Calapooia Watershed Council

Board of Directors Meeting

Minutes

Wednesday April 9th, 2025

The Calapooia Watershed Council Board of Directors held their usual bi-monthly meeting at Grand Prairie Park, Albany.

The following members were in attendance:

Joe Deardorff	Matt Mellenthin	Jim Merzenich	Dee Swayze
Jim Wagner	John Joiner		

The following members were absent:

Shannon Richardson Mark Running

The following were also in attendance:

Alex Rice, Habitat Restoration Program Manager

Collin McCandless, Executive Director

Fiona Julian, Operations Coordinator

Emma Eaton, Community Member

Collin McCandless presided over the meeting, Fiona Julian recorded the minutes.

AGENDA ITEM: Third Quarter Financials

Joe moved to approve the financials. Matt Mellenthin seconded the motion. The motion passed unanimously 6:0.

AGENDA ITEM: General Discussion

Matt asked about the OWEB revegetation grant and that it requires long-term management, Alex stated this was part of the idea behind applying for the BPA funding.

Jim Merzenich shared he had been working on a grant for the past five years.

Matt asked about the status of the ownership of the Oxbows project site. Collin said there was no change currently but that two groups are looking at it; one being a religious organization and the other being Western Rivers who aim to return land back to the Tribes.

Tour of Periwinkle Creek Greenway Project Sites

Attendees were presented with printed copies of the Phoenix Habitat Solutions design plans (attached). Alex commented on the impressive level of detail and research that went into developing the plans. Alex shared some background on the project and that initially the project was funded by Supplemental Environmental Project (SEP) funding which comes from corporate fines for environmental violations and that these funds supported initial riparian plantings and design planning.

The meeting adjourned at 6:30pm.

The Periwinkle Greenway

City of Albany

Proposal for Phased Implementation | 2024

Prepared by
Phoenix Habitats, LLC

3439 SE Hawthorne Blvd #218
Portland, Oregon 97214
www.phoenixhabitats.com
503 490 2161

In collaboration with
Calapooia Watershed Council

P.O. Box 844
Brownsville, Oregon 97327
www.calapooia.org
541 583 3626

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541 583 3626

City of Albany

333 Broadalbin St SW

Albany, Oregon 97321

www.albanyoregon.gov

Introduction: The Periwinkle Greenway

To City Officials and Residents:

Periwinkle Creek has the potential to become a world-class greenway that celebrates the City's longest contiguous creek on its path towards the Willamette River, connecting Albany with the wider Willamette Valley. An existing network of parks and walking paths can become a focus of continued investment to build upon past success and create an enduring natural resource for generations to come.

The following proposal represents a comprehensive plan to achieve those goals with strategic improvements to the Greenway, including habitat restoration, ecological planting design, educational signage, and increased community outreach. This builds upon many existing efforts and is guided by the context below:

Ecological Value Periwinkle Creek was a historically important ecological connection from the Willamette River, bringing Chinook Salmon, Steelhead Trout, Cutthroat Trout, and Pacific Lamprey through the City and into the foothills east of Albany. Habitat Restoration can help improve water quality and cooler water temperatures for fish spawning, while also benefiting native bird and pollinator populations.

Existing Community In addition to rich ecological potential, there is a strong existing foundation for community involvement and stewardship along Periwinkle Creek. This includes Parks volunteers, Adopt-a-Park groups, and youth stewardship programs with surrounding elementary, middle, and high schools.

Continued Investment Periwinkle Creek is already a trending focus for efforts, with City Parks & Recreation and the Calapooia Watershed Council investing in invasive species removal and ecological planting along smaller creek segments. City Public Works has also completed fish passage projects, including rock ramp and fish ladder installations.

Shared Goals This Project helps build an enduring public amenity while also accomplishing City goals within Environmental Services and Public Works, such as water quality improvements, pollution mitigation from runoff, and increased shade for cooler water temperatures entering the Willamette River. It also helps Parks to achieve statewide Goal 5 targets for critical conservation of important waterways.

Cost of Resources Significant cost savings can be achieved with ecological planting design through the reduction of spending on irrigation and constant labor for mowing. This saves budget with less demanding maintenance requirements.

The Periwinkle Greenway Project builds upon decades of investment to create a truly special place for both people and nature. By working together and building enduring partnerships, this Project and many more can lift the City of Albany to new heights of ecological health, public park visitation, and long term resilience.

Sincerely,

Ian Hunter, Founder & Owner, Phoenix Habitats, LLC

The Periwinkle Greenway

A two mile segment of Periwinkle Creek passing through the heart of the City of Albany connects three large parks: Grand Prairie Park, Periwinkle Park and Kinder Park along its route. This is the Periwinkle Greenway, combining ecological restoration improvements with new public ammenities, beautiful park spaces, climate resilience, and reduced City resource requirements.

Exploring

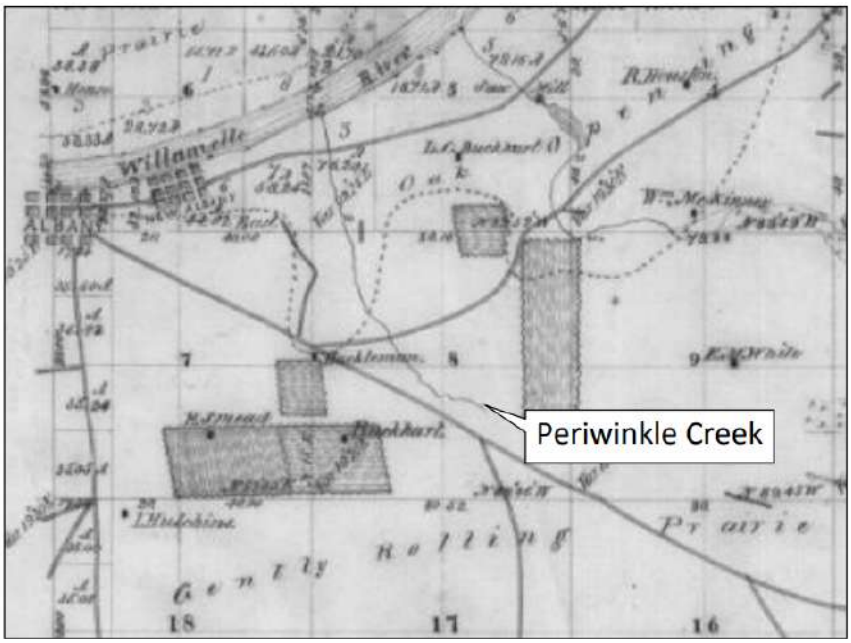
Periwinkle Creek

Periwinkle Creek History

Periwinkle Creek has seen the increasing urbanization of its floodplain areas in recent history. This means that instead of water spreading out over the floodplain, more water is kept in the main channel where it accumulates in volume and velocity. These increases help to carve pockets of erosion, both within the Creek and on its banks, removing habitat and leading to poor water quality. Runoff from streets and housing also contribute additional water volume and chemical pollution.

Most bank edges along Periwinkle Creek are vertically incised, showing active erosion. The loss of shoreline habitat and clean water is detrimental to fish, shellfish, insects and amphibians that support the larger food web.

In some areas, Periwinkle Creek has been severely channelized with steep banks for quick water conveyance.



A historic map, produced by the General Land Office (GLO) in 1852 shows Periwinkle Creek in it's earliest documented form. Surrounding lands were undeveloped meadows, forests and floodplains with the nearest settlements placed at least a half-mile from its main channel.

The Periwinkle Creek confluence with the Willamette River is shown above as a red dot. The photo on the left is from 1936 (88 years ago) and the confluence is west of NE Cleveland St. The photo on the right is from 2006 and the confluence is now west of NE Harrison St, due to sediment deposition from upstream soil erosion and the creation of a new land deposit.


Chinook Salmon


Steelhead Trout


Chiselmouth


Cutthroat Trout


Dace


Largescale Sucker


Northern Pikeminnow


Redside Shiner


Sandroller

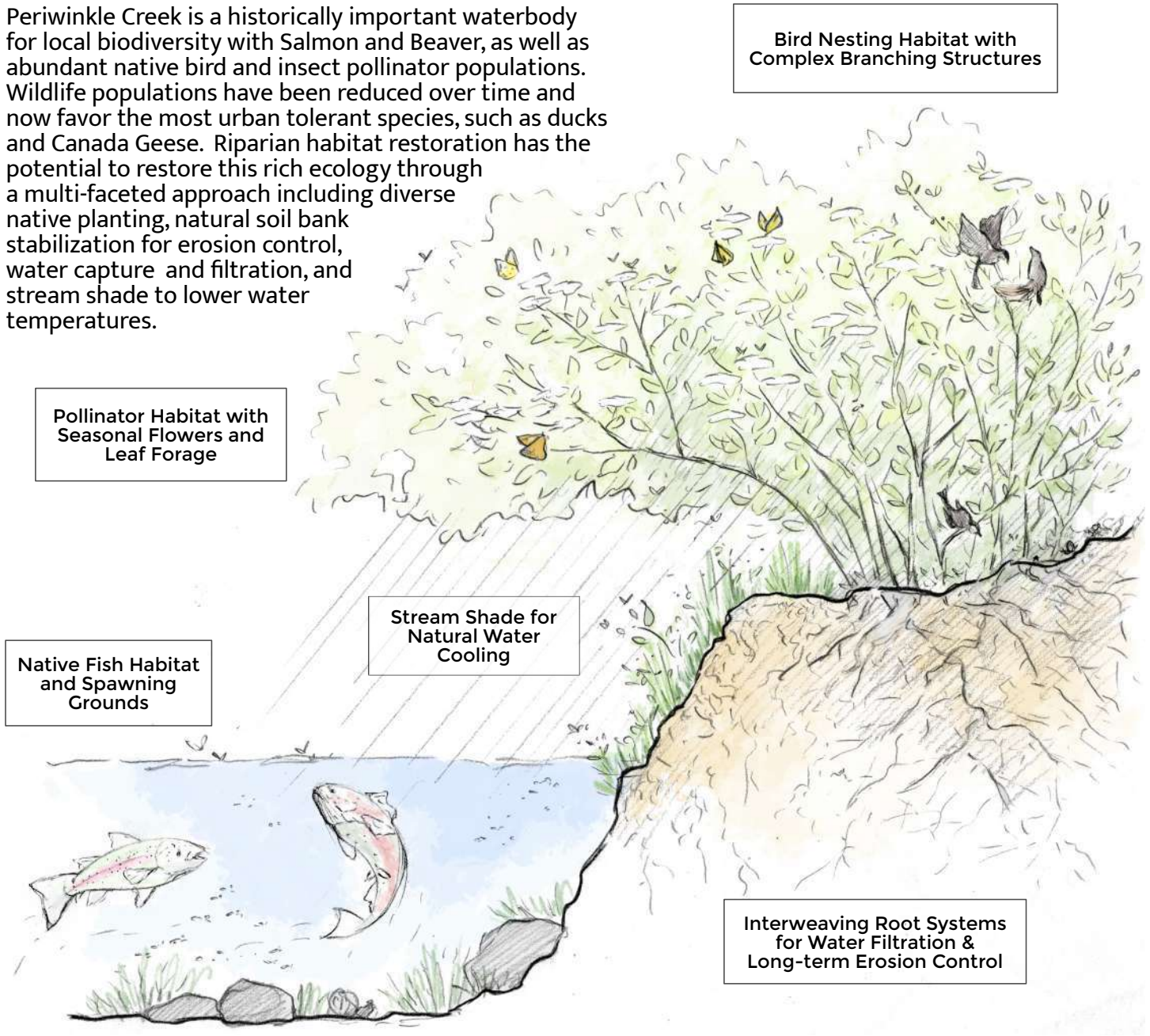

Sculpin


Suckers


Threespine Stickleback

Ecology

Periwinkle Creek is a historically important waterbody for local biodiversity with Salmon and Beaver, as well as abundant native bird and insect pollinator populations. Wildlife populations have been reduced over time and now favor the most urban tolerant species, such as ducks and Canada Geese. Riparian habitat restoration has the potential to restore this rich ecology through a multi-faceted approach including diverse native planting, natural soil bank stabilization for erosion control, water capture and filtration, and stream shade to lower water temperatures.



Existing Restoration Efforts

The Periwinkle Greenway Project builds upon existing investment for habitat restoration along Periwinkle Creek. These include investments from the Calapooia Watershed Council to install 4,750 native plants along two creek segments equaling 2,800 linear feet in length. The City of Albany Parks & Recreation Department has also started habitat restoration and invasive weed removal work on the creek segment above Kinder Park. This area is being actively managed and full planting is proposed for installation in Winter 2025.

Planting installation in February 2023 using live stakes and bare root plants, carried in tree planter bags. Species included small riparian trees and flowering shrubs for erosion control, stream shade and pollinator habitat creation.

Planting after one year in Spring 2024. Willow and Douglas Spirea stakes pushing new leaves and growth, among surrounding grasses.

Project Map of Existing Restoration Efforts in Spring 2024

Calapooia Watershed Council, Winter 2023

City of Albany Parks & Recreation, ongoing

Community Involvement

Periwinkle Creek is a learning laboratory and opportunity to connect with nature for many students in CWC's Youth Education Program. Students from 4th grade to high school are engaged in planting, invasive weed removal, trash clean up, and nature-based education. Grant funding has allowed seniors at West Albany High School to receive scholarships and compensation for work performed. These ongoing efforts have lead to multiple acres of invasive species removal and thousands of native plants installed, creating a long track record of ownership and community investment.

WEST ALBANY HIGH SCHOOL

Youth Education Program
Calapooia Watershed Council

Tire Rutting in Grass from Riding Lawn Mowers

Surface Water Pools in Grass from Soil Compaction

Beneficial Cost Savings

Mowing Labor & Gas

Considerable budget is spent on regular mowing for large recreational grass fields along Periwinkle Creek. This is a large expenditure for labor, equipment maintenance and fuel. It also creates additional maintenance issues such as soil compaction, tire rutting, topsoil erosion, and nitrogen pollution in water bodies from grass clippings. New native planting areas will reduce total mowing maintenance areas, allowing for those resources to be allocated more strategically, while helping to remediate soils and water quality over time.

Irrigation

Regular irrigation demands for recreational lawn areas are an even larger cost for the City. As water resources becomes more limited in the future, these costs will continue to rise over time. Native plants are a potential climate-adapted strategy to reduce irrigation costs, as they are drought-adapted and do not require supplemental irrigation, once established. Additionally, native landscape interventions may be coupled with strategic water harvesting features, such as rain gardens or swales to help capture and filter water. This provides long-term, natural irrigation while reducing pollution loads in water bodies.

Common Goals

The Periwinkle Greenway Project represents a mutual goal accomplishment on all levels, from local to international. It not only elevates the City of Albany in it's natural beauty and scenic value, but also connects the City to partnership organizations across the region, nation and world, helping to unlock further resources for enhanced funding and networking opportunities.

Local

Cost-effective, ecological solutions for water quality and land stewardship are a common goal for many City Departments. Environmental Services and Public Works regularly monitor and report on water quality and temperature, with special concern for waterways that join the Willamette River. Parks & Recreation also consistently works to improve green public space for residents, maintaining plantings and water quality for public enjoyment.

Willamette Valley

Regionally, the Calapooia Watershed Council and larger Network of Watershed Councils work to improve natural resources and wildlife habitat. The Willamette Parternship and many other non-profit organizations provide additional expertise and funding for habitat restoration.

State of Oregon

The objective of Statewide Planning Goal 5 is to protect natural resources and conserve scenic, historic and open space resources for present and future generations. This is also a shared goal with the Oregon Department of Fish & Wildlife when it benefits species conservation, like Salmon.

National

The Federal Government is unlocking billions in potential funding resources for habitat restoration, as seen in the 2022 Bipartisan Infrastructure Law for Ecosystem Restoration & Resilience. Many national groups such as the Pollinator Partnership also advocate for participating municipalities.

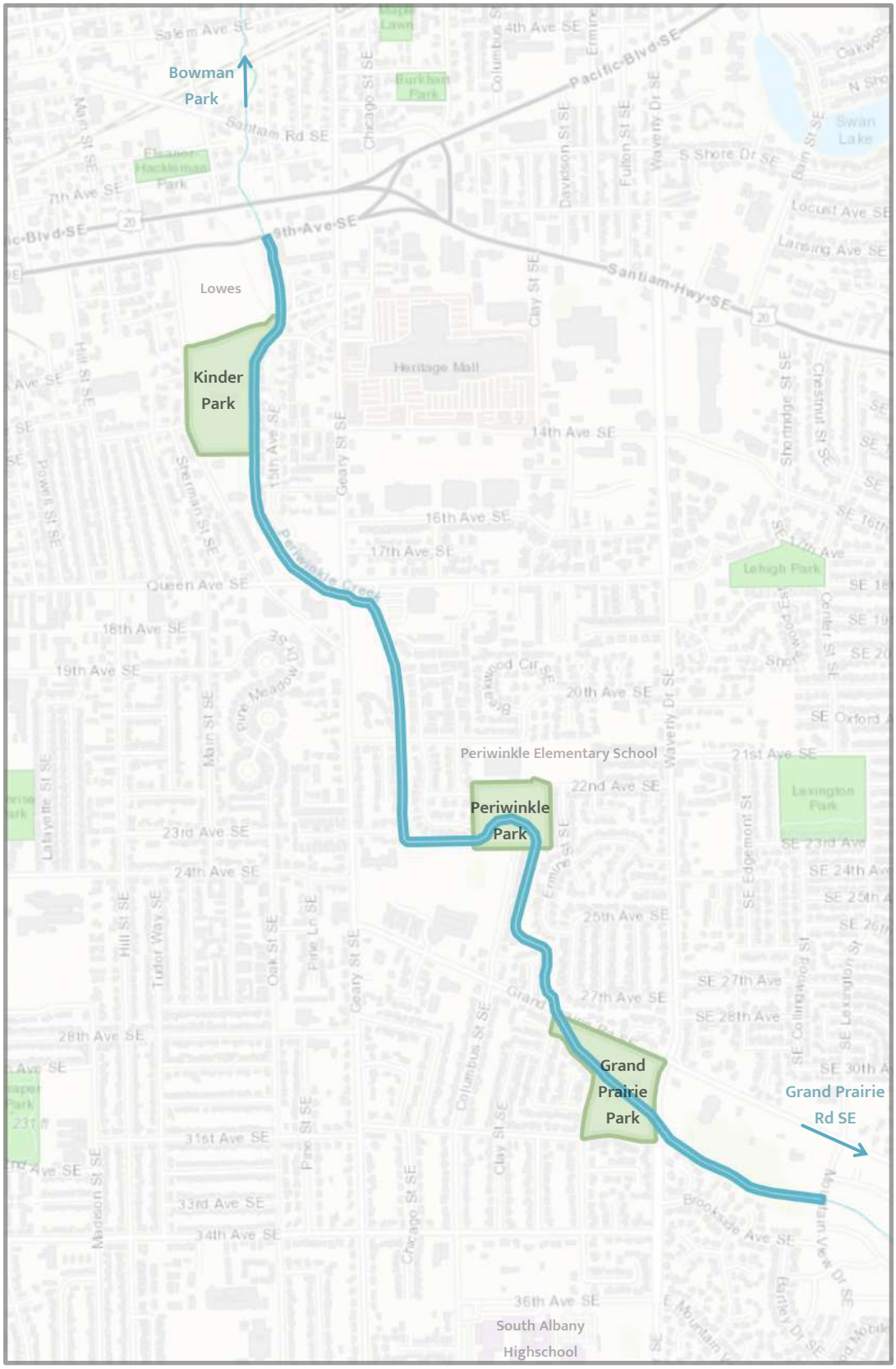
International

The United Nations is one of many international groups calling for action to restore ecosystems, with a focus on habitat connectivity, water conservation and strategic native planting for wildlife population recovery.

Periwinkle Greenway System

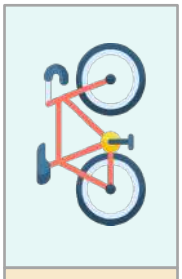
Parks and Creek

Greenway System Overview

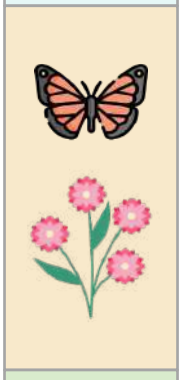


The Periwinkle Greenway is a 2 mile segment of Periwinkle Creek, extending from Grand Prairie Park, through Periwinkle Park and terminating above Kinder Park on the north end. A bike path along the Creek connects all parks for contiguous walking and biking access through the Greenway.

With ecological landscape improvements, the Greenway will attract both residents and visitors for an unparalleled experience in urban nature in the Willamette Valley.



2 miles or 10 acres creek bike path



14 acres new urban nature park

8 acres lawn & recrea-tion area

Grand Prairie Park

Grand Prairie Park is the southern extent of the Periwinkle Creek Greenway and is the largest park in the system. It has a pond and high water table with saturated Fall and Winter soils, representing the biggest opportunity for water catchment infrastructure and aquatic planting improvements with native plants.

Improvement opportunities for future construction and retrofit operations:

Unused Lawn

Lawn that acts as medians between walking paths and fencelines is not used for recreation, as it feels like a dividing space between private properties.

Soil Inundation

Some areas that are close to the creek have high water tables with compacted, clay soils. During rain events, soils are waterlogged and grass recedes.

Erosion

Lake edges are often lined with concrete and rip rap. Over time, water has undercut and carved out the backside. Erosion channels extend further into lawn.

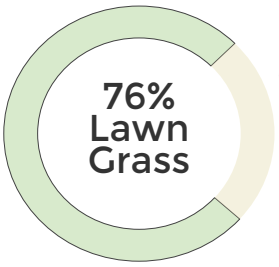
Used Lawn

Lawn around playground structures, ball courts and other active recreation areas is heavily used as free form play areas. Preserve this lawn for function.

Grand Prairie Park Lawn Study

A study of existing conditions at Grand Prairie Park shows a lawn-dominant landscape condition. By focusing on lawn areas that are used for recreation and leisure, remaining park space may be used for natural resource and management reduction goals with ecological landscaping improvements.

Existing Conditions



24% path and tree ground conditions

There is currently over 360,000 sq ft or 8 acres of lawn at Grand Prairie Park, around 76% of the park.

Critical Lawn Preservation Areas (CLPAs)

63% reduction in total lawn area

By focusing on critical lawn areas for recreation, around 130,000 sq ft or 3 acres are prioritized for preservation.

This reduces total lawn area by 230,000 sq ft or 5 acres with associated reductions in maintenance costs, irrigation costs, and water pollution risk.

Grand Prairie Park Native Planting Improvements

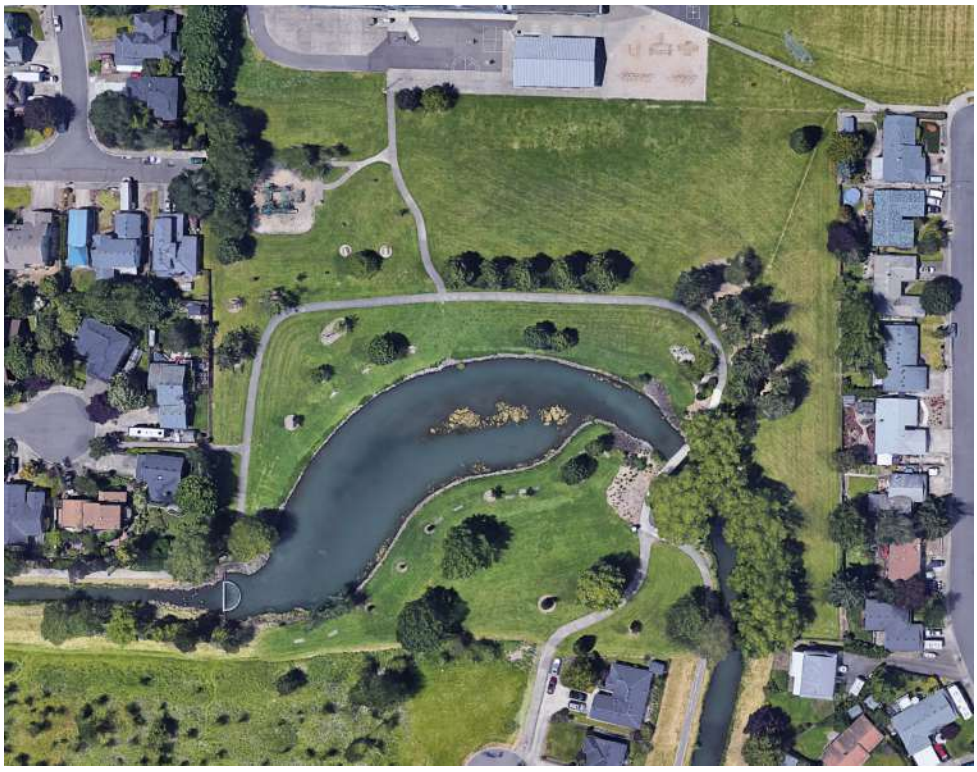
Over three acres of lawn are preserved for active recreation at Grand Prairie Park, while unused lawn areas are converted to low-maintenance, ecological landscapes. The lake edge is restored with large drifts of aquatic grasses for erosion control, with new path and bridge networks to encourage exploration. Flowering shrubs and wildflowers are focused along road frontages for for aesthetic improvements.

Vegetation Master Plan Diagram

- Recreational Lawn
- Flowering Shrub Meadow
- Mixed Oak Woodland
- Riparian Lake Edge
- Wildflower Pollinator Meadow
- Rain Garden

Periwinkle Park

Periwinkle Park is the heart of the Periwinkle Greenway System and is a focus area for modeling native vegetation improvements in public parks throughout the City of Albany. The existing park is currently dominated by expensive, resource-intensive, and under-utilized lawn space.



Improvement opportunities for future construction and retrofit operations:

Unused Lawn

With vast amounts of open lawn area, many areas lack features for public engagement or interest and are perpetually unused.

School Adjacency

Periwinkle Elementary School is at the north boundary of the park, creating an excellent opportunity for natural learning environments.

Artificial Shoreline

Lake shorelines are lined with concrete and rip rap, creating a shallow topsoil environment that attracts weeds and geese.

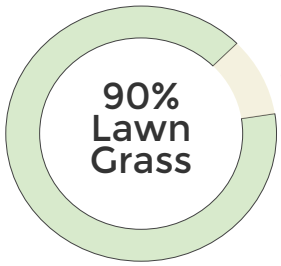
Used Lawn

Lawn around playground structures and the open soccer field are used as free form play areas. Sloping lawns beside the lake are also enjoyed for views.

Periwinkle Park Lawn Study

A study of existing conditions at Periwinkle Park shows a lawn-dominant landscape condition. By focusing on lawn areas that are used for recreation and leisure, remaining park space may be used for natural resource and management reduction goals with ecological landscaping improvements.

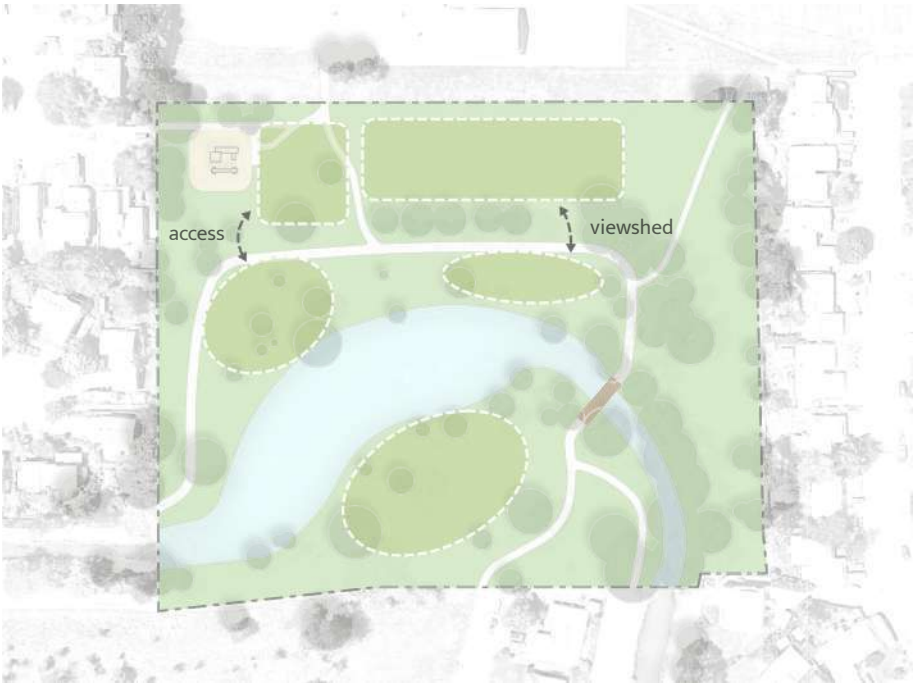
Existing Conditions

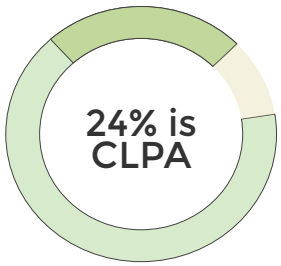


10% path and tree ground conditions

There is currently over 260,000 sq ft or 6 acres of lawn at Periwinkle Park, comprising around 90% of the park.

Critical Lawn Preservation Areas (CLPAs)





66% reduction in total lawn area

By focusing on critical lawn areas for recreation, around 75,000 sq ft or 1.7 acres are prioritized for preservation.

This reduces total lawn area by 185,000 sq ft or 4.3 acres with associated reductions in maintenance costs, irrigation costs, and water pollution risk.

Periwinkle Park Native Planting Improvements

Native vegetation is restored at Periwinkle Park as an asset to accentuate existing lawn and recreation opportunities with defined boundaries, as well as new site features and natural areas for the public to explore and adjacent schools to engage as a living classroom.

Vegetation Master Plan Diagram

- Recreational Lawn
- Flowering Shrub Meadow
- Mixed Oak Woodland
- Riparian Lake Edge
- Wildflower Pollinator Meadow

Kinder Park

Kinder Park is the northern extent of the Periwinkle Greenway System with significant natural resources including large drainage basins, access to Periwinkle Creek and a stand of mature Oregon White Oak trees. There is opportunity for a diversity of natural habitat features with native plants by reducing unused lawn.

Improvement opportunities for future construction and retrofit operations:

Unused Lawn

Vast fields of open lawn are perpetually unused, as visitors prefer to gather towards parking areas with a greater concentration of amenities and park features.

Fast Drainage to Creek

Depressions at field edges are drainage collection points with culverted flow to Periwinkle Creek. This lowers water quality and lawn soil moisture levels.

Unused Wetland Area

A large depression below the ball fields on the south end of the park is maintained as lawn, but soils are too wet for comfortable recreation or strolling.

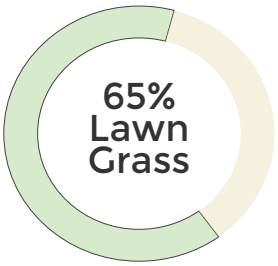
White Oak Trees

White Oak trees are a keystone species for ecosystems in the Willamette Valley. A valuable resource of large trees is preserved at the north end.

Kinder Park Lawn Study

A study of existing conditions at Kinder Park shows a lawn-dominant landscape condition. By focusing on lawn areas that are used for recreation and leisure, remaining park space may be used for natural resource and management reduction goals with ecological landscaping improvements.

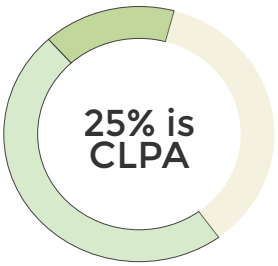
Existing Conditions



35% path, tree or landscape beds

There is currently over 360,000 sq ft or 8.3 acres of lawn at Kinder Park, comprising around 65% of the park.

Critical Lawn Preservation Areas (CLPAs)



61% reduction in total lawn area

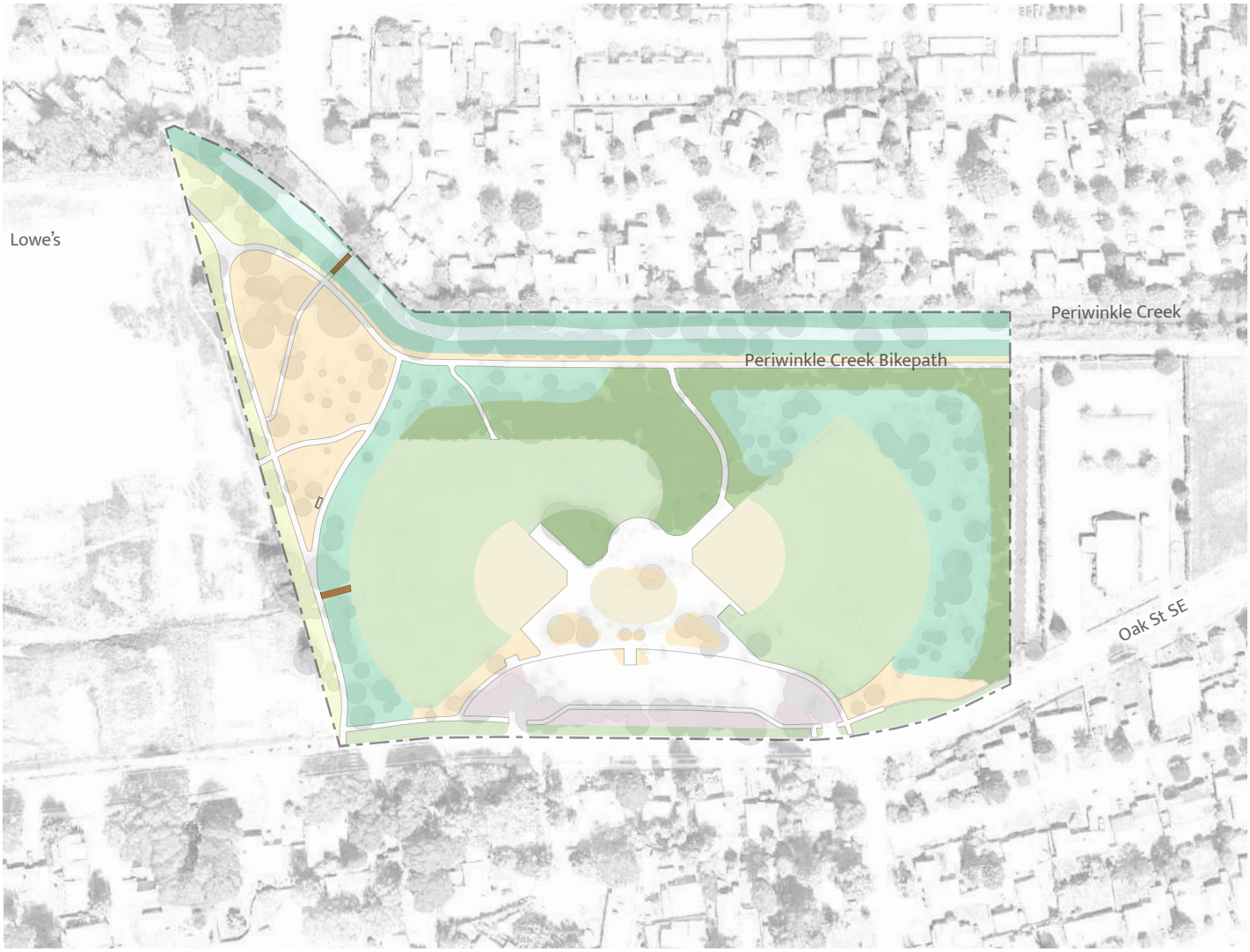
By focusing on critical lawn areas for recreation, around 140,000 sq ft or 3.2 acres are prioritized for preservation.

This reduces total lawn area by 220,000 sq ft or 5.1 acres with associated reductions in maintenance costs, irrigation costs, and water pollution risk.

Kinder Park Native Planting Improvements

Critical lawn areas are centered around playgrounds and ball fields, while the majority of peripheral lawn areas are converted into low-maintenance, ecological landscapes. Aquatic and Forest plantings are increased at the south end, while flowering shrubs and wildflowers are added around Oak trees in the north.

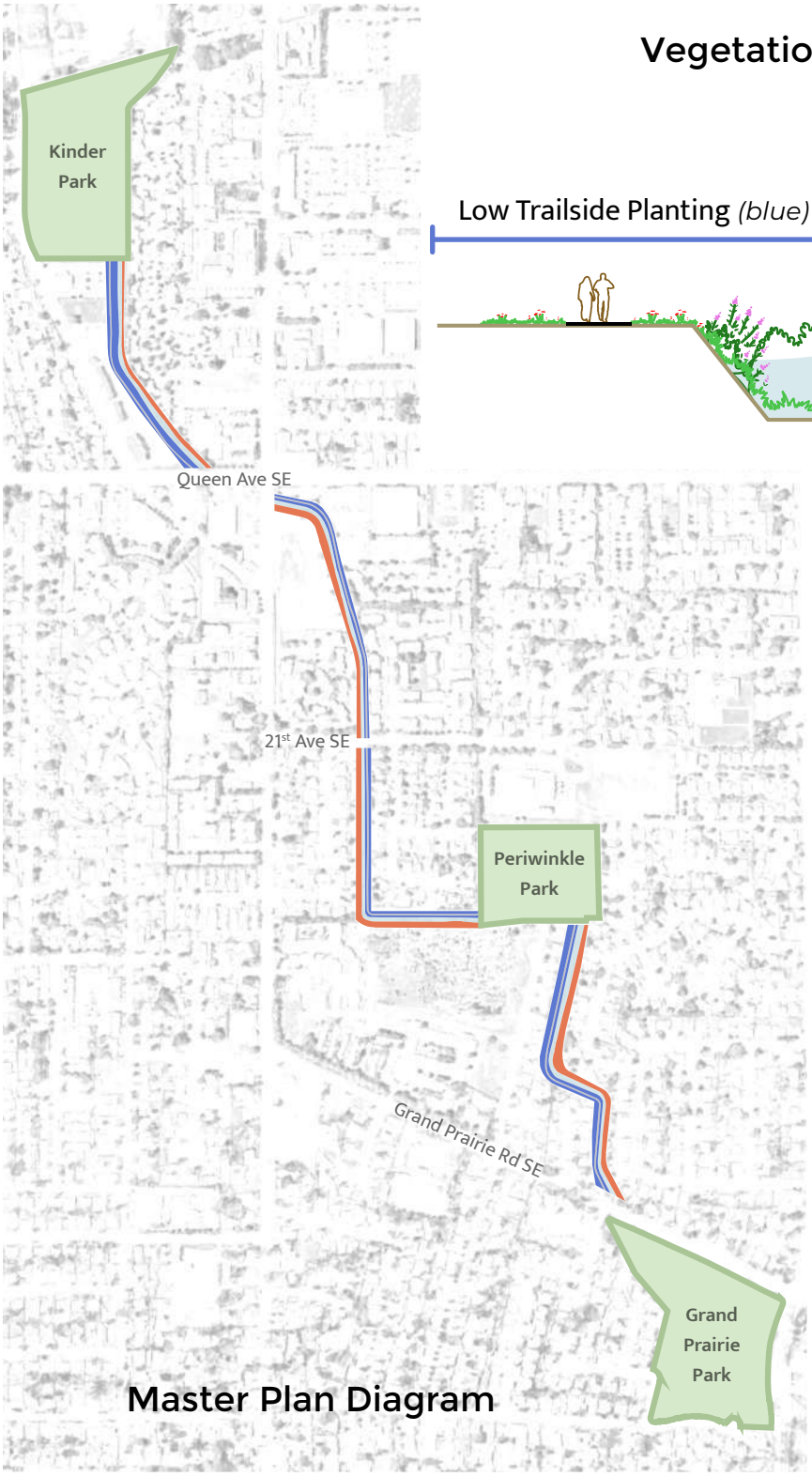
Vegetation Master Plan Diagram



- Recreational Lawn
- Flowering Shrub Meadow
- Mixed Oak Woodland
- Riparian Lake Edge
- Wildflower Pollinator Meadow
- Rain Garden
- Existing Landscape Bed

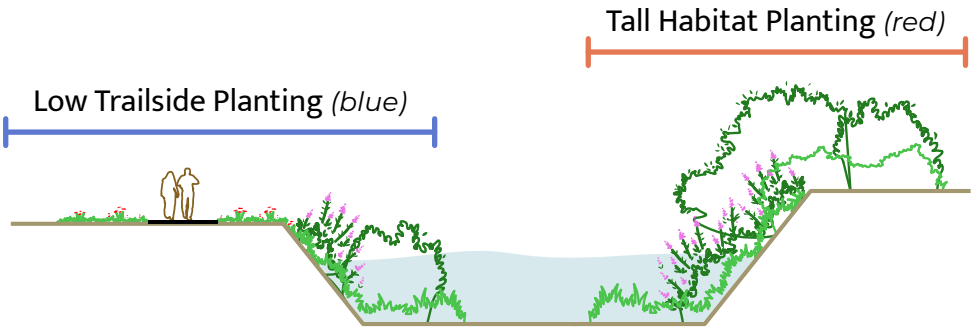
Periwinkle Creek Native Planting Improvements

The creek and bikepath between parks is almost 1.5 miles in length and is majority lawn and non-native grasses. This can be improved with native plants for enhanced erosion control, water quality & fish activity.



Master Plan Diagram

Vegetation Section Diagram



Segments of Periwinkle Creek between parks have a bike and walking path on one creek side, and a natural planting area on the other. Native planting on the path or trailside may be primarily focused on low groundcover planting, to maximize visibility for safety and accessibility. Vegetation on the natural planting side may be larger shrubs or small trees to help cast shade on the creek and help cool water temperatures for improved water quality and aquatic fish habitat.

Photograph Diagram

Low Trailside Planting *(blue)*

Tall Habitat Planting *(red)*

Periwinkle Park

Pilot Project

Periwinkle Park is re-imagined as a thriving and dynamic blend of open, recreational space with valuable ecological planting for a new, sustainable park design paradigm that better meets City management and climate resilience goals. *Bird's eye perspective rendering.*

Strolling through the network of walking paths or enjoying a spot on the lawn is now a colorful, stimulating and healthy experience while surrounded by diverse and beautiful native plant communities. *Plan view rendering.*

Native Plant Communities

Wildflower Meadow

Flowering Shrubs

Natural Lake Edge

Woodland Trails

Native plant communities at Periwinkle Park are categorized in four main groups: (1) sunny wildflower meadows fill north and south park entrance experiences with dynamic seasonal displays of color and pollinator activity; (2) flowering shrub meadows and hedgerows are used to create boundary structure where needed for spatial definition or privacy while providing year round color interest; (3) a lush lake edge planting with native sedges, rushes, shrubs and flowers enhances natural, scenic qualities of the lake while addressing erosion concerns for improved water quality; and (4) woodlands with increased canopy and sword fern understory create shelter and shaded trail opportunities for leisure on hot days.

Wildflower Meadow Community Palette

The wildflower meadow areas emphasize floral diversity in open areas with full sunlight. Large structural wildflowers such as Canada Goldenrod and Yarrow, as well as native grasses, help to maintain structure and form, while smaller flowers fill the landscape with color.

Yarrow

Achillea millefolium

Spike bentgrass

Agrostis exarata

Narrowleaf Onion

Allium amplectens

Nodding onion

Allium cernuum

Pearly everlasting

Anaphalis margaritaceae

Red columbine

Aquilegia formosa

Showy milkweed

Asclepias speciosa

Foothill sedge

Carex tumulicola

Sea Daisy

Erigeron glaucus

Oregon Sunshine

Eriophyllum lanatum

Romer's Fescue

Festuca idahoensis ssp. roemeri

Blanket Flower

Gaillardia aristata

Oceanspray

Holodiscus discolor

Large-leaved Lupine

Lupinus polyphyllus

Oregon Yampah

Perideridia oregana

Sea Blush

Plectritis congesta

Heal-all

Prunella vulgaris

Red-flowering currant

Ribes sanguineum

Nootka Rose

Rosa nutkana

Blue Elderberry

Sambucus caerulea

Meadow checkermallow

Sidalcea campestris

Canada Goldenrod

Solidago canadensis

Douglas Aster

Symphyotrichum subspicatum

Wild Hyacinth

Triteleia hyacinthina

Flowering Shrub Community Palette

With a majority of shrub species, accompanied by smaller amounts of wildflowers, grasses and trees, the flowering shrub areas provide taller structure in the landscape for spatial definition, privacy, and habitat shelter. Native shrubs have beautiful seasonal flower displays.

Big Leaf Maple

Acer macrophyllum

Western Spicebush

Calycanthus occidentalis

Leichtlin's Camas

Camassia leichtlinii

Foothill sedge

Carex tumulicola

Beaked Hazelnut

Corylus cornuta ssp. cornuta

Black hawthorn

Crataegus douglasii

Romer's Fescue

Festuca idahoensis ssp. roemeri

Oceanspray

Holodiscus discolor

Creeping Oregon Grape

Mahonia repens

Osoberry

Oemleria cerasiformis

Mock Orange

Philadelphus lewisii

Ponderosa Pine

Pinus ponderosa

Sword Fern

Polystichum munitum

Common Chokecherry

Prunus virginiana

Oregon White Oak

Quercus garryana

Cascara

Rhamnus purshiana

Red-flowering currant

Ribes sanguineum

Nootka Rose

Rosa nutkana

Thimbleberry

Rubus parviflorus

Scouler's Willow

Salix scouleriana

Blue Elderberry

Sambucus caerulea

Canada Goldenrod

Solidago canadensis

Douglas Spirea

Spiraea douglasii

Snowberry

Symphoricarpos albus

Natural Lake Edge Community Palette

Lake edges are planted with diverse native grasses, sedges and rushes for a lush, green aesthetic, low height and optimal visibility, effective erosion control, and aquatic habitat. Drifts of wet meadow flowers or pockets of shrubs and trees provide added interest.

White Alder

Alnus rhombifolia

Red Alder

Alnus rubra

Saskatoon Berry

Amelanchier alnifolia

Leichtlin's Camas

Camassia leichtlinii

Common Camas

Camassia quamash

Slough Sedge

Carex obnupta

Foothill sedge

Carex tumulicola

Red Stem Dogwood

ɛra (Same species this is the older name f

Romer's Fescue

Festuca idahoensis ssp. roemeri

Pacific Waterleaf

Hydrophyllum tenuipes

Douglas Iris

Iris douglasii

Common Rush

Juncus effusus

Dagger-leaf Rush

Juncus ensifolius

Twinberry

Lonicera involucrata

Riverbank Lupine

Lupinus rivularis

Pacific Ninebark

Physocarpus capitatus

Nootka Rose

Rosa nutkana

Salmonberry

Rubus spectabilis

Canada Goldenrod

Solidago canadensis

Douglas Spirea

Spiraea douglasii

Snowberry

Symphoricarpos albus

Woodland Trail Community Palette

Pockets of closed canopy are created to offer opportunities for shade and shelter among otherwise open and exposed park areas. Shade-loving understory species such as Sword Fern and Fringecup line new wooded walking trails for added variety of experiences at the park.

Vine Maple

Acer circinatum

Big Leaf Maple

Acer macrophyllum

Kinnikinnick

Arctostaphylos uva-ursi

Goatsbeard

Aruncus dioicus var. acuminatus

Deer Fern

Blechnum spicant

Western Spicebush

Calycanthus occidentalis

Slough Sedge

Carex obnupta

Beaked Hazelnut

Corylus cornuta ssp. cornuta

Tall Oregon Grape

Mahonia aquifolium

Low Oregon Grape

Mahonia nervosa

Creeping Oregon Grape

Mahonia repens

Osoberry

Oemleria cerasiformis

Sword Fern

Polystichum munitum

Bracken fern

Pteridium aquilinum

Oregon White Oak

Quercus garryana

Thimbleberry

Rubus parviflorus

Salmonberry

Rubus spectabilis

Red Elderberry

Sambucus racemosa

Snowberry

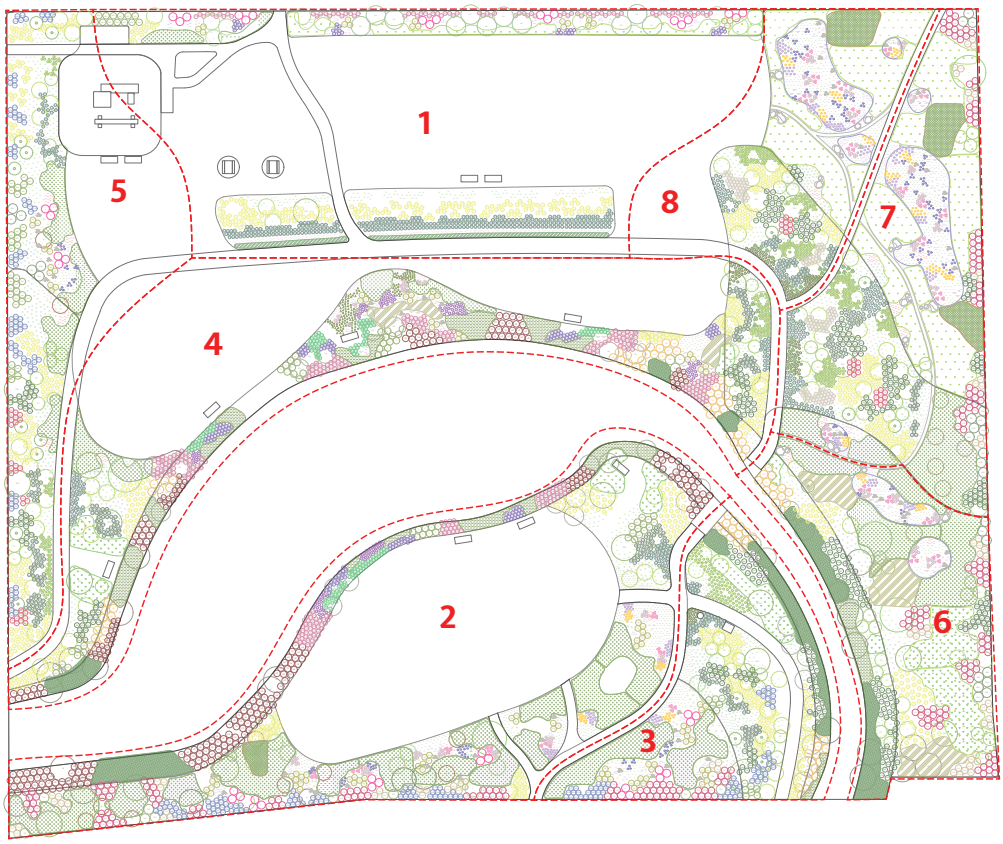
Symphoricarpos albus

Fringecup

Tellima grandiflora

Technical Planting Plan of Periwinkle Park. Plant placement information of each species for reference during installation and maintenance operations.

Implementation Zones



Key Plan

Implementation of native planting improvements in all areas of Periwinkle Park becomes more feasible when done in smaller increments over time. As a result, 8 zones are created, in recommended order of implementation. In this order, the park aesthetic and experience will seem full and complete at all stages of implementation until fully completed.

Project Implementation Tasks

The following pages contain detailed planting plans and planting lists for each zone, to be used for implementation. A list of tasks for project implementation and rough contractor budget estimate is also provided for each zone. Here is a description of each recommended task:

Task	Notes
Hydrologic catchment grading operations	Grading operations to create microdepressions, berms, catchment areas and other earthwork strategies for natural and sustainable water harvesting. Essential for healthy soil formation and drought resilience without supplemental irrigation over time. Requires skilled excavator technician familiar with hydrologic flow dynamics and low-tech water harvesting construction methods for design build approach on site. RATE: 24 hrs per acre @ $75/hr + 1000 rental and equipment delivery fee.
Boulder & log habitat feature installation operations	Installation of natural boulder and logs as essential strategy for long term soil remediation, habitat diversity and aesthetic natural park features for public engagement. Includes purchase, delivery and installation with excavator. RATE: $1200/acre for materials and 48 hrs/acre @ $70/hr for installation + 1000 rental and equipment delivery fee.
Essential soil ammendment installation operations	Lawn environments are compacted and recruit weeds. Essential soil ammendments are needed to rebuild topsoil for healthy plant growth over time. Install 1" inch of wood chip mulch and cover with 1" of garden compost. This stimulates mycelium activity for soil structure development. RATE: $400 per unit (7.5 cu yds) of material with delivery and blower truck installation. NOTE: this line item may also be reduced by utilizing City compost materials and available staff /volunteer resources for installation.
Site preparation ground operations: weed control and soil inoculation	Site preparation before planting ensures clean planting conditions with minimal weed competition. Beneficial soil inoculation with native microbiology encourages nutrient cycling processes and soil structure development. Annual wildflower seed stimulates diverse rooting activity and soil building. RATE: 56 hrs per acre at $70/hr for three seasons + seed @ $300/acre, herbicide @ $100/acre, inoculant @ $200/acre. Requires contractor with inoculation experience and native microbial inoculant
Purchase native plants from local wholesale nurseries	Use plant lists to coordinate with various wholesale native plant nurseries throughout the Willamette Valley and aquire all required plant material for each zone. Prices are shown at-cost with no mark up at purchase rates in Fall 2024.
Deliver, layout and install native plants, ground operations	Pick up native plants from nurseries and deliver to project site. Layout plants per planting plan and install with ground crew technicians. Requires experienced planting team, familiar with large scale habitat restoration and planting installation projects, to achieve desired planting rates and budget estimate for installation. RATE: installation speed varies between plant stock types (i.e. 750 plugs/person/day or 400 4" pots/person/day, etc.). Total costs are typically comparable to plant purchase costs.
Recommended 1st year maintenance operations for plant establishment	Maintenance operations are critical in the 1st year after planting to reduce weed competition pressure and address other plant stresses to ensure successful establishment. Requires expert ecological maintenance services for competent native and invasive plant ID, as well as dynamic maintenance practices to match site conditions. RATE: 104 hrs per acre at $70/hr for 4 seasons or one full year of maintenance services + herbicide & inoculant @ $1200/acre/year.
Project management and administration	Assistance with project management from a contractor partner is heavily recommended to manage project on schedule and coordinate with multiple organizations including City staff, Calapooia Watershed Council staff, subcontractors, nurseries. Budget is also expected for contractor internal design and field staff coordination and administrative project requirements. RATE: 15 hrs per year at $100/hr for project management tasks.

Symbol	Common Name	Scientific Name	Qty	Stock
	Chamisso sedge	Carex pachystachya	250	plug
	California Oatgrass	Danthonia californica	250	plug
	Romer's Fescue	Festuca idahoensis ssp.	500	plug
	Sword Fern	Polystichum munitum	150	BR
r	Red-flowering currant	Ribes sanguineum	18	BR
th	Thimbleberry	Rubus parviflorus	204	BR
sd	Douglas Spirea	Spiraea douglasii	78	BR
bm	Big Leaf Maple	Acer macrophyllum	1	5 gal
c	Cascara	Rhamnus purshiana	13	5 gal
sw	Scouler's Willow	Salix scouleriana	11	5 gal
a	Nodding onion	Allium cernuum	287	4" pot
mw	Showy milkweed	Asclepias speciosa	21	4" pot
b	Blanket Flower	Gaillardia aristata	45	4" pot
ir	Douglas Iris	Iris douglasii	36	4" pot
mr	Creeping Oregon Grape	Mahonia repens	324	4" pot
cg	Canada Goldenrod	Solidago canadensis	18	4" pot
da	Douglas Aster	Symphyotrichum subspicatum	27	4" pot
ws	Western Spicebush	Calycanthus occidentalis	13	1 gal

Full Live Planting

Stock Size	SUM of Qty
1 gal	13
4" pot	758
5 gal	25
BR	450
plug	1000
Grand Total	**2246**

50% Live Planting & Seed (optional cost reduction)

Stock Size	SUM of Qty
1 gal	38
BR	500
4" pot	375
plug	350
seed lbs	3
Grand Total	**1266**

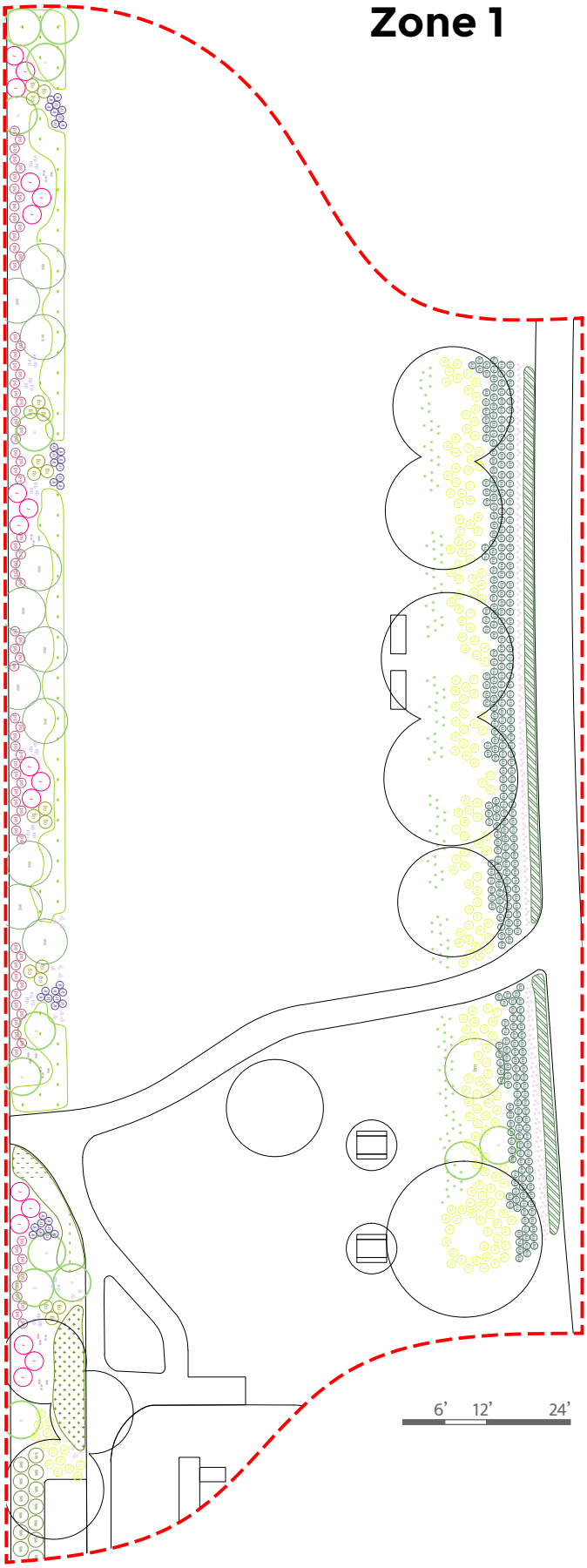
Site Operations & Cost Estimate

Task	Cost Estimate
Hydrologic catchment grading operations	1650
Boulder & log habitat feature installation operations	2650
Essential soil ammendment installation operations	5100
Site preparation ground operations: weed control and soil inoculation	1600
Purchase native plants from local wholesale nurseries	3250
Deliver, layout and install native plants, ground operations	2900
Recommended 1st year maintenance operations for plant establishment	3050
Project management and administration	3000
Total estimate	**23200**

Optional Cost Reductions

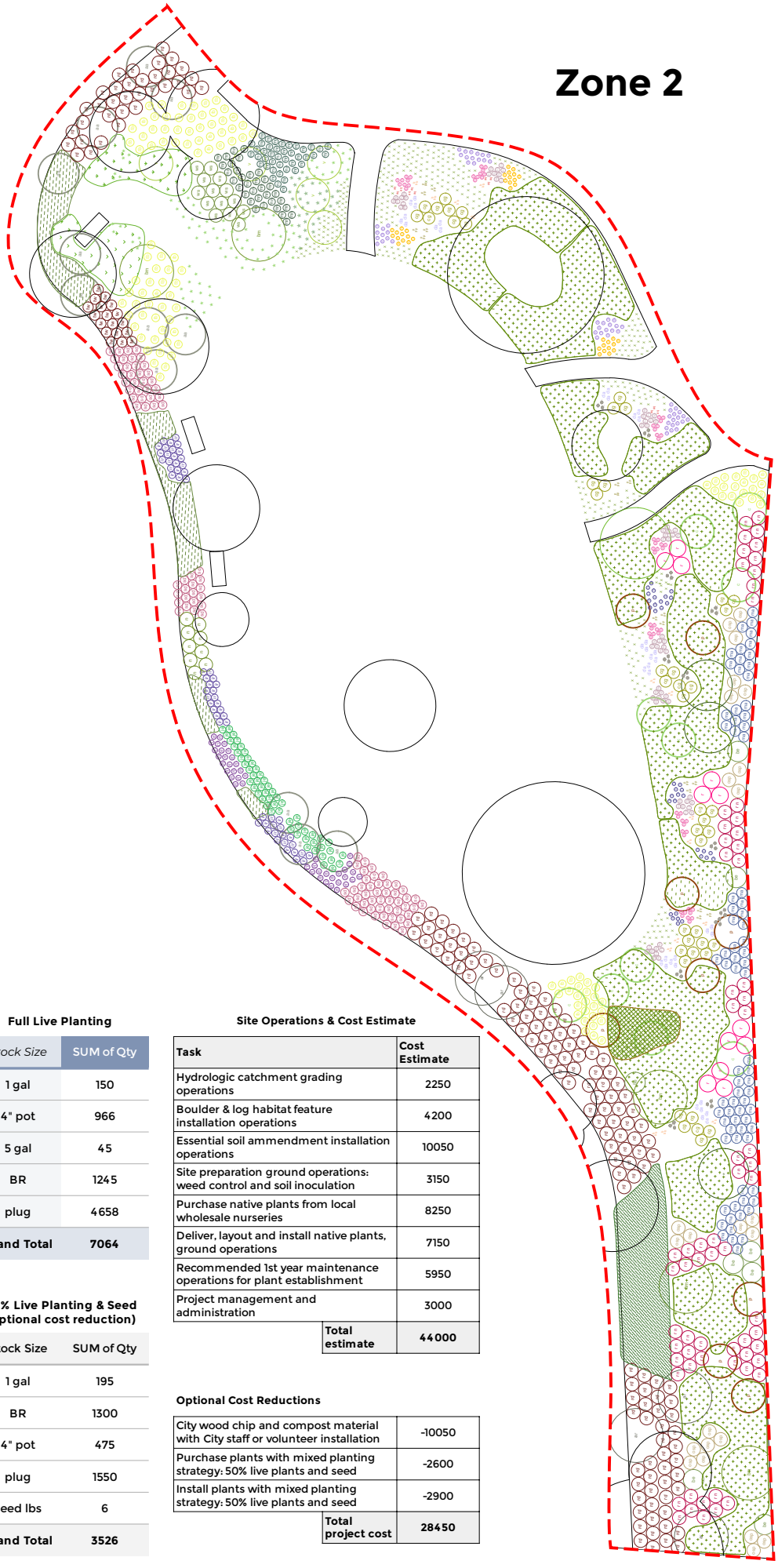
City wood chip and compost material with City staff or volunteer installation	-5100
Purchase plants with mixed planting strategy: 50% live plants and seed	-900
Install plants with mixed planting strategy: 50% live plants and seed	-1000
Total estimate	**16200**

Zone 1



Zone 2

Symbol	Common Name	Scientific Name	Qty	Stock
	Slough Sedge	Carex obnupta	450	plug
	Romer's Fescue	Festuca idahoensis ssp.	3750	plug
j	Common Rush	Juncus effusus	400	plug
s	Heal-all	Prunella vulgaris	58	plug
rd	Red Stem Dogwood	Cornus stolonifera (Same	157	BR
osp	Oceanspray	Holodiscus discolor	24	BR
	Pacific Waterleaf	Hydrophyllum tenuipes	550	BR
tw	Twinberry	Lonicera involucrata	18	BR
mn	Low Oregon Grape	Mahonia nervosa	34	BR
n	Pacific Ninebark	Physocarpus capitatus	9	BR
	Sword Fern	Polystichum munitum	108	BR
	Bracken fern	Pteridium aquilinum	36	BR
r	Red-flowering currant	Ribes sanguineum	12	BR
rn	Nootka Rose	Rosa nutkana	67	BR
tb	Thimbleberry	Rubus parviflorus	124	BR
be	Blue Elderberry	Sambucus caerulea	8	BR
sd	Douglas Spirea	Spiraea douglasii	98	BR
v	Vine Maple	Acer circinatum	5	5 gal
bm	Big Leaf Maple	Acer macrophyllum	5	5 gal
aa	Saskatoon Berry	Amelanchier alnifolia	12	5 gal
cd	Black hawthorn	Crataegus douglasii	1	5 gal
pp	Ponderosa Pine	Pinus ponderosa	3	5 gal
p	Common Chokecherry	Prunus virginiana	9	5 gal
c	Cascara	Rhamnus purshiana	10	5 gal
	Yarrow	Achillea millefolium	36	4" pot
aq	Red columbine	Aquilegia formosa	12	4" pot
os	Oregon Sunshine	Eriophyllum lanatum	36	4" pot
	Romer's Fescue	Festuca idahoensis ssp.	425	4" pot
ir	Douglas Iris	Iris douglasii	60	4" pot
je	Dagger-leaf Rush	Juncus ensifolius	56	4" pot
l	Large-leaved Lupine	Lupinus polyphyllus	36	4" pot
rl	Riverbank Lupine	Lupinus rivularis	44	4" pot
mr	Creeping Oregon Grape	Mahonia repens	42	4" pot
mc	Meadow checkermallow	Sidalcea campestris	72	4" pot
sv	Dwarf Checkermallow	Sidalcea virgata	63	4" pot
cg	Canada Goldenrod	Solidago canadensis	45	4" pot
da	Douglas Aster	Symphyotrichum subspicatum	39	4" pot
ar	Red Alder	Alnus rubra	5	1 gal
p	Pearly everlasting	Anaphalis margaritaceae	54	1 gal
ws	Western Spicebush	Calycanthus occidentalis	14	1 gal
ma	Tall Oregon Grape	Mahonia aquifolium	77	1 gal



6' 12' 24'

Full Live Planting

Stock Size	SUM of Qty
1 gal	150
4" pot	966
5 gal	45
BR	1245
plug	4658
Grand Total	**7064**

50% Live Planting & Seed (optional cost reduction)

Stock Size	SUM of Qty
1 gal	195
BR	1300
4" pot	475
plug	1550
seed lbs	6
Grand Total	**3526**

Site Operations & Cost Estimate

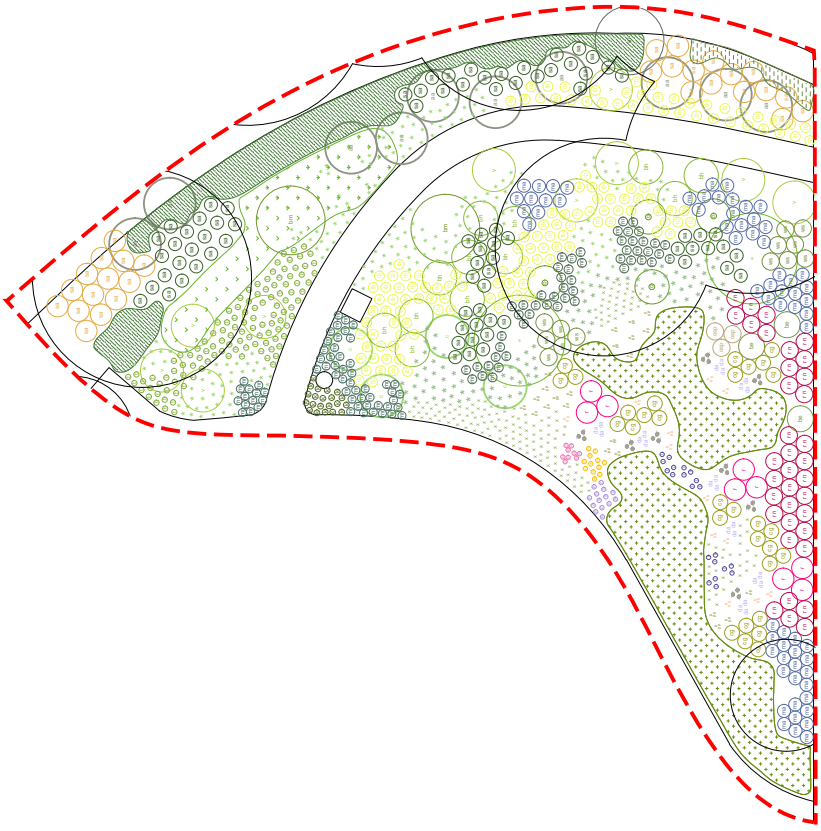
Task	Cost Estimate
Hydrologic catchment grading operations	2250
Boulder & log habitat feature installation operations	4200
Essential soil ammendment installation operations	10050
Site preparation ground operations: weed control and soil inoculation	3150
Purchase native plants from local wholesale nurseries	8250
Deliver, layout and install native plants, ground operations	7150
Recommended 1st year maintenance operations for plant establishment	5950
Project management and administration	3000
Total estimate	**44000**

Optional Cost Reductions

City wood chip and compost material with City staff or volunteer installation	-10050
Purchase plants with mixed planting strategy: 50% live plants and seed	-2600
Install plants with mixed planting strategy: 50% live plants and seed	-2900
Total project cost	**28450**

Zone 3

Symbol	Common Name	Scientific Name	Qty	Stock
	Slough Sedge	Carex obnupta	500	plug
	Romer's Fescue	Festuca idahoensis ssp.	950	plug
j	Common Rush	Juncus effusus	50	plug
s	Heal-all	Prunella vulgaris	14	plug
t	Fringecup	Tellima grandiflora	116	plug
osp	Oceanspray	Holodiscus discolor	3	BR
	Pacific Waterleaf	Hydrophyllum tenuipes	450	BR
mn	Low Oregon Grape	Mahonia nervosa	53	BR
	Sword Fern	Polystichum munitum	208	BR
	Bracken fern	Pteridium aquilinum	100	BR
r	Red-flowering currant	Ribes sanguineum	9	BR
rn	Nootka Rose	Rosa nutkana	36	BR
tb	Thimbleberry	Rubus parviflorus	137	BR
be	Blue Elderberry	Sambucus caerulea	3	BR
sa	Snowberry	Symphoricarpos albus	78	BR
v	Vine Maple	Acer circinatum	10	5 gal
bm	Big Leaf Maple	Acer macrophyllum	2	5 gal
aa	Saskatoon Berry	Amelanchier alnifolia	10	5 gal
cd	Black hawthorn	Crataegus douglasii	2	5 gal
o	Osoberry	Oemleria cerasiformis	4	5 gal
c	Cascara	Rhamnus purshiana	4	5 gal
	Yarrow	Achillea millefolium	24	4" pot
k	Kinnikinnick	Arctostaphylos uva-ursi	21	4" pot
mw	Showy milkweed	Asclepias speciosa	3	4" pot
os	Oregon Sunshine	Eriophyllum lanatum	12	4" pot
	Romer's Fescue	Festuca idahoensis ssp.	185	4" pot
b	Blanket Flower	Gaillardia aristata	36	4" pot
l	Large-leaved Lupine	Lupinus polyphyllus	21	4" pot
mr	Creeping Oregon Grape	Mahonia repens	59	4" pot
sv	Dwarf Checkermallow	Sidalcea virgata	9	4" pot
cg	Canada Goldenrod	Solidago canadensis	30	4" pot
da	Douglas Aster	Symphyotrichum subspicatum	24	4" pot
ar	Red Alder	Alnus rubra	1	1 gal
p	Pearly everlasting	Anaphalis margaritaceae	69	1 gal
ws	Western Spicebush	Calycanthus occidentalis	13	1 gal
bh	Beaked Hazelnut	Corylus cornuta ssp. cornuta	12	1 gal
ma	Tall Oregon Grape	Mahonia aquifolium	66	1 gal
ss	Salmonberry	Rubus spectabilis	29	1 gal



Full Live Planting

Stock Size	SUM of Qty
1 gal	190
4" pot	424
5 gal	32
BR	1077
plug	1630
Grand Total	**3353**

50% Live Planting & Seed (optional cost reduction)

Stock Size	SUM of Qty
1 gal	222
BR	1150
4" pot	200
plug	550
seed lbs	4
Grand Total	**2126**

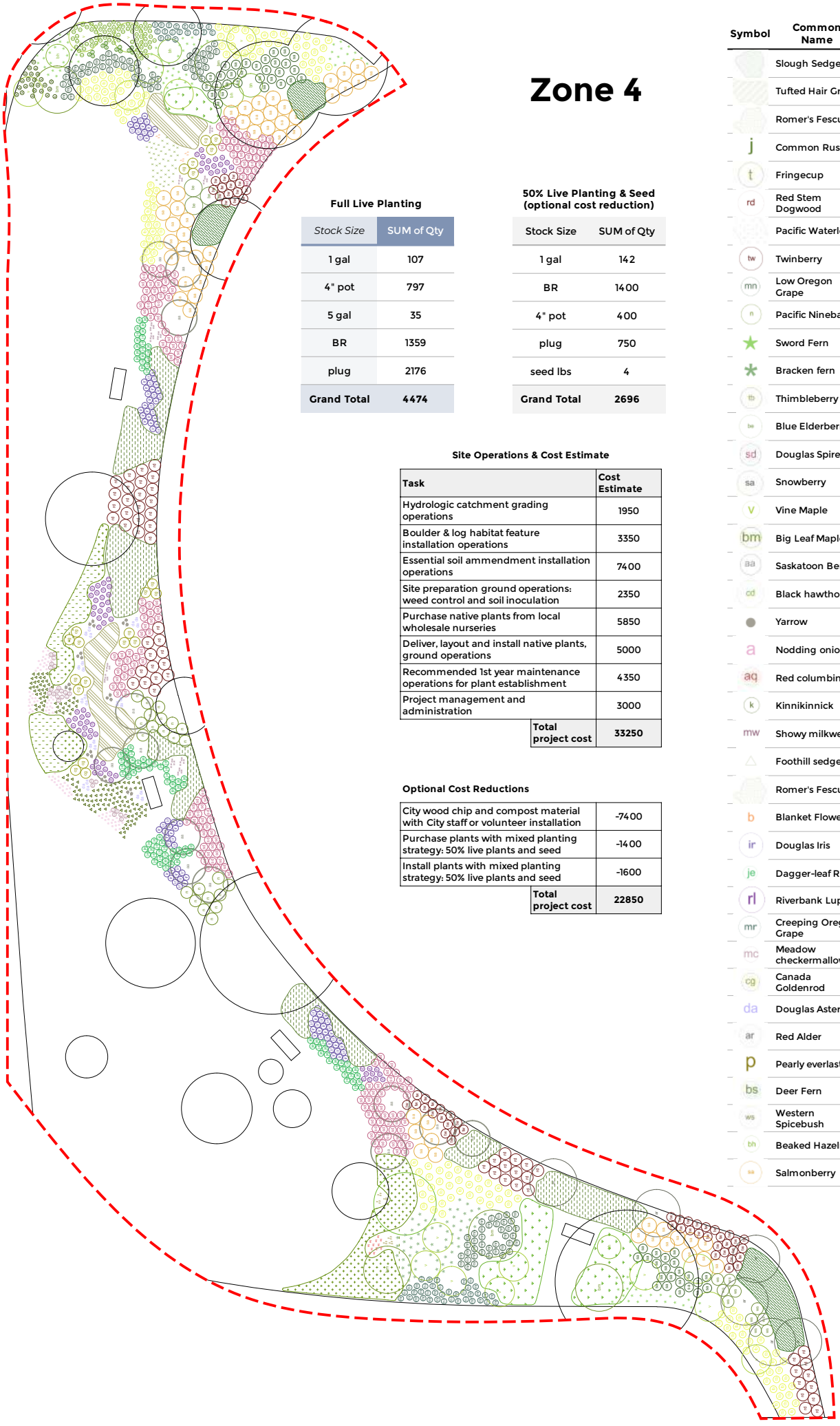
Site Operations & Cost Estimate

Task	Cost Estimate
Hydrologic catchment grading operations	1750
Boulder & log habitat feature installation operations	2900
Essential soil ammendment installation operations	5950
Site preparation ground operations: weed control and soil inoculation	1850
Purchase native plants from local wholesale nurseries	4650
Deliver, layout and install native plants, ground operations	3950
Recommended 1st year maintenance operations for plant establishment	3500
Project management and administration	3000
Total project cost	**27550**

Optional Cost Reductions

City wood chip and compost material with City staff or volunteer installation	-5950
Purchase plants with mixed planting strategy: 50% live plants and seed	-750
Install plants with mixed planting strategy: 50% live plants and seed	-1000
Total project cost	**19850**

Zone 4



Full Live Planting

Stock Size	SUM of Qty
1 gal	107
4" pot	797
5 gal	35
BR	1359
plug	2176
Grand Total	**4474**

50% Live Planting & Seed (optional cost reduction)

Stock Size	SUM of Qty
1 gal	142
BR	1400
4" pot	400
plug	750
seed lbs	4
Grand Total	**2696**

Site Operations & Cost Estimate

Task	Cost Estimate
Hydrologic catchment grading operations	1950
Boulder & log habitat feature installation operations	3350
Essential soil ammendment installation operations	7400
Site preparation ground operations: weed control and soil inoculation	2350
Purchase native plants from local wholesale nurseries	5850
Deliver, layout and install native plants, ground operations	5000
Recommended 1st year maintenance operations for plant establishment	4350
Project management and administration	3000
Total project cost	**33250**

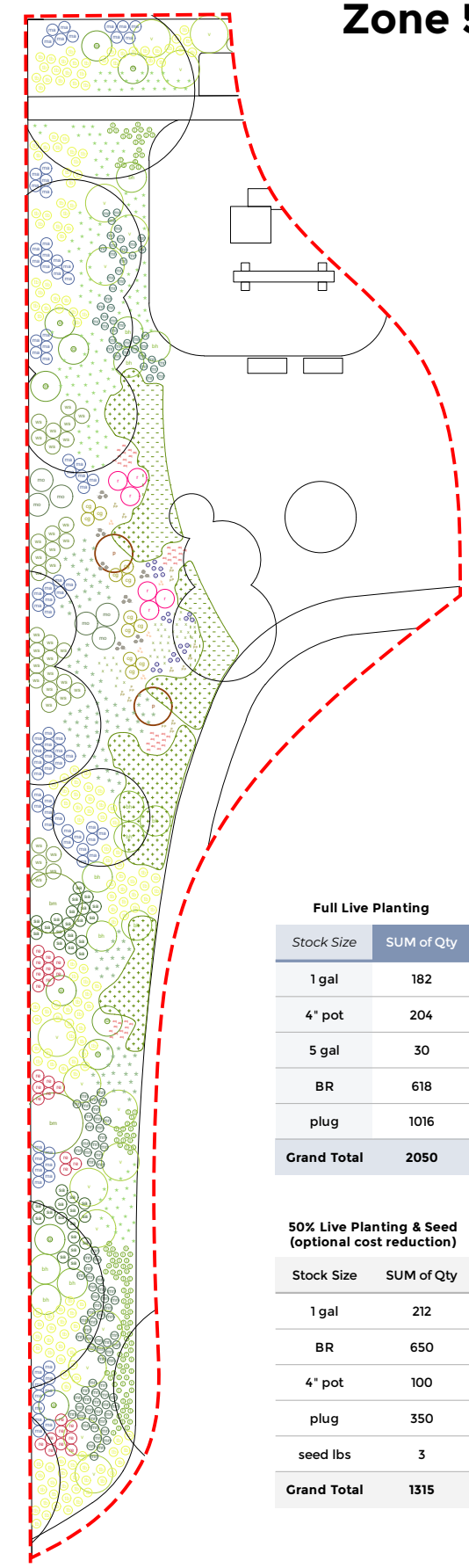
Optional Cost Reductions

City wood chip and compost material with City staff or volunteer installation	-7400
Purchase plants with mixed planting strategy: 50% live plants and seed	-1400
Install plants with mixed planting strategy: 50% live plants and seed	-1600
Total project cost	**22850**

Symbol	Common Name	Scientific Name	Qty	Stock
	Slough Sedge	Carex obnupta	300	plug
	Tufted Hair Grass	Deschampsia cespitosa	300	plug
	Romer's Fescue	Festuca idahoensis ssp.	700	plug
j	Common Rush	Juncus effusus	800	plug
t	Fringecup	Tellima grandiflora	76	plug
rd	Red Stem Dogwood	Cornus stolonifera (Same	59	BR
	Pacific Waterleaf	Hydrophyllum tenuipes	550	BR
tw	Twinberry	Lonicera involucrata	55	BR
mn	Low Oregon Grape	Mahonia nervosa	94	BR
n	Pacific Ninebark	Physocarpus capitatus	23	BR
	Sword Fern	Polystichum munitum	101	BR
	Bracken fern	Pteridium aquilinum	66	BR
th	Thimbleberry	Rubus parviflorus	164	BR
be	Blue Elderberry	Sambucus caerulea	3	BR
sd	Douglas Spirea	Spiraea douglasii	192	BR
sa	Snowberry	Symphoricarpos albus	52	BR
v	Vine Maple	Acer circinatum	16	5 gal
bm	Big Leaf Maple	Acer macrophyllum	5	5 gal
aa	Saskatoon Berry	Amelanchier alnifolia	13	5 gal
cd	Black hawthorn	Crataegus douglasii	1	5 gal
	Yarrow	Achillea millefolium	24	4" pot
a	Nodding onion	Allium cernuum	88	4" pot
aq	Red columbine	Aquilegia formosa	12	4" pot
k	Kinnikinnick	Arctostaphylos uva-ursi	24	4" pot
mw	Showy milkweed	Asclepias speciosa	36	4" pot
	Foothill sedge	Carex tumulicola	151	4" pot
	Romer's Fescue	Festuca idahoensis ssp.	48	4" pot
b	Blanket Flower	Gaillardia aristata	9	4" pot
ir	Douglas Iris	Iris douglasii	95	4" pot
je	Dagger-leaf Rush	Juncus ensifolius	105	4" pot
rl	Riverbank Lupine	Lupinus rivularis	75	4" pot
mr	Creeping Oregon Grape	Mahonia repens	58	4" pot
mc	Meadow checkermallow	Sidalcea campestris	27	4" pot
cg	Canada Goldenrod	Solidago canadensis	21	4" pot
da	Douglas Aster	Symphyotrichum subspicatum	24	4" pot
ar	Red Alder	Alnus rubra	6	1 gal
p	Pearly everlasting	Anaphalis margaritaceae	18	1 gal
bs	Deer Fern	Blechnum spicant	12	1 gal
ws	Western Spicebush	Calycanthus occidentalis	10	1 gal
bh	Beaked Hazelnut	Corylus cornuta ssp. cornuta	5	1 gal
sa	Salmonberry	Rubus spectabilis	56	1 gal

6' 12' 24'

Zone 5



Symbol	Common Name	Scientific Name	Qty	Stock
	Romer's Fescue	Festuca idahoensis ssp.	900	plug
t	Fringecup	Tellima grandiflora	116	plug
mn	Low Oregon Grape	Mahonia nervosa	80	BR
	Sword Fern	Polystichum munitum	166	BR
	Bracken fern	Pteridium aquilinum	118	BR
r	Red-flowering currant	Ribes sanguineum	6	BR
th	Thimbleberry	Rubus parviflorus	186	BR
re	Red Elderberry	Sambucus racemosa	27	BR
sa	Snowberry	Symphoricarpos albus	35	BR
v		Acer circinatum	16	5 gal
bm	Big Leaf Maple	Acer macrophyllum	2	5 gal
o	Osoberry	Oemleria cerasiformis	10	5 gal
p	Common Chokecherry	Prunus virginiana	2	5 gal
	Yarrow	Achillea millefolium	21	4" pot
aq	Red columbine	Aquilegia formosa	48	4" pot
	Romer's Fescue	Festuca idahoensis ssp.	42	4" pot
b	Blanket Flower	Gaillardia aristata	15	4" pot
l	Large-leaved Lupine	Lupinus polyphyllus	21	4" pot
mr	Creeping Oregon Grape	Mahonia repens	45	4" pot
cg	Canada Goldenrod	Solidago canadensis	12	4" pot
p	Pearly everlasting	Anaphalis margaritaceae	42	1 gal
ws	Western Spicebush	Calycanthus occidentalis	34	1 gal
bh	Beaked Hazelnut	Corylus cornuta ssp. cornuta	13	1 gal
ma	Tall Oregon Grape	Mahonia aquifolium	87	1 gal
mo	Mock Orange	Philadelphus lewisii	6	1 gal

Full Live Planting

Stock Size	SUM of Qty
1 gal	182
4" pot	204
5 gal	30
BR	618
plug	1016
Grand Total	**2050**

50% Live Planting & Seed (optional cost reduction)

Stock Size	SUM of Qty
1 gal	212
BR	650
4" pot	100
plug	350
seed lbs	3
Grand Total	**1315**

Site Operations & Cost Estimate

Task	Cost Estimate
Hydrologic catchment grading operations	1650
Boulder & log habitat feature installation operations	2650
Essential soil ammendment installation operations	5150
Site preparation ground operations: weed control and soil inoculation	1650
Purchase native plants from local wholesale nurseries	3100
Deliver, layout and install native plants, ground operations	2750
Recommended 1st year maintenance operations for plant establishment	3050
Project management and administration	3000
Total project cost	**23000**

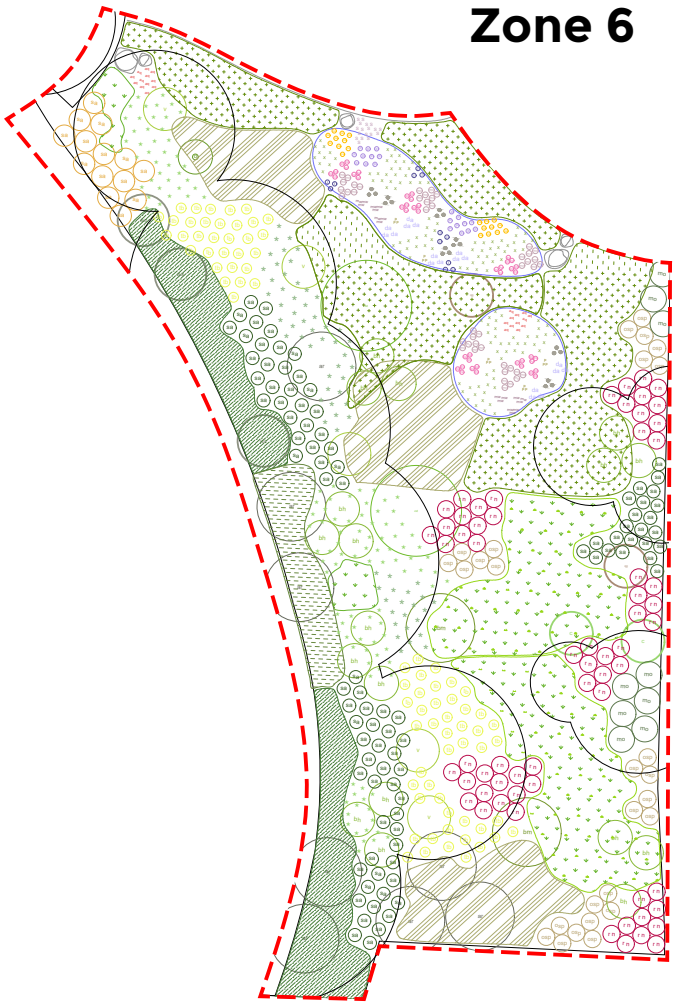
Optional Cost Reductions

City wood chip and compost material with City staff or volunteer installation	-5150
Purchase plants with mixed planting strategy: 50% live plants and seed	-450
Install plants with mixed planting strategy: 50% live plants and seed	-650
Total project cost	**16750**

6' 12' 24'

Zone 6

Symbol	Common Name	Scientific Name	Qty	Stock
	Slough Sedge	Carex obnupta	700	plug
	Chamisso sedge	Carex pachystachya	400	plug
	California Oatgrass	Danthonia californica	400	plug
	Tufted Hair Grass	Deschampsia cespitosa	1050	plug
	Romer's Fescue	Festuca idahoensis ssp.	1600	plug
j	Common Rush	Juncus effusus	250	plug
s	Heal-all	Prunella vulgaris	20	plug
	Narrowleaf Onion	Allium amplectens	150	bulb
	Nodding onion	Allium cernuum	150	bulb
	Leichtlin's Camas	Camassia leichtlinii	150	bulb
	Common Camas	Camassia quamash	150	bulb
	Oregon Yampah	Perideridia oregana	150	bulb
	Wild Hyacinth	Triteleia hyacinthina	150	bulb
osp	Oceanspray	Holodiscus discolor	27	BR
	Pacific Waterleaf	Hydrophyllum tenuipes	50	BR
	Sword Fern	Polystichum munitum	131	BR
	Bracken fern	Pteridium aquilinum	69	BR
rn	Nootka Rose	Rosa nutkana	63	BR
tb	Thimbleberry	Rubus parviflorus	78	BR
sa	Snowberry	Symphoricarpos albus	96	BR
v	Vine Maple	Acer circinatum	5	5 gal
bm	Big Leaf Maple	Acer macrophyllum	2	5 gal
aa	Saskatoon Berry	Amelanchier alnifolia	3	5 gal
cd	Black hawthorn	Crataegus douglasii	2	5 gal
o	Osoberry	Oemleria cerasiformis	1	5 gal
qg	Oregon White Oak	Quercus garryana	2	5 gal
c	Cascara	Rhamnus purshiana	2	5 gal
	Yarrow	Achillea millefolium	21	4" pot
aq	Red columbine	Aquilegia formosa	24	4" pot
mw	Showy milkweed	Asclepias speciosa	21	4" pot
S	Sea Daisy	Erigeron glaucus	18	4" pot
os	Oregon Sunshine	Eriophyllum lanatum	20	4" pot
	Romer's Fescue	Festuca idahoensis ssp.	129	4" pot
l	Large-leaved Lupine	Lupinus polyphyllus	12	4" pot
mc	Meadow checkermallow	Sidalcea campestris	45	4" pot
sv	Dwarf Checkermallow	Sidalcea virgata	45	4" pot
da	Douglas Aster	Symphyotrichum subspicatum	18	4" pot
ar	Red Alder	Alnus rubra	8	1 gal
p	Pearly everlasting	Anaphalis margaritaceae	15	1 gal
bh	Beaked Hazelnut	Corylus cornuta ssp. cornuta	18	1 gal
mo	Mock Orange	Philadelphus lewisii	9	1 gal
sa	Salmonberry	Rubus spectabilis	14	1 gal



6' 12' 24'

Full Live Planting

Stock Size	SUM of Qty
1 gal	64
4" pot	353
5 gal	17
BR	514
bulb	900
plug	4420
Grand Total	**6268**

50% Live Planting & Seed (optional cost reduction)

Stock Size	SUM of Qty
1 gal	81
BR	550
4" pot	175
bulb	300
plug	1450
seed lbs	6
Grand Total	**2562**

Site Operations & Cost Estimate

Task	Cost Estimate
Hydrologic catchment grading operations	1900
Boulder & log habitat feature installation operations	3250
Essential soil ammendment installation operations	7150
Site preparation ground operations: weed control and soil inoculation	2250
Purchase native plants from local wholesale nurseries	6000
Deliver, layout and install native plants, ground operations	5500
Recommended 1st year maintenance operations for plant establishment	4200
Project management and administration	3000
Total project cost	**33250**

Optional Cost Reductions

City wood chip and compost material with City staff or volunteer installation	-7150
Purchase plants with mixed planting strategy: 50% live plants and seed	-2150
Install plants with mixed planting strategy: 50% live plants and seed	-2550
Total project cost	**21400**

Zone 7

Symbol	Common Name	Scientific Name	Qty	Stock
	Spike bentgrass	Agrostis exarata	500	plug
	Chamisso sedge	Carex pachystachya	1000	plug
	California Oatgrass	Danthonia californica	1000	plug
	Romer's Fescue	Festuca idahoensis ssp.	2350	plug
s	Heal-all	Prunella vulgaris	60	plug
t	Fringecup	Tellima grandiflora	223	plug
	Narrowleaf Onion	Allium amplectens	250	bulb
	Nodding onion	Allium cernuum	250	bulb
	Leichtlin's Camas	Camassia leichtlinii	250	bulb
	Common Camas	Camassia quamash	250	bulb
	Oregon Yampah	Perideridia oregana	250	bulb
	Wild Hyacinth	Triteleia hyacinthina	250	bulb
osp	Oceanspray	Holodiscus discolor	18	BR
mn	Low Oregon Grape	Mahonia nervosa	65	BR
	Sword Fern	Polystichum munitum	196	BR
	Bracken fern	Pteridium aquilinum	79	BR
rn	Nootka Rose	Rosa nutkana	59	BR
tb	Thimbleberry	Rubus parviflorus	99	BR
re	Red Elderberry	Sambucus racemosa	20	BR
sa	Snowberry	Symphoricarpos albus	96	BR
v	Vine Maple	Acer circinatum	16	5 gal
bm	Big Leaf Maple	Acer macrophyllum	1	5 gal
cd	Black hawthorn	Crataegus douglasii	1	5 gal
o	Osoberry	Oemleria cerasiformis	4	5 gal
qg	Oregon White Oak	Quercus garryana	5	5 gal
c	Cascara	Rhamnus purshiana	1	5 gal
	Yarrow	Achillea millefolium	24	4" pot
aq	Red columbine	Aquilegia formosa	80	4" pot
k	Kinnikinnick	Arctostaphylos uva-ursi	37	4" pot
g	Goatsbeard	Aruncus dioicus var. acuminatus	84	4" pot
mw	Showy milkweed	Asclepias speciosa	39	4" pot
S	Sea Daisy	Erigeron glaucus	54	4" pot
os	Oregon Sunshine	Eriophyllum lanatum	10	4" pot
	Romer's Fescue	Festuca idahoensis ssp.	387	4" pot
l	Large-leaved Lupine	Lupinus polyphyllus	78	4" pot
mr	Creeping Oregon Grape	Mahonia repens	109	4" pot
ro	Western Buttercup	Ranunculus occidentalis	53	4" pot
mc	Meadow checkermallow	Sidalcea campestris	72	4" pot
sv	Dwarf Checkermallow	Sidalcea virgata	63	4" pot
da	Douglas Aster	Symphyotrichum subspicatum	27	4" pot
p	Pearly everlasting	Anaphalis margaritaceae	27	1 gal
bs	Deer Fern	Blechnum spicant	33	1 gal
bh	Beaked Hazelnut	Corylus cornuta ssp. cornuta	13	1 gal
mo	Mock Orange	Philadelphus lewisii	12	1 gal

Site Operations & Cost Estimate

Task	Cost Estimate
Hydrologic catchment grading operations	2100
Boulder & log habitat feature installation operations	3750
Essential soil ammendment installation operations	8700
Site preparation ground operations: weed control and soil inoculation	2750
Purchase native plants from local wholesale nurseries	9000
Deliver, layout and install native plants, ground operations	7700
Recommended 1st year maintenance operations for plant establishment	5150
Project management and administration	3000
Total project cost	**42150**

Optional Cost Reductions

City wood chip and compost material with City staff or volunteer installation	-8700
Purchase plants with mixed planting strategy: 50% live plants and seed	-3550
Install plants with mixed planting strategy: 50% live plants and seed	-3650
Total project cost	**26250**

Full Live Planting

Stock Size	SUM of Qty
1 gal	85
4" pot	1117
5 gal	28
BR	632
bulb	1500
plug	5133
Grand Total	**8495**

50% Live Planting & Seed (optional cost reduction)

Stock Size	SUM of Qty
1 gal	113
BR	700
4" pot	550
bulb	500
plug	1700
seed lbs	7
Grand Total	**3570**

Zone 8

Symbol	Common Name	Scientific Name	Qty	Stock
	Spike bentgrass	Agrostis exarata	300	plug
	Chamisso sedge	Carex pachystachya	800	plug
	California Oatgrass	Danthonia californica	800	plug
	Romer's Fescue	Festuca idahoensis ssp.	800	plug
t	Fringecup	Tellima grandiflora	191	plug
	Narrowleaf Onion	Allium amplectens	250	bulb
	Nodding onion	Allium cernuum	250	bulb
	Leichtlin's Camas	Camassia leichtlinii	250	bulb
	Common Camas	Camassia quamash	250	bulb
	Oregon Yampah	Perideridia oregana	250	bulb
	Wild Hyacinth	Triteleia hyacinthina	250	bulb
	Sword Fern	Polystichum munitum	63	BR
	Bracken fern	Pteridium aquilinum	72	BR
tb	Thimbleberry	Rubus parviflorus	74	BR
re	Red Elderberry	Sambucus racemosa	10	BR
sa	Snowberry	Symphoricarpos albus	45	BR
v	Vine Maple	Acer circinatum	10	5 gal
bm	Big Leaf Maple	Acer macrophyllum	2	5 gal
o	Osoberry	Oemleria cerasiformis	2	5 gal
p	Common Chokecherry	Prunus virginiana	70	5 gal
c	Cascara	Rhamnus purshiana	3	5 gal
	Yarrow	Achillea millefolium	24	4" pot
aq	Red columbine	Aquilegia formosa	21	4" pot
k	Kinnikinnick	Arctostaphylos uva-ursi	84	4" pot
g	Goatsbeard	Aruncus dioicus var. acuminatus	68	4" pot
mw	Showy milkweed	Asclepias speciosa	30	4" pot
s	Sea Daisy	Erigeron glaucus	72	4" pot
	Romer's Fescue	Festuca idahoensis ssp.	340	4" pot
l	Large-leaved Lupine	Lupinus polyphyllus	60	4" pot
mr	Creeping Oregon Grape	Mahonia repens	102	4" pot
ro	Western Buttercup	Ranunculus occidentalis	51	4" pot
mc	Meadow checkermallow	Sidalcea campestris	63	4" pot
sv	Dwarf Checkermallow	Sidalcea virgata	63	4" pot
da	Douglas Aster	Symphyotrichum subspicatum	18	4" pot
p	Pearly everlasting	Anaphalis margaritaceae	36	1 gal
bs	Deer Fern	Blechnum spicant	30	1 gal
bh	Beaked Hazelnut	Corylus cornuta ssp. cornuta	7	1 gal

Full Live Planting

Stock Size	SUM of Qty
1 gal	73
4" pot	996
5 gal	87
BR	264
bulb	1500
plug	2891
Grand Total	**5811**

50% Live Planting & Seed (optional cost reduction)

Stock Size	SUM of Qty
1 gal	160
BR	300
4" pot	500
bulb	500
plug	950
seed lbs	6
Grand Total	**2416**

Site Operations & Cost Estimate

Task	Cost Estimate
Hydrologic catchment grading operations	1600
Boulder & log habitat feature installation operations	2500
Essential soil ammendment installation operations	4750
Site preparation ground operations: weed control and soil inoculation	1500
Purchase native plants from local wholesale nurseries	7450
Deliver, layout and install native plants, ground operations	5950
Recommended 1st year maintenance operations for plant establishment	2800
Project management and administration	3000
Total project cost	**29550**

Optional Cost Reductions

City wood chip and compost material with City staff or volunteer installation	-4750
Purchase plants with mixed planting strategy: 50% live plants and seed	-3150
Install plants with mixed planting strategy: 50% live plants and seed	-2850
Total project cost	**18800**

Phoenix Habitats, LLC

3439 SE Hawthorne Blvd #218

Portland, Oregon 97214

www.phoenixhabitats.com

503 490 2161

Calapooia Watershed Council

P.O. Box 844

Brownsville, Oregon 97327

www.calapooia.org

541 583 3626

City of Albany

333 Broadalbin St SW

Albany, Oregon 97321

www.albanyoregon.gov

Conclusion: The Periwinkle Greenway

To City Officials and Residents:

From exploring Periwinkle Creek, analyzing each part of the Greenway System, and fully drawing the Periwinkle Park Pilot Project for phased implementation, it is our hope that this document will provide necessary information and resources to realize the Greenway vision for a better future for Albany and our regional ecosystem.

Implementation drawings are provided in sections or zones, to achieve this vision in a financially feasible and sustainable way over time. For example, Zone 1 may be completed as budget becomes available in 2025 or 2026, with funding for Zone 2 and 3 becoming available a year later. In this way, the total Periwinkle Pilot Project may be achieved, setting the stage for improvements at Grand Prairie Park, Kinder Park and the interconnecting bikepath and creek segments that form the Greenway system.

This will be an enduring natural resource and investment in the future because it uniquely builds upon on a strong foundation of existing resources and investments. These include (1) incredible **Ecological Value** in Periwinkle Creek, (2) a robust **Existing Community** of volunteers, parks groups, and youth stewardship programs, (3) **Existing Investment** in creek restoration efforts by City Parks & Recreation, City Public Works, and the Calapooia Watershed Council, (4) **Shared Goals** between City departments and Statewide efforts to improve water quality, and (5) **City Cost Reduction** efforts to lower irrigation and maintenance requirements over time.

Designing the Periwinkle Greenway, in collaboration with the Calapooia Watershed Council, has been a unique privilege for Phoenix Habitats. It is our goal to help restore urban natural areas for us all to live in a healthier world with clean soils, water, air, and beautiful nature for future generations to enjoy. We believe this vision for the Greenway will accomplish those goals, and bring a new level of sustainability and stewardship to the City of Albany, its residents, and the entire Willamette Valley.

A profound appreciation is owed to the Calapooia Watershed Council for funding this report, and working patiently to realize its many parts over time. They are wonderful, supportive collaborators and an incredible force for stewardship and ecosystem restoration in Albany and the Calapooia River watershed.

Lastly, thank you for your time and energy to review this proposal. We look to the future now, towards enduring partnerships and meaningful work that will continue to lift the City of Albany to even greater heights.

Sincerely,

Ian Hunter, Founder & Owner, Phoenix Habitats, LLC