city as a whole.			X	**PDC**	BPS, Institutions
Central Eastside	RC8	Align public sector programs, financing tools, and physical assets to leverage city-wide innovation priorities such as the Innovation Quadrant, OHSU's Knight Cancer Challenge, and emerging cross-sector opportunities like "Internet of Things" and Health Technology.			X	**PDC**	Institutions, Private
Central Eastside	RC9	Address skill gaps within high-growth, high-demand occupations and support individual career development. Form partnerships between CES employers and institutions such as CEIC, PCC, and PPS to provide/support on the job training for new employees and training for incumbent workers to advance to higher skilled, higher wage jobs.			X	**PDC**	CEIC, OMSI, PPS, PCC, CEIC
Central Eastside	RC11	Study the feasibility and strategy for creating a new business improvement district for the Central Eastside.	X			**PDC, CEIC**	

Portland Development Commission (PDC)							
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Geography	**Code**	**Action**	**2-5 years**	**6-20 years**	**Ongoing**	**Lead Implementers**	**Partner Implementers**
Central Eastside	RC12	Use best practices research to develop new strategies to create affordable space for craft manufacturers and new businesses in Portland.			X	**PDC**	BPS, CEIC, Portland Made, City-wide manufacturers and industrial companies
Central Eastside	TR7*	Explore tools that developers can use to pay for the construction of centralized structured parking where projects cannot feasibly provide on-site parking.	X			**PDC**	BPS, PBOT
Central Eastside	TR28*	Establish wayfinding system for district that directs preferred routes for specific modes.	X			**PDC**	PBOT
Central Eastside	TR31	Develop a district parking facility at ODOT Blocks, if demand and financial support for project exists.	X			**PDC**	
Central Eastside	TR13	Improve auto/freight access to the district from Powell Blvd through protected turns between the Ross Island Bridge and Milwaukie subject to ODOT approval.	X			**PDC, PBOT**	TriMet, ODOT
Central Eastside	UD14	Identify and pursue opportunities to create publicly accessible riverfront parks, open space, and recreation opportunities and east-west access ways as part of the redevelopment of the ODOT Blocks located west of SE Water Avenue.			X	**PDC**	PPR, PBOT, BPS
Central Eastside	WR11*	Partner with property owners and other stakeholders to fund and implement a preferred concept plan for the Eastbank crescent that includes fish and wildlife habitat, boating, swimming, educational opportunities, and enhanced greenway trail.	X			**PDC, BPS, PPR, BES**	

Portland Development Commission (PDC)							
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Geography	**Code**	**Action**	**2-5 years**	**6-20 years**	**Ongoing**	**Lead Implementers**	**Partner Implementers**
Downtown	RC24	Explore options for redeveloping the site occupied by the City-owned parking garage at SW 3rd and SW Alder. Provide public parking; add mixed use development including improved retail.		X		**PDC, PBOT, BPS**	
Downtown	RC18	Implement incentives that encourage new development, including targeted clusters of commercial development, in the Naito Parkway area.	X			**PDC, BPS**	
Downtown	RC17	Encourage redevelopment with key public attractions and mixed uses at the Morrison Bridgehead that connect to the river.	X			**PDC, Private, PBOT, PPR, BPS, County**	
Downtown	RC25	Promote the Downtown area, Willamette River and Waterfront Park through media and other campaigns.			X	**PDC, Private, Travel Portland, PPR, TriMet**	
Goose Hollow	RC29	Prepare a strategy to strengthen Retail Core connections on SW Yamhill between the West End and SW 18th; and to activate Salmon with additional retail.	X			**PDC, BPS**	
Goose Hollow	RC28	Work with developers and existing property owners (e.g., The Oregonian, TriMet) in the Hollow to encourage redevelopment in line with district goals.			X	**PDC, BPS, Private**	
Lloyd	EN26	Investigate opportunities for serving the PPS Blanchard site with district energy.	X			**PDC**	BPS, PPS
Lloyd	RC33	Develop a strategy to promote the development of new hotels and the improvement of existing hotels in the vicinity of the Oregon Convention Center.	X			**PDC**	BPS, Private

Portland Development Commission (PDC)							
Action Identifier		**Implementation Actions**	**Timeline**			**Implementers**	
Geography	**Code**	**Action**	**2-5 years**	**6-20 years**	**Ongoing**	**Lead Implementers**	**Partner Implementers**
Lloyd	RC34	Pursue development on publically owned sites in and around the Rose Quarter through public-private partnerships.			X	**PDC**	Private
Lower Albina	RC39	Assist small businesses and property owners through storefront grants, Development Opportunity Services grants, loans for tenant improvements, start-up and equipment, and other programs.			X	**PDC**	
Old Town/Chinatown	RC54	Explore the development of new and enhance existing financial tools to help fund seismic upgrades to the district's historic buildings.	X			**PDC**	BPS
Old Town/Chinatown	RC45	Support continued project and development opportunities and help fund development gaps that can bring transformative development on large opportunity sites.			X	**PDC**	
Old Town/Chinatown	RC49	Identify financing and business strategies to renovate and seismically upgrade Union Station and maximize the potential of the station and adjacent parcels.	X			**PDC**	
Old Town/Chinatown	RC53	Pursue investment partnerships for seismic upgrading and other real estate development.	X			**PDC**	
Old Town/Chinatown	RC56	Provide predevelopment funds and technical assistance to enable property owners to complete full due diligence on underutilized properties.			X	**PDC**	
Old Town/Chinatown	RC57	Implement incentives that encourage new development in the Naito Parkway/riverfront area including targeted clusters of commercial uses as identified in the Old Town/Chinatown Five Year Action Plan.	X			**PDC**	

Portland Development Commission (PDC)							
Action Identifier		**Implementation Actions**	**Timeline**			**Implementers**	
Geography	**Code**	**Action**	**2-5 years**	**6-20 years**	**Ongoing**	**Lead Implementers**	**Partner Implementers**
Old Town/Chinatown	RC43*	Implement the Old Town/Chinatown Five Year Action Plan.	X			**PDC**	City
Old Town/Chinatown	RC47	Actively pursue developers for City and PDC-owned properties, including Block 8, Block 25, Block A&N and Block R.	X			**PDC**	
Old Town/Chinatown	RC51	Establish a district management entity to coordinate public space and event programming, fundraising efforts and district branding and promotion.	X			**PDC**	OTCTCA
Old Town/Chinatown	RC58	Pursue development of one or more new shared parking structures to serve various users in the district and replace lost parking as surface lots redevelop.	X			**PDC, PBOT**	
Old Town/Chinatown	RC48	Explore the potential redevelopment of the Greyhound Terminal site by continuing to pursue moving bus operations onto Block Y.	X			**PDC**	Private
Old Town/Chinatown	TR84	Study possible reconfiguration of the Steel Bridge ramps and the rail line to improve pedestrian and bike access to/along the greenway trail, NW Flanders and McCormick Pier and create new development opportunities.	X			**PDC, PBOT**	PPR, BPS, ODOT, UPRR, TriMet
Old Town/Chinatown	TR85	Improve connections between interurban buses and trains and between interurban and local transit. Consider relocation of interurban bus services closer to Union Station.		X		**PDC, PBOT**	Greyhound
Pearl	EN37	Restore riparian and shallow water habitat to improve conditions for fish and wildlife at Centennial Mills.	X			**PDC, Private**	BES, PPR, PDC

Portland Development Commission (PDC)							
Action Identifier		**Implementation Actions**	**Timeline**			**Implementers**	
Geography	**Code**	**Action**	**2-5 years**	**6-20 years**	**Ongoing**	**Lead Implementers**	**Partner Implementers**
Pearl	RC62	Relocate the US Post Office and redevelop the site with a wide mix of urban uses including employment.		X		**PDC**	Private
Pearl	RC63	Redevelop the Centennial Mills site to meet public goals including commercial uses, greenway trail continuity, and public access to the river as outlined in the Centennial Mills Framework Plan (adopted by Portland City Council, Fall 2006).	X			**PDC**	Private
University District/ South Downtown	HN26	Develop a district retail strategy.	X			**PDC, BPS, PSU, PBA, Private**	
South Waterfront	EN47	Promote low-impact development strategies that minimize impervious areas, use multi-objective stormwater management systems, create water-quality friendly streets and parking lots and enhance natural area revegetation.			x	**PDC, BPS**	BES, PBOT
South Waterfront	EN48	Implement the Zidell Development Agreement which calls for Willamette River Greenway improvements.		X		**PDC**	PPR
South Waterfront	RC71	Encourage partnerships between the area's educational/research institutions and private business.			X	**PDC, OHSU**	OMSI, PSU, Private
South Waterfront	RC70	Promote public investments that leverage investments in traded-sector and other relevant businesses in the district, bring wealth into the region and create family-wage jobs.			X	**PDC**	BPS, PBOT

Portland Development Commission (PDC)							
Action Identifier		**Implementation Actions**	**Timeline**			**Implementers**	
Geography	**Code**	**Action**	**2-5 years**	**6-20 years**	**Ongoing**	**Lead Implementers**	**Partner Implementers**
South Waterfront	RC72	Develop telecommunications and other infrastructure needed to ensure that South Waterfront is a competitive location for science and high technology jobs.	X			**PDC, Private**	
South Waterfront	TR114	Complete the greenway trail connecting it with the rest of the 40-Mile Loop Trail. Where feasible, explore opportunities for completing the trail prior to development rather than waiting for it to be completed with development.		X		**PDC, PPR**	PDC, BPS, Private
South Waterfront	UD72	Explore potential for a major high-density mixed-use development at the Zidell site that brings together a variety of uses and activities, increases human access to/from the river and celebrates its maritime past.	X			**PDC**	BPS, Private
South Waterfront	UD74	Develop green connections at regular intervals extending from the river west into the district as a means for providing pedestrian linkages, multi-objective stormwater management opportunities and reinforcing the presence of the river and riverfront in the district.	X			**PDC, PBOT, Private**	BES, BPS
West End	RC80	Explore options for redeveloping the site occupied by the City-owned parking garage at SW 10th and Yamhill, including improved ground-floor retail presence.	X			**PDC, PBOT, BPS,OMF, Private, DNA**	
West End	RC79	Implement the Downtown Retail Strategy in the West End.			X	**PDC, PBA**	

Portland Fire and Rescue (PFR)							
Action Identifier		**Implementation Actions**	**Timeline**			**Implementers**	
Geography	**Code**	**Action**	**2-5 years**	**6-20 years**	**Ongoing**	**Lead Implementers**	**Partner Implementers**
Central City	RC2	As development occurs and density increases, ensure that new construction and rehabilitation projects include both early warning systems (e.g., alarms and CO detectors) and fire protection equipment. Fire sprinklers help minimize fire size and spread, therefore reducing the loss of life from fire.			X	**PFR, BDS**	

Portland Housing Bureau (PHB)							
Action Identifier		**Implementation Actions**	**Timeline**	**Implementers**			
Geography	**Code**	**Action**	**2-5 years**	**6-20 years**	**Ongoing**	**Lead Implementers**	**Partner Implementers**
Central City	HN2	Adopt inclusionary housing provisions to increase the supply of affordable housing.			X	**PHB,BPS**	
Central Eastside	HN7	Update the Central City Housing Inventory by 2016 and conduct periodic updates on a regular basis.			X	**PHB**	BPS
Central Eastside	HN9	Develop a sustainable source(s) of funding to create and preserve affordable housing throughout the Central City that aligns with geographic scope and time horizon of the City's affordable housing goals.	X		X	**PHB**	BPS

Portland Housing Bureau (PHB)							
Action Identifier		**Implementation Actions**	**Timeline**	**Implementers**			
Geography	**Code**	**Action**	**2-5 years**	**6-20 years**	**Ongoing**	**Lead Implementers**	**Partner Implementers**
Lloyd	HN16	Support connections between district employers and employee housing within the district through employer-assisted housing programs and coordinated mixed-use development, particularly employer-assisted housing for service-level workers employed within the district.	X			**PHB**	Private
Old Town/Chinatown	HN19	Provide a housing tax abatement program for OT/CT.			X	**PHB, BPS**	County
West End	HN32*	Develop and implement an affordable housing strategy for the West End that preserves or replaces existing affordable housing, including buildings that are privately owned.				**PHB**	BPS

Portland Office of Management and Finance (OMF)							
Action Identifier		**Implementation Actions**	**Timeline**			**Implementers**	
Geography	**Code**	**Action**	**2-5 years**	**6-20 years**	**Ongoing**	**Lead Implementers**	**Partner Implementers**
Downtown	EN21	Incorporate plans to remove a portion of the seawall at Tom McCall Waterfront Park (not in the vicinity of Ankeny Street Pump Station) to provide river access, improved flood management and habitat enhancement into the WPMP update.		X		**OMF, PPR**	BES, NOAA Fisheries, USACE, DSL
Downtown	RC21	Maintain Portland'5 Centers for the Arts as the leading regional performing arts venue.			X	**OMF, Metro, Private**	
Goose Hollow	RC30	Encourage the City, neighborhood associations and stadium operators to support a broader range of uses/events at Providence Park in future Good Neighbor Agreement updates.	X			**OMF, GHFL, NWDA, Private**	
West End	RC80	Explore options for redeveloping the site occupied by the City-owned parking garage at SW 10th and Yamhill, including improved ground-floor retail presence.	X			**OMF, PBOT, PDC, BPS, Private, DNA**	

Portland Office of Neighborhood Involvement (ONI)							
Action Identifier		**Implementation Actions**	**Timeline**			**Implementers**	
Geography	**Code**	**Action**	**2-5 years**	**6-20 years**	**Ongoing**	**Lead Implementers**	**Partner Implementers**
Central City	HN1	Support improved communication and cooperation between social service providers and surrounding neighborhoods concerning livability challenges for all. At a minimum, encourage social service providers to enter into Good Neighbor Agreements.			X	**ONI**	PHB, County, Private
Central City	HN4	Improve safety through programming and CPTED (Crime Prevention Through Environmental Design) improvements, including better street lighting.			X	**ONI, PPR, PBOT, PPB**	Private
Old Town/Chinatown	HN22	Establish a working committee of the Police Bureau, Office of Neighborhood Involvement's Crime Prevention Coordinator, Clean & Safe, OT/CT Community Association, social service providers, and others to implement a comprehensive set of neighborhood policing actions.	X			**ONI**	PPB, OTCTCA

Portland Bureau of Transportation (PBOT)							
Action Identifier		**Implementation Actions**	**Timeline**			**Implementers**	
Geography	**Code**	**Action**	**2-5 years**	**6-20 years**	**Ongoing**	**Lead Implementers**	**Partner Implementers**
Citywide	TR119	Explore tools and strategies to reduce development-related vehicle trip and parking impacts. These could include Transportation Demand Management, parking management, or other strategies, to be implemented in partnership with new or existing developments.			X	**PBOT**	BPS, BDS
Central City	EN5	Implement projects that increase habitat in public rights-of-ways and development.			X	**PBOT, BES**	PPR
Central City	HN4	Improve safety through programming and CPTED (Crime Prevention Through Environmental Design) improvements, including better street lighting.			X	**PBOT, ONI, PPR, PPB**	Private
Central City	TR1	Pursue streetscape projects that enhance walking, urban greenery, community uses of the right-of-way and place-making.			X	**PBOT**	BES, BPS
Central City	TR2	Improve bicycle and pedestrian access and connectivity throughout and complement access to transit and Bike Share systems.	X		X	**PBOT**	
Central City	TR3	As the bicycle network improves, expand the area of the Central City in which bicyclists are not allowed to ride on the sidewalk.			X	**PBOT**	
Central City	TR4	Explore funding mechanisms, phasing and the implementation of river transit in Central City.		X		**PBOT, BPS**	Private
Central City	TR6	Coordinate system planning efforts among city bureaus and potential private investors for green infrastructure improvements.			X	**PBOT, BES**	

Portland Bureau of Transportation (PBOT)							
Action Identifier		**Implementation Actions**	**Timeline**			**Implementers**	
Geography	**Code**	**Action**	**2-5 years**	**6-20 years**	**Ongoing**	**Lead Implementers**	**Partner Implementers**
Central City	UD5	Pursue public-private partnerships to provide publically accessible restrooms at locations near transit stations, the Willamette Greenway, public parks, plazas, and open space features.			X	**PBOT, PPR**	Trimet, BPS, PDC, Private
Central City	WR1	Improve the Willamette Greenway Trail to facilitate continuity for bike and pedestrian access, reduce user conflicts and provide access to the river.			X	**PBOT, PPR**	
Central Eastside	TR15	Improve access for cyclists traveling west from the Central Eastside to the Burnside and Morrison Bridges.	X			**PBOT**	
Central Eastside	TR18	Analyze loading needs and develop new loading guidelines.	X			**PBOT**	
Central Eastside	TR19	Explore ways to adopt the Ground Floor Edge Concept, including three street types: retail, boulevard and flexible. Create design standards that result in more practical building designs in transition areas between different base zones. This may include updates to the Transportation System Plan Street Design Classifications.	X			**PBOT**	
Central Eastside	TR21	Include an analysis of the feasibility for river transit service in the 2016-2018 update to the Regional Transportation Plan.	X			**PBOT**	Metro
Central Eastside	TR22	Establish criteria for further deployment of parking meters in the district and establish pricing for parking necessary to facilitate future structured parking facilities.			X	**PBOT**	Private

Portland Bureau of Transportation (PBOT)							
Action Identifier		**Implementation Actions**	**Timeline**			**Implementers**	
Geography	**Code**	**Action**	**2-5 years**	**6-20 years**	**Ongoing**	**Lead Implementers**	**Partner Implementers**
Central Eastside	TR23	Conduct a study every 2 years to ensure parking capacity is meeting needs as the district continues to grow and evolve. This would include studying opportunities for the provision of structured parking.			X	**PBOT**	
Central Eastside	TR24	Identify opportunities to creatively use public rights-of-way to meet open space, recreation and retail needs, especially along designated green or flexible streets.			X	**PBOT, PPR**	
Central Eastside	TR25	Study feasibility of realigning the Morrison Bridge off ramp to MLK to allow for through eastbound traffic on Yamhill.	X			**PBOT**	PDC
Central Eastside	TR26	Update Transportation System Plan functional classifications by reclassifying SE Martin Luther King, Jr. Blvd., SE Grand Ave., SE Stark St., SE Morrison St., SE Belmont St., SE Division Pl., and SE Water Ave. to Priority Truck Streets. Reclassify NE Davis, SE Sandy and SE 7th Ave to Major Truck Streets. All other streets in the CEID would remain Freight District Streets.	X			**PBOT**	
Central Eastside	TR27	Remove left turn from westbound SE Clay St onto southbound SE MLK Blvd and direct traffic to SE Mill St to reduce backups on Clay.	X			**PBOT**	
Central Eastside	TR29	Explore the feasibility of implementing a Railroad Quiet Zone along SE 1st Ave.	X			**PBOT**	PDC, Private
Central Eastside	TR33	Pursue redevelopment of the Clinton Station pedestrian overpass bridge linking the Clinton Station with the Hosford-Abernethy Neighborhood to the northeast.	X			**PBOT, TriMet**	

Portland Bureau of Transportation (PBOT)							
Action Identifier		**Implementation Actions**	**Timeline**			**Implementers**	
Geography	**Code**	**Action**	**2-5 years**	**6-20 years**	**Ongoing**	**Lead Implementers**	**Partner Implementers**
Central Eastside	TR34	Seek vacation of ODOT easements impacting potential development sites in the OMSI Station Area established to develop the Mt. Hood Freeway.			X	**PBOT, ODOT**	PDC, BPS
Central Eastside	TR8*	Alleviate congestion and improve freight, auto and non-auto mobility and accessibility by installing traffic control devices on Sandy at Ankeny St., MLK at Ankeny St., on MLK/Grand at Salmon St., on Water Ave at the I-5 off ramp.	X			**PBOT**	PDC
Central Eastside	TR36	Study the potential for bus service along SE Water Avenue.	X			**PBOT, TriMet**	Metro (TPAC)
Central Eastside	TR37	Pursue funding and implementation of north-south and east-west bicycle routes adopted by the Bicycle Master Plan and identified by the Transportation System Plan to ensure cyclists commuting to and through the district have a diversity of safe and recognizable routes to access the Central Eastside. Pursue implementation actions that enhance the safety of cyclists but that do not conflict with efficient freight mobility.			X	**PBOT**	
Central Eastside	TR9*	Create one-way couplets on Stark/Washington and Yamhill/Taylor to alleviate congestion at signalized intersections.	X			**PBOT**	PDC
Central Eastside	TR10*	Enhance existing east-west pedestrian and bicycle access by installing traffic signals or other traffic control devices at key crossings of 11th/12th such as Ankeny St., Salmon St., Clay St., and Harrison St.	X			**PBOT**	PDC

Portland Bureau of Transportation (PBOT)							
Action Identifier		**Implementation Actions**	**Timeline**			**Implementers**	
Geography	**Code**	**Action**	**2-5 years**	**6-20 years**	**Ongoing**	**Lead Implementers**	**Partner Implementers**
Central Eastside	TR11	Consider pedestrian and bicycle access between Grand/MLK and the Tilikum Crossing in the vicinity of the streetcar bridge.		X		**PBOT**	PDC
Central Eastside	TR13	Improve auto/freight access to the district from Powell Blvd through protected turns between the Ross Island Bridge and Milwaukie subject to ODOT approval.	X			**PBOT, PDC**	TriMet, ODOT
Central Eastside	TR14	Build a bicycle/pedestrian bridge that connects the Central Eastside to the Lloyd District across I-84.		X		**PBOT**	PDC
Central Eastside	UD11*	Develop an urban design concept and implementation strategy to enhance the role, use, and character of the historic main streets under the Morrison, Belmont, Madison, and Hawthorne Street viaducts, and the area under I-5.	X			**PBOT, BPS**	PDC
Downtown	RC19	Study the feasibility of removing or reconfiguring the ramps and approaches to the Morrison bridge to create more developable land parcels and improve multimodal connectivity to the river. Consider the impacts to providing southbound freeway access from the Central Eastside.	X			**PBOT, County BPS**	
Downtown	RC24	Explore options for redeveloping the site occupied by the City-owned parking garage at SW 3rd and SW Alder. Provide public parking; add mixed use development including improved retail.		X		**PBOT, PDC, BPS**	
Downtown	RC17	Encourage redevelopment with key public attractions and mixed uses at the Morrison Bridgehead that connect to the river.	X			**PBOT, Private, PPR, BPS, PDC, County**	

Portland Bureau of Transportation (PBOT)							
Action Identifier		**Implementation Actions**	**Timeline**			**Implementers**	
Geography	**Code**	**Action**	**2-5 years**	**6-20 years**	**Ongoing**	**Lead Implementers**	**Partner Implementers**
Downtown	TR42*	Enhance West Burnside to improve streetscape quality, multimodal access, and bicycle and pedestrian safety.	X	X		**PBOT**	
Downtown	TR47	Develop a strategy for maintaining large passenger vehicle (e.g., tour bus, school bus) access to area attractions as other redevelopment occurs.	X			**PBOT**	
Downtown	TR49	Study the feasibility of partial to full closure and public use of segments of Naito Parkway during evenings and on weekends.	X			**PBOT**	
Downtown	TR50	Study ways to improve multimodal accessibility at the Morrison and Hawthorne bridges	X			**PBOT**	
Downtown	TR38	Study and address pedestrian connectivity issues at the base of the Morrison Bridge. (see also action TR50)	X			**PBOT**	BPS, MC
Downtown	TR48	Develop a parking strategy that promotes multiple use and the sharing of existing resources.	X			**PBOT**	BPS, PDC
Downtown	TR44	Implement the “Green Loop” Concept through the district connecting the South and North Park Blocks and creating wildlife habitats between the Willamette River, park blocks and the West Hills.	X			**PBOT**	BPS, PPR
Downtown	TR45	Explore opportunities for consolidating and/or redeveloping Burnside’s “jug handles” (triangular shaped spaces) into public spaces.		X		**PBOT**	BPS, Private

Portland Bureau of Transportation (PBOT)							
Action Identifier		**Implementation Actions**	**Timeline**			**Implementers**	
Geography	**Code**	**Action**	**2-5 years**	**6-20 years**	**Ongoing**	**Lead Implementers**	**Partner Implementers**
Downtown	TR39	Develop and implement changes to bicycle and pedestrian circulation on Naito Parkway and the Waterfront Park Greenway Trail to reduce conflicts and improve safety and access.	X			**PBOT**	PPR
Downtown	TR46	Identify opportunities to creatively use public rights-of-way to meet open space, recreation and retail needs, especially along designated flexible streets.			X	**PBOT**	PPR
Downtown	TR43	Implement a Bike Share program with Downtown as its core that includes numerous rental locations and complements transit.	X			**PBOT**	Private
Downtown	UD25	Improve Salmon Street with active transportation, landscaping and green infrastructure facilities to better connect Washington Park to the South Park Blocks and the Willamette River and improve the quality of water discharged into the Willamette.		X		**PBOT**	BES, BPS
Downtown	UD26	Develop SW Ankeny as a great pedestrian street.	X			**PBOT**	BPS, Private
Goose Hollow	EN23	Incorporate native vegetation within existing public open spaces including Collins Circle, Firefighters Park and the stadium plazas, and with redevelopment of the Lincoln High School site.		X		**PBOT**	PPS

Portland Bureau of Transportation (PBOT)							
Action Identifier		**Implementation Actions**	**Timeline**			**Implementers**	
Geography	**Code**	**Action**	**2-5 years**	**6-20 years**	**Ongoing**	**Lead Implementers**	**Partner Implementers**
Goose Hollow	HN13	Develop and implement a strategy to encourage main street-friendly streetscape and stormwater management improvements on SW Jefferson Street. Explore the feasibility of burying utilities as part of improvements and planting additional trees.	X			**PBOT, BPS**	PGE, Private
Goose Hollow	TR52	Improve bicycle and pedestrian infrastructure and safety on I-405 overpasses and at Collins Circle.	X			**PBOT**	
Goose Hollow	TR53*	Improve West Burnside streetscape quality; multimodal access; and bicycle and pedestrian problem areas, particularly at SW Vista, Providence Park access areas and by I-405.	X			**PBOT**	
Goose Hollow	TR59	Explore traffic calming opportunities for SW 20th. Incorporate pedestrian and bicycle-oriented features where feasible.		X		**PBOT**	
Goose Hollow	TR60	Renovate the Vista Bridge.		X		**PBOT**	
Goose Hollow	TR54	Complete a local circulation study for Goose Hollow that explores possible changes to street operations and configurations including one-way vs. two-way streets east of SW 18th, including Jefferson and Columbia; enhanced transit, bicycle facilities and on-street parking to help meet district goals.	X			**PBOT**	BPS
Goose Hollow	TR55	Improve bicycle and pedestrian connectivity throughout the district, including new connections on SW 16th through the LHS site.	X			**PBOT, PPS**	

Portland Bureau of Transportation (PBOT)							
Action Identifier		**Implementation Actions**	**Timeline**			**Implementers**	
Geography	**Code**	**Action**	**2-5 years**	**6-20 years**	**Ongoing**	**Lead Implementers**	**Partner Implementers**
Goose Hollow	TR58	Develop and implement a district parking strategy that promotes multiple-use and shared parking resources in the district.	X			**PBOT**	Private
Goose Hollow	TR56	Determine the feasibility of adding new light rail station(s) on the Blue/Red line near SW 14th or 15th Avenue as development density increases in the Hollow.		X		**PBOT, TriMet**	
Goose Hollow	UD36	Improve Salmon Street with active transportation, landscaping and green infrastructure facilities to better connect Washington Park to the South Park Blocks and the Willamette River and improve the quality of water discharged into the Willamette.		X		**PBOT**	BES, BPS
Goose Hollow	UD34*	Improve Collins Circle and Firefighters Park to make these public spaces more accessible and engaging for the community.		X		**PBOT**	PPR, BPS, Private
Goose Hollow	RC32	At viewpoint SW07 identified in the Scenic Resources Inventory (BPS), develop a viewing area with space for people to move out of the flow of traffic and add a bench and an informational marker.	X			**PBOT**	BPS
Lloyd	EN28	Develop a multi-objective management strategy for enhancing Sullivan's Gulch that includes trail development, removal of invasive species and revegetation.	X			**PBOT, PPR**	BES, BPS, Private, ODOT, Railroad
Lloyd	EN31*	Design infrastructure, such as the proposed Clackamas I-5 overcrossing and street improvements to accommodate district energy infrastructure where appropriate.			X	**PBOT**	ODOT, PDC

Portland Bureau of Transportation (PBOT)							
Action Identifier		**Implementation Actions**	**Timeline**			**Implementers**	
Geography	**Code**	**Action**	**2-5 years**	**6-20 years**	**Ongoing**	**Lead Implementers**	**Partner Implementers**
Lloyd	TR65	Review the 1996 *Broadway-Weidler Corridor Plan* to identify any needed updates to implement the N/NE Quadrant Plan, as well as the stretch of the corridor east of 16th to the Hollywood area. Implement the plan emphasizing pedestrian safety projects, installation of traffic signals and maintenance of parking supply.	X			**PBOT**	
Lloyd	TR62	Update the *Lloyd District Standard Plans and Details within the Right-of-Way* document to implement the Street and Development Character Concept for the district (see Appendix A, Map A3).	X			**PBOT**	BPS, BES, PPR, UF, PWB
Lloyd	TR69*	Develop a strategy for the Clackamas Flexible Street and private development extending from the Rose Quarter to NE 9th Avenue via a new pedestrian/bicycle bridge over I-5.		X		**PBOT**	BPS, PDC, ODOT, EcoDistrict, Private
Lloyd	TR68*	Implement a 7th Ave pedestrian/bike bridge over I-84 connecting to either 7th or 8th in the Central Eastside.		X		**PBOT**	ODOT
Lloyd	TR66	Install electric vehicle charging stations in the Lloyd District.	X			**PBOT**	PDC
Lloyd	TR63	Study and install additional signalized pedestrian crossings, on-street parking, and reduced speed traffic progression on Martin Luther King, Jr. Blvd. and Grand Avenue.	X			**PBOT**	TMA
Lloyd	TR75	Expand the Central City wayfinding system in the Lloyd District to include river destinations and other local and regional attractions, as opportunities arise to add or replace signage.			X	**PBOT**	PPR, Private

Portland Bureau of Transportation (PBOT)							
Action Identifier		**Implementation Actions**	**Timeline**			**Implementers**	
Geography	**Code**	**Action**	**2-5 years**	**6-20 years**	**Ongoing**	**Lead Implementers**	**Partner Implementers**
Lloyd	TR76	Continue City of Portland partnership with the TMA (TMA) to encourage workers and residents to use transit and active transportation modes.			X	**PBOT**	TMA
Lloyd	TR61*	Develop and revise parking management strategies.	X			**PBOT**	TMA, Private
Lloyd	UD43	Enhance the pedestrian and cycling environment under the I-5 Freeway at NE Lloyd Blvd and Multnomah, Holladay and Oregon Streets.		X		**PBOT**	TriMet, ODOT, TMA
Lloyd	RC36	At viewpoint NE01 identified in the Scenic Resources Inventory (BPS), construct a viewing area, including a belvedere with bench and marker, on the new bike/pedestrian I84 overpass between NE 7th and NE 8th. The view is of downtown Portland. The viewing area should be separated from lanes of travel.	X			**PBOT**	BPS
Lower Albina	TR70	Evaluate the feasibility of including a public viewing area near the north landing of the new bike/pedestrian I84 overpass between NE 7th and NE 8th. The view is of downtown Portland.		X		**PBOT, PPR**	ODOT, UPRR, Private
Lower Albina	TR79	Rebuild N River Street from the Tillamook overpass to Essex Street.		X		**PBOT**	
Lower Albina	TR81	Enhance and maintain streets in working condition to facilitate access and circulation in the district.			X	**PBOT**	

Portland Bureau of Transportation (PBOT)							
Action Identifier		**Implementation Actions**	**Timeline**			**Implementers**	
Geography	**Code**	**Action**	**2-5 years**	**6-20 years**	**Ongoing**	**Lead Implementers**	**Partner Implementers**
Lower Albina	TR78*	Develop a street design plan for the "the Strand" and alternative routes to provide a lower stress connection between N. Russell Street and the Rose Quarter.	X			**PBOT**	BPS
Lower Albina	TR77	Study options for the Larrabee Street ramp that would preserve auto, bicycle and freight access while accommodating the Greenway Trail and pedestrian and bicycle access to the district and river.	X			**PBOT**	PPR
Lower Albina	TR80	Study the need for pedestrian improvements to facilitate employee access to transit on Russell, Interstate and Broadway/Weidler.		X		**PBOT**	TriMet
Lower Albina	UD48	Improve the character of N Russell under the I-5 freeway. Consider lighting improvements, public art, sustainable landscaping and stormwater management, and screening of adjacent publically-owned storage yards.		X		**PBOT**	ODOT
Lower Albina	UD50	Improve the appearance of publically-owned storage yards located under and adjacent to the I-5 and I-405 freeways.	X			**PBOT**	ODOT
Old Town/Chinatown	EN35	Complete a green connection between the North Park Blocks and the Willamette River, potentially to include street trees, stormwater planters, ecoroofs, and native plants in public open spaces.		X		**PBOT**	BES, PPR
Old Town/Chinatown	RC44*	Develop and implement an on- and off-street parking strategy for OT/CT that encourages the redevelopment of surface parking lots, sharing of parking stalls and maintains sufficient parking to meet the districts' present and future needs.	X			**PBOT**	BPS, PDC

Portland Bureau of Transportation (PBOT)							
Action Identifier		**Implementation Actions**	**Timeline**			**Implementers**	
Geography	**Code**	**Action**	**2-5 years**	**6-20 years**	**Ongoing**	**Lead Implementers**	**Partner Implementers**
Old Town/Chinatown	RC58	Pursue development of one or more new shared parking structures to serve various users in the district and replace lost parking as surface lots redevelop.	X			**PBOT, PDC**	
Old Town/Chinatown	TR83	Prepare a local circulation study for the area north of Burnside. Consider street configurations including travel directions, travel lanes, traffic control, bicycle access and parking, and transit mobility and circulation. Address barriers created by NW Broadway, W Burnside, NW Naito Parkway, the Steel Bridge ramps, Waterfront Park and the railroad tracks.	X			**PBOT**	
Old Town/Chinatown	TR86	Improve bicycle and pedestrian connectivity and safety throughout the district, including Davis and Flanders as primary east-west bicycle routes and to the Steel and Burnside Bridges.			X	**PBOT**	
Old Town/Chinatown	TR87	Implement signalization and pedestrian improvements at the intersections of 4th and Burnside and Couch and Broadway.	X			**PBOT**	
Old Town/Chinatown	TR88*	Implement projects to improve pedestrian safety, multi-modal connectivity, and development conditions along West Burnside.	X	X		**PBOT**	
Old Town/Chinatown	TR84	Study possible reconfiguration of the Steel Bridge ramps and the rail line to improve pedestrian and bike access to/along the greenway trail, NW Flanders and McCormick Pier and create new development opportunities.	X			**PBOT, PDC**	PPR, BPS, ODOT,UPRR, TriMet

Portland Bureau of Transportation (PBOT)							
Action Identifier		**Implementation Actions**	**Timeline**			**Implementers**	
Geography	**Code**	**Action**	**2-5 years**	**6-20 years**	**Ongoing**	**Lead Implementers**	**Partner Implementers**
Old Town/Chinatown	TR85	Improve connections between interurban buses and trains and between interurban and local transit. Consider relocation of interurban bus services closer to Union Station.		X		**PBOT, PDC**	Greyhound
Old Town/Chinatown	UD51	Connect OT/CT to the "Green Loop" with pedestrian and design improvements to NW Davis and Flanders.		X		**PBOT**	
Pearl	TR90	Implement the *Pearl District Access and Circulation Plan* (Adopted by Portland City Council, June 13, 2012)	X			**PBOT**	
Pearl	TR94	Improve bike/pedestrian access to/from Centennial Mills including greenway trail continuity as outlined in the *Centennial Mills Framework Plan* (adopted by Portland City Council, Fall 2006)	X			**PBOT**	
Pearl	TR97*	Enhance West Burnside to improve streetscape quality; multimodal access; and bicycle and pedestrian safety.	X	X		**PBOT**	
Pearl	TR98	Improve NW 15th north of NW Flanders as a bicycle and pedestrian route.	X			**PBOT**	
Pearl	TR99	Implement the "Green Loop" through the district, connecting the North Park Blocks to the Willamette River as well as improved opportunities for wildlife movement; and improve connections to the Broadway Bridge.		X		**PBOT**	BPS, PPR
Pearl	TR91	Improve pedestrian and bicycle connections over I-405 at Everett, Glisan and Couch.	X			**PBOT**	ODOT
Pearl	TR92	Develop a bike/pedestrian bridge connecting NW Flanders over I-405.		X		**PBOT**	ODOT

Portland Bureau of Transportation (PBOT)							
Action Identifier		**Implementation Actions**	**Timeline**			**Implementers**	
Geography	**Code**	**Action**	**2-5 years**	**6-20 years**	**Ongoing**	**Lead Implementers**	**Partner Implementers**
Pearl	TR96	Enhance connectivity across railroad tracks and Naito Parkway to access the River. Build new pedestrian bridges over the tracks at Marshall, connecting the Fields Park to Centennial Mills over Naito Parkway and explore a possible bridge that extends NW 13th to the River. Explore feasibility of connecting this future bridge to the Broadway Bridge to directly connect cyclists to the Marshall bikeway and pedestrians to Naito Parkway.	X			**PBOT**	PDC, BPS, PPR, Private
University District/ South Downtown	TR107	Enhance pedestrian and bicycle connections to RiverPlace Marina and the Willamette River at key locations, especially Lincoln, Harrison, and Montgomery Streets.			X	**PBOT**	
University District/ South Downtown	TR102	Monitor progress on Southwest Corridor High Capacity Transit planning and advocate for district goals.			X	**PBOT**	BPS
University District/ South Downtown	TR104*	Complete a study that explores long-term reconfigurations of local and regional connections on and around I-405 between the Ross Island Bridge and Sunset Highway interchanges.	X			**PBOT, ODOT**	BPS
University District/ South Downtown	TR101	Implement recommendations from the *North Macadam Transportation Development Strategy (2009) and South Portland Circulation Study (2001).*			X	**PBOT**	PDC

Portland Bureau of Transportation (PBOT)							
Action Identifier		**Implementation Actions**	**Timeline**			**Implementers**	
Geography	**Code**	**Action**	**2-5 years**	**6-20 years**	**Ongoing**	**Lead Implementers**	**Partner Implementers**
University District/ South Downtown	TR100	Complete a PSU area access and circulation study that includes multimodal improvements including pedestrian safety; campus loading; drop offs; parking; and bicycle access to and from the campus to adjacent areas, South Waterfront, Goose Hollow and South Portland.	X			**PBOT**	PSU
University District/ South Downtown	TR103	Implement near-term I-405 Crossing Multimodal Improvements, especially at SW 1st Avenue/Naito Parkway, SW 4th Avenue, SW 6th Avenue and Terwilliger/Park.	X			**PBOT**	TriMet, ODOT
University District/ South Downtown	TR105	Develop a long-term parking strategy for PSU including on- and off-street parking resources.	X			**PBOT, PSU**	
University District/ South Downtown	RC69	At viewpoint SW24 identified in the *Scenic Resources Inventory* (BPS), add a bench and an information plaque that identifies area mountains and visually prominent buildings and structures.	X			**PBOT**	BPS
South Waterfront	EN45	Encourage planting of native vegetation and trees in right-of-way.			X	**PBOT, PDC**	
South Waterfront	TR109	Implement the *South Waterfront District Street Plan, Criteria and Standards (2009)*			X	**PBOT**	
South Waterfront	TR110	Review, update and implement recommendations from the *North Macadam Transportation Development Strategy (2009) (includes earlier South Portland Circulation Study Recommendations)*			X	**PBOT**	PDC

Portland Bureau of Transportation (PBOT)							
Action Identifier		**Implementation Actions**	**Timeline**			**Implementers**	
Geography	**Code**	**Action**	**2-5 years**	**6-20 years**	**Ongoing**	**Lead Implementers**	**Partner Implementers**
South Waterfront	TR111	Develop a phased development parking strategy to meet district goals for all parking types including office, retail, university, residential and visitor spaces. Explore multi-use and shared parking opportunities.	X			**PBOT**	PDC, OMSI
South Waterfront	TR113	Extend Streetcar service to the south to John's Landing or beyond.		X		**PBOT**	Streetcar
South Waterfront	TR112	Coordinate transportation improvements in South Waterfront with regional transportation efforts such as the Southwest Corridor High Capacity Transit, Willamette Greenway Trail and the South Portland Circulation Study.	X			**PBOT**	TriMet
South Waterfront	UD74	Develop green connections at regular intervals extending from the river west into the district as a means for providing pedestrian linkages, multi-objective stormwater management opportunities and reinforcing the presence of the river and riverfront in the district.	X			**PBOT, PDC, Private**	BPS, BES
West End	HN36	Explore options for additional public restroom facilities.	X			**PBOT, PWB, PPB**	
West End	RC81	Develop a package of streetscape improvements for the cultural district to enhance the pedestrian experience between attractions including OHS, the Art Museum and the Arlene Schnitzer Concert Hall.		X		**PBOT, BPS, PPR, Private**	

Portland Bureau of Transportation (PBOT)							
Action Identifier		**Implementation Actions**	**Timeline**			**Implementers**	
Geography	**Code**	**Action**	**2-5 years**	**6-20 years**	**Ongoing**	**Lead Implementers**	**Partner Implementers**
West End	RC80	Explore options for redeveloping the site occupied by the City-owned parking garage at SW 10th and Yamhill, including improved ground-floor retail presence.	X			**PBOT, PDC, BPS,OMF, Private, DNA**	
West End	TR115	Improve bicycle and pedestrian safety and access into and out of the district, particularly on and around W Burnside and I-405 crossings and ramps.	X			**PBOT**	
West End	TR116	Develop and implement a parking strategy for the West End that encourages the redevelopment of surface parking lots, sharing of parking stalls and maintains sufficient parking to meet the districts' present and future needs.	X			**PBOT**	BPS, Private
West End	TR117	Work with area property owners, the Portland Art Museum and churches to develop a strategy to accommodate institutional parking needs, including weekend and evening church parking and allow shared use of church parking facilities during other hours.	X			**PBOT**	BPS, Private
West End	UD77	Improve Salmon Street as a unique east-west connection linking Washington Park to the Willamette River with active transportation, landscaping and green infrastructure facilities. Encourage additional, activating retail.		X		**PBOT**	BES, BPS
West End	UD83	Develop and implement a strategy to encourage main-street friendly streetscape and green infrastructure improvements on SW Jefferson Street.	X			**PBOT, BES**	BPS
West End	UD82	Explore opportunities for consolidating and/or redeveloping Burnside's "jug handles" into public spaces.		X		**PBOT**	BPS

Portland Police Bureau (PPB)							
Action Identifier		**Implementation Actions**	**Timeline**			**Implementers**	
Geography	**Code**	**Action**	**2-5 years**	**6-20 years**	**Ongoing**	**Lead Implementers**	**Partner Implementers**
Central City	HN4	Improve safety through programming and CPTED (Crime Prevention Through Environmental Design) improvements, including better street lighting.			X	**PPB, ONI, PPR, PBOT**	Private
West End	HN36	Explore options for additional public restroom facilities.	X			**PPB, PBOT, PWB**	

Portland Parks and Recreation (PPR)							
Action Identifier		**Implementation Actions**	**Timeline**			**Implementers**	
Geography	**Code**	**Action**	**2-5 years**	**6-20 years**	**Ongoing**	**Lead Implementers**	**Partner Implementers**
Central City	EN4	Encourage the planting of street trees in front of residential and mixed use buildings and around surface parking lots.	X			**PPR**	Private
Central City	New	Support evaluation of options to increase property owner interest in street tree planting, including potential public assistance with tree pruning or other tree-related maintenance.	X			**PPR, BES**	PBOT, BPS
Central City	HN4	Improve safety through programming and CPTED (Crime Prevention Through Environmental Design) improvements, including better street lighting.			X	**PPR, ONI, PBOT, PPB**	Private

Portland Parks and Recreation (PPR)							
Action Identifier		**Implementation Actions**	**Timeline**			**Implementers**	
Geography	**Code**	**Action**	**2-5 years**	**6-20 years**	**Ongoing**	**Lead Implementers**	**Partner Implementers**
Central City	HN6	Explore options for new community center to serve entire Central City.		X		**PPR, BPS**	
Central City	UD5	Pursue public-private partnerships to provide publically accessible restrooms at locations near transit stations, the Willamette Greenway, public parks, plazas, and open space features.			X	**PPR, PBOT**	Trimet, BPS, PDC, Private
Central City	UD7	Identify remnant parcels or portions of publicly owned right-of-way (City, County, and State owned lands) that could be used for publicly accessible parks, open space, recreation opportunities and stormwater management.			X	**PPR**	**BES, PBOT**
Central City	WR1	Improve the Willamette Greenway Trail to facilitate continuity for bike and pedestrian access, reduce user conflicts and provide access to the river.			X	**PPR, PBOT**	
Central City	WR2	Enhance and create connectivity between in-water, river bank and upland areas to maintain and improve fish and wildlife habitat.			X	**PPR, BES, BPS**	
Central City	WR5	Pursue locating and installing art, play areas, signage and attractions along the riverfront to showcase the river's past and present.			X	**PPR, RACC**	Public, Private
Central City	WR4	Increase the efficient use of existing docks and river access points to avoid and minimize environmental impacts.			X	**PPR**	PBOT, PDC, Private
Central City	EN14	Evaluate options to increase property owner interest in street tree planting, including potential public assistance with tree pruning or other tree-related maintenance.				**PPR, BES**	BES, PBOT, BPS

Portland Parks and Recreation (PPR)							
Action Identifier		**Implementation Actions**	**Timeline**			**Implementers**	
Geography	**Code**	**Action**	**2-5 years**	**6-20 years**	**Ongoing**	**Lead Implementers**	**Partner Implementers**
Central Eastside	TR16	Improve connections between the Springwater Corridor Trail and the Greenway Trail/Eastbank Esplanade.			X	**PPR**	PBOT
Central Eastside	TR17	Develop and implement strategies to reduce bicycle and pedestrian conflicts as needed along the Willamette Greenway Trail and the Eastbank Esplanade.			X	**PPR**	PBOT, Private
Central Eastside	TR24	Identify opportunities to creatively use public rights-of-way to meet open space, recreation and retail needs, especially along designated green or flexible streets.			X	**PPR, PBOT**	
Central Eastside	UD10*	Explore opportunities to create publicly accessible open space and recreational opportunities on public and private land throughout the Central Eastside.	X			**PPR, BPS, Private**	
Central Eastside	UD12	Develop a districtwide strategy, including opportunities for public-private partnerships, that addresses the need for new open spaces, connections and access to existing open spaces and other amenities as residential and employment densities grow over time.			X	**PPR**	BPS, PBOT, PDC, BES, State
Central Eastside	UD13	Increase public parks, open space, and recreation opportunities in the district to meet Portland Parks and Recreation level of service targets. Look for opportunities to acquire and develop additional open spaces leveraging public-private partnerships.			X	**PPR, Private**	

Portland Parks and Recreation (PPR)							
Action Identifier		**Implementation Actions**	**Timeline**			**Implementers**	
Geography	**Code**	**Action**	**2-5 years**	**6-20 years**	**Ongoing**	**Lead Implementers**	**Partner Implementers**
Central Eastside	WR11*	Partner with property owners and other stakeholders to fund and implement a preferred concept plan for the Eastbank crescent that includes fish and wildlife habitat, boating, swimming, educational opportunities, and enhanced greenway trail.	X			**PPR, BPS, PDC, BES**	OMSI, Private
Central Eastside	WR12	Explore concepts and partnerships to enhance fish and wildlife habitat along Eastbank Esplanade between the Morrison and Hawthorne Bridges.			X	**PPR, BES, BPS**	PDC, OMSI, ODOT
Central Eastside	RC13	At viewpoint SE08 identified in the *Scenic Resources Inventory* (BPS), develop a viewing area with space for people to move out of the flow of traffic and add a bench and an informational marker.		X		**PPR**	BPS
Central Eastside	RC14	At viewpoint SE09 identified in the *Scenic Resources Inventory* (BPS), develop a viewing area with space for people to move out of the flow of traffic and add a bench and an informational marker.		X		**PPR**	BPS
Central Eastside	RC15	At viewpoint SE10 identified in the *Scenic Resources Inventory* (BPS), develop a viewing area with space for people to move out of the flow of traffic and add a bench and an informational marker.		X		**PPR**	BPS
Central Eastside	RC16	At viewpoint SE13 identified in the *Scenic Resources Inventory* (BPS), develop a viewing area with space for people to move out of the flow of traffic and add a bench and an informational marker.	X			**PPR, Private**	BPS

Portland Parks and Recreation (PPR)							
Action Identifier		**Implementation Actions**	**Timeline**			**Implementers**	
Geography	**Code**	**Action**	**2-5 years**	**6-20 years**	**Ongoing**	**Lead Implementers**	**Partner Implementers**
Downtown	EN20	Develop a strategy for inventorying, removing and replacing trees in the South Park Blocks to eliminate safety hazards while maintaining or enhancing canopy coverage and habitat.	X			**PPR**	
Downtown	EN16	Improve habitat by strategically incorporating native plants and trees in Tom McCall Waterfront Park.		X		**PPR**	BES
Downtown	EN17	Improve in-water habitat at Hawthorne Bowl designing a restoration project that creates a separate fish habitat area from swimming and recreational areas.		X		**PPR, BES**	
Downtown	EN21	Incorporate plans to remove a portion of the seawall at Tom McCall Waterfront Park (not in the vicinity of Ankeny Street Pump Station) to provide river access, improved flood management and habitat enhancement into the WPMP update.		X		**PPR,OMF**	BES, NOAA Fisheries, USACE, DSL
Downtown	HN11	Provide and maintain safe public restrooms at convenient locations throughout the district.			X	**PPR**	PPB, PWB, PBOT, Private
Downtown	RC26	Study and revise, as needed, zoning regulations to allow overnight mooring for commercial boats/ships in Waterfront Park.	X			**PPR, BPS**	**DSL**
Downtown	RC20	Study the feasibility of accommodating regional cruise ship docking facilities along the seawall.	X			**PPR, BPS, Private**	

Portland Parks and Recreation (PPR)							
Action Identifier		**Implementation Actions**	**Timeline**			**Implementers**	
Geography	**Code**	**Action**	**2-5 years**	**6-20 years**	**Ongoing**	**Lead Implementers**	**Partner Implementers**
Downtown	RC22	Actively program a variety of public events and activities throughout the year in Pioneer Square and at key locations in Waterfront Park like Ankeny Plaza, Salmon Springs, the Hawthorne Bowl and along the seawall. Encourage development of small retail uses, like kiosks, within Waterfront Park.			X	**PPR, Private**	
Downtown	RC17	Encourage redevelopment with key public attractions and mixed uses at the Morrison Bridgehead that connect to the river.	X			**PPR, Private, PBOT, BPS, PDC, County**	
Downtown	RC25	Promote the Downtown area, Willamette River and Waterfront Park through media and other campaigns.			X	**PPR, Private, Travel Portland, PDC, TriMet**	
Downtown	UD18	Review and update the Waterfront Park Master Plan to enhance activities, amenities, and open spaces in the park and into the river. As part of the effort, develop a plan for the Hawthorne Bowl that addresses habitat enhancements, swimming, boating, special events and related amenities.		X		**PPR**	BPS
Downtown	UD19	Develop a plan to improve the Hawthorne Bowl area of Waterfront Park to enhance accessibility in the park and into the river and better meet the needs of event goers, river users and habitat.	X			**PPR**	BPS, BES, State & Federal Agencies
Downtown	UD28	Rehabilitate/redesign O'Bryant Square. Explore design and management alternatives for developing the space as a signature stop on the "Green Loop."		X		**PPR**	BPS, Private

Portland Parks and Recreation (PPR)							
Action Identifier		**Implementation Actions**	**Timeline**			**Implementers**	
Geography	**Code**	**Action**	**2-5 years**	**6-20 years**	**Ongoing**	**Lead Implementers**	**Partner Implementers**
Downtown	UD21	Explore options for adjusting the duration, layout and frequency of large park events to allow for other types of park activities, in order to maximize public access, use and enjoyment of Waterfront Park.			X	**PPR**	Private
Downtown	UD22	Coordinate with maritime-related organizations and interests to increase maritime attractions and events at Tom McCall Waterfront Park.			X	**PPR, Private**	
Downtown	UD23	Obtain Historic Designation for South Park Blocks; develop a strategy for maintenance and operations to be completed by 2023.		X		**PPR**	Private
Downtown	UD20	Explore options for creating visual cues, such as art installments, that can be seen down street corridors and attract people from the district to Waterfront Park as part of the Waterfront Park Master Plan update.		X		**PPR**	RACC, PBOT
Downtown	RC27	At viewpoint SW17 identified in the *Scenic Resources Inventory* (BPS), relocate one telescope to the center of the seating area and add an informational marker about the view of Mt Hood.	X			**PPR**	BPS
Goose Hollow	UD33	Develop a Neighborhood Park Strategy for the district that will accommodate projected residential and job density increases.		X		**PPR, BPS**	Private
Lloyd	EN27	Develop and implement a tree planting strategy for the Lloyd District. The strategy should identify available planting locations including streets and underutilized space within public rights-of-way.		X		**PPR, BPS**	UF, BES, BPS, PBOT, PWB, Private

Portland Parks and Recreation (PPR)							
Action Identifier		**Implementation Actions**	**Timeline**			**Implementers**	
Geography	**Code**	**Action**	**2-5 years**	**6-20 years**	**Ongoing**	**Lead Implementers**	**Partner Implementers**
Lloyd	EN28	Develop a multi-objective management strategy for enhancing Sullivan's Gulch that includes trail development, removal of invasive species and revegetation.	X			**PPR, PBOT**	BES, BPS, Private, ODOT, Railroad
Lloyd	HN14	Improve the function and safety of Holladay Park through programming that increases its use and CPTED (Crime Prevention Through Environmental Design) improvements.	X			**PPR**	BID, Private
Lloyd	UD39	Explore development of an implementation plan for establishing public parks, plazas and open spaces consistent with the district concept diagram and policies. Seek to time the development of the signature open space system on or near Clackamas concurrent with significant residential development in the district as they are proposed. If implementation of the parks plan will require new regulatory or incentive tools, BPS or another agency will lead the implementation plan process.	X			**PPR, BPS**	PDC
Lloyd	RC37	At viewpoint NE08 identified in the *Scenic Resources Inventory* (BPS), develop a viewing area with space for people to move out of the flow of traffic and add a bench and an informational marker.		X		**PPR**	BPS
Lower Albina	TR70	Evaluate the feasibility of including a public viewing area near the north landing of the new bike/pedestrian I84 overpass between NE 7th and NE 8th. The view is of downtown Portland.		X		**PPR, PBOT**	ODOT, UPRR, Private

Portland Parks and Recreation (PPR)							
Action Identifier		**Implementation Actions**	**Timeline**			**Implementers**	
Geography	**Code**	**Action**	**2-5 years**	**6-20 years**	**Ongoing**	**Lead Implementers**	**Partner Implementers**
Lower Albina	UD47	Improve the character and activate the area under the Fremont Bridge ramps. Consider active recreation, public art, sustainable landscaping and stormwater management, and improved parking facilities.		X		**PPR, RACC, ODOT**	BES
Lower Albina	RC40	At viewpoint NO2 identified in the *Scenic Resources Inventory* (BPS), develop a viewing area including a bench and an information marker	X			**PPR**	BPS
Lower Albina	RC41	At viewpoint NO4 identified in the Scenic Resources Inventory (BPS), develop a viewing area including a bench and an information marker	X			**PPR**	BPS
Lower Albina	RC42	When the Greenway Trail is developed, determine the best location for a formal viewing area with a view of the Willamette River, Central City Skyline and West Hills. This corresponds to viewpoint N14 identified in the *Scenic Resources Inventory* (BPS). Develop a viewing area with space for people to move out of the flow of traffic and add a bench and an informational marker.		X		**PPS, Private**	BPS
Old Town/Chinatown	EN36	Improve river health and riverbank conditions with enhanced native vegetation on the bank in the McCormick Pier area and on the riverbank between the Steel and Broadway Bridges.		X		**PPR**	BES, BPS, Private
Old Town/Chinatown	RC60	Develop strategies for activating the Saturday Market shelter in Waterfront Park and Ankeny Square with new small businesses, events and regular programming throughout the year.			X	**PPR**	OTCTCA, Private

Portland Parks and Recreation (PPR)							
Action Identifier		**Implementation Actions**	**Timeline**			**Implementers**	
Geography	**Code**	**Action**	**2-5 years**	**6-20 years**	**Ongoing**	**Lead Implementers**	**Partner Implementers**
Old Town/Chinatown	UD55	Improve and enhance boater access to/from the Willamette River and Waterfront Park by improving Ankeny Dock or possibly moving it to a nearby location and reactivating it for commercial, transportation and recreational use.		X		**PPR**	Federal and State Agencies
Pearl	TR95	Improve the greenway trail to facilitate continuity for bike and pedestrian access, reduce user conflicts and improve access to and into the river.		X		**PPR**	PBOT, PDC
Pearl	EN38	Strategically install native vegetation and trees within public open spaces, including the North Park Blocks.			X	**PPR**	
Pearl	UD58	Develop a new public park or plaza on the block between NW Glisan and NW Hoyt and NW 8th and NW Park.		X		**PPR**	PDC, PPS, PNCA, Private
Pearl	UD59	Develop a strategy/plan to renovate the North Park Blocks to better meet community goals.		X		**PPR**	BPS
University District/ South Downtown	EN41	Enhance river bank and shallow water around RiverPlace to maintain and improve fish and wildlife habitat.	X			**PPR**	
University District/ South Downtown	EN42	Improve the dock at RiverPlace Marina to provide for increased boating use by motorized and non-motorized crafts, while also reducing impacts to salmon.		X		**PPR**	BPS, BES, Private, PWA
University District/ South Downtown	UD63	Develop a strategy/plan to renovate the PSU-managed section of the South Park Blocks.	X			**PPR, PSU**	
South Waterfront	EN45	Encourage planting of native vegetation and trees in right-of-way.			X	**PPR, PBOT**	

Portland Parks and Recreation (PPR)							
Action Identifier		**Implementation Actions**	**Timeline**			**Implementers**	
Geography	**Code**	**Action**	**2-5 years**	**6-20 years**	**Ongoing**	**Lead Implementers**	**Partner Implementers**
South Waterfront	TR114	Complete the greenway trail connecting it with the rest of the 40-Mile Loop Trail. Where feasible, explore opportunities for completing the trail prior to development rather than waiting for it to be completed with development.		X		**PPR, PDC**	PDC, BPS, Private
South Waterfront	UD73	Pursue a large park facility to provide active recreational opportunities for the district and surrounding area, in a location that has a physical and visual connection to the river.		X		**PPR**	BPS, PDC, Private
South Waterfront	UD71	Integrate elements that reflect the district's history, including Portland's maritime history, into the development of the greenway and parks. Encourage the development of river-related public art, as well as cultural and ecological displays and attractions to connect people with the river.			X	**PPR**	BPS, Private
South Waterfront	UD75	Explore opportunities to make South Waterfront Greenway improvements, especially trail and dock improvements, in the near term and possibly in advance of development that would typically trigger such improvements.			X	**PPR**	PDC, BPS
South Waterfront	UD76	Explore opportunities to provide amenities for boaters such as light watercraft storage and parking to coincide with installation of a new dock.			X	**PPR**	SPNA, Private
South Waterfront	UD70	Develop signature public art that supports the branding of the district as the cornerstone of the Innovation Quadrant.		X		**PPR, RACC**	Private

Portland Parks and Recreation (PPR)							
Action Identifier		**Implementation Actions**	**Timeline**			**Implementers**	
Geography	**Code**	**Action**	**2-5 years**	**6-20 years**	**Ongoing**	**Lead Implementers**	**Partner Implementers**
South Waterfront	RC73	When the Greenway Trail is developed, develop a viewing area at viewpoint SW42 identified in the *Scenic Resources Inventory* (BPS). Include space for people to move out of the flow of traffic and add a bench and an informational marker.		X		**PPR, Private**	BPS
South Waterfront	RC74	When the Greenway Trail is developed, develop a viewing area at viewpoint SW44 identified in the *Scenic Resources Inventory* (BPS). Include space for people to move out of the flow of traffic and add a bench and an informational marker.		X		**PPR, Private**	BPS
South Waterfront	RC75	When the Greenway Trail is developed, develop a viewing area at viewpoint SW48 identified in the *Scenic Resources Inventory* (BPS). Include space for people to move out of the flow of traffic and add a bench and an informational marker.		X		**PPR, Private**	BPS
South Waterfront	RC76	When the Greenway Trail is developed, develop a viewing area at viewpoint SW52 identified in the *Scenic Resources Inventory* (BPS). Include space for people to move out of the flow of traffic and add a bench and an informational marker.		X		**PPR, Private**	BPS
South Waterfront	RC77	When the Greenway Trail is developed, develop a viewing area at viewpoint SW59 identified in the *Scenic Resources Inventory* (BPS). Include space for people to move out of the flow of traffic and add a bench and an informational marker.		X		**PPR, Private**	BPS

Portland Parks and Recreation (PPR)							
Action Identifier		**Implementation Actions**	**Timeline**			**Implementers**	
Geography	**Code**	**Action**	**2-5 years**	**6-20 years**	**Ongoing**	**Lead Implementers**	**Partner Implementers**
South Waterfront	RC78	When the Greenway Trail is developed, develop a viewing area at viewpoint SW71 identified in the *Scenic Resources Inventory* (BPS). Include space for people to move out of the flow of traffic and add a bench and an informational marker.		X		**PPR, Private**	BPS
West End	RC81	Develop a package of streetscape improvements for the cultural district to enhance the pedestrian experience between attractions including OHS, the Art Museum and the Arlene Schnitzer Concert Hall.		X		**PPR, PBOT, BPS, Private**	

Portland Water Bureau (PWB)							
Action Identifier		**Implementation Actions**	**Timeline**			**Implementers**	
Geography	**Code**	**Action**	**2-5 years**	**6-20 years**	**Ongoing**	**Lead Implementers**	**Partner Implementers**
West End	HN36	Explore options for additional public restroom facilities.	X			**PWB, PBOT, PPB**	

Other Government Entities

Department of Environmental Quality (DEQ)							
Action Identifier		**Implementation Actions**	**Timeline**			**Implementers**	
Geography	**Code**	**Action**	**2-5 years**	**6-20 years**	**Ongoing**	**Lead Implementers**	**Partner Implementers**
Central City	EN2	Continue to monitor air quality and ambient air temperature and develop strategies to reduce people's vulnerability to air pollution and urban heat island effects.			X	**DEQ**	

Metro							
Action Identifier		**Implementation Actions**	**Timeline**			**Implementers**	
Geography	**Code**	**Action**	**2-5 years**	**6-20 years**	**Ongoing**	**Lead Implementers**	**Partner Implementers**
Downtown	RC21	Maintain Portland'5 Centers for the Arts as the leading regional performing arts venue.			X	**Metro, OMF, Private**	

Multnomah County (County)							
Action Identifier		**Implementation Actions**	**Timeline**			**Implementers**	
Geography	**Code**	**Action**	**2-5 years**	**6-20 years**	**Ongoing**	**Lead Implementers**	**Partner Implementers**
Central Eastside	TR30	Improve pedestrian and bicycle connections from the Morrison and Burnside Bridges to the Eastbank Esplanade to make it safer, accessible and more direct.		X		**County**	BPS, Parks, PBOT
Downtown	RC17	Encourage redevelopment with key public attractions and mixed uses at the Morrison Bridgehead that connect to the river.	X			**County, Private, PBOT, PPR, BPS, PDC**	
Downtown	RC19	Study the feasibility of removing or reconfiguring the ramps and approaches to the Morrison bridge to create more developable land parcels and improve multimodal connectivity to the river. Consider the impacts to providing southbound freeway access from the Central Eastside.	X			**County, PBOT, BPS**	

Oregon Department of Transportation (ODOT)							
Action Identifier		**Implementation Actions**	**Timeline**			**Implementers**	
Geography	**Code**	**Action**	**2-5 years**	**6-20 years**	**Ongoing**	**Lead Implementers**	**Partner Implementers**
Central City	HN5	For residential areas, explore options to mitigate noise and air pollution from surrounding large transportation infrastructure.	X			**ODOT**	PBOT, BPS
Central Eastside	TR34	Seek vacation of ODOT easements impacting potential development sites in the OMSI Station Area established to develop the Mt. Hood Freeway.			X	**ODOT, PBOT**	PDC, BPS

Oregon Department of Transportation (ODOT)							
Action Identifier		**Implementation Actions**	**Timeline**			**Implementers**	
Geography	**Code**	**Action**	**2-5 years**	**6-20 years**	**Ongoing**	**Lead Implementers**	**Partner Implementers**
Central Eastside	WR15	Study the feasibility of building a long-term structure for the Portland Boathouse within the ODOT easement adjacent to the Willamette River.	X			**ODOT**	PDC, BPS, PPR, Private
Lloyd	TR67*	Implement the I-5 Broadway/Weidler Interchange Plan improvements.	X			**ODOT**	PBOT
Lloyd	TR72*	Work with property owners to confirm the benefits and feasibility of straightening the "s-curve" in the Union Pacific rail tracks for freight and passenger rail operations. Options pursued should prioritize maintaining the development potential of the "Thunderbird" site. See action UD42.		X		**ODOT**	UPRR, Private, BPS
Lower Albina	TR82*	Implement the I-5 Broadway/Weidler Interchange Plan Improvements, including the proposed Hancock overcrossing, to improve regional and local freight access.		X		**ODOT**	PBOT
Lower Albina	UD47	Improve the character and activate the area under the Fremont Bridge ramps. Consider active recreation, public art, sustainable landscaping and stormwater management, and improved parking facilities.		X		**ODOT, PPR, RACC**	BES
University District/ South Downtown	TR104*	Complete a study that explores long-term reconfigurations of local and regional connections on and around I-405 between the Ross Island Bridge and Sunset Highway interchanges.	X			**ODOT, PBOT**	BPS
South Waterfront	EN44	Develop strategies for addressing environmental challenges including, but not limited to, soil contamination and freeway noise.	X			**ODOT**	PBOT

Oregon Department of Transportation (ODOT)							
Action Identifier		**Implementation Actions**	**Timeline**			**Implementers**	
Geography	**Code**	**Action**	**2-5 years**	**6-20 years**	**Ongoing**	**Lead Implementers**	**Partner Implementers**
West End	EN50	Identify tree preservation and planting opportunities and implementation strategies along I-405, including improving vine coverage of canyon walls.		X		**ODOT, Private**	PBOT, BES, PPR

TriMet							
Action Identifier		**Implementation Actions**	**Timeline**			**Implementers**	
Geography	**Code**	**Action**	**2-5 years**	**6-20 years**	**Ongoing**	**Lead Implementers**	**Partner Implementers**
Central Eastside	TR33	Pursue redevelopment of the Clinton Station pedestrian overpass bridge linking the Clinton Station with the Hosford-Abernethy Neighborhood to the northeast.	X			**TriMet, PBOT**	
Central Eastside	TR35	Study the potential to better link the Clinton and OMSI Station Areas with LRT stations in the Lloyd District and Rose Quarter.	X			**TriMet**	PBOT, TPAC
Central Eastside	TR36	Study the potential for bus service along SE Water Avenue.	X			**TriMet, PBOT**	TPAC
Downtown	RC25	Promote the Downtown area, Willamette River and Waterfront Park through media and other campaigns.			X	**Trimet, Private, Travel Portland, PPR, PDC**	
Downtown	TR40	Study potential improvements to public transportation services along Naito Parkway and the riverfront as development density and activity increases over time.		X		**TriMet**	PBOT

TriMet							
Action Identifier		**Implementation Actions**	**Timeline**			**Implementers**	
Geography	**Code**	**Action**	**2-5 years**	**6-20 years**	**Ongoing**	**Lead Implementers**	**Partner Implementers**
Goose Hollow	TR56	Determine the feasibility of adding new light rail station(s) on the Blue/Red line near SW 14th or 15th Avenue as development density increases in the Hollow.		X		**TriMet, PBOT**	
Goose Hollow	TR57	Establish a west-side commuter bike hub at the Goose Hollow/SW Jefferson MAX station, accommodating the needs of transit riders transferring to or from bicycles at this location.		X		**TriMet**	PBOT, Private
Lloyd	TR71	Study the feasibility of adding a new light rail station on the Yellow line near Dixon to serve the N Broadway area and PPS Blanchard site.		X		**TriMet**	PBOT, BPS
Lloyd	TR73*	Work with TriMet to improve the Steel Bridgehead and Rose Quarter Transit Center area to improve transit, local circulation, access to the Eastbank Esplande, and development opportunities		X		**TriMet**	TMA, PBOT, BPS, Private
Pearl	TR93	Enhance existing service to meet demand and support the desired expansion of transit service to rapidly developing areas in the North Pearl and NW Portland.			X	**TriMet**	PBOT, Streetcar
University District/ South Downtown	TR106	Study the feasibility of consolidating routes and stops on fewer corridors by placing bus lines onto the southern end of the Transit Mall and on SW Lincoln and Naito Parkway.	X			**TriMet**	PBOT

Other

Architectural Heritage Center (AHC)							
Action Identifier		**Implementation Actions**	**Timeline**			**Implementers**	
Geography	**Code**	**Action**	**2-5 years**	**6-20 years**	**Ongoing**	**Lead Implementers**	**Partner Implementers**
Lower Albina	UD45*	Prepare a National Register of Historic Places Multiple Property Documentation form for African-American historic resources based on the Cornerstones of Community inventory.	X			**AHC**	BPS

Central Eastside Industrial Council (CEIC)							
Action Identifier		**Implementation Actions**	**Timeline**			**Implementers**	
Geography	**Code**	**Action**	**2-5 years**	**6-20 years**	**Ongoing**	**Lead Implementers**	**Partner Implementers**
Central Eastside	RC11	Study the feasibility and strategy for creating a new business improvement district for the Central Eastside.	X			**CEIC, PDC**	

Downtown Neighborhood Association (DNA)							
Action Identifier		**Implementation Actions**	**Timeline**			**Implementers**	
Geography	**Code**	**Action**	**2-5 years**	**6-20 years**	**Ongoing**	**Lead Implementers**	**Partner Implementers**
West End	RC80	Explore options for redeveloping the site occupied by the City-owned parking garage at SW 10th and Yamhill, including improved ground-floor retail presence.	X			**DNA, PBOT, PDC, BPS, OMF, Private**	

Lloyd EcoDistrict							
Action Identifier		**Implementation Actions**	**Timeline**			**Implementers**	
Geography	**Code**	**Action**	**2-5 years**	**6-20 years**	**Ongoing**	**Lead Implementers**	**Partner Implementers**
Lloyd	EN29	Continue to support the Lloyd EcoDistrict work program.			X	**Lloyd EcoDistrict**	City
Lloyd	RC35	Market the Lloyd District as a leader in sustainable development and business practices.			X	**Lloyd EcoDistrict**	PDC, BPS, Private

Go Lloyd[1]							
Action Identifier		**Implementation Actions**	**Timeline**			**Implementers**	
Geography	**Code**	**Action**	**2-5 years**	**6-20 years**	**Ongoing**	**Lead Implementers**	**Partner Implementers**
Lloyd	TR64	Implement streetscape and circulation changes for Multnomah Street to facilitate a "retail/commercial street" environment.	X			**Go Lloyd**	PBOT

Goose Hollow Foothills League (GHFL)							
Action Identifier		**Implementation Actions**	**Timeline**			**Implementers**	
Geography	**Code**	**Action**	**2-5 years**	**6-20 years**	**Ongoing**	**Lead Implementers**	**Partner Implementers**
Goose Hollow	HN12	Identify sites for community building activities and pursue projects and activities such as weekend markets, cultural programming and public art.			X	**GHFL**	City
Goose Hollow	RC30	Encourage the City, neighborhood associations and stadium operators to support a broader range of uses/events at Providence Park in future Good Neighbor Agreement updates.	X			**GHFL, OMF, NWDA, Private**	
Goose Hollow	UD38	Add appropriate trees to the list of designated heritage trees.			X	**GHFL**	PPR, Private

[1] Previously Lloyd Transportation Management Association (TMA) – Referenced as such in the N/NE Quadrant Plan.

Lloyd District Community Association (LDCA)							
Action Identifier		**Implementation Actions**	**Timeline**			**Implementers**	
Geography	**Code**	**Action**	**2-5 years**	**6-20 years**	**Ongoing**	**Lead Implementers**	**Partner Implementers**
Lloyd	HN15	Identify sites for community building activities and pursue projects and activities that support community building, such as weekend markets, cultural programming in parks and public art.	X			**LDCA**	TMA, EcoDistrict, City
Lloyd	UD41	Create and promote a strategy to activate public open space, rights-of-way and surface parking lots during off hours to bring in new people, interests and energy to the district.	X			**LDCA**	EcoDistrict, TMA, Private, PPR, PBOT, BPS, PDC

Northwest District Association (NWDA)							
Action Identifier		**Implementation Actions**	**Timeline**			**Implementers**	
Geography	**Code**	**Action**	**2-5 years**	**6-20 years**	**Ongoing**	**Lead Implementers**	**Partner Implementers**
Goose Hollow	RC30	Encourage the City, neighborhood associations and stadium operators to support a broader range of uses/events at Providence Park in future Good Neighbor Agreement updates.	X			**NWDA, OMF, GHFL, Private**	

Old Town / Chinatown Community Association (OTCTCA)							
Action Identifier		**Implementation Actions**	**Timeline**			**Implementers**	
Geography	**Code**	**Action**	**2-5 years**	**6-20 years**	**Ongoing**	**Lead Implementers**	**Partner Implementers**
Old Town/Chinatown	RC59	Create an Old Town Night Market and encourage a variety of evening cultural events to broaden the array of nighttime attractions in the district.		X		**OTCTCA**	Private
Old Town/Chinatown	RC46	Implement the OT/CT Retail Program in coordination with cluster industry presence in the district.			X	**OTCTCA, PBA**	PDC

Old Town Heritage Group (OTHG)							
Action Identifier		**Implementation Actions**	**Timeline**			**Implementers**	
Geography	**Code**	**Action**	**2-5 years**	**6-20 years**	**Ongoing**	**Lead Implementers**	**Partner Implementers**
Old Town/Chinatown	RC50	Explore the creation of a multicultural museum complex in Chinatown.		X		**OTHG**	OTCTCA

Oregon Health and Science University (OHSU)							
Action Identifier		**Implementation Actions**	**Timeline**			**Implementers**	
Geography	**Code**	**Action**	**2-5 years**	**6-20 years**	**Ongoing**	**Lead Implementers**	**Partner Implementers**
South Waterfront	RC71	Encourage partnerships between the area's educational/research institutions and private business.			X	**OHSU, PDC**	OMSI, PSU, Private

Pearl District Neighborhood Association (PDNA)							
Action Identifier		**Implementation Actions**	**Timeline**			**Implementers**	
Geography	**Code**	**Action**	**2-5 years**	**6-20 years**	**Ongoing**	**Lead Implementers**	**Partner Implementers**
Pearl	HN23	Encourage the development of a new publicly accessible neighborhood facility in the Pearl District to foster community interaction and exchange.		X		**PDNA, Private**	PPR, BPS

Portland Business Alliance (PBA)							
Action Identifier		**Implementation Actions**	**Timeline**			**Implementers**	
Geography	**Code**	**Action**	**2-5 years**	**6-20 years**	**Ongoing**	**Lead Implementers**	**Partner Implementers**
Downtown	HN10	Support the Clean & Safe Program and other programs that increase safety and provide a welcoming atmosphere for visitors and residents.			X	**PBA**	Private, PPB, PPR
Old Town/Chinatown	RC46	Implement the OT/CT Retail Program in coordination with cluster industry presence in the district.			X	**PBA, OTCTCA**	PDC
Pearl	RC65	Develop a coordinated district retail strategy that includes expansion of the Retail Core north to NW Glisan Street.	X			**PBA**	BPS, PDBA
University District/ South Downtown	HN26	Develop a district retail strategy.	X			**PBA, Private, BPS, PSU, PDC**	
West End	RC79	Implement the Downtown Retail Strategy in the West End.			X	**PBA, PDC**	

Portland Public Schools (PPS)							
Action Identifier		**Implementation Actions**	**Timeline**			**Implementers**	
Geography	**Code**	**Action**	**2-5 years**	**6-20 years**	**Ongoing**	**Lead Implementers**	**Partner Implementers**
Goose Hollow	EN24	Encourage and promote an environmental "high performance area" on the redeveloped LHS site through incentives, public-private partnerships and/or master planning.			X	**PPS, BPS**	PDC

Portland Public Schools (PPS)							
Action Identifier		**Implementation Actions**	**Timeline**			**Implementers**	
Geography	**Code**	**Action**	**2-5 years**	**6-20 years**	**Ongoing**	**Lead Implementers**	**Partner Implementers**
Goose Hollow	TR55	Improve bicycle and pedestrian connectivity throughout the district, including new connections on SW 16th through the LHS site.	X			**PPS, PBOT**	
Lloyd District	HN17	Monitor residential population growth and the related school needs of the district. Encourage space for early education programs in new development.			X	**PPS**	BPS
University District/ South Downtown	HN27	Identify opportunities for locating a new public school within the district, particularly an elementary school and/or middle school.		X		**PPS, BPS**	PSU

Portland State University (PSU)							
Action Identifier		**Implementation Actions**	**Timeline**			**Implementers**	
Geography	**Code**	**Action**	**2-5 years**	**6-20 years**	**Ongoing**	**Lead Implementers**	**Partner Implementers**
University District/ South Downtown	EN43	Encourage the continued improvement and expansion of PSU's district energy system			X	**PSU**	BPS
	HN26	Develop a district retail strategy.	X			**PSU, Private, BPS, PBA, PDC**	
University District/ South Downtown	TR105	Develop a long-term parking strategy for PSU including on- and off-street parking resources.	X			**PSU, PBOT**	

Portland State University (PSU)							
Action Identifier		**Implementation Actions**	**Timeline**			**Implementers**	
Geography	**Code**	**Action**	**2-5 years**	**6-20 years**	**Ongoing**	**Lead Implementers**	**Partner Implementers**
University District/ South Downtown	UD63	Develop a strategy/plan to renovate the PSU-managed section of the South Park Blocks.	X			**PSU, PPR**	
University District/ South Downtown	UD67	Activate SW Broadway with ground floor retail and other active uses.			X	**PSU**	Private
University District/ South Downtown	UD68	Collaborate with PSU on historic preservation efforts.			X	**PSU, BPS**	SHPO

Regional Arts and Culture Council (RACC)							
Action Identifier		**Implementation Actions**	**Timeline**			**Implementers**	
Geography	**Code**	**Action**	**2-5 years**	**6-20 years**	**Ongoing**	**Lead Implementers**	**Partner Implementers**
Central City	WR5	Pursue locating and installing art, play areas, signage and attractions along the riverfront to showcase the river's past and present.			X	**RACC, PPR**	Public, Private
Central City	UD6	Encourage the development of public art in the Central City, as well as cultural and ecological displays and attractions.			X	**RACC**	BES, Non-profit, Private
Downtown	UD29	Develop a Downtown Public Art Walking Tour.	X			**RACC**	BPS, Private
Goose Hollow	UD37	Prepare a strategy to mitigate the impact of blank walls on the pedestrian environment.	X			**RACC**	BPS, GHFL, Private

Regional Arts and Culture Council (RACC)							
Action Identifier		**Implementation Actions**	**Timeline**			**Implementers**	
Geography	**Code**	**Action**	**2-5 years**	**6-20 years**	**Ongoing**	**Lead Implementers**	**Partner Implementers**
Lower Albina	UD47	Improve the character and activate the area under the Fremont Bridge ramps. Consider active recreation, public art, sustainable landscaping and stormwater management, and improved parking facilities.		X		**RACC, PPR, ODOT**	BES
Old Town/Chinatown	UD57	Create a visible and branded Fountain Walk along SW Ankeny St., linking existing fountains and a potential new feature near the car-free segment of Ankeny.		X		**RACC, Private**	PBOT
Old Town/Chinatown	UD53	Install art and educational displays that highlight Native American and maritime history in the district and Waterfront Park.			X	**RACC**	Private, PPR
South Waterfront	UD70	Develop signature public art that supports the branding of the district as the cornerstone of the Innovation Quadrant.		X		**RACC, PPR**	Private

South Portland Neighborhood Association (SPNA)							
Action Identifier		**Implementation Actions**	**Timeline**			**Implementers**	
Geography	**Code**	**Action**	**2-5 years**	**6-20 years**	**Ongoing**	**Lead Implementers**	**Partner Implementers**
South Waterfront	HN29	Encourage the development of a new publicly accessible neighborhood facility in South Waterfront to foster community interaction and exchange.		X		**SPNA, Private**	PPR

South Portland Neighborhood Association (SPNA)							
Action Identifier		**Implementation Actions**	**Timeline**			**Implementers**	
Geography	**Code**	**Action**	**2-5 years**	**6-20 years**	**Ongoing**	**Lead Implementers**	**Partner Implementers**
South Waterfront	HN30	Identify sites for community building activities and pursue projects and activities such as weekend markets and cultural programming.	X			**SPNA**	Private, PPR

Travel Portland							
Action Identifier		**Implementation Actions**	**Timeline**			**Implementers**	
Geography	**Code**	**Action**	**2-5 years**	**6-20 years**	**Ongoing**	**Lead Implementers**	**Partner Implementers**
Downtown	RC23	Encourage the location of tourist services in the Pioneer Courthouse Square area and at Waterfront Park.			X	**Travel Portland, Private**	PPR, PBA
Downtown	RC25	Promote the Downtown area, Willamette River and Waterfront Park through media and other campaigns.			X	**Travel Portland, Private, PPR, PDC, TriMet**	

VOZ Workers' Rights Education Project							
Action Identifier		**Implementation Actions**	**Timeline**			**Implementers**	
Geography	**Code**	**Action**	**2-5 years**	**6-20 years**	**Ongoing**	**Lead Implementers**	**Partner Implementers**
Central Eastside	RC5	Continue efforts and initiatives within the Central City to organize and locate day laborer services, such as VOZ, that provide safe places for worker rights, education, and outreach and that protect the rights of laborers.	X			**VOZ, PDC**	

Private

Private							
Action Identifier		**Implementation Actions**	**Timeline**			**Implementers**	
Geography	**Code**	**Action**	**2-5 years**	**6-20 years**	**Ongoing**	**Lead Implementers**	**Partner Implementers**
Central City	EN13	Develop strategies to reduce nighttime lighting and sky glare to reduce impacts of building lighting on human health, wildlife and energy consumption.	X			**Private, BPS**	
Central City	HN31	Develop daycare facilities for children.	X			**Private**	
Central City	TR5	Explore and encourage use of green passenger vessel technologies including low impact and restorative propulsion for river transit and other passenger vessels.		X		**Private**	PBOT, BPS

Private							
Action Identifier		**Implementation Actions**	**Timeline**			**Implementers**	
Geography	**Code**	**Action**	**2-5 years**	**6-20 years**	**Ongoing**	**Lead Implementers**	**Partner Implementers**
Central Eastside	HN8	Explore opportunities for new publicly accessible parks and recreation facilities that foster community interaction and exchange.			X	**Private**	PPR, BPS
Central Eastside	RC10	Identify and support opportunities and partnerships to bring major riverfront uses and attractions to the Southeast Quadrant.			X	**Private**	BPS, PDC, PBOT
Central Eastside	RC16	At viewpoint SE13 identified in the *Scenic Resources Inventory* (BPS), develop a viewing area with space for people to move out of the flow of traffic and add a bench and an informational marker.	X			**Private, PPR**	BPS
Central Eastside	TR20	Support the creation of a privately operated river transit operation in the Central Eastside.	X			**Private**	BPS, PBOT, Metro
Central Eastside	UD10*	Explore opportunities to create publicly accessible open space and recreational opportunities on public and private land throughout the Central Eastside.	X			**Private, PPR, BPS**	
Central Eastside	UD13	Increase public parks, open space, and recreation opportunities in the district to meet Portland Parks and Recreation level of service targets. Look for opportunities to acquire and develop additional open spaces leveraging public-private partnerships.			X	**Private, PPR**	
Central Eastside	WR13	Encourage more year round events and activities around the Madison Dock plaza and OMSI riverfront areas.			X	**Private**	PPR, Public
Central Eastside	WR14	Continue to enhance the riverfront greenway trail and open space system in the Central Eastside by providing amenities such as light water craft storage, bicycle parking, and public restrooms.			X	**Private**	PPR, PBOT

Private							
Action Identifier		**Implementation Actions**	**Timeline**			**Implementers**	
Geography	**Code**	**Action**	**2-5 years**	**6-20 years**	**Ongoing**	**Lead Implementers**	**Partner Implementers**
Downtown	RC17	Encourage redevelopment with key public attractions and mixed uses at the Morrison Bridgehead that connect to the river.	X			**Private, BPS, PBOT, PPR, PDC, County**	
Downtown	RC20	Study the feasibility of accommodating regional cruise ship docking facilities along the seawall.	X			**Private, BPS, PPR,**	
Downtown	RC21	Maintain Portland'5 Centers for the Arts as the leading regional performing arts venue.			X	**Private, OMF, Metro**	
Downtown	RC22	Actively program a variety of public events and activities throughout the year in Pioneer Square and at key locations in Waterfront Park like Ankeny Plaza, Salmon Springs, the Hawthorne Bowl and along the seawall. Encourage development of small retail uses, like kiosks, within Waterfront Park.			X	**Private, PPR**	
Downtown	RC23	Encourage the location of tourist services in the Pioneer Courthouse Square area and at Waterfront Park.			X	**Private, Travel Portland**	PPR, PBA
Downtown	RC25	Promote the Downtown area, Willamette River and Waterfront Park through media and other campaigns.			X	**Private, Travel Portland, PPR, PDC, TriMet**	
Downtown	TR51	Explore funding mechanisms, phasing and the implementation of river transit in Downtown.		X		**Private**	PBOT, BPS, State & Federal Agencies
Downtown	UD22	Coordinate with maritime-related organizations and interests to increase maritime attractions and events at Tom McCall Waterfront Park.			X	**Private, PPR**	PWA

Private							
Action Identifier		**Implementation Actions**	**Timeline**			**Implementers**	
Geography	**Code**	**Action**	**2-5 years**	**6-20 years**	**Ongoing**	**Lead Implementers**	**Partner Implementers**
Downtown	UD30	Incrementally improve building faces along the Transit Mall with active uses, windows, doors, landscaping, art, and amenities to enhance the pedestrian and transit rider experience.			X	**Private**	PDC
Goose Hollow	RC28	Work with developers and existing property owners (e.g., The Oregonian, TriMet) in the Hollow to encourage redevelopment in line with district goals.			X	**Private, BPS, PDC**	
Goose Hollow	RC31	Explore opportunities for activating the Providence Park street perimeter, particularly S.W. 18th, when events are not taking place.	X			**Private, BPS**	
Goose Hollow	RC30	Encourage the City, neighborhood associations and stadium operators to support a broader range of uses/events at Providence Park in future Good Neighbor Agreement updates.	X			**Private, OMF, GHFL, NWDA**	
Goose Hollow	UD35	Study the feasibility of moving or updating the PGE substation at SW 17th and Columbia to decrease its footprint, creating opportunities for development or park space.		X		**Private, BPS**	
Goose Hollow	UD31	Connect Goose Hollow with the West End and Downtown by capping I-405. Potential locations include: W Burnside, SW Yamhill/Morrison, SW Salmon/Main and SW Jefferson/Columbia. The caps could support retail or open space. As capping occurs, improve the pedestrian environment on SW 13th and 14th to support cap access and development.		X		**Private**	BPS, ODOT, PBOT

Private							
Action Identifier		**Implementation Actions**	**Timeline**			**Implementers**	
Geography	**Code**	**Action**	**2-5 years**	**6-20 years**	**Ongoing**	**Lead Implementers**	**Partner Implementers**
Lower Albina	RC42	When the Greenway Trail is developed, determine the best location for a formal viewing area with a view of the Willamette River, Central City Skyline and West Hills. This corresponds to viewpoint N14 identified in the *Scenic Resources Inventory* (BPS). Develop a viewing area with space for people to move out of the flow of traffic and add a bench and an informational marker.		X		**Private, PPS**	BPS
Old Town/ Chinatown	RC61	Investigate the relocation of the Jantzen Beach Carousel to a site within the Central City.	X			**Private**	PDC, BPS, PPR
Old Town/ Chinatown	UD57	Create a visible and branded Fountain Walk along SW Ankeny St., linking existing fountains and a potential new feature near the car-free segment of Ankeny.		X		**Private, RACC**	PBOT
Pearl	EN37	Restore riparian and shallow water habitat to improve conditions for fish and wildlife at Centennial Mills.	X			**Private, PDC**	BES, PPR, PDC
Pearl	HN23	Encourage the development of a new publicly accessible neighborhood facility in the Pearl District to foster community interaction and exchange.		X		**Private, PDNA**	PPR, BPS
Pearl	RC64	Encourage improvements at Centennial Mills to bring more boaters and visitors to the riverfront/Naito Parkway area supporting current and new businesses.	X			**Private**	BPS, PDC, PWA
University District/ South Downtown	HN26	Develop a district retail strategy.	X			**Private, BPS, PSU, PBA, PDC**	

Private							
Action Identifier		**Implementation Actions**	**Timeline**			**Implementers**	
Geography	**Code**	**Action**	**2-5 years**	**6-20 years**	**Ongoing**	**Lead Implementers**	**Partner Implementers**
University District/ South Downtown	RC68	Improve RiverPlace Marina to bring more boaters and visitors to the area while minimizing impacts to fish.		X		**Private**	PPR, PWA
University District/ South Downtown	UD66	Connect South Downtown with South Portland by capping I-405 between SW 1st and SW 3rd, and improving the connections to Terwilliger from the South Park Blocks.		X		**Private**	BPS, ODOT
University District/ South Downtown	UD62	Promote new low-impact water-related recreation activities near the Marquam Bridge.	X			**Private**	PPR, BPS
South Waterfront	HN28	Identify a site for a future grocery store to directly serve residents and workers in district.	X			**Private**	PDC, BPS
South Waterfront	HN29	Encourage the development of a new publicly accessible neighborhood facility in South Waterfront to foster community interaction and exchange.		X		**Private, SPNA**	PPR
South Waterfront	RC72	Develop telecommunications and other infrastructure needed to ensure that South Waterfront is a competitive location for science and high technology jobs.	X			**PDC, Private**	
South Waterfront	RC73	When the Greenway Trail is developed, develop a viewing area at viewpoint SW42 identified in the *Scenic Resources Inventory* (BPS). Include space for people to move out of the flow of traffic and add a bench and an informational marker.		X		**Private, PPR**	BPS

Private							
Action Identifier		**Implementation Actions**	**Timeline**			**Implementers**	
Geography	**Code**	**Action**	**2-5 years**	**6-20 years**	**Ongoing**	**Lead Implementers**	**Partner Implementers**
South Waterfront	RC74	When the Greenway Trail is developed, develop a viewing area at viewpoint SW44 identified in the *Scenic Resources Inventory* (BPS). Include space for people to move out of the flow of traffic and add a bench and an informational marker.		X		**Private, PPR**	BPS
South Waterfront	RC75	When the Greenway Trail is developed, develop a viewing area at viewpoint SW48 identified in the *Scenic Resources Inventory* (BPS). Include space for people to move out of the flow of traffic and add a bench and an informational marker.		X		**Private, PPR**	BPS
South Waterfront	RC76	When the Greenway Trail is developed, develop a viewing area at viewpoint SW52 identified in the *Scenic Resources Inventory* (BPS). Include space for people to move out of the flow of traffic and add a bench and an informational marker.		X		**Private, PPR**	BPS
South Waterfront	RC77	When the Greenway Trail is developed, develop a viewing area at viewpoint SW59 identified in the *Scenic Resources Inventory* (BPS). Include space for people to move out of the flow of traffic and add a bench and an informational marker.		X		**Private, PPR**	BPS
South Waterfront	RC78	When the Greenway Trail is developed, develop a viewing area at viewpoint SW71 identified in the *Scenic Resources Inventory* (BPS). Include space for people to move out of the flow of traffic and add a bench and an informational marker.		X		**Private, PPR**	BPS

Private							
Action Identifier		**Implementation Actions**	**Timeline**			**Implementers**	
Geography	**Code**	**Action**	**2-5 years**	**6-20 years**	**Ongoing**	**Lead Implementers**	**Partner Implementers**
South Waterfront	UD74	Develop green connections at regular intervals extending from the river west into the district as a means for providing pedestrian linkages, multi-objective stormwater management opportunities and reinforcing the presence of the river and riverfront in the district.	X			**Private, PDC, PBOT**	BES, BPS
West End	EN50	Identify tree preservation and planting opportunities and implementation strategies along I-405, including improving vine coverage of canyon walls.		X		**Private, ODOT**	PBOT, BES, PPR
West End	HN33	Identify opportunities for new playgrounds and other recreational facilities for children.	X			**Private**	PPR
West End	HN35	Explore options for a new publicly accessible neighborhood facility that fosters community interaction and exchange for West End residents.		X		**Private**	PPR, BPS
West End	RC81	Develop a package of streetscape improvements for the cultural district to enhance the pedestrian experience between attractions including OHS, the Art Museum and the Arlene Schnitzer Concert Hall.		X		**Private, PBOT, BPS, PPR,**	
West End	RC80	Explore options for redeveloping the site occupied by the City-owned parking garage at SW 10th and Yamhill, including improved ground-floor retail presence.	X			**Private, PBOT, PDC, BPS, OMF, DNA**	

Private							
Action Identifier		**Implementation Actions**	**Timeline**			**Implementers**	
Geography	**Code**	**Action**	**2-5 years**	**6-20 years**	**Ongoing**	**Lead Implementers**	**Partner Implementers**
West End	UD80	Allow private development to connect the West End to Goose Hollow by capping I-405. Potential locations for the freeway cap include: W Burnside, SW Yamhill/Morrison, SW Salmon/Main and SW Jefferson/Columbia. If capping occurs, identify opportunities to improve the pedestrian environment with tree canopy on SW 13th and SW 14th avenues.		X		**Private**	PPR, BPS, ODOT, PBOT

3. Additional Information for Actions Marked with an Asterisk (*)

This section contains additional information on all of the above actions marked with an asterisk (*). Some of these actions require elaboration on the technical, policy or implementation details. Others were identified during the Quadrant planning process as addressing prominent issues or concerns for many of the stakeholders involved.

The information below has for the most part been drawn directly from the various Central City2035 Quadrant Plans. The actions are listed below in alphabetical order by policy area. As noted earlier, the action codes have changed from those listed in the quadrant plans and Discussion Draft CC2035 Plan.

Health and Environment Actions (EN):

EN8 Work with FEMA to update the Willamette River Flood Insurance Rate Map (FIRM) to meet any updated National Flood Insurance Program (NFIP) requirements that are issued in response to the NOAA Fisheries biological opinion. **Lead Implementers: BES & BPS; Timeline: 2-5 years.**

EN9 Amend the flood related regulations and other guidelines to, a) help prevent or minimize the risk of flood damage to new, redeveloped and rehabilitated buildings located in the 100-year floodplain; b) avoid, minimize and mitigate the impacts of such development on floodplain functions; and, c) comply with updated NFIP requirements. **Lead Implementers: BES, BDS & BPS; Timeline: 2-5 years.**

EN51 Evaluate the potential for the establishment of a "mitigation bank" to offset future development in the 100-year floodplain. **Lead Implementers: BES & BPS; Timeline: 2-5 years/ ongoing.**

Floodplain Management

Due to the release in April of 2016 of a NOAA-Fisheries biological opinion on the effects on endangered and threatened species of FEMA's National Flood Insurance Program (NFIP) in Oregon, the City's floodplain development requirements may need to be updated. Clarifications from and coordination with FEMA and NOAA-Fisheries will be needed to fully understand the steps necessary to comply with any NFIP requirements FEMA adopts in response to the biological opinion.

Actions EN12, EN13, and EN52 summarize key elements of the City of Portland's work plan for addressing possible FEMA requirements stemming from the biological opinion.

Flooding in Portland

Regionally situated in the Lower Columbia River Basin, the Willamette River Basin drains an 11,500 square mile watershed located between the Cascade Mountains to the east and the Coast Range to the west. The flows in the Willamette River are highest between December and February.

Flow patterns in both the Willamette and Columbia basins have been dramatically altered over time, largely due to dam and reservoir operations. Following floods in 1943 and 1945, the U.S. Army Corps of Engineers constructed 13 reservoirs, 11 of which have flood control functions. Operation of the reservoirs reduces winter peak flows in the Willamette River by as much as 30 to 50 percent, and augments summer flows to approximately double historical low-flow levels.
However, flooding still occurs. Very notable river floods in the Central City include:

- **1964:** Record-breaking precipitation on top of snow in the Cascades caused a December flood event that resulted in bridge failures and road and train closures. The lower deck of the Steel Bridge was underwater and logs and debris severely damaged the Hawthorne Bridge.
- **1996:** Flooding resulted from heavy snowfall followed by warm temperatures and four days of heavy rain across a large area of Oregon, Washington and Idaho. The Willamette River nearly crested the downtown seawall.

During these events many roads were closed due to water and landslides and the flood caused millions of dollars in damages. Climate change may exacerbate the frequency and duration of precipitation events and risk of riverine flooding due to warmer, wetter winters. In addition, the Willamette and Columbia Rivers are tidally influenced, so sea level rise may affect flooding as well.

FEMA/NOAA-Fisheries National Flood Insurance Program (NFIP) Biological Opinion

After a number of years working with the Federal Emergency Management Agency (FEMA), the National Oceanic and Atmospheric Administration Fisheries Service (NOAA-Fisheries) issued a biological opinion in April of 2016 related to reducing impacts of FEMA's National Flood Insurance Program (NFIP) in Oregon. The biological opinion provides a reasonable and prudent alternative (RPA) to FEMA to reduce the NFIP's impacts on Endangered Species Act (ESA)-listed species. The RPA identifies six "elements" to achieve three goals: (1) update existing maps to more accurately identify the current floodplains of relevant rivers and streams; (2) modify NFIP development and mitigation criteria to more effectively discourage floodplain development and, when appropriate, reduce the impacts of redevelopment and development in floodplains; and (3) strengthen accountability and tracking of implementation.

The six elements of the RPA include both interim and long-term, permanent measures to minimize the identified impacts of the NFIP. In the short term (implemented by March 15, 2018, at the latest), NOAA-Fisheries directs FEMA to do the following:

- Increase development mitigation to a level greater than "balanced cut-and-fill" (where an equal volume of material must be removed to match the volume of fill added as a part of site development);
- Modify tree density standards for areas in the "riparian buffer zone" (defined as 170 feet or less from the ordinary high water mark), or RBZ, and, to a lesser degree, those properties within the FEMA 100-year floodplain but beyond the RBZ; and
- Establish regulations to mitigate the impact of new impervious surfaces (including roofs, driveways, sidewalks, roads, etc.).

In the long term, according to NOAA-Fisheries, additional modifications to the NFIP regulations will be needed. For example, development within "high hazard areas" will not be allowed, except for water-dependent uses, open space, habitat restoration, recreational uses, and bioengineered bank protection. Creation of new parcels completely within the 100-year floodplain will also not be allowed and, in those cases where a lot partially or completely in the floodplain is to be developed, the footprint of new

structures must be limited to 10 percent or less of the lot. Mitigation of any new impervious surfaces will also be required. Other changes to the NFIP requirements are still to be confirmed by FEMA.

To provide for the necessary mitigation to offset future development in the FEMA floodplain, the development of a "mitigation bank" is an option identified in the biological opinion. The Environmental Protection Agency (EPA) defines a mitigation bank as "a wetland, stream, or other aquatic resource area that has been restored, established, enhanced, or (in certain circumstances) preserved for the purpose of providing compensation for unavoidable impacts to aquatic resources." Research will be needed to identify implementation strategies available to the City and/or its partners, if it is deemed a viable option for complying with NFIP requirements.

To support the possible interim and long-term changes to NFIP requirements, FEMA's mapping processes may need to be revisited and new Flood Insurance Rate Maps (FIRM) developed. NOAA-Fisheries provided specific guidance to FEMA on appropriate mapping protocols and models to be used to ensure an accurate determination of flood risk moving forward. FEMA will now be required to map flood-related erosion hazard zones, including channel migration zones (CMZ), high hazard areas, and the "Area of Future Conditions Flood Hazard" (AFCFH), which depicts flood hazard projections for the year 2050 given potential climate changes. FEMA's mapping efforts must also address floodplains behind all non-accredited levees and the "residual flood hazard" behind FEMA-accredited levees. City staff will coordinate with and assist FEMA and the Oregon Department of Land Conservation and Development (DLCD) as needed during the preparation of these updated maps.

FEMA and the DLCD are currently working to develop direction to local governments on planning for and implementing necessary NFIP changes in response to the RPA directives. This detailed guidance is expected to be available in the fall of 2016. Once that guidance is available, City staff will determine the updates needed to floodplain development regulations throughout the city, and in the Central City 2035 Plan specifically (as necessary), to ensure compliance with any updated NFIP regulations.

EN31 Design infrastructure, such as the proposed Clackamas I-5 overcrossing and street improvements to accommodate district energy infrastructure where appropriate. **Lead Implementer: PBOT; Timeline: Ongoing.**

As of June 2012, the City of Portland, the Portland Development Commission, and the Portland Trailblazers are currently in the design process to develop an initial district energy node. Corix Utilities was selected to plan a phased Rose Quarter Shared Thermal Energy System (district energy). In its first phase, the system will provide heating and cooling services to the Rose Garden Arena and Veterans Memorial Coliseum. These services would be extended to the Oregon Convention Center in the second phase through underground piping. In the third phase, the system will expand east toward the Lloyd Center providing heating and cooling services through a network of pipe infrastructure. For this expansion to the greater Lloyd District, crossing I-5 poses a significant challenge that could be resolved by a Clackamas pedestrian/bike overcrossing. Connection to the Rose Quarter Shared Thermal Energy System would contribute to the redevelopment of Clackamas as a high performing green street. Additional district energy and water opportunities in the Lloyd District are also under consideration and could complement the Rose Quarter system.

EN51 Evaluate the potential for the establishment of a "mitigation bank" to offset future development in the 100-year floodplain. **Lead Implementer: BES & bps; Timeline: 2-5 years/ Ongoing.**
See explanation above with Actions EN8 and EN9.

Regional Center Health & Environment Actions (RC):

RC3: Review and consider amendments to development standards and design guidelines applicable to development along the IG1/EXd interface throughout the district. **Lead Implementer: BPS; Timeline: 2-5 years.**

RC4: Review and consider amendments to building code requirements applicable to non-industrial development along the IG1/EXd Interface throughout the district. **Lead Implementer: BDS; Timeline: 2-5 years.**

Mixed-Use / Industrial Lands Interface

Although housing and higher density retail and commercial office uses have been allowed along several major corridors in the district for the last 25-years, only recently have these allowances been utilized for new development. For instance, in 2010 there were approximately 960 housing units in the entire district. In 2014, over 1,400 new housing units were either being developed or in early planning and design stage. Most of this development is either along the interface between the IG1 and EX zoned areas, or within a single block of this interface.

Stakeholders have asked that new tools be prepared to ensure that new mixed-use development is aware of the potential impacts and characteristics of locating close to industrial operations, and that new regulations, standards, and guidelines be developed to ensure potential conflicts between non-compatible land uses are mitigated or eliminated. Thus, the SE Quadrant Plan proposes the following actions to address these concerns:

Development Standards and Design Guidelines

The development standards and design guidelines for new uses and buildings in the IG1 zone differ from than those applicable to the EX zone. This is because the IG1 standards are intended to shape low-density light industrial uses, whereas the EX standards are intended to guide the development of high-density mixed-use development.

However, a series of potential problems arise when the boundary between these two zones occurs down the middle of the street (or right-of-way) and development applicable to one set of standards faces directly on development applicable to a different set of standards and expectations. Although these conditions have long existed in the Central Eastside, not until recently have these tensions been realized. Action RC3 has been included in the CC2035 Plan in response to these existing conditions.

Action RC3 proposes to further analyze of how development standards and design guidelines associated with parking, loading, sidewalks, active ground floor uses, building setbacks, and other provisions typically applied on development in the EX zone should potentially be modified to reduce or remove impacts on adjacent development located in the IG1 zone.

Potential Building Code Amendments

The Stakeholder Advisory Committee has stressed the importance of protecting industrial operations in the district from complaints originating from new residential and office development. Although the disclosure statement discussed above can help with this, there may be ways to change how new development is constructed to prevent impacts from being felt in the first place. The SE Quadrant Plan proposes a study of potential building code amendments that focus on the potential to require a higher level of sound insulation for new residential developments within 1,000 feet of the industrial uses. Action RC4 has been added to the Central City2035 Plan in order to accomplish these aims.

There is a similar requirement for residential structures near the Portland Airport as well as more recent code language (still in draft form, not adopted) for this type of requirement in the St. Johns, Cathedral Park area adjacent to industrial operations. Additional requirements for sound insulation for new construction has the potential to increase cost of construction, however the benefits to residents and/or employees in these buildings, protecting them impacts from noise, may help reduce the possible conflicts between industrial operations and other uses. This research and consultation with the building code staff at BDS will be performed in the next and final stage of the development of the Central City 2035 Plan.

RC43 Implement the Old Town/Chinatown Five Year Action Plan. **Lead Implementer: PDC; Timeline: 2-5 years.**

The Portland Development Commission's draft Old Town/Chinatown Five Year Action Plan outlines a series of near term actions intended to create a vibrant, economically healthy neighborhood. The plan centers around three main objectives: 1) neighborhood investment, 2) business vitality, and 3) district livability. Its action agenda identifies resources that PDC and the City can bring to bear to achieve these objectives, but also recognizes the importance of district champions and long-term self-sufficiency. Identified actions include:

1. Neighborhood Investment
    - 1.1 Facilitate rehabilitation and development of privately-owned properties
    - 1.2 Promote development and/or occupancy of PDC-controlled properties
    - 1.3 Invest in strategic infrastructure and connectivity improvements, including structured parking to serve the district
    - 1.4 Strategically invest affordable housing resources in Portland Housing Bureau portfolio
    - 1.5 Sponsor a "best practices" tour with key property owners and firms to highlight exemplary development models and tenant spaces
2. Business Vitality
    - 2.1 Expand and enhance street-level uses within the district through partnerships and investment
    - 2.2 Foster a supportive environment for startup businesses
    - 2.3 Invest in Cluster Industry supportive initiatives

2.4 Engage educational institutions in opportunities for partnership, program support and expansion

3. District Livability

3.1 Identify strategic safety initiatives and/or improvements

3.2 Establish District Manager position to support district management and public space programming efforts

3.3 Establish district collateral for use by PDC and community partners

3.4 Honor and enhance the district's multi-ethnic history

In addition, the action plan includes a recommended tool kit that City bureaus can use to further the plan's objectives. These include, among others, proposals for waivers of system development charges for workforce housing projects, changes to the MULTE tax abatement program, and new development assistance services.

RC44 Develop and implement an on- and off-street parking strategy for Old Town/Chinatown that encourages the redevelopment of surface parking lots, sharing of parking stalls and maintains sufficient parking to meet the districts' present and future needs. **Lead Implementer: PBOT; Timeline: 2-5 years.**

Most of the buildings in Old Town/Chinatown were built before or during the streetcar era and rely on the area's existing surface parking lots and on-street parking. At the same time, stakeholders have consistently expressed the desire for infill development on the district's surface lots to bring additional activity and vitality to the area. However, future development on surface lots could potentially further reduce the supply of parking to serve the district's historic buildings. A comprehensive strategy is needed to both encourage infill development and maintain a supply of parking that meets the needs of existing buildings and future development.

A number of approaches have been suggested for further exploration as part of a parking strategy for Old Town/Chinatown. Some, but not all of the tools that could potentially be used include:

- Allow and promote the sharing of existing and future parking stalls between multiple buildings and uses
- Develop one or more publicly-owned parking structures to serve the district
- Provide public subsidies to support construction of parking facilities in new development that could serve nearby buildings
- Allow and encourage the use of existing underutilized or new structured parking facilities just outside the district by businesses and buildings within the district

RC46 Study preservation zoning transfer incentives that would allow additional height for new construction on the non-contributing (non-historic) Block 33 property in exchange for

preservation/rehabilitation of contributing historic properties in the New Chinatown/Japantown Historic District. A project that uses the preservation incentive could potentially build up to a maximum of 150'. Implement this incentive following the update of the historic district nomination and the development of new, culturally sensitive design guidelines and development standards. **Lead Implementer: BPS; Timeline: 2-5 years.**

This potential zoning incentive is intended to encourage new development on Block 33 in New Chinatown/Japantown Historic District, which could add vitality and catalyze additional investment in the district. Concerns regarding the scale and design of new infill development will be addressed through the development of new historic design guidelines and development standards, such as building wall step-back requirements along NW 4th Ave., that will help integrate new development with the historic character of the district.

Transportation Health & Environment Actions (TR):

TR7 Explore tools that developers can use to pay for the construction of centralized structured parking where projects cannot feasibly provide on-site parking. **Lead Implementer: PDC; Timeline: 2-5 years.**

Incentives to Create Off-Street Parking

Many of the older multi-story industrial buildings in the Central Eastside were built prior to the automobile age, and those that were built since have minimal parking. Although the proposed expansion of the Employment Opportunity Subarea would increase the amount of the development allowed on any site, the cost of providing off-street structured parking as part of new development will be constrained by the high cost of providing structured parking. Also, because poor soil conditions will often require structured parking to be developed above-grade in this district, FAR that otherwise would be used to create employment space would be used to creating parking. Action TR7 has been included in the CC2035 Plan in order to study the potential to create incentives for the private sector to increase the supply of off-street parking in the district.

TR8 Alleviate congestion and improve freight, auto and non-auto mobility and accessibility by installing traffic control devices on Sandy at Ankeny St., MLK at Ankeny St., on MLK/Grand at Salmon St., and on Water Ave. at the I-5 off ramp. **Lead Implementer: PBOT; Timeline: 2-5 years.**

TR9 Create one-way couplets on Stark/Washington and Yamhill/Tayler to alleviate congestion at signalized intersections. **Lead Implementer: PBOT; Timeline: 2-5 years.**

Freight Mobility

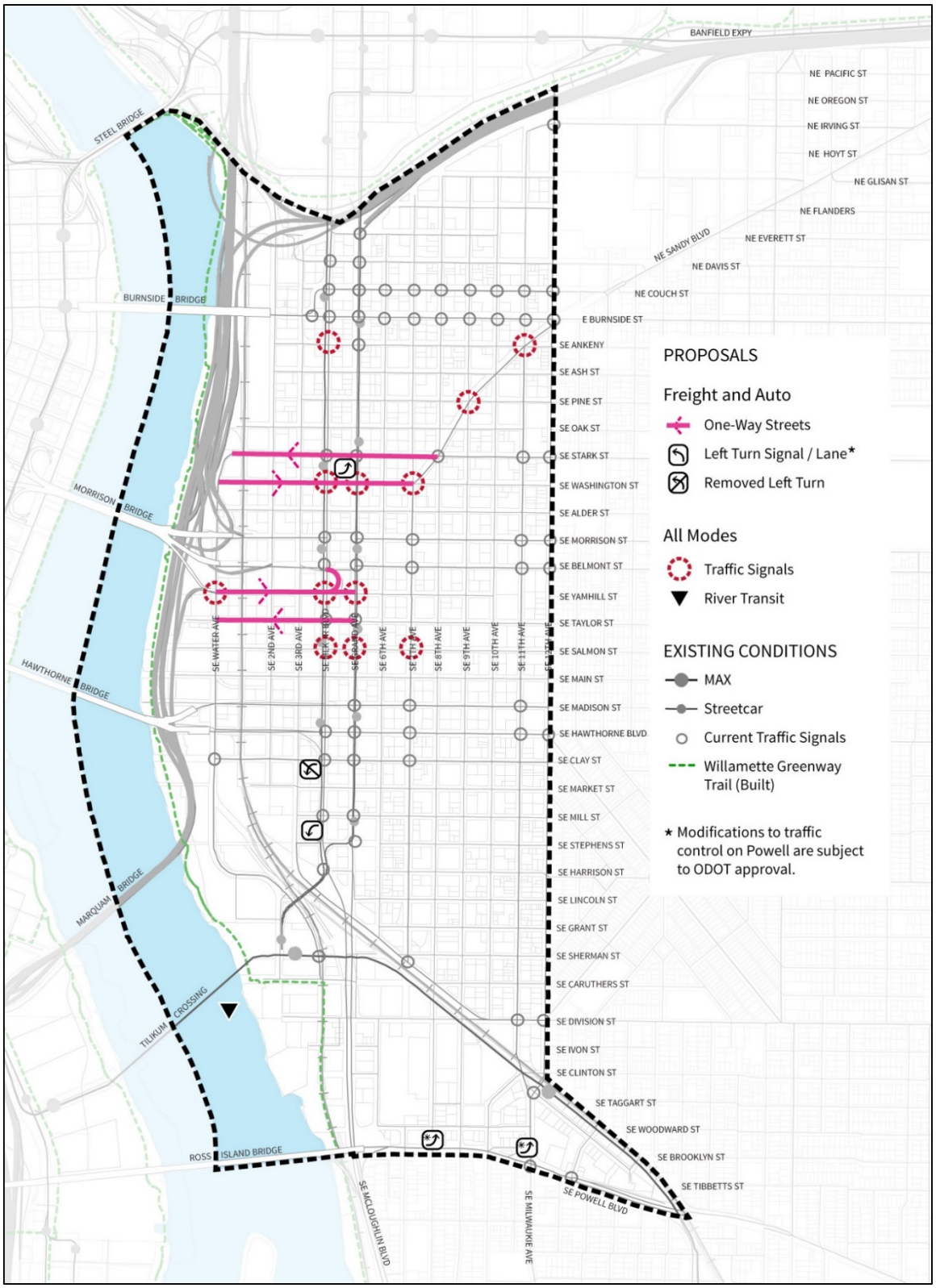
The Central Eastside is designated as a Freight District, meaning the transportation system supporting the district is intended to provide for safe and convenient truck mobility, access to industrial businesses

and allow for high levels of truck traffic and to accommodate the needs of intermodal freight movement. The City's Transportation System Plan (TSP) further notes that Freight Streets should be designed to facilitate the movement of all truck types and over-dimensional loads, as practicable.

However, there are unique challenges to managing the district for freight. For instance, the Central Eastside is located in the center of the Portland metropolitan region and is directly between inner eastside neighborhoods where many people live and the Central Business District where many people work. Thus, a high number of multi-modal trips are made daily through the district. Further, in the late 1800's the district was developed as a 200' by 200' grid pattern. This pattern is not typical of most modern freight districts and can constrain the movement of large trucks. Lastly, because there are very few signalized intersections on the heaviest traveled north-south thoroughfares through the district, freight and other modes are forced to collect at the few intersections that allow east-west travel through the district. This impacts freight mobility significantly. In response to these existing conditions, Actions TR8 and TR9 have been included in the CC2035 Plan.

The map on the following page depicts these freight and auto circulation improvements.

Map 3-1: Freight and Auto Circulation Improvements



TR10 Enhance existing east-west bikeways by installing traffic signals or other traffic control devices at key crossings of 11th/12th such as Ankeny St., Salmon St., Clay St., and Harrison St. **Lead Implementer: PBOT; Timeline: 2-5 years.**

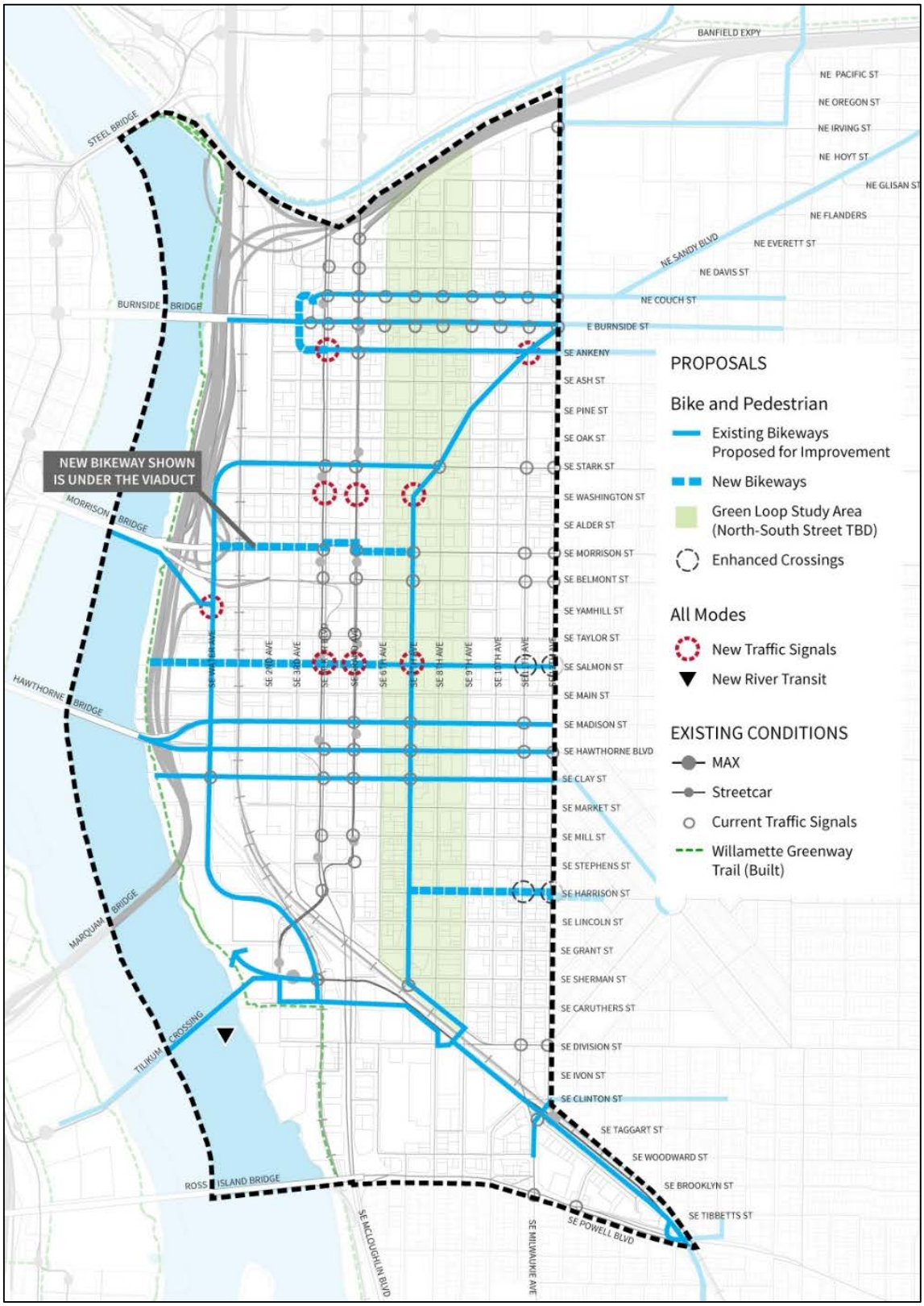
TR28 Establish a wayfinding system for district that directs preferred routes for specific modes. **Lead Implementer: PDC; Timeline: 2-5 years.**

Active Transportation Options: The Central Eastside is located in the middle of the commute route for thousands of Central City workers and many Central Eastside employees commute by bike. However, a lack of clearly defined routes, identified by bike supportive infrastructure and signage, results in many cyclists dispersing on multiple routes through the district. This increases conflicts with freight activities and raises significant safety concerns for cyclists. During the development of the SE Quadrant Plan stakeholders identified four east-west bicycle and pedestrian routes that should be improved to incent cyclists to stay on these routes as a means to reduce conflicts with other modes, especially freight:

- Salmon Street. This designated bikeway provides the only direct connection between Mt. Tabor and the Eastbank Esplanade. Adding signalization on Salmon at key intersections (12th, 11th, 7th, Grand and MLK) will provide protected crossings for bicyclists and pedestrians at streets with high traffic volumes, reinforce the role of Salmon as a major bike route, and provide a more predictable route for all road users.
- Harrison Street. Many stakeholders have expressed concern about the lack of signals on 11th/12th between Hawthorne and Division. A new signal at Harrison would be about halfway between Clay and Division, while serving to slow traffic through this exclusively residential area.
- Clay Street. This east-west bikeway connects Ladd's Addition to destinations such as the PCC CLIMB Center, RiverEast Center, and the Eastbank Esplanade. Recent stormwater-related improvements including swales, benches, new street trees, and small plazas have resulted in Clay becoming an important pedestrian route through the district as well. New bicycle and pedestrian signals at 11th and 12th, possibly rectangular rapid flashing beacons, would improve the safety for those crossing these busy streets.
- Ankeny Street. Ankeny is an east-west bikeway that does not have a good connection to the Burnside Bridge. A new signal at MLK would provide a protected crossing, and minor access improvements between 3rd and Couch would provide a direct connection to the Burnside Bridge.

In addition to the improvements listed above, the implementation of new wayfinding tools, including signage, was suggests a necessary means to better direct all modes to key attractions and preferred routes for different travel modes. The CC2035 Plan includes Actions TR10 and TR28 in response to these suggestions. The map on the following page illustrates some of the improvements suggested by these actions.

Map 3-2: Non-Auto Circulation Improvements



TR42 Enhance West Burnside to improve streetscape quality, multimodal access, and bicycle and pedestrian safety. **Lead Implementer: PBOT; Timeline: 2-5 years and 6-20 years.**

West Burnside is an important access point into the Central City. It serves thousands of motor vehicles, pedestrians and several TriMet bus lines. Burnside's design emphasizes through movement of vehicles, which create challenges in terms of multimodal accessibility into its adjacent Central City districts. For one, Burnside provides very limited opportunities for left turns to access into Downtown, West End, Old Town, Pearl District, Goose Hollow and NW Portland. In addition, many intersections are hard for pedestrians and cyclists to cross and a large number of blocks have substandard sidewalks. On street parking is very limited. The Burnside corridor has historically been identified as having a large number of crashes and fatalities.

West Burnside from NW 2nd Avenue to NW 23rd Avenue has been extensively analyzed. A 10-year, highly visible public process recommended that West Burnside be improved to provide for better sidewalks, more on-street parking, and better crossings and access to adjacent areas, among other things. A couplet design using NW Couch Street was recommended from NW 2nd Avenue to NW 15th Avenue.

City Council twice adopted the plan (lastly in 2007) and directed City bureaus to make all street designation adjustments and technical amendments required. Council also directed PBOT to identify and implement as soon as possible appropriate and viable interim pedestrian safety improvements for the most dangerous parts of Burnside.

Finally, Council also directed PBOT to develop and bring back to Council 35% (percentage of work completion) engineering designs for the adopted couplet design as well as a Burnside-only less expensive design option. The Council resolution also instructed that the couplet not be built without streetcar and that the streetcar couplet be integrated into the Central City Plan.

Due to the inability to secure financing for the couplet as well as political opposition to changes to NW Couch in the Brewery Blocks, City Council never was presented with the 35% design of the Burnside/Couch couplet design or of the Burnside-only alternative.

Action TR42 recommends the continued implementation of short and longer term improvements for the Burnside/Couch corridor as directed by City Council in the stated time horizon.

TR53 Improve West Burnside streetscape quality; multimodal access; and bicycle and pedestrian problem areas, particularly at SW Vista, Providence Park access areas and by I-405. 2-5 years and 6-20 years.

See explanation details of action TR42.

TR61 Develop and revise parking management strategies. **Lead Implementer: PBOT; Timeline: 2-5 years.**

Parking policy is a key component of a successful high density urban area. In the Central City, parking policy serves many purposes. It includes managing the supply of parking to encourage non auto trips,

managing congestion, supporting retail uses, protecting livability, addressing air quality issues, supporting growth in the Central City and protecting historic buildings from underuse and demolition. As the Central City parking policy is updated as part of Central City 2035, the City will address the following in relation (though not exclusively) to the Lloyd District:

- Incentivizing mixed use development through the provision of shared parking facilities.
- Promoting the use of transit and active transportation modes by reducing the amount of parking spaces per capita in the district over time.
- Maintaining and enhancing parking to serve retail focused areas and streets.
- Addressing event parking issues through flexible options such as the use of variable pricing and event parking management. An example of this is the current parking plan for Jeld-Wen Field during Portland Timbers games.

TR67 Implement the I-5 Broadway-Weidler Interchange Plan improvements. **Lead Implementer: ODOT; Timeline: 2-5 years.**

See Appendix C: I-5 Facility Plan in the N/NE Quadrant Plan, for a complete description of anticipated interchange improvements and implementation issues to be addressed in the next steps of project design and engineering. (Available at https://www.portlandoregon.gov/bps/60195).

TR68 Implement a 7th Ave pedestrian/bike bridge over I-84 connecting to either 7th or 8th in the Central Eastside. **Lead Implementer: PBOT; Timeline: 6-20 years.**

The Lloyd District is surrounded in the south and west by natural and manmade barriers. To the south there is Sullivan's Gulch, the active Union Pacific line, the light rail line and the I-84 freeway separating Lloyd from the Central Eastside.

Conceptual rendering looking east from Lloyd Blvd showing a potential design option for the 7th Avenue pedestrian/bicycle bridge. This rendering shows existing bike lanes on Lloyd Blvd. It does not depict the proposed Sullivan's Gulch Trail.

Three bridges connect these two areas: the overpasses at MLK and Grand and the 12th Avenue bridge. These bridges serve the needs of all modes, concentrating high numbers of vehicles with transit lines, trucks, pedestrians and cyclists. The Grand and MLK overpasses are loud and have substandard sidewalks and fast moving vehicles. Conflicts between vehicle and pedestrian needs are most present at Grand and Everett, where there is an on-ramp onto I-84 with a free right turn for vehicles. Pedestrian crossing is not allowed at this leg of the intersection.

There are no bicycle lanes on the MLK and Grand bridges. Streetcar tracks have been installed as part of the Streetcar Loop project, which precludes adding bike lanes adjacent to the curbs. The 12th avenue Bridge has recently received bicycle infrastructure improvements; however, the 12th Avenue bridge is located too far east to serve most travelers to and through the district.

These factors support the need for an additional crossing to serve pedestrians and cyclists with a safe and convenient new connection with direct access to the heart of the Lloyd District. Given the presence of existing bicycle lanes on NE 7th in the Lloyd District and of a building in good condition at the end of NE 9th in the Central Eastside that would need to be demolished to provide a 9th Avenue to 9th Avenue connection, the best alternative routes are from NE 7th in the Lloyd District to either 7th or 8th (shortest distance) in the Central Eastside.

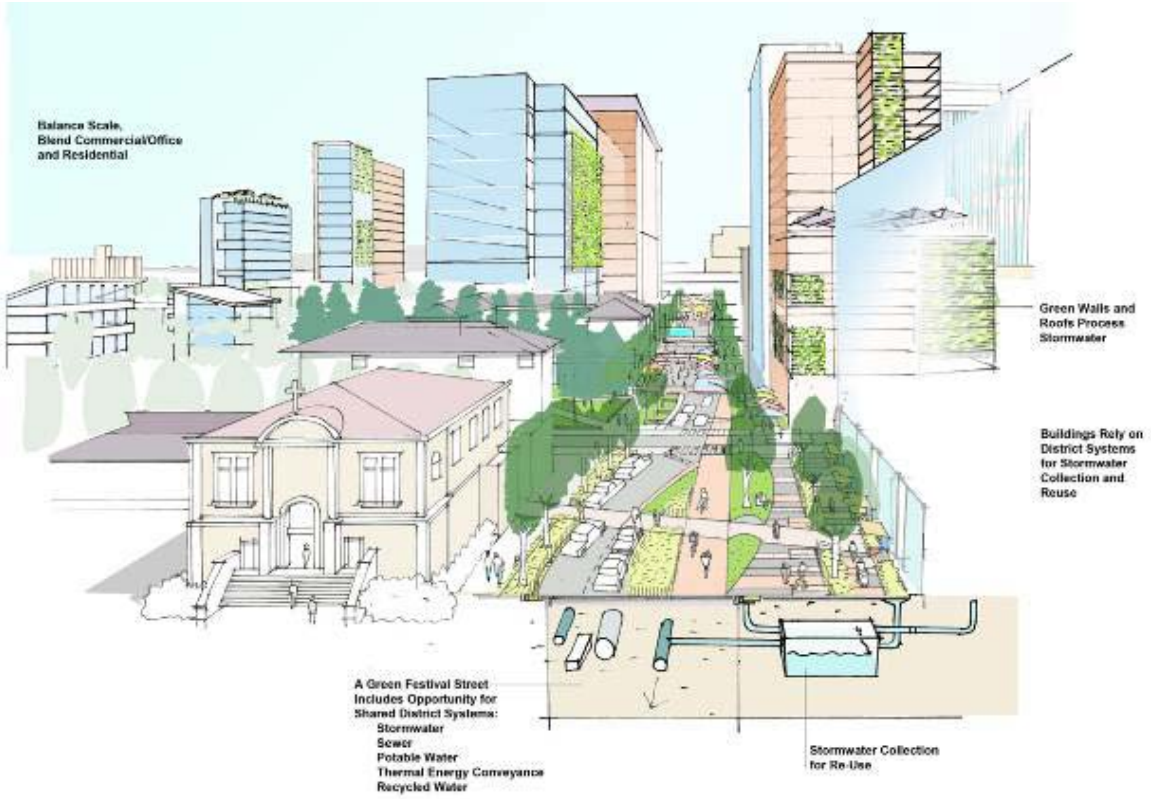
TR69 Develop a strategy for the Clackamas Flexible Street and private development extending from the Rose Quarter to NE 9th Avenue via a new pedestrian/bicycle bridge over I-5. **Lead Implementer: PBOT; Timeline: 6-20 years.**

The concept for a Clackamas Flexible Street would create an intimate urban street that provides for a safe and pleasant place for people to gather, play, and socialize. The street would provide for slow local vehicle access, bicycle access, and street amenities geared toward improving the pedestrian experience and creating a district amenity. This project should showcase the Lloyd EcoDistrict as a sustainable district that would include district energy infrastructure, enhanced tree canopy, improved stormwater strategies and green building technologies. The project should be a public-private partnership effort that leverages public infrastructure investments to obtain private investments in high-density, mixed-use development that contribute to the goal of creating an urban neighborhood in the Central Lloyd area.

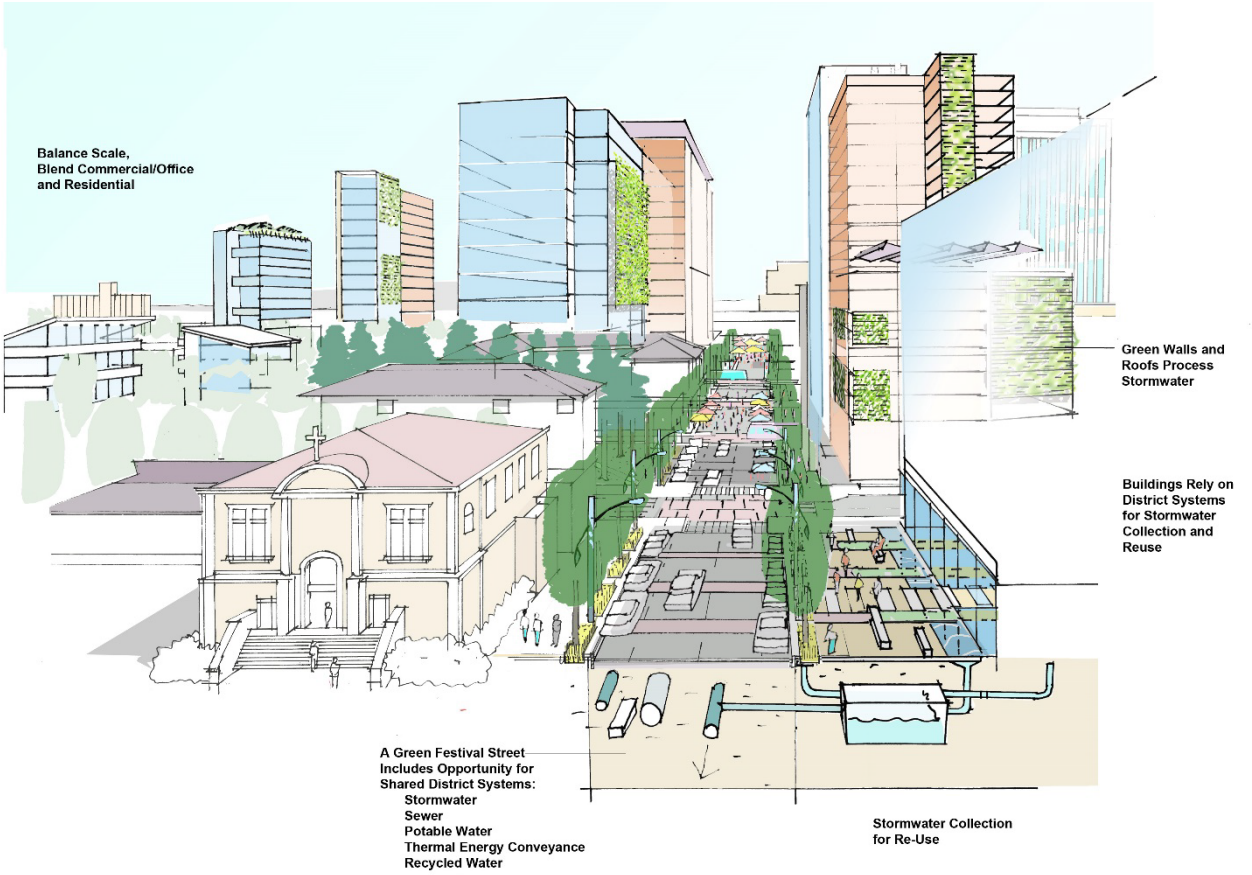
Development agreements may be part of this project's implementation program and should address public investments, private development, and sustainable design elements.

Additional plan elements that would increase the positive impact of the Clackamas Flexible Street include the parks and open space strategy called for in action UD5 and the proposed Clackamas Pedestrian and Bicycle I-5 Overcrossing included in the I-5 Broadway/Weider Interchange Improvements Facility Plan (See action TR67) that would link NE Clackamas Street with the Rose Quarter and potentially to the Willamette River. The Clackamas Flexible Street Project can occur separately from the bridge project.

The conceptual renderings below show two possible ways that Clackamas Street could be improved. There will be a future process to engage property owners and other stakeholders on design alternatives, access and parking needs.



Conceptual rendering of the Clackamas Flexible Street with a unique design and shared district systems.



Conceptual rendering of Clackamas Street as a festival street and with a decorative paving treatment.

TR72 Confirm the benefits and feasibility of straightening the "s-curve" in the Union Pacific rail tracks for freight and passenger rail operations. Options pursued should prioritize maintaining the development potential of the "Thunderbird" site. **Lead Implementer: ODOT; Timeline: 6-20 years.**

Currently, the "Thunderbird" site is separated from the riverbank by the Union Pacific Railroad mainline tracks. The tracks currently have a series of sharp curves around the Louis Dreyfus grain elevators near the Steel Bridge that dramatically slow train traffic. There may be mutual gain in a scenario that straightens the curves by placing the tracks in a trench or tunnel closer to Interstate Avenue. This would speed train traffic, reducing rail system congestion around the Steel Bridge. Relocating the train tracks would also open up the opportunity for public access to the riverbank at the Thunderbird site while still preserving some development potential. See action UD42 for a conceptual illustration of the site with trenched railroad tracks.

TR73 Work with TriMet to improve the Steel Bridgehead and Rose Quarter Transit Center area to improve transit, local circulation, access to the Eastbank Esplande, and development opportunities **Lead Implementer: Trimet; Timeline: 6-20 years**.

The present configuration of the Rose Quarter Transit Center (RQTC) is an evolution from a simple bus transfer center recommended by the City of Portland's Industrial Access Study in the late 1970's to a

major transit center for light rail and buses and a multi-modal hub to accommodate the spectators attending events at the Rose Quarter. The Interstate MAX Project was the most recent project to reconfigure the transit center.

With the construction of the Interstate MAX Project, City and TriMet staff acknowledged that the at-grade transit center was an interim solution and that a longer term solution would likely be needed in the future. In particular, as a transportation hub, the signal system would not have sufficient capacity to accommodate anticipated long-term growth in demand by any mode - light rail, bus and vehicle traffic, pedestrians, and bicyclists.

A key challenge for the RQTC also has been the need to better activate the center itself. This is particularly an issue as it relates to public safety. The current arrangement of the transit center and local streets inhibits development opportunities that would help activate the area.

The goals of this future work include exploring alternative configurations of street and rail infrastructure that:

- Improve the quality, safety and experience of the public realm, particularly for pedestrians, bicyclists and transit users.
- Improve transit capacity, readability, reliability and safety of the area – for MAX light rail and bus, as necessary.
- Improve development potential, creating developable parcels in the area of reasonable size and with good access and visibility.
- Increase access to and through the area – for vehicles, bikes and pedestrians.

In order to facilitate future reconfiguration of street and lot patterns near the transit center and improve the area's development potential, the plan recommends rezoning 3.3 acres of land west of the transit center from General Industrial 1 (IG1g) to Central Commercial (CXdg), as shown on the map below. The existing River General (g) overlay zone would remain. Approximately 93 percent of the area is in public rights-of-way. Most of the area is not currently developable but some of the land west of North Interstate could potentially be used for small or interim uses prior to a major reconfiguration of the area. Central Commercial zoning with the Design (d) overlay that matches the surrounding zoning will faciliate future development that takes advantage of regional transit access and supports the plan's vision of a highly urban and vital Lloyd District.

Map 3-3: Rose Quarter Transit Center Area Existing and Proposed Zoning

TR78 Develop a street design plan for the "the Strand" and alternative routes to provide a lower-stress connection between N. Russell Street and the Rose Quarter. **Lead Implementer: PBOT; Timeline: 2-5 years.**

The Lower Albina district concept calls for “the Strand”, which would provide a supplementary north-south, lower-stress connection between Lower Albina’s Russell Street commercial area and the Rose Quarter to the south and the Mississippi main street to the north. The Strand was developed as part of the Land Use Charrette for the N/NE Quadrant Plan held in February 2011.

Today, N Interstate Avenue is the main connection, but it is a high volume traffic street and has narrow sidewalks and an unpleasant pedestrian environment. The Strand is envisioned as a wayfinding system that is compatible with the industrial activities that take place in the southern portion of the Lower Albina’s industrial district. Potential design features of the Strand could include pedestrian and bicycle enhancements, such as continuous sidewalks and/or pavement markings that do not conflict with industrial operations. It could also celebrate the industrial heritage of the district through public art, murals and historical markers along its path. Possible elements of the wayfinding system could include signage, special street paving and art.

The route identified for the Strand generally runs in the north-south direction and zig-zags through the district on existing streets (see map B5). The one exception is a segment between N Page and N Thompson Streets, where the route would need to cross private property via an easement or acquired right-of-way. This private segment presents an additional challenge due to the grade.

The Strand should be pursued as a preliminary streetscape project to determine its feasibility and cost. The study should consider non-traditional streetscape treatments that integrate with the industrial character of the area and examine other possible routes that would provide the same benefit of a lower-stress connection through the district.

Map 3-4: Proposed Strand Alignment

Conceptual rendering of the Strand in Lower Albina. Art murals and special paving provide a wayfinding system through the district.

TR82 Implement the I-5 Broadway/Weidler Plan improvements, including the proposed Hancock overcrossing, to improve regional and local freight access. **Lead Implementer: ODOT; Timeline: 6-20 years.**

See Appendix C: I-5 Facility Plan in the N/NE Quadrant Plan, for a complete description of anticipated interchange improvements and implementation issues to be addressed in the next steps of project design and engineering. (Available at https://www.portlandoregon.gov/bps/60195).

TR88 Implement projects to improve pedestrian safety, multi-modal connectivity, and development conditions along W Burnside. **Lead Implementer: PBOT; Timeline: 2-5 years and 6-20 years.**

See explanation details of action TR42.

TR97 Enhance West Burnside to improve streetscape quality; multimodal access; and bicycle and pedestrian safety. **Lead Implementer: PBOT; Timeline: 2-5 years and 6-20 years.**

See explanation details of action TR42.

TR104 Complete a study that explores long-term reconfigurations of local and regional connections on and around I-405 between the Ross Island Bridge and Sunset Highway interchanges. **Lead Implementers: PBOT & ODOT; Timeline: 2-5 years.**

The completion of I-405 in 1973 dramatically changed traffic patterns in the area. On the upside, the added capacity facilitated the closure of Harbor Drive (99W) and replacement with what is now Naito Parkway and Tom McCall Waterfront Park, and provided an alternative to SW Market and SW Clay Streets to connect to US26.

However, the new freeway configurations created a significant barrier between the downtown and PSU area north of the freeway and the South Portland hills, particularly for pedestrians and cyclists. Growth in traffic in the following decades has also exposed the limitations in the freeway design, leading to congestion, short weaves and overreliance on local (and previously local) streets to carry regional traffic. Today, and for the foreseeable future, this stretch of the freeway experiences considerable safety and access issues for all modes, in the freeway mainline as well as at ramps, interchanges and overpasses. ODOT identifies this stretch of the freeway system as being in the top tier in terms of number and severity of crashes.

This action item calls for a joint study by ODOT and City agencies to study short- and long-term design solutions to improve freeway operations and access into the Central City, OHSU, the Portland VA Medical Center and South Portland by all modes, redistribute regional traffic onto regional facilities, and provide opportunities to humanize and reclaim freeway land (via, for example, capping of portions of the freeway or by street network redesign) for redevelopment, open space or other active uses.

TR118 Adopt and implement a proposed administrative rule that establishes a clear and objective formula for determining rough proportionality for major public trail exactions from specific proposed developments. **Lead Implementer: BDS; Timeline: 2-5 years.**

This action proposes the adoption and implementation of a rule that details how to calculate the scale of impact from a development on the major public trail system. It helps to ensure that the trail improvements required from a developer as part of a land use review or building permit approval are roughly proportional to the impacts of the proposed development. Below is a copy of the proposed draft rule.

City of Portland
Bureau of Development Services

1900 SW Fourth Avenue, Suite 5000
Portland, OR 97201
Telephone: (503) 823-7300 Fax: (503) 823-3018

Draft: PROPOSED RULE

DATE

RELATING TO
Title 33.272 Major Public Trails

FOR INFORMATION CONTACT
_____

TOPIC: Determination of Rough Proportionality for Major Public Trail Requirements

AUTHORITY:
The Bureau of Development Services (BDS) has the authority for application, implementation and enforcement of the provisions of Planning and Zoning Regulations, Title 33. Under Section 3.30.040 A, the Director of BDS has the authority to adopt written policies and procedures for the enforcement of applicable Code provisions and laws.

Section 33.272.020.A of Title 33 (Zoning Code) authorizes the Bureau of Development Services to develop and maintain Administrative Rules establishing a formula for making a determination of rough proportionality.

CITATION:
3.30.010 Duties of the Bureau of Development Services.

The Bureau of Development Services shall be responsible for:

B. The application and enforcement of the provisions of Planning and Zoning Regulations, Title 33 as delegated by the Director of the Bureau of Planning and Sustainability.

EFFECTIVE DATE_____: _____
Paul L. Scarlett, Director

Administrative Rule

Determination of Rough Proportionality for Major Public Trail Requirements

I. Purpose and Intent

This rule describes a formula that the Bureau of Development Services will use to make a determination of rough proportionality in the application of Chapter 33.272, Major Public Trails. The intent of the formula is to detail the impact on the trail system from a specific proposed development to the size and extent of the required trail improvement.

II. Background

The zoning code requirements in Chapter 33.272, prompt City staff to ask an applicant in a land use review or a building permit process to grant an easement that is related to (roughly proportional to) the impact of the applicant's development. Granting of an easement will be required when an applicant for new development on property that has a major public trail designation on the Official Zoning Maps, and that will increase the use of the existing trail facilities or increase the need for new trail facilities. The City of Portland desires to formalize a methodology that it uses to determine rough proportionality. The standards of this Administrative Rule determine the easement area required and construction required for the major public trail.

III. Process for Assessing Rough Proportionality

The following steps will be used to evaluate development proposals on properties that include a major public trail designation on the Official Zoning Maps. The steps will result in a determination of whether meeting the major public trail standards is roughly proportional to the impact of proposed development.

1) Determine the Impact

The impact of a proposed development on the major public trail system is the percentage of total bicyclist and pedestrian trips along a trail segment that will be generated as a result of a proposed development. This number is determined by dividing the number of trips to and from the site that will be made by bicyclists and pedestrians (**A**) by the total bike/pedestrian trips using the segment (**B**).

Formula: A / B = Percent of Impact (I)

A equals: The total number of expected daily trips to and from the site (based on data from the ITE Manual) multiplied by the percentage of those trips that are expected to be made by bicyclists and pedestrians (based on data from the most recent Oregon Household Activity Survey).[1]

B equals: The estimated number of daily bicyclist/pedestrian trips projected to use the major public trail system segment (based on City trail survey data).[2]

2) Determine the Percent of Easement Area

The percent of easement area is the percentage of average bicycle and pedestrian trip length that the length of the trail designation on the development site represents. The trail designation is represented by the trail stars on the Official Zoning Maps. The percent of easement area is determined by dividing the length of

major public trail designation on the site (**C**) by the weighted average length of bicyclist and pedestrian trips (**D**)[3].

Formula: C / D = Percent of Easement Area (E)

Example (steps 1 and 2): Fictional development on a site in South Waterfront—(1) 211 residential units, (2) a 5,000 square foot health club, and (3) a 5,000 square foot restaurant.

Impact (I):
(A) = 493 total average daily bicyclist/pedestrian trips based on rates listed in Attachment A, Rough Proportionality Formula Total Trips Table.

(1) 1.40 x 211= 295
(2) 6.92 x 15= 104
(3) 18.89 x 5 = 94

(B) = 1500 average daily trips along the trail segment, based on Attachment B, Bicyclist/Pedestrian Daily Trips Map (the segment is in the Central City)

(I) = 0.328 (493/1500: proposal represents 32.8% of bicyclist/pedestrian trips within the segment)

Exaction (E):
(C) = 650' (length of trail designation on the site)
(D) = 5800' (weighted average distance of bicyclist and pedestrian trips)
(E) = **0.112** (650/5800; the trail on the site is 11.2% of the trail segment)

3) Determine Proportionality

The finding of rough proportionality is determined by dividing the Percent of Impact (I) by the Percent of Easement Area (E). The extent of major public trail improvements that will be required as a result of a proposed development is based on the resulting Percent of Relative Impact, as indicated in the table below.

Formula: I / E = Relative Impact

Relative Impact		Result
If the Relative Impact is .66 or greater,	→	Meeting the trail requirements is roughly proportional. All trail requirements must be met.
If the Relative Impact is less than .66, but greater than .33,	→	Granting an easement for the trail is roughly proportional, but construction of the trail is not roughly proportional. Major public trail easement required, but construction of the trail is not required.
If the Relative Impact is .33 or less,	→	Meeting the trail requirements is not proportional. Project is not required to meet trail requirements.

Example (step 3): Fictional development on a site in South Waterfront – 211 multi-family residential units, 15,000 square feet of health club and 5,000 square feet of a restaurant.

(I) = .328
(E) = .112

The impact number is greater than the exaction number. In this case, granting an easement and building the trail is roughly proportional.

IV. Disputes

The applicant may dispute the number used for the total number of average daily bicyclist and pedestrian trips to and from the site, as determined above in section III.1), Determine the Impact. The applicant is required to provide an alternate rate study that documents the anticipated number of daily bicycle and pedestrian trips to and from the site, based on local data and conditions. Based on the technical information provided by the applicant, the Portland Bureau of Transportation Bureau Director or designee will make a determination of the total number of average daily bicyclist/pedestrian trips to and from the site.

The applicant may not dispute other aspects of the rough proportionality determination.

V. Appendix

Attachment A Rough Proportionality Formula Total Trips Table
Attachment B Bicyclist and Pedestrian Daily Trips Map

[1] For the rough proportionality formula, the percentage of trips expected to be made by bicyclists and pedestrians will be set at **21%** of the total number of daily trips to and from a site. This is based on Portland-specific data from the most recent Oregon Household Activity Survey.

[2] The number of bicyclist/pedestrian trips within the public trail system is estimated to be **1500** daily within the Central City and inner southeast and inner northeast neighborhoods. The number of bicyclist/pedestrian trips within the public trail system is estimated to be **750** daily in the outer neighborhoods. These estimates are based on daily bicyclist traffic counts conducted between 2001 and 2007 at multiple locations along the Willamette River Greenway, the Eastbank Esplanade and the Springwater Corridor. The estimates are also informed by Metro bicyclist and pedestrian trail counts data for locations in Portland.

[3] The average length of bicyclist and pedestrian trips is 5,800 feet based on Portland-specific data from the Oregon Household Activity Survey. The formula for calculating average trip length includes weighting bicyclist and pedestrian trip lengths by their relative proportions. Since 15% of all trips are pedestrian trips and 6% of all trips are bicyclist trips, pedestrian trips are weighted 2.5 times bicyclist trips (15/6 = 2.5). The average Portland pedestrian trip length is .45 miles and the average Portland bicyclist trip length is 2.72 miles. The average bicyclist/pedestrian trip length is calculated below:

> Average length of Portland pedestrian trips x (% of pedestrian trips/% of total bicyclist + pedestrian trips)
> +
> (Average length of Portland bicyclist trips x (% of bicyclist trips/% of total bicyclist + pedestrian trips).
>
> .45 miles x (15/21) + 2.72 x (6/21) = 1.09857 miles/5800 feet.

Attachment A
Rough Proportionality Formula
Total Trips Table

Note that general category rates should only be used if specific categories do not apply. Also, square feet of specific development is calculated as net square feet.

Use		Units	Average Weekday Trips (ITE)	Average Daily Bike/Ped Trips[3]	Notes
Residential Categories					
	Household Living (General)	per Dwelling		2.00	
210	Single Family Residential (1-3 units)	per Dwelling	9.52	2.00	
220	Multi-Family Residential (4 or more units)	per Dwelling	6.65	1.40	
251	Senior Housing (retirement apartment)	per Dwelling	3.68	0.77	
210	Accessory Dwelling Unit (rate is .5 of 210 – single family)	per ADU	4.8	1.01	
230	Rowhouse/Condo/Townhouse	per Dwelling	5.81	1.22	
	Group Living (General)	per Bed		0.42	
253	Assisted Living/Congregate Care	per Bed	2.02	0.42	
620	Nursing Home	per Bed	3.26	0.68	
Commercial Categories					
	Retail Sales and Service (General)	per 1,000 sq. ft.			Applicant will submit a rate, PBOT will evaluate
911	Bank	per 1,000 sq. ft.	12.13[4]	2.55	See endnote. Peak-hour rate shown--No weekday rate in ITE
310	Hotel/Motel	per Room	8.92	1.87	
443	Movie Theatre	per Screen	220	46.2	
492	Health Club	per 1,000 sq. ft.	32.93	6.92	
931	Restaurant	per 1,000 sq. ft.	89.95	18.89	
934	Drive-Through Restaurant	per 1,000 sq. ft.	496.12	104.19	
820	Shopping Center	per 1,000 sq. ft.	42.70	8.97	
850	Supermarket	per 1,000 sq. ft.	102.24	21.47	

[3] Estimated at 21% of Average Weekday Trips generated unless otherwise noted—rate from the Oregon Household Activity Survey.
[4] Peak hour trip generation rate shown here—no Average Weekday Trip generation rate available in ITE Trip Generation Handbook, 9th Edition

Use		Units	Average Weekday Trips (ITE)	Average Daily Bike/Ped Trips[3]	Notes
851	Convenience Store (stand-alone)	per 1,000 sq. ft.	737.99	154.98	
815	Discount/Department Store	per 1,000 sq. ft.	57.24	12.02	
841	Car Sales New/Used	per establishment[5]	21.14	1.00	See endnote
732	Post Office	per 1,000 sq. ft.	108.19	22.72	
710	Office (General) and Industrial Office	per 1,000 sq. ft.	11.03	2.32	
720	Medical Office/Clinic	per 1,000 sq. ft.	36.13	7.59	
	Quick Vehicle Servicing (General)	per establishment[5]		1.00	See endnote
944	Service Station	per establishment[5]	168.56	1.00	See endnote
947	Carwash (stand-alone)	per establishment[5]	108.00	1.00	See endnote
942	Vehicle Repair	per establishment[5]	4.01	1.00	See endnote; no weekday rate in ITE
	Commercial Parking	per long-term bike parking space		1.00	Per 33.266, Table 266-6[6]
151	Self-Service Storage	per 1,000 sq. ft.	2.50	0.525	
	Commercial Outdoor Recreation (General)	per acre		1.15, or per CU requirements	
480	Amusement Park	per acre	75.76	15.91	
481	Zoo	per acre	114.88	24.12	
420	Marina	per Berth	2.96	0.62	
	Major Event Entertainment (General) • If use includes seating (i.e. stadium) • If use does not include seating (i.e. fairgrounds) • If use subject to Conditional Use Review	per seat per acre		• .03 per seat • .33 per acre • per CU requirements	
452-454	Racetracks	per seat	0.61	.03	Horse Racetrack
460	Arena	per acre	33.33	.33	
Industrial Categories					
	Industrial (General)	per 1,000 sq. ft.		1.43	
130	Manufacturing and Production	per 1,000 sq. ft.	6.83	1.43	
150	Warehouse and Freight Movement	per 1,000 sq. ft.	3.56	0.75	
30	Truck Terminal	per truck berth[5]	6.79	1.00	See endnote
130	Industrial Service	per 1,000 sq. ft.			Industrial service not in

[5] This use has a disproportionately high number of auto trips, therefore the rate is not based on the ITE Manual, but on best professional judgment of 1 bike/ped visit per day.

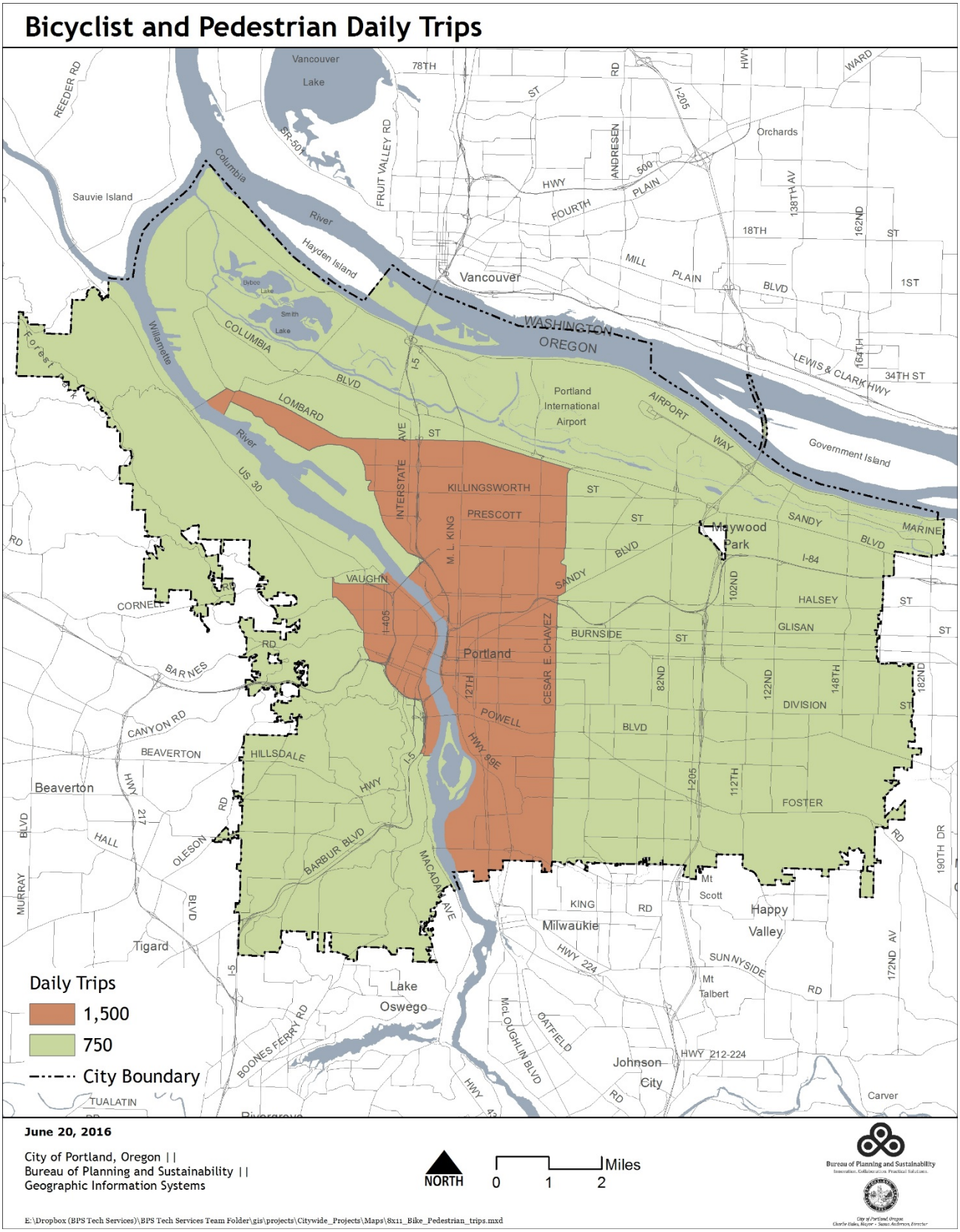
[6] Assumes that all long-term bike parkers arrive and leave during peak hours and that no pedestrian trips are generated.

Use		Units	Average Weekday Trips (ITE)	Average Daily Bike/Ped Trips[3]	Notes
					ITE. Not in SDC table
	Railroad Yards			Exempt	Not in SDC table
	Waste-Related			Exempt	Not in SDC table
Institutional Categories					
	Institutional (General)	per 1,000 sq. ft.		.73	Peak rate
	Basic Utility			Exempt	Not in SDC table
	Community Service (General)			.73	
435	Community Center	per 1,000 sq. ft.	1.99	0.42	
590	Library	per 1,000 sq. ft.	56.24	11.81	
411	Parks and Open Areas	per Acre	1.89	0.95[7]	See endnote
520/530	Schools K-12 (average of 520/530)	per Student	1.50	0.32	
550	Colleges	per Student	1.71	0.36[8]	See endnote
610	Medical Centers	per 1,000 sq. ft.	13.22	2.78	
560	Religious Institutions	per 1,000 sq. ft.	9.11	1.91	
565	Daycare	Per 1,000 sq. ft.	74.06	15.55	
Other Categories					
	Agriculture			Exempt	Not in SDC table
	Aviation and Surface Passenger Terminals			Per CU requirements	Not in SDC table
571	Detention Facilities	per Bed	0.10	Per CU requirements	Not in SDC table
	Mining			Exempt	Not in SDC table
	Radio Frequency Transmission Facilities			Exempt	Not in SDC table
	Rail Lines and Utility Corridors			Exempt	Not in SDC table

[7] Parks and Open Areas by nature have a disproportionately high number of bicyclists and pedestrians. The bike/ped rate has been adjusted to be equal to half of the total Average Weekday Trips generated.

[8] Colleges have a disproportionately high number of students who walk or ride bikes. The bike/ped rate has been adjusted to be equal to half of the total Average Weekday Trips generated.

ATTACHMENT B



Urban Design Actions (UD):

UD1 Update the Central City Fundamental Design Guidelines.

The Central City Fundamental Design Guidelines provide the foundational set of design guidelines used in Central City design review. The fundamental design guideline document includes a tripartite framework of the following headings: Portland Personality, Pedestrian Emphasis and Project Design. In addition, the guideline document includes four "special areas" design guidelines, one each for the Broadway and Chinatown "Bright Lights" districts, one for the South Waterfront Area (now RiverPlace) and one for the Park Blocks. Under separate covers, five sets of district design guidelines – and a handful of historic district design guidelines – nest within these 33 fundamental design guidelines.

In 2001, the fundamental design guidelines were refreshed and all narrative was reformatted in a new layout to include some background text updates, more explanation of the design review process and the incorporation of several photographic examples for each guideline. For the most part, the original content was not altered. The process to update the Central City Fundamental Design Guidelines, responding to new design direction from the Central City 2035 Plan and to reducing redundancies, will be the first comprehensive content update since their creation.

Guidance from DOZA

The Design Overlay Zone Assessment project (DOZA) will assess the performance of the design review process citywide, including the Central City. The project deliverable is a set of recommendations for improving the process, determining applicability of the criteria, and clarifying the tools. DOZA will include specific guidance for design review in the Central City and strategies for how to improve the guidelines used in the process. Anticipated delivery of the recommendations will be late 2016 – early 2017.

Reducing Redundancies and Incorporating District Design Guidelines

There are 33 fundamental design guidelines under the Central City Fundamentals. Within this set, there are redundancies among design guidelines. For example, "A5 Enhance, Embellish and Identify Areas" has very similar design direction to "C4 Complement the Context of Existing Buildings." Reducing the number of redundant design guidelines should yield a more focused set of design criteria.

Currently, there are district design guideline documents for five Central City districts. Of the five, two (Pearl and South Waterfront) have been updated from their original forms and three remain as originally adopted, which precedes the update to the fundamentals. The districts with guidelines are:

- Goose Hollow, 1996
- South Waterfront, 2010
- Pearl, 2008
- Lloyd, 1993
- Central Eastside, 1991

Three districts do not have separate district design guidelines: Downtown, West End and University/South Downtown. All of the Old Town/Chinatown district is in one of either the

Skidmore/Old Town or New China/Japantown Historic Districts, each with their own sets of design guidelines (design guidelines for New China/Japantown Historic District currently in development). Lower Albina is mainly an industrial district and therefore does not have design guidelines, but guidelines for the Russell Street Conservation District are found in the Community Design Guidelines document.

Because some of the district guidelines have been updated recently, they have more contemporary design guidelines that may warrant inclusion in an updated set of fundamentals. As the Central City Fundamental Design Guidelines are updated, discussion of the districts at the same time could reconfirm what guidelines are worthy of application across the Central City as well as clarify the specific design differences among the districts. Reducing redundancies between the fundamental design guidelines and those in the district documents would yield a shorter set of design guidelines to address and administer, distilling the characteristics and design outcomes that make each district unique. Integrating the district design guidelines into an updated set of fundamentals would reduce confusion on the part of applicants trying to understand which design guidelines are applicable where.

Addressing New Design Topics

Portland's Central City has changed dramatically since the early 1990s. While many of the design issues covered by the fundamentals remain important, many new topics have emerged that require design guidance. Current fundamental design guidelines do not adequately address these topics or provide clear guidance for applicants or the review bodies to design and/or assess building proposals.

Some of these topics include:

- Development Character along streets that have been defined as: Retail/Commercial, Boulevard, and Flexible
- Landscaped building setbacks
- Residential edge designs at the ground floors of buildings
- Descriptions of design intent for elements at specific locations from Central City 2035 Plan urban design diagrams and maps – gateways, key intersections, etc.
- Bird (and other wildlife) safe design – exploring window and building façade treatments that are responsive to native species of wildlife and their natural movement patterns
- Integration of "green" or sustainable building features such as solar panels, stormwater management facilities or wind turbines, and consistency with the city's green building policies
- Consideration of wind (or other environmentally-generated factors) mitigation strategies on building designs

UD4 Update the Historic Resources Inventory for the Central City, prioritizing the West End and Goose Hollow. **Lead Implementer: BPS; Timeline: 2-5 years.**

See discussion under UD79, below.

UD10 Explore opportunities to create publicly accessible open space and recreational opportunities on public and private land throughout the Central Eastside. **Lead Implementers: BPS, PPR and Private; Timeline: 2-5 years.**

Incent Creation of Publicly Accessible Parks, Open Space, and Recreation Opportunities

Because the Central Eastside is park-deficient there is significant interest from district residents and businesses alike to see more parks, open space, and recreation opportunities established as the district grows. There have been recent discussions among city bureaus and members of the Pelett Family, a long standing property owner in the district, about creating new open space amenities on sites they own.

Specifically, this family has approached the City about converting a quarter block parcel on the northwestern corner of Block 84 (parcels 1 and 2) between SE 3rd Ave, MLK, SE Alder St, and SE Morrison St to publicly accessible open space. This part of the Central Eastside has been identified by Portland Parks and Recreation as park deficient. This area is also within an EXd zoned mixed-use corridor where the highest residential and commercial office densities are already allowed. Therefore, it is likely there will be an increased demand for parks, open space, and recreation opportunities.

In response, the CC2035 Plan includes Action UD10.

As an aspect of this action, City bureaus will provide information and assistance to the Pelett Family to establish a privately owned public space, connect them with relevant organizations, and potentially use a Development Opportunity Study (DOS) coordinated by the Portland Development Commission. Such an open space would require careful programming to ensure safety and access is maintained during the day and early evening hours. City access to the big pipe shaft must be maintained, but the City should work with the Pelett Family and other partners on identifying creative solutions that meet the needs of park users, property owners, as well as City infrastructure maintenance.

UD11 Develop an urban design concept and implementation strategy to enhance the role, use and character of the historic main streets under the Morrison, Belmont, Madison, and Hawthorne St. viaducts, and the area under I-5. **Lead Implementers: BPS and PBOT; Timeline: 2-5 years.**

Enhance Space under Viaducts

Significant portions of the area west of 3rd Avenue are hidden under the viaducts connecting MLK and Grand to the Hawthorne and Morrison bridges and carrying I-5 along the waterfront. Stakeholders often consider these spaces unsafe barriers between more active spaces. These areas are dark, feel isolated, and often attract homeless camping and pan handling activities. Local businesses complain that the character of these places make customers and employees want to avoid them, and businesses that are large enough to have main entrances on adjacent streets often reorient towards these streets, abandoning grand entrances that once fronted the Morrison and Hawthorne main streets that lead down to the Willamette River.

During the development of the SE Quadrant Plan, stakeholders such as the Portland Landmarks Commission, Bosco-Mulligan Foundation, and the Pellet Family who own City Liquidators and other properties under the Morrison Viaduct, became interested in the concept of improving these street environments under the viaducts by hosting nighttime markets that showcase locally produced goods, allowing for outdoor restaurant seating, and bring the community of makers and doers together in a shared space that showcase the products produced in the Central Eastside.

These strategies could also include infrastructure improvements such as new sidewalks, stormwater treatment, lighting, signage and other wayfinding tools such as pavement markings, and potentially removable bollards that restrict vehicle access during events. These elements could be publicly funded, but should be tied to investments by property owners of existing and new buildings. Such buildings could open onto these spaces with active ground floor uses, and activity that "spills" into the shared space for events. The rehabilitation of under-utilized multi-story buildings along the viaducts, including the restoration of facades and main entrances of some of the grandest buildings, would help to reactivate these streets.

Former John Deere Headquarters, now Portland Storage building under the Morrison Bridge viaduct.

Similarly, the area under I-5 is often considered underutilized because it provides only a small amount of parking in an area that many feel should provide more park-like amenities or river-related recreation opportunities. The area under I-5 represents a tremendous open space and recreation opportunity along the riverfront that could connect the district to the Willamette River through more active uses.

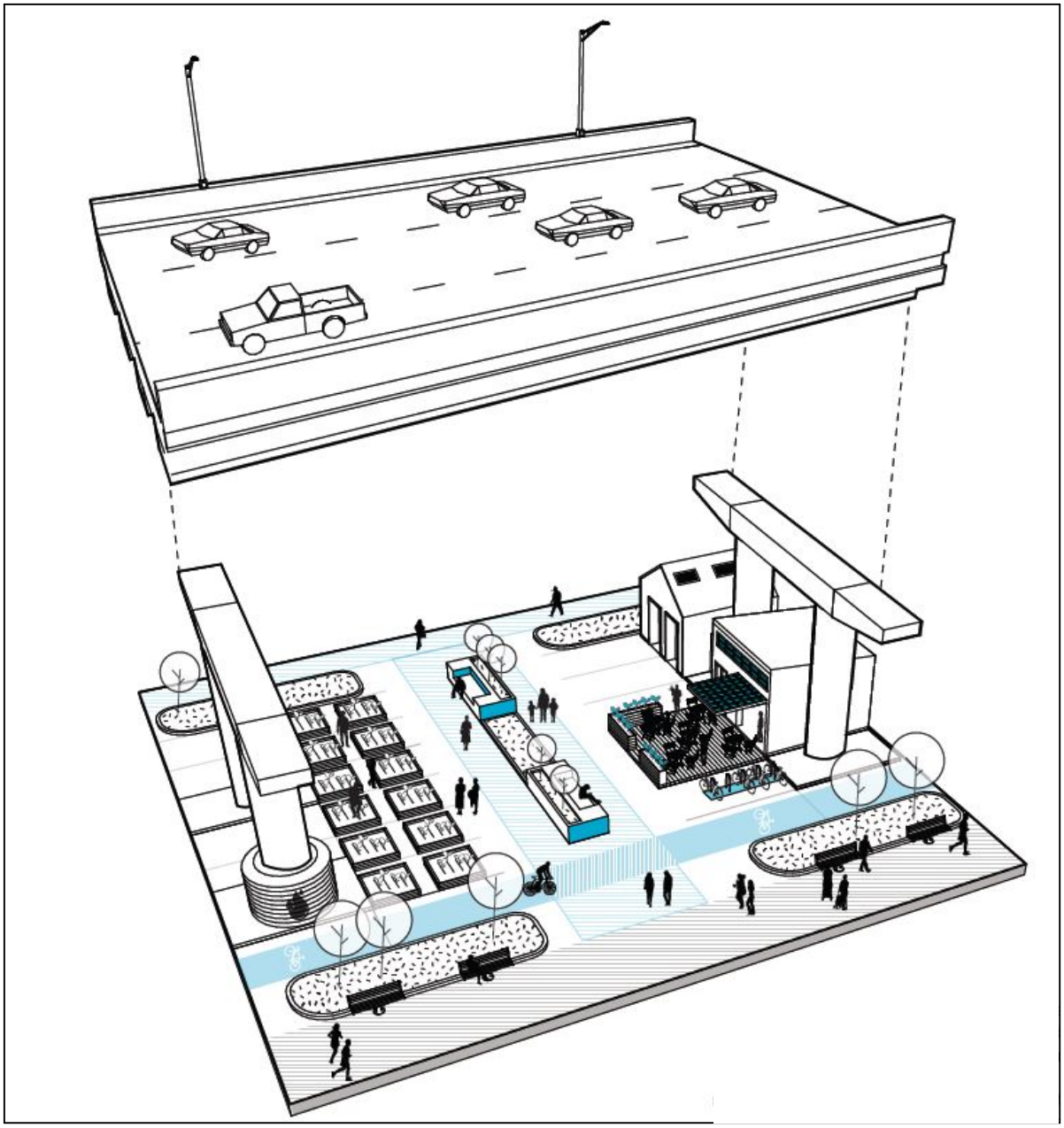


Illustration showing activity under the area under the I-5 viaduct using small and inexpensive modular structures. By Chris Kline, School of Architecture, Portland State University.

UD16 Explore a Green Loop alignment in the Central Eastside based on its ability to meet criteria developed for the district. Conduct analysis to identify potential route alignments and impacts to freight operations. **Lead Implementer: BPS; Timeline: 2-5 years.**

Green Loop

The Central City 2035 Concept Plan approved by City Council in 2012 included the proposal for a new pedestrian and bicycle loop referred to as the "Green Loop" that would connect existing attractions, open space amenities and districts with a continuous comfortable bicycle and pedestrian pathway. The

need for such infrastructure is likely to increase in the decades ahead as projected development in the Central City and the surrounding region take place.

The Central Eastside has long been at the center of citywide and regional growth and is predicted to add 9,000 new jobs and 3,500 new households by 2035. Furthermore, it lies between two bridges: the Tilikum Crossing Bridge, scheduled to open in September 2015 connecting it to OHSU and South Waterfront, and the new pedestrian/bicycle bridge over I-84, identified on PBOT's Transportation System Plan (TSP) which will connect it to the Lloyd District.

With more people working and living in the Central Eastside and increased access to adjacent areas, there will be further demands for its roads. While the Portland Plan and other City of Portland goals seek to meet growing demands by increasing the share of those using active transportation, the lack of clear routes with good infrastructure and wayfinding today results in cyclists dispersing throughout the district once they enter from surrounding areas. This causes conflicts between cyclists and freight operations and raises significant safety concerns. In response to these existing conditions the SE Quadrant Plan proposes the following action:

UD24 Study the feasibililty of creating an urban civic space at the intersection of West Burnside and Broadway. **Lead Implementer: BPS; Timeline: 2-5 years.**

The idea for this action came from West Quadrant Plan Charrette work done in June, 2013. Many cities have a signature civic space at "Main and Main," the intersection at which the major east-west and north-south thoroughfares intersect. In Portland, this key intersection could be considered Broadway and Burnside.

Staff rendering depicting a potential Green Loop on 7th Ave.

Aside from the area's high visibility, the Central City's differently-aligned grids meet at Burnside, creating a dynamic area with different street configurations, irregular lots and a unique feel. In the heart of downtown's core, the area could additionally connect to activity in Waterfront Park and Saturday Market along a unique, pedestrian-oriented SW Ankeny. See the concept diagram in Chapter 1, The Big Ideas.

This action would require the study of potential Green Loop alignments that could serve as a north-south spine to the existing east-west bikeways into and through the district, while providing open space, recreation opportunities and pedestrian amenities for employees and residents. Improving active transportation options is essential to maintaining the district's freight movement and other core functions. The Green Loop will help channel cyclists onto one path, reducing dispersion and increasing predictability for all modes.

The Green Loop and proposals to improve and concentrate existing east-west bicycle routes are practical solutions to respond to ever-increasing demand. They are based on a strategy developed with the SE Quadrant SAC's Transportation Working Group that seeks to identify existing priority freight routes that could be further enhanced for trucks through new signals, one-way streets, and signage; and improve a small number of lower priority streets to make them attractive for pedestrian and bicycle movement in the district. The strategy would focus seating and other furnishings, tree canopy or stormwater treatment on these streets where they will have the least impact on freight.

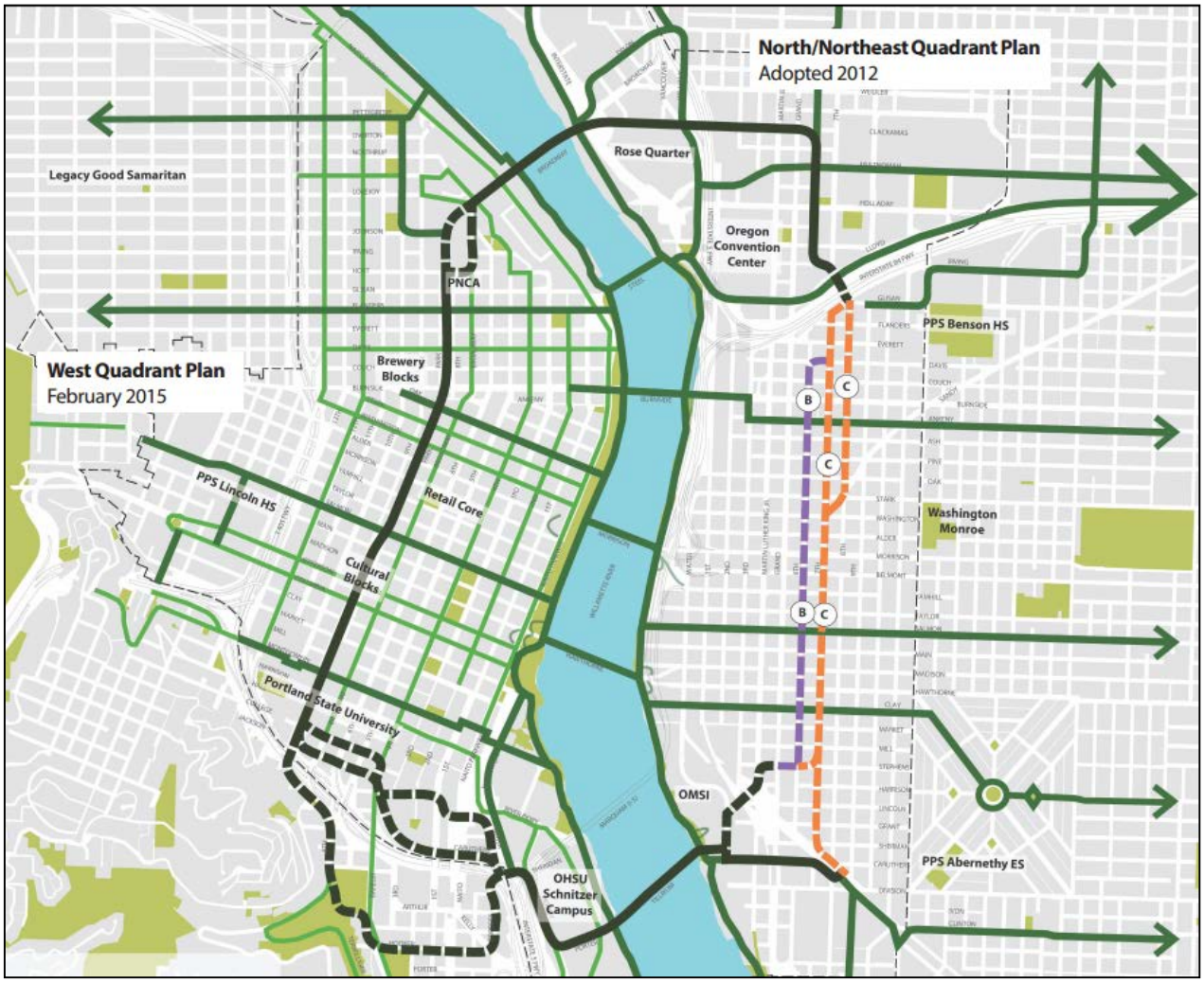
The SE Quadrant Plan is not proposing to identify a preferred route through the Central Eastside, because additional analysis and outreach to district stakeholders will be required. However, to ensure the Green Loop will be sensitive to the unique functions and role the Central Eastside plays as an industrial/employment district, the following evaluation criteria are proposed to be used to identify the best route the loop might take as it transverses north-south through the district between the new Tilikum Crossing and a new pedestrian/bike bridge proposed to connect the Central Eastside and Lloyd Districts over Interstate 84.

The route for the Green Loop in the Central Eastside will be based on evaluating different options against criteria identified through the SE Quadrant Plan process:

- Avoid Freight Impacts: Freight movement may be impacted by the loss of travel lanes, reduced lane widths and potential loading conflicts with bicycles. Analysis will prioritize alignments with the least negative impact to freight. Where cycle-tracks cross driveways used by businesses, design elements will be included such as colored and textured surfaces, signage, and maintaining sight triangles.
- Facilitate 2-Way Cycle Track: When fully built out, the Green Loop concept envisions physically separated paths to minimize conflicts between cyclists, pedestrians and freight vehicles.
- Adequate Right-of-Way: The right-of-way required to meet these needs can be accommodated by taking up a large portion of a narrow street or a smaller portion of a wide street. Pros and cons for each approach will be considered.
- Proximity to Retail, Commercial, and Residential Development: In the Central Eastside, many stakeholders have expressed that proximity to Grand and MLK and other mixed-use zoned areas is desired over an alignment that diverts cyclists through industrial areas.
- Open Space Opportunities: Where available, stakeholders have made it clear that areas adjacent to the Green Loop should accommodate pedestrians and bicyclists with amenities such as gathering spaces and seating. Throughout the SE Quadrant planning process, participants preferred that these opportunities be within the mixed-use areas of the district.

- Ease of Implementation: The Green Loop will likely be implemented in steps. Therefore, the ability for a street to accommodate bicycles more readily and the direct benefit for pedestrians as the project is built out over time should be considered as alignment options are studied.
- Directness: The Green Loop in the Central Eastside must connect the future pedestrian/bicycle bridge over I-84 to the new Tilikum Crossing Bridge in the most direct and flat route possible so that cyclists will choose it over other streets. The number of turns and grade changes the route requires will be considered.

Map 3-5: Green Loop Routes Proposed for Further Study



UD34 Improve Collins Circle and Firefighters Park to make these public spaces more accessible and engaging for the community. **Lead Implementer: PBOT; Timeline: 6-20 years.**

Both Collins Circle and Firefighters Park are located in the public right-of-way and are owned by the City of Portland. Collins Circle contains a rock sculpture by Japanese American landscape architect Robert

Murase; Firefighters Park contains the David Campbell Memorial, built in memory of the Portland Fire Chief killed in the line of duty in 1911.

Both areas are difficult to access and provide little opportunity for active use or community gathering. Neighbors have expressed further concern that the height of the Murase sculpture, in combination with the intersection configuration at SW Jefferson Street and 18th Avenue, results in poor visibility, creating a safety hazard for pedestrians and cyclists.

A study of potential improvement opportunities could look at items such as:

a. design and landscaping changes within each park to create more usable open space.
b. traffic calming efforts in the surrounding area to slow traffic near the parks.
c. changes to intersection configurations, including potential street segment closures, to improve access and multimodal safety.

UD40 Update the Lloyd District's 1991 design guidelines: Special Design Guidelines for the Design Zone of the Lloyd District of the Central City Plan to reflect the district concept. **Lead Implementer: BPS; Timeline: 2-5 years.**

The Special Design Guidelines for the Design Zone of the Lloyd District of the Central City Plan is recommended to be amended to reflect the design direction described in the district plan's urban design concept and supporting information. The existing document will be extensively revised and updated to feature new formatting, new illustrative examples of how to meet the guidelines and a new structure based on the Central City Fundamental Design Guidelines. New design issues to be addressed by the guidelines will include different street and development characters; providing design direction for gateways; incorporating/integrating green elements in site and building designs; and transitions to adjacent neighborhoods.

The "Street & Development Character" concept (see Appendix A of N/NE Quadrant Plan. Available at https://www.portlandoregon.gov/bps/60195) describes more intentional direction for the different streets in the Lloyd District. The concept proposes changes in both the street design standards as well as the adjacent building edges. The concept proposes three different types of street characters: retail/commercial, boulevard and flexible. New content in the design guidelines will address building edges of proposals along the different street types, illustrated with examples of desired building edge responses for each of the different street types. In addition, as some of the flexible network moves through private property, new design guidelines will speak to the character and orientation of new connections through these large blocks. More information is also available in a separate report: N/NE Quadrant Plan: Street and Development Character Concept (2012).

The Lloyd District includes a number of entry points or "gateway" locations, illustrated on Map A4 in Appendix A of the N/NE Quadrant Plan. The updated design guidelines will describe more clearly the City's intentions for the desired experience at each gateway, and how new development can support the targeted character. While many of the gateways will be reinforced by buildings that are taller than the surrounding context to emphasize the civic significance of these places, others may feature special landscaping or trees, unique works of public art, and/or combinations of the above.

New design guidelines will address the incorporation of "green" site and/or building elements. These elements could include, but are not limited to, native vegetation, bird-friendly design approaches for

larger buildings, providing setback space for trees, building orientation to maximize solar performance, energy production systems and stormwater management facilities. The content of these design guidelines would be developed in coordination with the Lloyd Ecodistrict planning and infrastructure implementation efforts.

In addition to maximum floor area ratio (FAR) and height regulations that limit building form(s), new design guideline content will address desired transitions from the Lloyd District to adjacent neighborhoods including Eliot and Irvington. The guidelines will be crafted to speak to the unique characteristics of the edges along each of these neighborhoods, and how new development proposals should respond accordingly. Design issues described by the guidelines, with narrative and illustrative examples, will range from site/building patterns, façade articulation, attention to detail, quality of construction, and potential building step-downs to existing historically, culturally or architecturally significant resources. In addition, existing guidelines that address specific locations in the district, such as the Broadway/Weidler corridor, would be updated to reflect the Irvington Historic District designation and boundary change. Language in the guidelines would provide clearer direction for design compatibility with adjacent contributing properties.

UD42 Work with the property owner/developer of the "Thunderbird" site to craft a development agreement that incorporates public open space and the greenway trail on the riverfront. **Lead Implementer: BPS; Timeline: 2-5 years.**

On the Thunderbird site located between the Veterans' Memorial Coliseum and the Willamette River additional height above the 100' current maximum would be allowed in exchange for providing public open space – preferably in front of the Coliseum. In exchange for providing significant public open space, buildings would be allowed to be up to 250'. The existing floor area ratio (FAR) would remain at 4:1, therefore the total amount of development potential on the site would remain the same.

Thunderbird site with full build-out of existing current maximum height (100') and 4:1 FAR. Conceptual rendering only.

Thunderbird site with buildout to ~250' and 4:1 FAR, incorporating a new waterfront open space. The railroad tracks have been moved to accommodate riverfront access and increase rail efficiency in this conceptual rendering.

As described in Action TR72, one option being considered in this area is the relocation of the Union Pacific railroad tracks to improve freight and passenger rail operations. It will be important to work with ODOT rail and Union Pacific to ensure that any plans developed for rail relocation maintain access, the development potential of the site and provide park and riverbank enhancement opportunities.

UD45 Prepare a National Register of Historic Places Multiple Property Documentation form for African-American historic resources based on the Cornerstones of Community inventory. **Lead Implementer: AHC; Timeline: 2-5 years.**

In 1998, the Bosco-Milligan Foundation (Architectural Heritage Center) completed "Cornerstones of Community," a historical context statement and inventory of over 3,000 properties associated with African-American history in Portland. In 2010, as part of the N/NE Quadrant Plan process, Bosco-Milligan updated the inventory, reflecting recent demolitions, correcting information, and converting the data so that it may be used in computer-based Geographic Information Systems. The context statement and updated inventory are powerful preservation planning tools that can assist in public education and historic preservation efforts in the N/NE Quadrant and through-out the city. They can serve as the basis for the development of a Multiple Property Documentation (MPD) form for African-American historic resources in Portland. Such an MPD would provide contextual information about the African-American community and evaluation criteria that would assist property owners who wish to list their historic properties in the National Register of Historic Places.

UD46 Improve the design review approval criteria used for development proposals within the Russell Street Conversion District and design overlay zone within Lower Albina. **Lead Implementer: BPS; Timeline: 2-5 years.**

The Community Design Guidelines are currently used as the approval criteria for historic design reviews in the Russell Street Conservation District. This is the only situation in the Central City where the Central City Fundamental Design Guidelines are not used as historic design review criteria (in some cases, other criteria are used in addition to the Central City Fundamentals). In addition, Lower Albina is the only Central City area outside of the downtown core that lacks a district-specific set of design guidelines. In the area east of the conservation district proposed for EXd zoning, the Central City Fundamentals are the approval criteria. This results in a situation where different criteria are used in directly abutting areas that have similar characteristics

In general, the Community Design Guidelines were intended to be used in areas outside the Central City and may not be the most appropriate criteria in a Central City conservation district. Options to consider include: developing a new set of sub-district design guidelines for Lower Albina that would speak to the characteristics of the Russell Street area specifically; amending the Central City Fundamentals and applying them within the conservation district; or amending current language in the Community Design Guidelines to better address the character of the conservation district.

UD49 Encourage and assist Lower Albina property owners to nominate their historic properties for designation as landmarks. **Lead Implementer: BPS; Timeline: Ongoing.**

Two sources of information can assist Lower Albina property owners to list their properties in the National Register of Historic Places. The existing Multiple Property Documentation (MPD) form "Historic

and Architectural Properties in the Eliot Neighborhood" provides historical context and evaluation criteria for historic resources within the Eliot Neighborhood, including Lower Albina. The MPD reduces the National Register documentation requirements for properties that meet the criteria laid out in the MPD. This document is available from the Bureau of Planning and Sustainability.

Another helpful source is the historic resources inventory completed for the Albina Community Plan. This multi-volume set completed in the mid 1990s updated information in the City's 1984 adopted Historic Resources Inventory. It contains information on hundreds of historic properties in N and NE Portland, including the Lower Albina area. The inventory is housed at the Bureau of Planning and Sustainability.

UD66 Review and update South Auditorium plan district development standards and guidelines, specifically those related to landscaping and setback requirements. **Lead Implementer: BPS; Timeline: 2-5 years.**

The South Auditorium area is a unique part of the Central City. Once home to generations of Portland's Jewish and Italian immigrant communities, over 100 acres of the South Portland neighborhood was largely razed in the 1960s and subsequently redeveloped as part of the Portland's first urban renewal area. The area's large-scale residential and commercial buildings, generally set-back on large lots, are organized around a leafy open-space and pedestrian mall system designed by nationally recognized landscape architect Lawrence Halprin. The open space and pedestrian way sequence was listed recently in the National Register of Historic Places. The area's distinctly mid-century modernist cityscape stands in contrast to the more traditional, fine-grained urban fabric of other parts of the greater downtown area.

In order to protect its character defining features, the South Auditorium plan district, part of which overlaps with the Central City plan district, contains development standards intended to preserve landscaped areas, building setbacks and tree canopy. Floor area (FAR) standards are specified as well. The overlap between the two plan districts creates the potential for inconsistencies in the area's regulatory framework. The development standards in the plan district will be reviewed and revised as appropriate, and possibly integrated into the Central City plan district. New standards intended to extend the pedestrian way system where it remains incomplete will also be considered. In addition, design guidelines specific to the South Auditorium area may be developed as part of the update of the Central City Fundamental Design Guidelines.

UD79 Review and revise as appropriate two National Register Multiple Property Documentation forms for Downtown development to encompass a broader range of potential historic resources in the West End. **Lead Implementer: BPS; Timeline: 2-5 years.**

The West End is one of the most architecturally diverse parts of the Central City, with a range of building ages, styles, scales and uses. These range from Victorian houses and mid-sized streetcar-era apartments to taller residential and mixed-use buildings. Tables A1 and A2 show the range of building ages and scales.

The West End has 36 designated historic landmarks (see Table A3 and Map 3-6); most of these properties are listed in the National Register. Historic landmarks are protected by zoning code provisions

that require historic design review for major exterior alterations. Demolition requests for National Register properties must be approved by City Council. Unlike some parts of the Central City such as Old Town and the Pearl District, there are no designated historic districts. The City's Historic Resources Inventory includes 75 ranked properties in the West End, including the designated historic landmarks (see Table A3 and Map 3-6). The inventory was completed in 1984 and is now quite out of date. A number of buildings listed in the inventory have likely been demolished and some have been altered since 1984.

Proposed West End policies call for retaining the distinctive urban character of the district by encouraging the preservation and rehabilitation of existing buildings and historic resources that represent a wide range of architectural styles, scales and eras. Implementation action UD79 will help achieve these policies.

Action UD79 calls for reviewing and revising the two National Register Multiple Property Documentation (MPD) forms that were previously prepared for downtown Portland. Multiple Property Documentation forms are umbrella documents that establish the historical context and evaluation criteria that facilitate the listing of historic properties in the National Register.

Two existing MPDs cover the West End: Historic Resources in Downtown Portland, Oregon, 1906-1914 and Historic Resources in Downtown Portland, Oregon, 1915-1931. They present the history of downtown development from 1906 to 1931 (the post Lewis and Clark Exposition development "boom") and describe associated property types that are potentially eligible for listing, including office buildings, hotels, retail stores and apartment buildings.

Table A1: West End Buildings–Year Built

Year Built	Number
Pre-1900	12
1901-1930	93
1931-1960	21
1961-Present	32
Unknown	2
Total	160

Table A2: West End Buildings – Stories

Stories	Number
1-6	135
7-12	17
13-27	6
Unknown	3
Total	160

Table A3: West End Historic Resources

Type	Number
National Register Properties	30
Local Landmarks	6
Total Landmarks	36
Ranked HRI Properties	75
Parcels	207

Note: Most local landmarks and National Register properties are also included in the HRI. Many of the National Register properties are also local landmarks.

Following, or in conjunction with, development of an updated inventory of historic resources in the West End, these MPDs could be amended to encompass a broader range of potential historic resources in the district, for instance by expanding the period of significance or historical context statement, adding new property types, or revising the registration requirements.

Map 3-6: West End historic resources.

Willamette River Actions (WR):

WR6 Develop a strategy to address impacts on habitat and fish and wildlife within the Ross Island complex and Holgate Channel as part of River Plan/South Reach. **Lead Implementers: BES & PBOT; Timeline: 2-5 years.**

Issues

1. The problem: Boating, camping and other activities including excessive noise, are negatively impacting fish and wildlife habitat especially on publicly owned property and the Ross Island Lagoon. This situation is in part due to a larger issue related to homelessness. It will worsen if intervention is not taken as human access on the Willamette River is increasing.
2. Short term enforcement: Enforcement is hindered by multiple ownerships (Ross Island Sand and Gravel, City of Portland, Port of Portland, Department of State Lands), jurisdictions (US Coast Guard, State of Oregon, Multnomah County and City of Portland) and a lack of consistent regulations and enforcement.
3. Long Term management: There is no long-term management plan for the Ross Island, as part of the Ross Island-Holgate Channel-Oaks Bottom Complex. The City anticipates long-term management of the island when it has full ownership over it or when a long-term management plan has been completed and funding is available for resource management.
4. Property acquisition or donation: Large portion of the island is in private control and is used as a sorting operation. Also, the Port's property is not developed. Restoration and management will best be accomplished when under one public ownership.

Possible Solutions

Enforcement

1. Convene property owners and jurisdictional representatives to identify short and long term actions to address enforcement. Potential actions already identified include:
    - **a.** Petition the DSL Director and Land Board to prohibit Ross Island area camping/trespassing on lands governed by DSL and along the banks of the Willamette River from downtown to the Oaks Bottom Wildlife Refuge.
    - **b.** Review, develop and enact if necessary, policies and rules regarding human activity in the Ross Island area, e.g. noise abatement through an update to the *Willamette Greenway Plan*.
    - **c.** Identify actions that Ross Island Sand and Gravel and the Port of Portland can take to address the issue on their lands.

Long term management and Property Acquisition/Donation

2. Fund the development of a Natural Resources Management Plan for the Ross Island-Holgate Channel-Oaks Bottom Complex. The plan should be a multi-property owner plan that is developed when funds and staffing resources become available. If the other property owners are not willing or able to participate, it will be done when more of the island is under City ownership. It would include actions to maintain and restore the island and clarify public access use and restrictions. Portland Parks and Recreation staff are developing a schedule for completion of natural resource management plans and this area is part of the discussion.

3. Portland Parks and Recreation is exploring with the Port of Portland, a donation of the Port's property to the City.

Environmental Conditions

Ross Island, the main island of a four-island cluster (includes Hardtack, East Island and Toe Island) and is part of the Ross Island-Holgate Channel-Oaks Bottom Wildlife Refuge complex.
The Holgate Channel provides quality shallow water habitat for migrating and resident fish including seven federally listed endangered or threatened fish species and is used by at least 50 species of migratory (e.g., Osprey) and resident birds (e.g., eagles and herons). The majority of Holgate Channel is designated No Wake, from the tip of Ross Island to the northern entry into and including the lagoon, by the Oregon State Marine Board.
The City's Natural Resources Inventory Update (2012) showed a good portion of the island has high ranking resources (City of Portland and Port of Portland owned properties).
All of the island is within the 100 year flood plain and 1996 flood inundation area.

Recreation

This is a popular destination for boaters to view natural resources including wildlife and/or visit the island's beach and upland areas. Most are daytime visitors, but increasingly, the number of boaters are coming to the island to camp. Some of these campers may be homeless. Overnight camping, fires or access to City property is not allowed without prior approval. Signage on the shoreline communicates this information.

Ownership & Land Uses

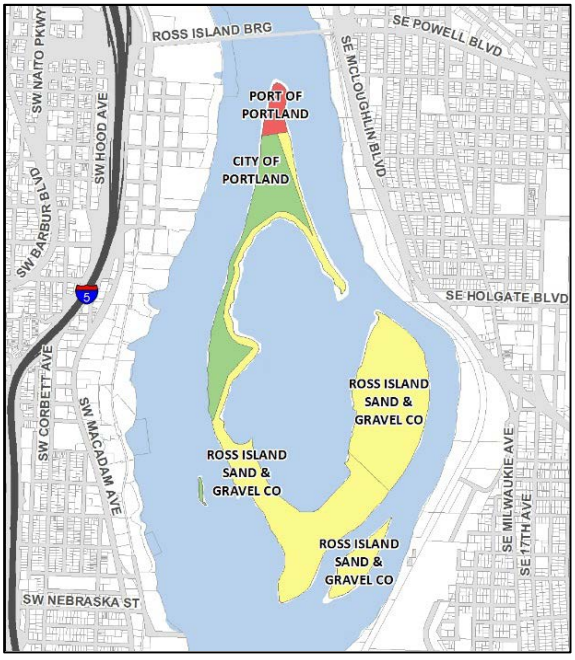
Ross Island Sand and Gravel owns Hardtack and East Island, for a total 50.7 acres of which 47 acres is above Ordinary High Water (OHW). Mined extensively until 2001. Timber logging took place.

Port of Portland owns 4.7 acres at the northern tip of which 2.6 acres is above OHW.

City of Portland owns 29 acres all of which is above OHW (donated by RISC in 2007 for a natural area) including Toe Island.

Zoning for island cluster is Open Space with River Natural and River Water Quality Overlay zones.

Map 3-7: Ross Island Property Ownership



Jurisdictions

Portland Parks and Recreation manages city-owned property on Ross Island. The City of Portland provides emergency fire and rescue response, and assists with law enforcement.

Multnomah County provides river patrol including emergency response, boat safety inspections and education.

The Oregon Department of State Lands (DSL) has jurisdiction over the beach areas that are below Ordinary High Water (OHW) and allows overnight camping for up to 30 days.

The Oregon State Marine Board establishes statewide boating regulations and funds/contracts with law enforcement such as with Multnomah County River Patrol. They also establish area for No Wake zones.

The US Coast Guard provides search and rescue and homeland security.

Additionally, a number of federal and state regulatory agencies have permitting and monitoring responsibilities depending on the activity being conducted.

Activities and Coordination

Between 1992 and 1998 the Port of Portland received state and federal authorization to bury contaminated dredge materials from the Portland shipyard and Port terminals in the Ross Island Lagoon. A subsequent study to determine the environmental impacts of this action was completed in 1998 after a gravel mining shovel breached one of the containment cells.

This contamination has been addressed through a remediation plan between RISC, the Port, the State Department of Environmental Quality (DEQ). The desired clean-up is completed and long-term monitoring and maintenance will continue.

WR7 Develop an action plan to enhance and restore fish and wildlife habitat throughout the Central Reach. **Lead Implementers: BPS & BES; Timeline: 2-5 years.**

Riverbank and in-water restoration

Restoring riverbanks and in-water habitat will be most successful where the existing conditions include relatively shallow water, which is critical factor for ESA-listed fish species. It would be very difficult to attempt to create a new shallow water areas without the river washing it away. There are seven (7) locations in the Central City with existing shallow water where restoration might occur:

- Centennial Mills
- McCormick Pier
- I-5/I-84 Interchange
- Eastbank Esplanade
- Hawthorne Bowl
- Eastbank Crescent
- Cottonwood Bay

There are other goals and priorities for each of these sites including boating, commerce, swimming, events, etc. For restoration to be successful, public access to the restoration area must be limited, thus uses within a site will be need to be split. In addition, no feasibility study has been completed to determine what restoration actions can occur or the cost to restore (note – some areas may require

contamination clean-up prior to restoration). For all of these reasons, the riverbank restoration target is at least five (5) shallow water areas restored by 2035.

Determining the implementation tools and priority locations for enhancement and restoration will take additional planning, and this is the impetus for the inclusion of Action WR7 in the CC2035 Plan.

WR11 Partner with property owners and other stakeholders to fund and implement a preferred concept plan for the Eastbank crescent that includes fish and wildlife habitat, boating, swimming, educational opportunities and enhanced greenway trail. **Lead Implementers: BPS, BES, PPR & PDC; Timeline: 2-5 years.**

The Eastbank Crescent is located on the east bank of the Willamette River and stretches from under the Hawthorne Bridge to the Marquam Bridge. This location has existing shallow water and riverbank habitat and is identified as one of seven potential restoration and enhancement sites in the Central City. This location also has existing recreational activities including the Holman Dock, which is leased by the Portland Boathouse for use by multiple racing and paddling clubs, and popular with sunbathers. It also includes the emergent beach just south of the Hawthorne Bridge, which is used for access into the river, and the Greenway Trail and Eastbank Esplanade, which is a heavily used section of the trail for commuting. In addition, the Portland Boathouse has a limited term lease for use of the Holman Dock and multiple rowing clubs as well as boat rental outfits operate out of the boathouse.

The goals for the Eastbank Crescent are to restore fish and wildlife habitat, improve public access into the Willamette River, reduce user conflicts along the Greenway Trail and create an area for learning about the river.

For all of these uses to be successful, the area must be strategically designed. Design considerations include:

1. Lay back the riverbank upstream of the dock to reduce the steepness and create more shallow water habitat;
2. Revegetate the riverbank with native plants and root wads and install driftwood in the shallow water.
3. Direct active public uses downstream and away from shallow and riverbank restoration;
4. Maintain viewpoints and additional access to the edges of the restoration area to facilitate education.
5. Replace the existing Holman Dock with a more stable structure with improved access for boat launchers.
6. Provide safe public access into the river for swimmers.
7. Redesign the Greenway Trail to reduce conflicts between cyclists and pedestrians.

THE 'GREEN LOOP'

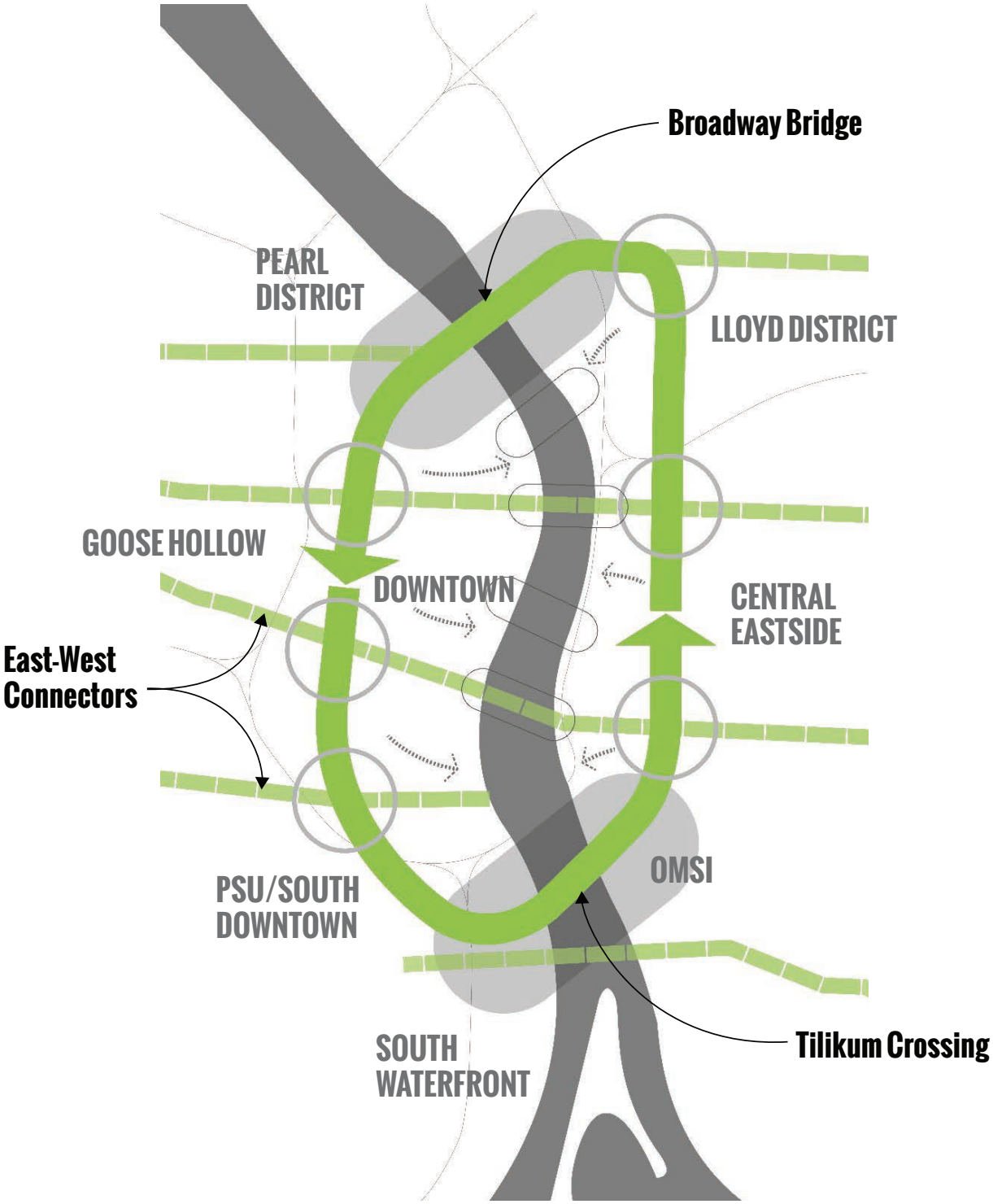
A 21ST CENTURY PUBLIC WORKS PROJECT FOR PORTLAND

CENTRAL CITY 2035

Bureau of Planning and Sustainability
Innovation. Collaboration. Practical Solutions.

City of Portland, Oregon
Charlie Hales, Mayor • Susan Anderson, Director

URBAN DESIGN STUDIO


Broadway Bridge
PEARL DISTRICT
LLOYD DISTRICT
GOOSE HOLLOW
DOWNTOWN
CENTRAL EASTSIDE
East-West Connectors
OMSI
PSU/SOUTH DOWNTOWN
SOUTH WATERFRONT
Tilikum Crossing

THE GREEN LOOP CONCEPT IS A SIX MILE LINEAR PARK THAT INVITES RESIDENTS, EMPLOYEES, AND VISITORS TO EXPERIENCE PORTLAND'S CENTRAL CITY IN AN ENTIRELY NEW WAY.

The Green Loop concept emerged as part of the Central City 2035 Plan, a partnership between the Bureau of Planning and Sustainability, Portland Parks and Recreation, Portland Bureau of Transportation and the Bureau of Environmental Services.

THE GREEN LOOP

THE CONCEPT IS...

Envisioned as an easy and smooth pathway through the Central City's parks and open spaces, the "Green Loop" is a six mile linear park that invites residents, employees and visitors to experience Portland's urban core in an entirely new way.

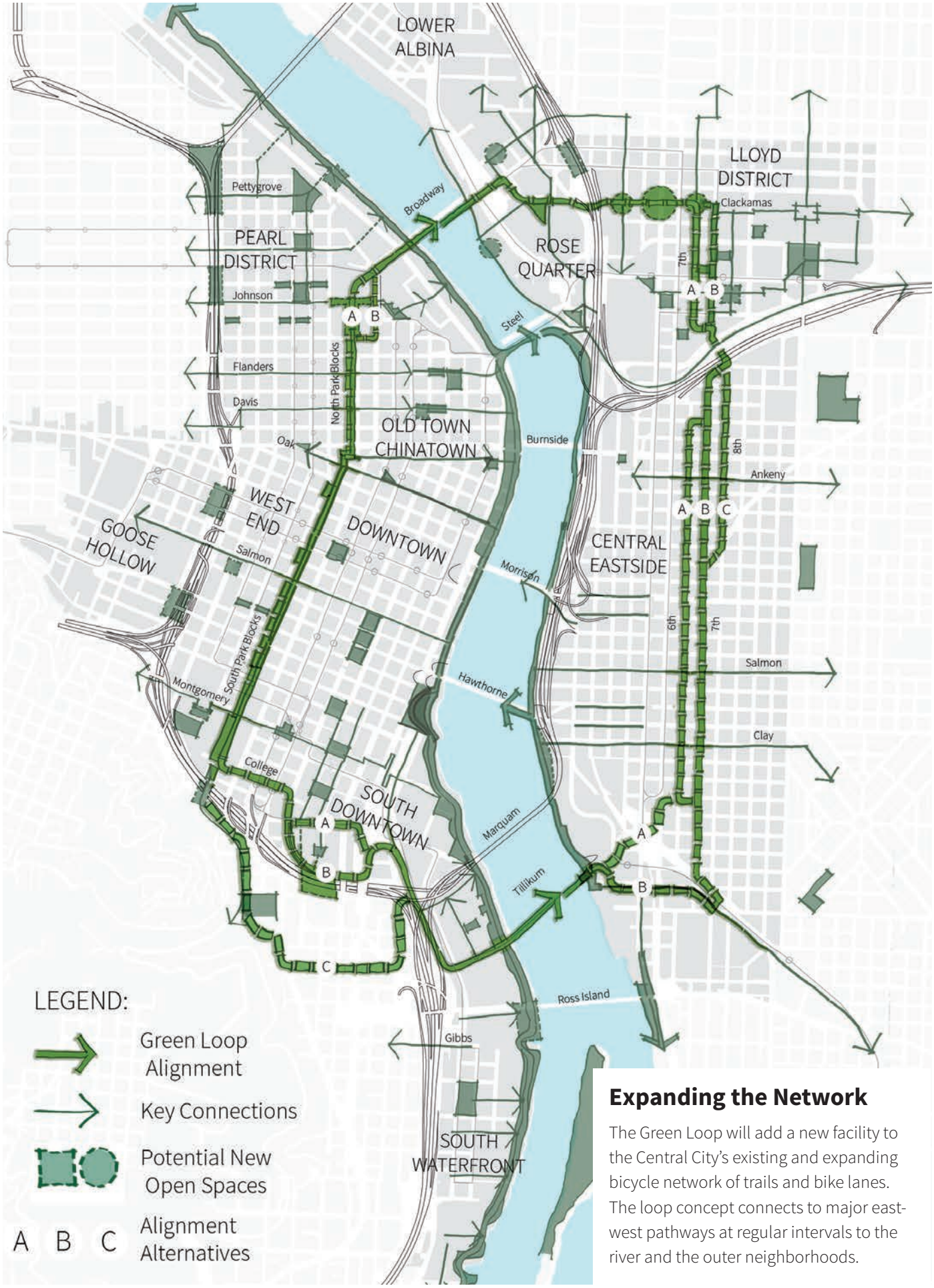
The path invites people to take a break from work, walk, run or ride among trees and in beautiful parks, enjoy restaurants and shops, or just breathe fresh air and get some exercise. On both sides of the river, people can see, touch and learn about cutting-edge technologies and fabrications, new street design, high performance buildings and experience civic works of art. For many, the Loop will become part of their regular commute from home to work in the Central City.

A signature 21st century place, completely unique to Portland and open to all, this "Central Path" embodies community aspirations to be a greener, healthier and more sustainable city. It reflects the best of Portland: people being active, living, working and visiting in the Central City, enjoying parks, trees and gardens, spending time at food carts, coffee bars, and riding bikes.

It will be our "Urban Promenade," promoting walking, jogging, biking and connecting people to light rail and streetcar as ways to get to hard-to-reach places. It will be an amenity that draws people from around the region to a different kind of recreational destination, an urban trek through the city — safe, green, active, vibrant and fun for all ages and abilities.

This "Way Around" takes advantage of existing public rights-of-way and proposes to bring new life and energy to connecting the Park Blocks, Tillikum Crossing, the Central Eastside and the Lloyd District to the Central Business District. A relatively low cost opportunity; it increases efficiency and expands access to many of the Central City's most distinctive places.

It is the next big idea in a list of innovative and collaborative successes; places that include Tom McCall Waterfront Park, Pioneer Courthouse Square and the Portland Transit Mall. Someday soon, it could well stand as the latest in a long history of wonderful examples of this community's ability to work together to bring big ideas to fruition.



Expanding the Network

The Green Loop will add a new facility to the Central City's existing and expanding bicycle network of trails and bike lanes. The loop concept connects to major east-west pathways at regular intervals to the river and the outer neighborhoods.

BUILDING ON SUCCESS

The Vera Katz Eastbank Esplanade

Portland is a national leader in developing a culture of walking and bicycling.

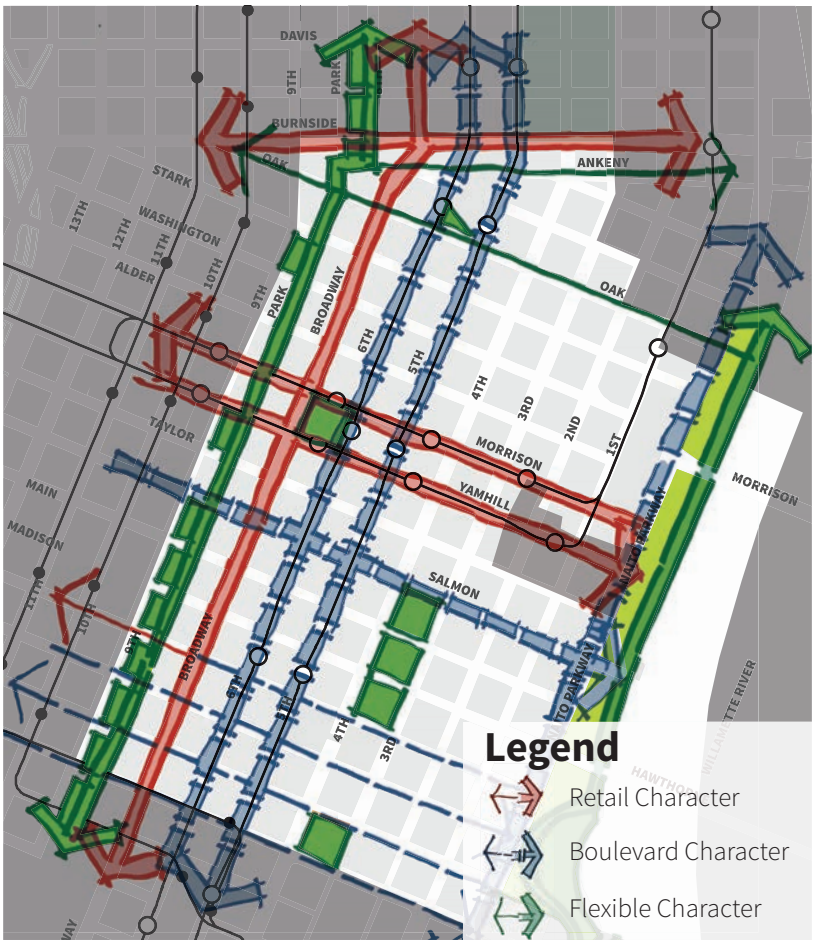
Today, Portland boasts one of the nation's highest percentage of bicycle commuters with a 7.2% work commute rate in 2015, but other American cities are catching up fast. While the Central City includes numerous streets with striped bicycle lanes, it has relatively few physically separated paths and trails, mostly found along the riverfront, blocks away from the concentration of retail, businesses, and attractions. This limits Central City ridership from a large swath of less confident cyclists who are looking for a more park-like, low stress experience. While 40% of the Central City land area is made up of streets, most look and function the same and face similar challenges to accomodate all modes of transportation. The uniformity of the streets also presents wayfinding concerns for 'interested but concerned bicyclists as well as walkers and joggers who are less confident navigating in the Central City.

Intentional Street Design

The Green Loop is part of the street hierarchy and character development concept which advocates for more diverse streets in the Central City. More intentional street design can create new urban experiences and help prioritize different functions for different streets.

Existing Separated Paths

The proposed Green Loop alignments, which will enhance and add new linear parks, will add a new system to the concentration of walkers, joggers, and bikers currently most comfortable along the riverfront, through the heart of downtown and the east side of the Central City.



Downtown District Map, Central City 2035 Plan

HEALTHY CONNECTED CITY

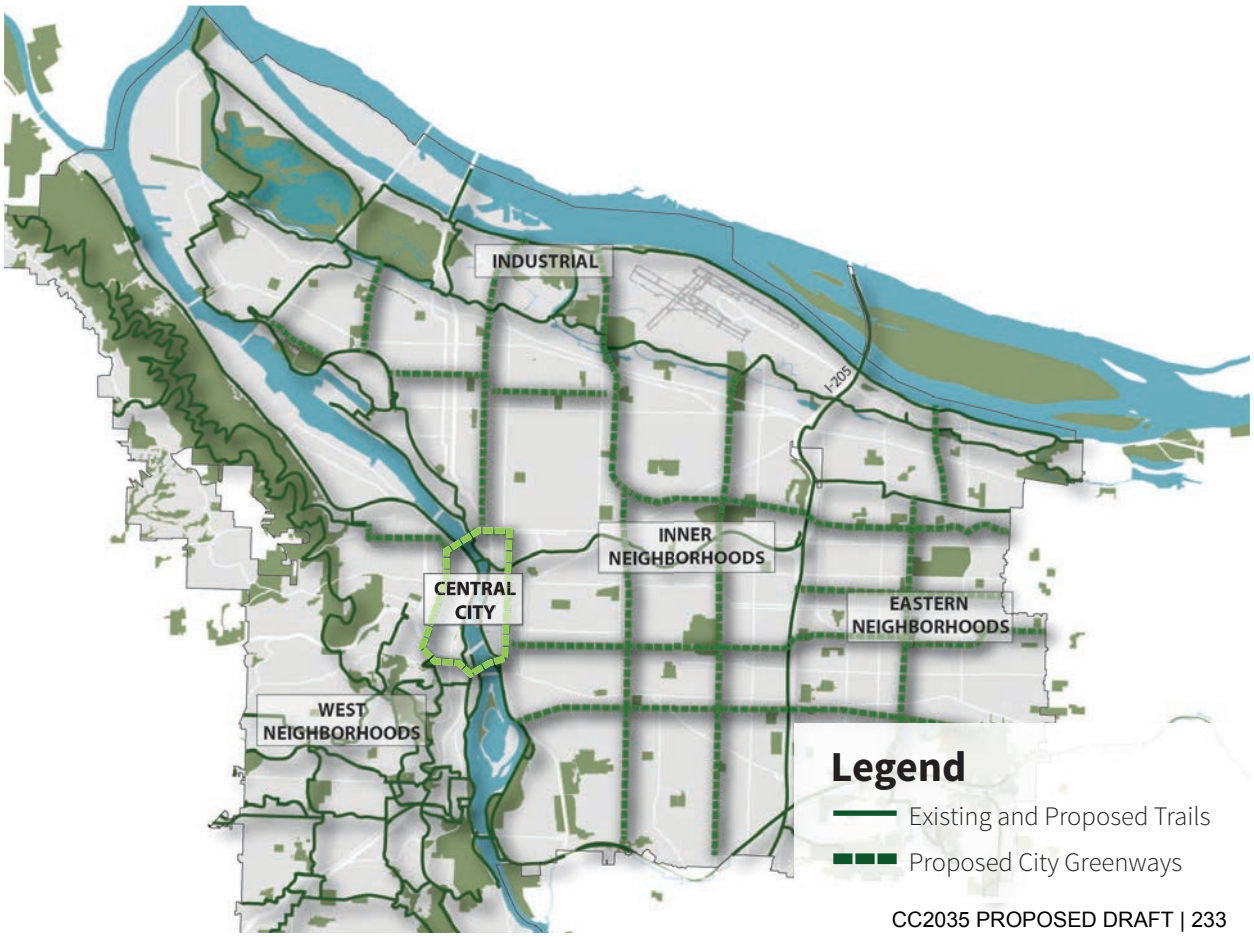
City Greenways Network

The Green Loop serves as the hub of the network, linking the city's communities safely and directly to regional attractions and destinations. The system will provide safe and attractive pedestrian, jogging and bicycle connections between natural areas, parks, neighborhoods, schools, and commercial districts. Distinctive street design, landscaping, tree plantings, and sequences of parks along the greenways extend the experience of open spaces and nature into the streets of neighborhoods.

Citywide Trail
Springwater Corridor

Raised Cycle Track and Sidewalk
NE Cully Avenue

Enhanced Greenway Corridors
NE Klickitat Street



THE GREEN LOOP IS ABOUT...

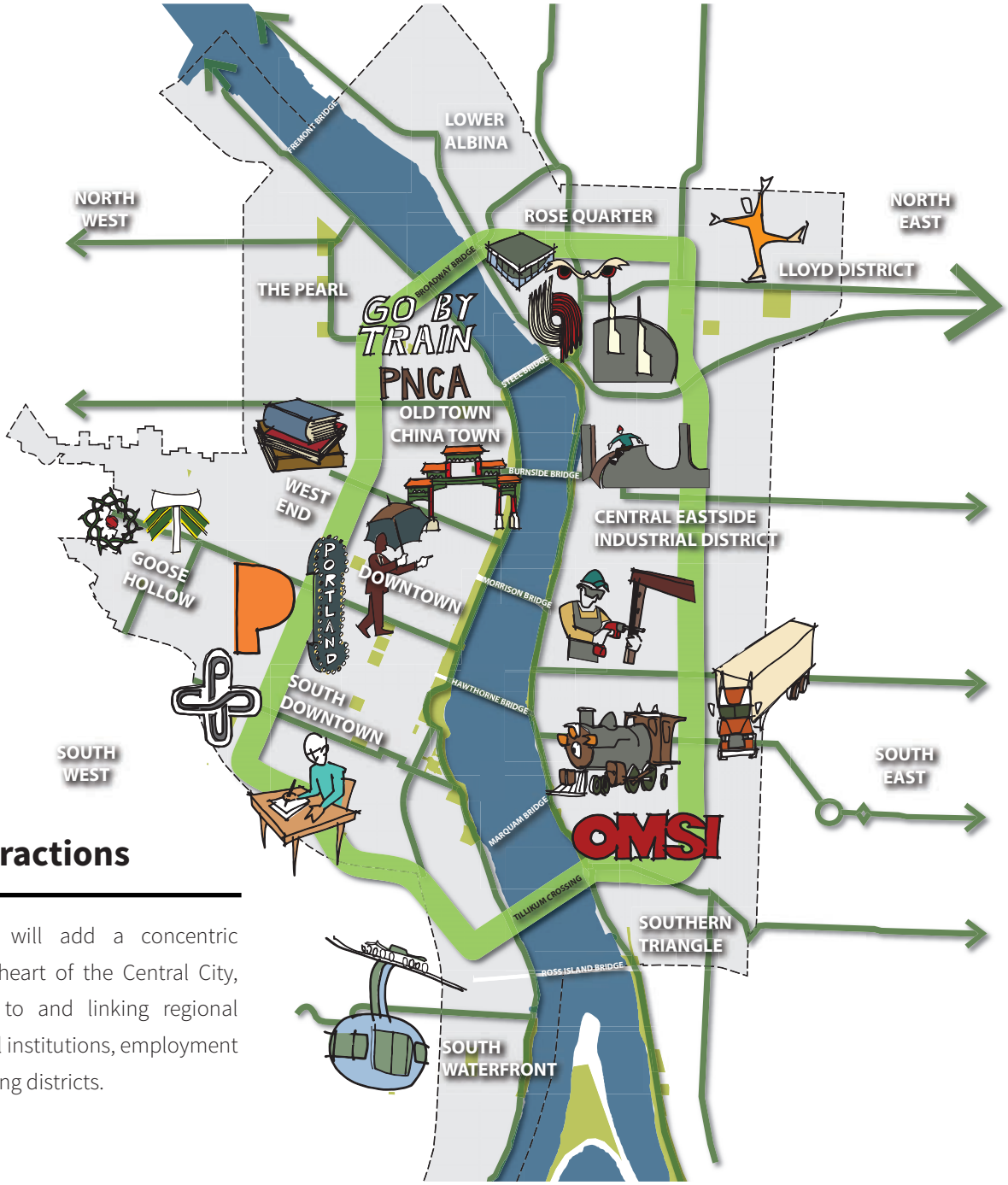
ADVANCING EQUITY

The Green Loop will increase accessibility and activity for all Portlanders.

While Portland is projected to grow substantially over the next few decades, it is safe to say that many of Portland's major public institutions, cultural attractions and regional destinations will remain in the Central City. The Green Loop will be free to use and will help Portlanders reduce transportation costs while helping to promote a healthy lifestyle. The ways that Portlanders will use the Green Loop will be as different as the people themselves.

How the Loop will Advance Equity

- Increases affordable, healthy access to Central City destinations/ attractions.
- Builds a system of facilities targeting 8-80 year old rides and accomodates all abilities.
- Provides pathways attractive to non-typical walk/bike commuters.



Linking Attractions

The Green Loop will add a concentric loop through the heart of the Central City, improving access to and linking regional attractions, cultural institutions, employment centers and shopping districts.

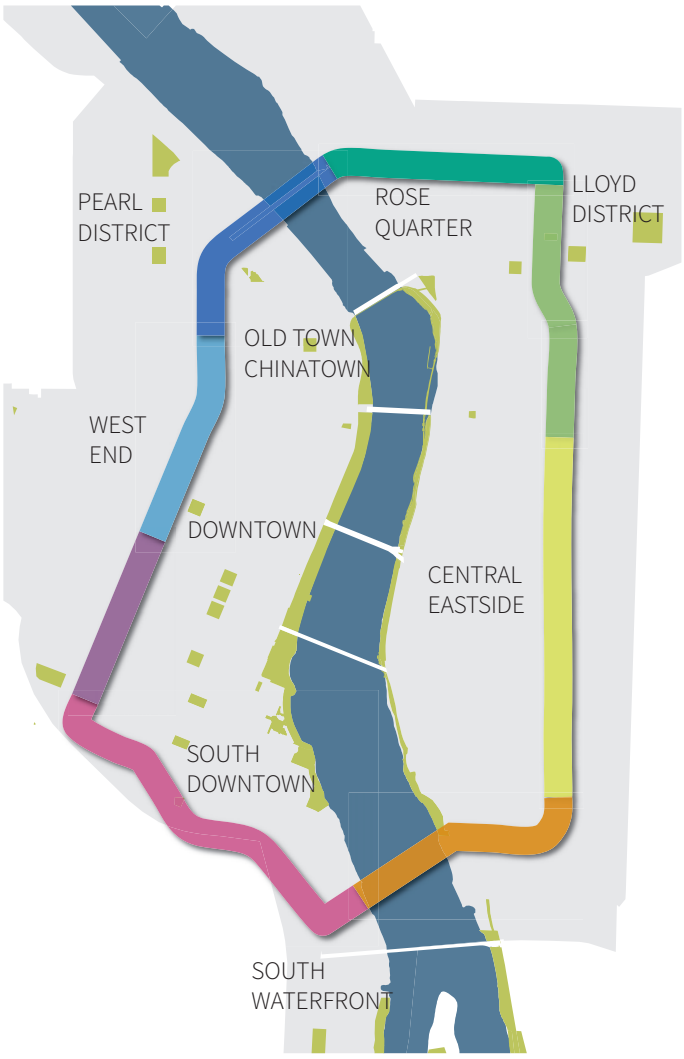
- **Supports and advances community sourced design.**
- **Linked to transit hubs for easy connections.**
- **Hub of future City Greenways system, reaching all neighborhoods of Portland.**

THE GREEN LOOP IS ABOUT...

PLACEMAKING

The Green Loop will move through the Central City districts.

The distinct identities and conditions of each district will help inform the design and placemaking strategies for the loop's different segments, creating a variety of experiences. Pathway design, furnishings and plantings will respond to local context, helping to contribute and stregthen the distinct identities of Central City's districts from the downtown retail core to the industrial eastside to the Rose Quarter.

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RIP CITY
1971

THE GREEN LOOP KEY OBJECTIVES

Improve Health

Promoting daily physical exercise by walking, biking or jogging into and around the Central City.

The loop concept elevates the public health of Portlanders by creating an active transportation corridor and a recreational walking and jogging route through the Central City, expanding opportunities for healthy activities to a large population of employees, visitors, and residents.

Connect and Create Parks

Developing strong connections between existing parks and creating new ones.

The Central City features a wide variety of different open spaces, ranging from historic parks to newer designs that blend the boundary between park and street space. The Green Loop is a connected park system, providing a continuous link to open spaces and within areas of the Central City that lack public open spaces, it could catalyze the creation of future open spaces and gathering areas.

Support Businesses

Bringing people closer to local businesses, employment districts, institutions and attractions.

The Green Loop works within existing infrastructure to expand transportation options for workers commuting to jobs on both sides of the Willamette River. The loop and its connections will create higher visibility for local business, stores, and shops. New examples of Portland's street furniture (benches, streetlights, water fountains, tree grates, etc.) designed and manufactured in Portland, showcase local creativity, design talent and skilled craftsmanship.

Increase Pathways

Adding safer, more intuitive park-like pedestrian pathways through the Central City.

The small blocks and numerous streets of the Central City contribute to its reputation as a highly pedestrian-friendly environment. The Green Loop will be a safe, accessible path separated from vehicular traffic that connects many places that are not currently navigable, accessible, or intuitive.

Encourage Biking

Increasing the amount of "Interested but Concerned" cyclists riding into the Central City.

The loop concept proposes a system of clear, physically separated routes that will provide potential new riders with greater comfort and access to more places. It will include strategies to reduce conflicts between cyclists and pedestrians and cars, offering greater safety. It builds on the bicycle infrastructure in place across the Central City and connects bridges.

Grow and Build Green

Providing a local response to global climate change for future generations.

Connections and public spaces along the Green Loop will feature more large canopy trees and state of the art surface stormwater management facilities. The improved landscape will increase habitat opportunities for native species of trees, birds, and pollinators, and it will encourage more active transportation, reducing auto dependence and Portland's overall carbon emissions Building and site development along the Loop will be encouraged to contribute to a 'living laboratory' that focuses on innovative ways to improve energy performance.

THE GREEN LOOP DESIGN PRINCIPLES

1 Building Orientation

New development will be encouraged to orient its storefronts or building lobbies toward the Green Loop. New ground floor activity will provide greater visibility to the loop and create a safe and more vibrant environment.

2 Multi-Use Path

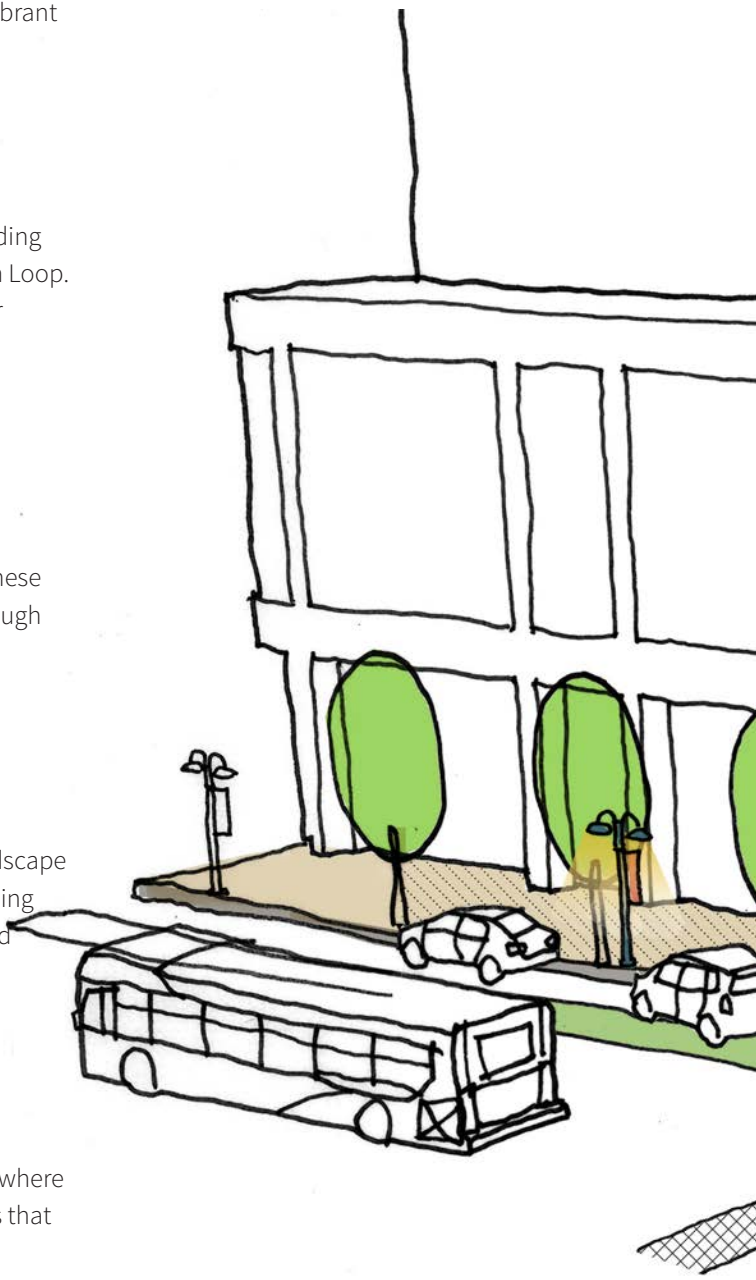
Paths that can accomodate a variety of different active uses including walking, jogging, and biking will be a defining feature of the Green Loop. Depending on the context these uses can be clustered together or separated by greenery or other features.

3 Physical Separation

The Green Loop concept includes physically separated paths to minimize conflicts between cyclists, pedestrians, and vehicles. These separated corridors will create safer, more intuitive pathways through the Central City for walkers, bikers and joggers.

4 Connected Canopy

A key wayfinding element of the Green Loop will be a distinctive approach to trees and other green features. The character of landscape plantings will vary along different segments of the Green Loop, being responsive to adjacent needs while helping to clarify the route and improve environmental performance.



5 Branding/Identity

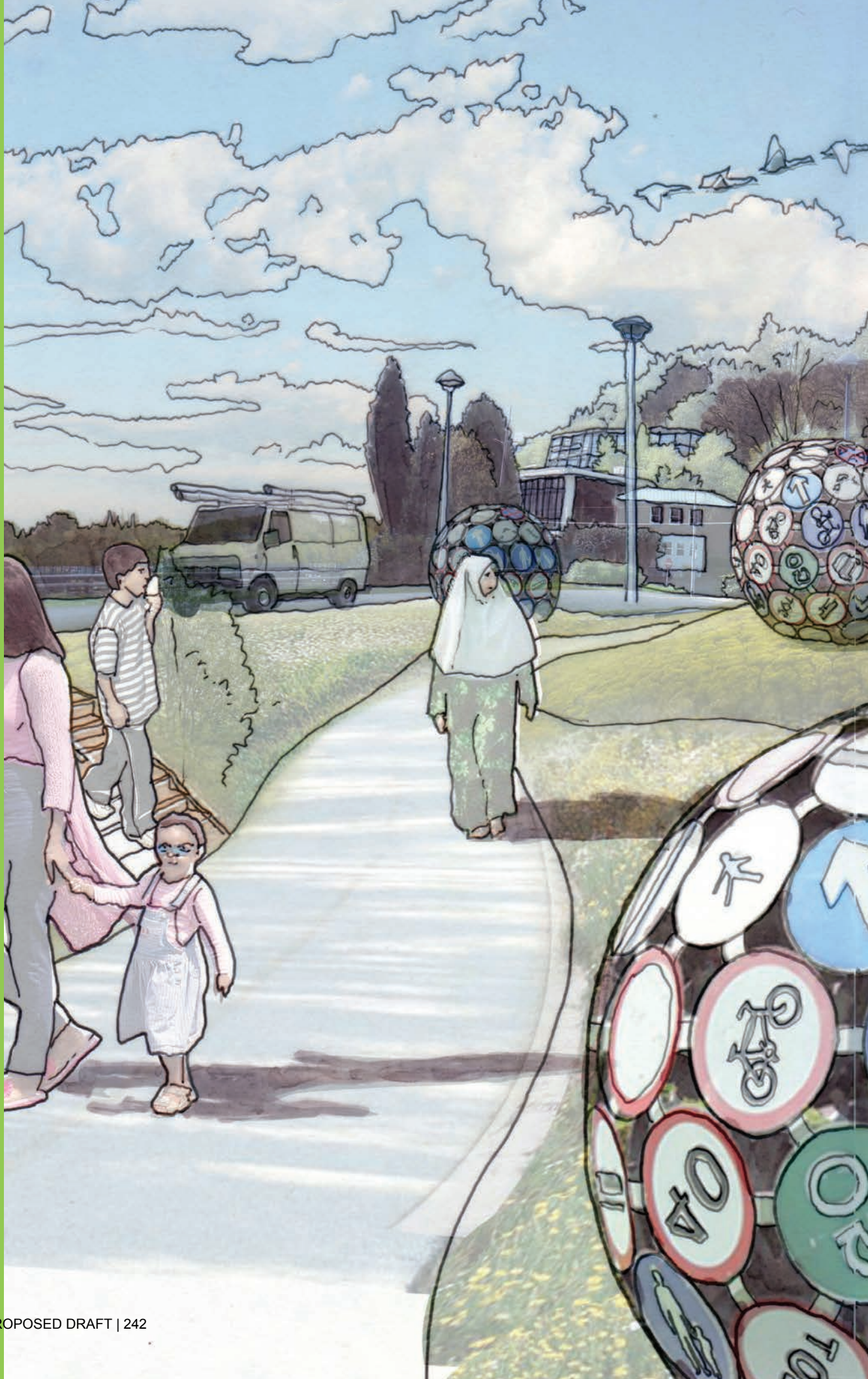
The paths and adjacent properties will feature wayfinding and environmental design tools to help residents and visitors identify where they are while reflecting the local character of the various districts that the loop moves through.

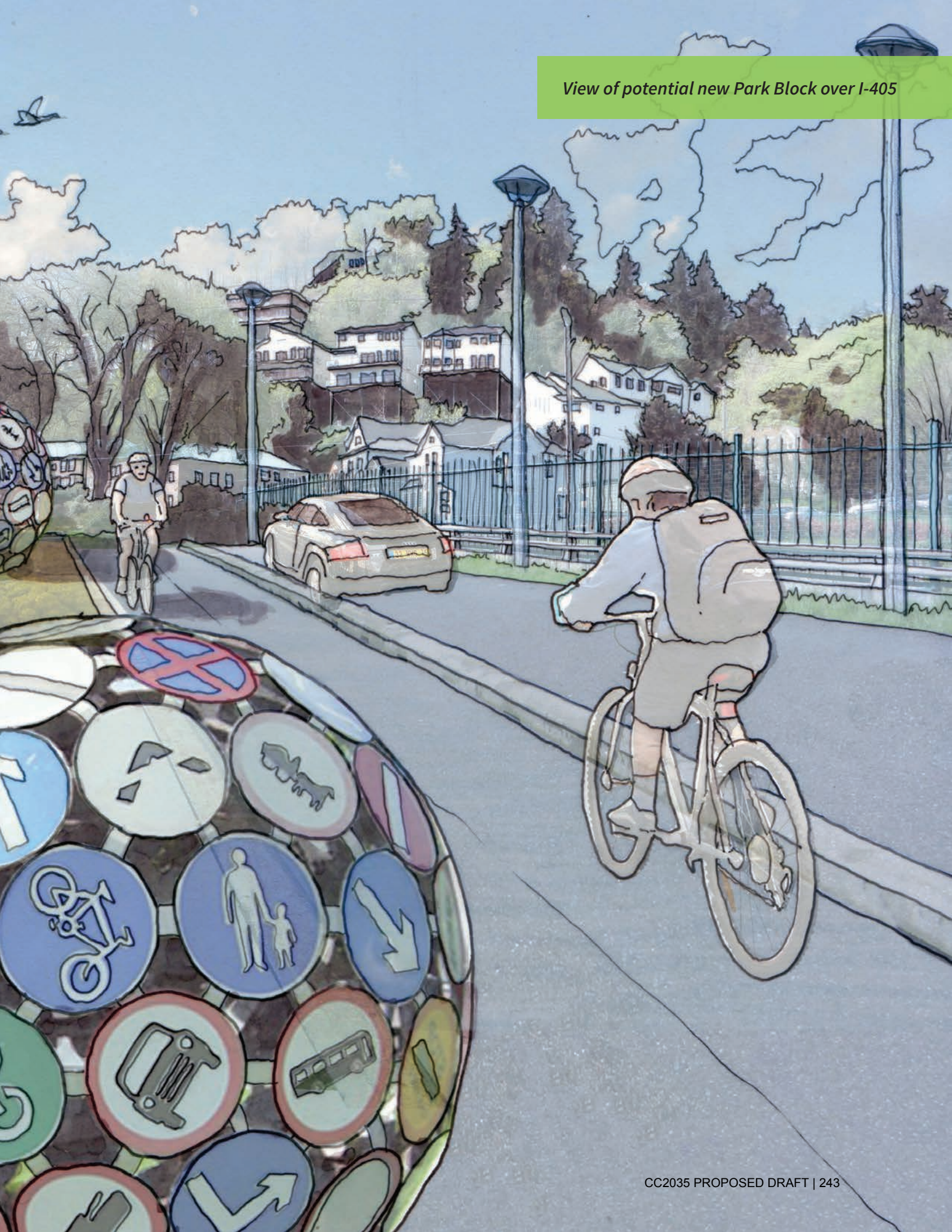
6 Unique Street Furnishings

Street furnishings along the Green Loop will help distinguish the path, emphasizing its linear park environment and supporting activity nodes. The specific amenities and their locations will vary with right-of-way width and the adjacent ground floor uses.

HOW DO YOU KNOW YOU'RE ON THE GREEN LOOP?

APPENDIX





View of potential new Park Block over I-405

THE GREEN LOOP PRECEDENTS

Cultural Trail - Indianapolis, IN

The Indianapolis Cultural Trail is an 8 mile bike and pedestrian path in downtown Indianapolis. The goal of the trail is to connect neighborhoods, cultural districts, and entertainment amenities while serving as the downtown hub for the city's greenway system. The path has been a catalyzing agent of economic development within the city's downtown districts, providing an estimated $864.5 million dollars in economic impact and approximately 11,000 new jobs.
Source: http://www.indyculturaltrail.org/about

Vester Volgade - Copenhagen, DK

Vester Voldgade has reduced vehicle traffic and increased the boulevard atmosphere with rows of trees, new open spaces, and wide promenades, making room for pedestrians and cyclists on the former high traffic road. Four lanes have been reduced to two, and a large strip of parking spaces has been removed to accomodate seating and other furnishings. Three new squares are connected physically and visually by Vester Volgade and its rows of trees and paving, which carry through to the squares themselves.

The 606 - Chicago, Ill

The 606 Trail is a 2.7 mile recreational trail that bisects four inner city Chicago neighborhoods. Similar to New York City's High Line, the infrastructure project converted a dormant elevated freight line into a unique urban park. However, unlike the High Line, which focuses more on passive open spaces, the 606 prominent feature is a multi-use path for walkers, joggers, and cyclists. The total cost of the project was $75 million, which was predominately provided by federal government funds to reduce traffic congestion and improve air quality in cities in addition to private donors and the local city government.

Brooklyn Waterfront Greenway - Brooklyn, NY

The proposed Brooklyn Greenway will add miles of new physically separated pathways in the predominately industrial naval yards. The collaborative effort between local government and the Regional Planning Association will help residents and tourists safely connect to existing and future parks along the Brooklyn pier.

THE GREEN LOOP PRECEDENTS

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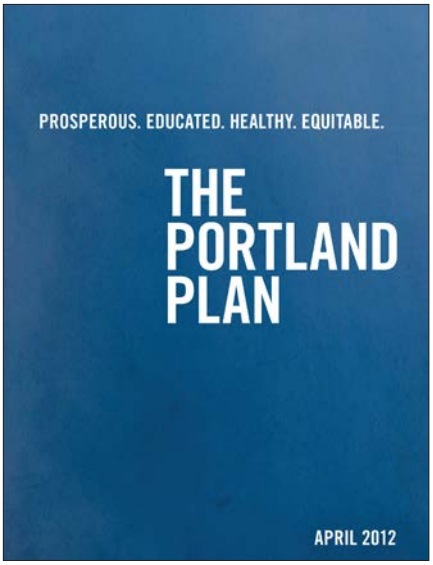
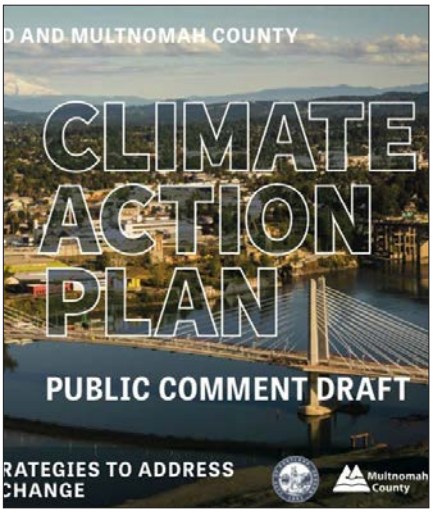


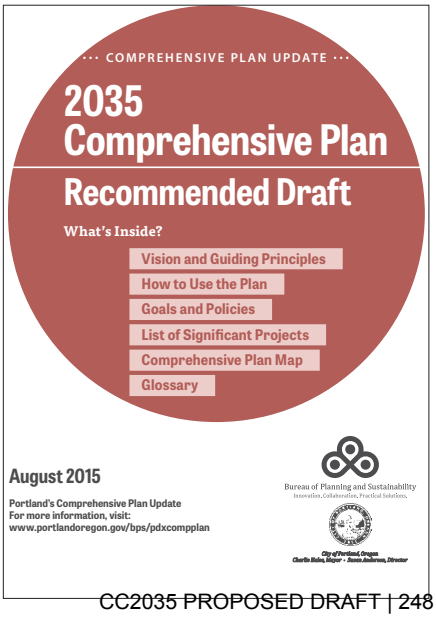
Portland Plan

The 2012 Portland Plan builds on extensive community involvement and envisions an equitable, healthy, educated and prosperous city that increases opportunities for all and includes a strategic plan of projects to help guide implementation. Its "Healthy Connected City" strategy describes a series of active neighborhoods, centers and signature natural areas, all connected by a comprehensive and diverse network of corridors and connections. The system of connections includes "greenways," a distinctive set of park-like corridors that are designed to encourage active transportation – walking, rolling, jogging and biking. These facilities offer a clear and different choice from the more urban, busy and transit-rich development corridors. They are intended to link people to parks, open spaces and natural resource areas.



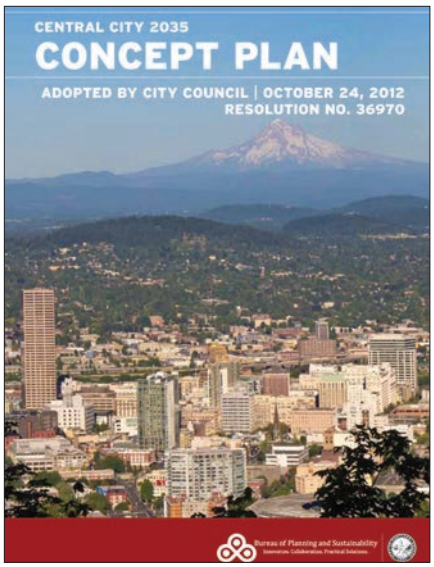
Climate Action Plan

The origins of the "green loop" concept can be traced back to larger planning initiatives that address much larger regional and societal trends and set aggressive growth and sustainability targets for the City of Portland. The 2015 Climate Action Plan set ambitious new goals for carbon and greenhouse gas reduction citywide. As transportation contributes to almost a third of the city's total generated carbon, part of the plan focuses on improvements existing movement systems and the creation of new facilities that will discourage single-occupancy auto trips. The "green loop" will create a connected system of public open spaces and connections that promote more walking, biking and transit trips, contributing to a smaller citywide carbon footprint.



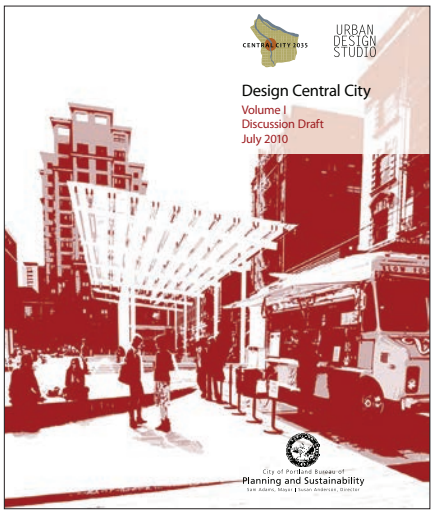
Comprehensive Plan Update

The 2035 Comprehensive Plan Update is a 20 year plan that sets the framework for the physical development of the city and will help implement the Portland Plan. Enhance Portland's public realm, integrate nature into the city, and link people, places, and wildlife through active transportation facilities, green infrastructure investments, urban tree canopy, and habitat connections.



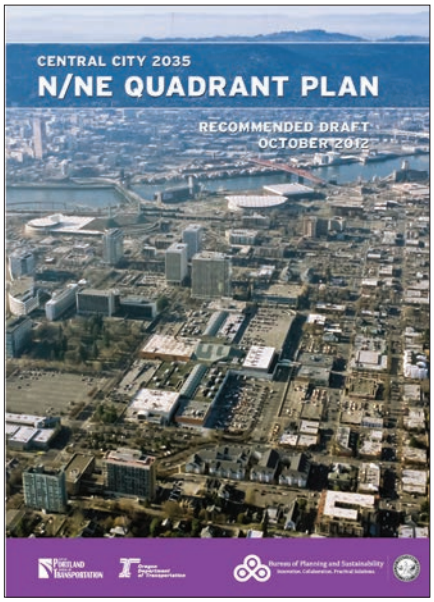
Central City 2035: Concept Plan

The specific "green loop" concept was the result of work by the urban design subcommittee of the CC2035 Concept planning process during the Spring and Summer of 2012. The urban design subcommittee included members of the steering committee, representatives from city agencies and invited design professionals. The subcommittee worked through multiple urban design alternatives, exploring and evaluating different directions, before helping to develop the proposed urban design concept diagram and framework map for the CC2035 Concept Plan.



Central City 2035: Design Central City

The background document for the Central City 2035 Concept Plan (CC2035) process, Design Central City Volume 1, identified three primary urban design issue areas in the Central City: the river, the east side and the public realm. The "public realm" section outlined issues facing the existing system of streets and parks, including active recreation space deficiencies, habitat opportunity areas, street homogeneity and unclear connectivity. These issues were tested and refined through a series of urban design workshops and stakeholder interviews, ultimately being finalized by the CC2035 advisory group in 2011.



Central City 2035: Quadrant Plans

The North/Northeast Quadrant Plan, adopted with CC2035 in the Fall of 2012, proposed a set of new street design typologies. The intent behind the proposal was to be more intentional about the relationship of land uses and the way buildings relate to the street. Called the "Street & Development Character Concept" it proposed three types of street environments: Retail/Commercial, Boulevard and Flexible. The "green loop" would be classified as signature part of the "flexible" design type, more oriented to walking and biking, inclusive of (or linking) open space opportunities, and a strong green character.

View of potential SE 6th Ave in the Central Eastside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GREEN LOOP
TO GRAND HISTORIC DISTRICT
TO OMSI

URBAN DESIGN STUDIO

Our mission is to advance the design quality of places citywide.

WHAT'S IN THE **CENTRAL CITY 2035 PLAN?**

Volume 1: Goals and Policies

The long-range vision for the Central City

- Big ideas to inspire a generation of Portlanders
- A framework of goals and policies to guide City projects for the next 20 years
- Highlights of the plan by district

Volume 2A: Zoning Code and Map Amendments

Regulations to implement the Plan

- Part 1: Central City Plan District
- Part 2: River, Scenic and Trails

Volume 2B: Transportation System Plan Amendments

Volume 3A: Scenic Resources Protection Plan

- Part 1: Summary, Results and Implementation
- Part 2: Scenic Resources Inventory
- Part 3: Economic, Social, Environmental and Energy Analysis

Volume 3B: Willamette River Central Reach Natural Resources Inventory

Volume 4: Background Materials

Prior plans and research provided for reference

Volume 5: Implementation Plan

City's targets and the actions it will take to implement the Plan

Volume 6: Public Involvement

CC2035 public involvement