Lake Washington Boulevard

Vegetation Management Plan

Seattle Parks and Recreation

Natural Systems Design

January 2010

Lake Washington Boulevard Vegetation Management Plan

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January 2010

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Duane Penttila, Horticulture Manager – In Memoriam

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Karen du Four des Champs for the PAT facilitation
Susan Black & Associates for providing graphics and models for public meetings
Shannon & Wilson for slope geotech work
Iain Robertson and UW Landscape Architecture Class for initiating and providing the basic framework for the VMP
Natural Systems Design for help in completing the VMP

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Lake Washington Boulevard is a premier link in the Olmsted Brothers "Emerald Necklace", a city-wide Park and boulevard system recommended to the city of Seattle by the Olmsted Brothers, landscape architects, in 1903. Seven miles of Lake Washington Boulevard's north/south corridor, bordering Seattle's eastern edge, link the Washington Park Arboretum at the north end to Seward Park at the south end. The Boulevard passes through residential neighborhoods, parks, forests, and along the shore of Lake Washington.

The visual quality of the Boulevard makes it a distinctive landmark in Seattle. Lake Washington Boulevard provides visual access to Seattle's incredible natural landscape features, including Lake Washington, Mt. Rainier and the Cascade Mountain Range. Recreational activity is a principal use of Lake Washington Boulevard and includes walking, jogging, bicycling, swimming, boating, fishing, picnicking, sunbathing, and sight-seeing. The Boulevard is also one of Seattle's major scenic transportation corridors for pedestrians, bicyclists, and automobile drivers. It is used by drivers not only as a recreational drive but also as a commuter route providing access to commercial businesses, recreational facilities, and residences.

In recent years because of the Boulevard's age, a significant portion of the vegetative elements have reached maturity and are deteriorating. The natural features of the Boulevard including trees, shrubs, lawn, and soil have significant potential for improvement. Hazard tree management and the proliferation of invasive vegetation into much of Lake Washington Boulevard's landscape are of primary concern. A substantial Public Involvement Process was undertaken to help define the Plan goals and elevate the primary concerns of adjacent residential communities and user groups.

The purpose of this Vegetation Management Plan (VMP) for Lake Washington Boulevard is to provide guidelines for future capital improvement projects, as well as maintenance and operations standards. The VMP can be used in a variety of ways and for multiple purposes. It can be used in its entirety for Boulevard-wide planning efforts, used in parts for small enhancement projects, or read for broad information and ideas. A series of references, maps, and appendices provide Best Management Practices and graphical aides towards these ends.

Vegetation Management Plan Goals

- Preserve and enhance a sense of regional identity in a multi-mile lakefront pleasure drive
- Preserve and enhance an uninterrupted landscape and ecological continuity from the Arboretum to Seward Park, while enhancing local "character areas"
- Take advantage of the areas great abundance and variety of views: water, wooded hills, and distant mountains
- Identify and define Boulevard property lines

- Promote native character in natural areas
- Restore native forest stands to enhance natural forest processes
- Conserve soil and water quality
- Protect and enhance wildlife habitat
- Buffer land uses
- Ensure public safety
- Gain community appreciation for the benefits and needs of trees and engagement in planning for, planting, and caring for trees

The Plan is structured around distinct Vegetation Management Units, which are specific areas along Lake Washington Boulevard that have unique features such that each one merits its own unique set of management prescriptions. This document separates the bulk of the Boulevard land area into five distinct management units: Parks, Lakeside, Boulevard, Slope, and Landscaped Savannah. The Parks MU includes distinct named parks adjacent to Lake Washington Boulevard that are identified on the maps but are not treated in this plan. Many of these parks have their own VMPs. The Lakeside, Boulevard, Slope, and Landscaped Savannah Management Units (MU) are addressed with descriptions of the specific unit area, Olmsted design intent, human use patterns, soils and geology, vegetation, habitat features, and critical areas.

The Lakeside MU extends from five feet inland of the shoreline to the eastern edge of the Boulevard MU. The lakeside typically features gentle slopes towards the shoreline. Along the lakeside, natural vegetation drift areas are found within a matrix of bulkheads, landscaped parks, marinas, and beaches. The landscape is characterized by lawns with specimen trees and some areas of scrub-shrub vegetation dominated by invasive species. A Seafair Zone is included in this MU to accommodate the specific management needs of this important regional festival. In this area there is an interplay between natural area restoration and intensive human uses, as well as the desire for views per the original design intent of the Boulevard.

Lakeside maintenance strategies include: lawn mowing, maintenance in existing restoration areas and the Seafair Zone, noxious weed control, and maintenance of formal landscape beds. Capital improvement strategies for the Lakeside include: shrub planting, tree planting, hedge conversions, and formal bed replacement plantings.

The Boulevard MU traverses through parks, residential and commercial areas, forested slopes, and lawn. The Boulevard MU extends westward from the Boulevard centerline to a significant grade change or change in property ownership on the inland side of the Boulevard. On the east side of the Boulevard, the MU includes all of the area bounded by paved pedestrian walkways, buildings, and roadway and parking infrastructure. The Boulevard landscape consists mainly of lawn and specimen trees.

Maintenance strategies in the Boulevard MU consist of hazard tree management and lawn mowing. Capital improvement strategies include tree planting using distinct tree typologies, and shrub planting to delineate between Park and non-Park property.

The Slope MU comprises sloped areas along the western edge of the Boulevard. These natural areas are characterized by aging trees and heavily invaded understory layers. There is an interplay between revitalizing these degraded habitat areas and concerns over slope stability and private landowner views from residences atop these slopes.

Slope maintenance strategies include hazard tree management and invasive plant control. Capital improvement strategies include: performing a tree inventory throughout the MU, removing invasive plant species, establishing healthy native plant communities, designing and implementing planting of stairway areas, and designing and implementing a major landscape restoration project along the Charles St. to Judkins St. median. Besides the stairways and the Charles St. median, critical area steep slopes and slide areas define the Mt. Baker Slopes as a third distinct management zone within the Slope MU.

Landscaped Savannahs include numerous small areas of developed landscapes, generally well-treed with mowed lawn, and with a limited or absent shrub layer. The trees are scattered and not arranged in a linear fashion as street trees. Savannahs occur on both sides of the Boulevard. Cherry Blossom Festival Sites are an important component of the Landscaped Savannah MU.

Savannah maintenance strategies include: lawn mowing, tree care, and maintenance of formal landscape beds. Capital improvement strategies include tree replacement planting and design and implementation of a Cherry Blossom Festival area.

Specific projects to implement each Management Unit's maintenance and capital improvement strategies are prioritized geographically to give planners and community groups guidance in addressing the primary considerations for vegetation management along the Boulevard. Additionally, the five main entities responsible for managing vegetation along the Boulevard are identified with contact information provided. These contacts are provided to ensure that project managers have access to key Parks staff that may provide guidance on Parks policies and institutional knowledge of specific project areas.

The initiation of this document was made possible by a landmark collaboration between Seattle Parks and the University of Washington, College of Architecture and Urban Planning. From a solid foundation of ecological principals and design concepts, the document was brought to the public to incorporate community concerns for managing this premier Parks resource. A generous donation of time from key community constituencies via a Project Advisory Team tuned plan developers into the primary concerns of user groups. Finally the expertise of a local, experienced consulting firm brought the document into this revised draft bringing forward plan priorities and creating graphical aides to help

with understanding and interpretation of key Best Management Practices. We hope this plan will provide guidance for management of vegetation along Lake Washington Boulevard for generations to come. Happy reading!

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Introduction to the Site

Lake Washington Boulevard is a premier link in the Olmsted Brothers "Emerald Necklace", a city-wide Park and boulevard system recommended to the city of Seattle by the Olmsted Brothers landscape architecture firm in 1903. Originally designed to provide the principal connections from Ravenna, Queen Anne and Magnolia Boulevards to West Seattle, Duwamish, and Beacon Boulevards, this comprehensive boulevard system links many of Seattle's major parks, including Lincoln Park, Seward Park, Woodland Park, Green Lake, Discovery Park, and Jefferson Park. Seven miles of Lake Washington Boulevard's north/south corridor, bordering Seattle's eastern edge, link the Washington Park Arboretum at the north end to Seward Park at the south end. This seven-mile stretch of boulevard between Madison Ave. and Seward Park comprises the project area encompassed by this VMP (Fig.1). The Boulevard passes through residential neighborhoods, parks, forests, and along the shore of Lake Washington. Neighborhoods along the Boulevard include the Montlake, Harrison, Madrona, Leschi, Mt. Baker, and Lakewood/Seward Park communities.

Figure 1 Lake Washington Boulevard Context Map

The visual quality of the Boulevard makes it a distinctive landmark in Seattle. Lake Washington Boulevard provides visual access to Seattle's incredible natural landscape features, including Lake Washington, Mt. Rainier and the Cascade Mountain Range. There are a variety of spatial qualities to the site, including views to the woodlands of the Eastside across Lake Washington, as well as topographic interest evident in the switchbacks in Lakeview, Frink Park, and Colman Park. Adjacent to the west , slopes provide a forested backdrop to the Boulevard.

Recreational activity is a principal use of Lake Washington Boulevard. These activities include walking, jogging, bicycling, swimming, boating, fishing, picnicking, sunbathing, and sight-seeing. Special events that take place on the Boulevard include the Danskin and Seafair Triathlons, Seafair Hydroplane Races, Seattle Cherry Blossom Festival and increasingly popular bicycle Saturdays and Sundays.

The Boulevard is also one of Seattle's major scenic transportation corridors. Designed as a "pleasure drive," it is used by pedestrians, bicyclists, in-line skaters, and automobile drivers. It is used by drivers not only as a recreational drive but also as a commuter route providing access to commercial businesses, recreational facilities, and residences.

Origins and History of Boulevard Planning and Management

Lake Washington is one of numerous glacially created, freshwater lakes in the Seattle area. Puget Sound Native American tribes fished and lived along the shores. Their trails were the first routes along Lake Washington Boulevard and were later expanded to fit the carts and carriages of the early settlers. These settlers used the Boulevard as a pleasure drive, first on horse-drawn carriages and later on electric cable cars. In the late 1800's Lake Washington Boulevard was home to amusement parks which were inducements to ride the cable cars. These precursors of the public park system included landscaped grounds, fountains, picnicking, cycling, boating and live entertainment.

During the late nineteenth century, Seattle was inspired by the World's Columbian Exposition held in Chicago in 1893. Government officials such as E.D. Schwagerl, a landscape architect, began to implement the dedication of public park lands. Later, Parks Superintendent Schwagerl oversaw the retention of Lake Washington Boulevard lands as a public park. The city's vision for Lake Washington Boulevard was to create a boulevard that would serve as a pleasure drive and connect four popular private gardens and amusement parks. Funds became available in 1897 during the gold rush and plans were envisioned to host the Alaska Yukon Pacific Exhibition on State University grounds. This exhibition would celebrate Seattle's sudden prosperity. City-wide improvements were conceived in anticipation for the Exhibition including a city-wide bicycle route designed by George Cotterill, Assistant City Engineer. The city then had over 10,000 bicycle riders and this system allowed for bicyclists to travel to several destinations at a negotiable grade. A portion of the bicycle system traversed through Lake Washington Boulevard within the Arboretum, Bush School area, and Leschi Park. Historic photos, plans, and maps of this era and beyond can be found in Appendices 1 and 2.

Olmsted

Figure 2 Lake Washington Blvd at the Frink Park bridge and staircase c.1903.

In 1903, John C. Olmsted, son of the legendary Frederick Law Olmsted, envisioned a "pleasure drive" named Lake Washington Boulevard (Fig.2). This drive was a part of a twenty-mile matrix of boulevards through greenbelts and parks that was to make up the Emerald Necklace, or the String of Pearls, in the Seattle area. Olmsted wrote that the "primary aim should be to secure and preserve for the use of the people as much as possible of these:

advantages of water and mountain views and of woodlands, well distributed and conveniently located."

Olmsted also gave advice for the future of Lake Washington Boulevard. He urged his clients to plan for the future, to acquire as much land as possible for a cohesive design, and to protect scenery and yet fulfill the social and ecological functional requirements of the site.

John C. Olmsted and his father had similar philosophies evident in their designs. They focused on creating "restorative landscapes" by capitalizing on light, shadow, variety, intricacy, and fine gradation of texture, tint and tone. They were inspired by the landscapes they experienced during their holidays in England. They divided these landscapes into two categories: Pastoral and Picturesque. The Pastoral style was meant to emphasize "unconscious or indirect recreation", while the Picturesque style emphasized mystery and bounteousness with profuse plantings that provided the viewer with "richness and lushness of growth nature would not normally produce unaided." The techniques the Olmsteds used to create these styles were to create multiple layers of planting, use combinations of non-native and native plants, and to blend the plants with each other and the character of the site.

EDAW

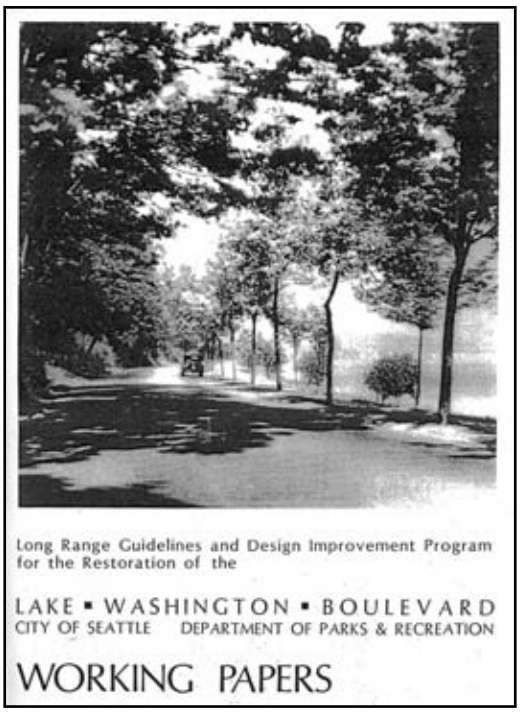


Figure 3 EDAW Working Papers cover sheet (1986).

In 1986, the international landscape architecture firm, EDAW, was commissioned by the city of Seattle to put together long range guidelines for Lake Washington Boulevard (Fig.3). Their extensive study of the Olmsted design intent, historical conditions of the site, and current built environment led the firm to establish these goals: to restore the original character envisioned by the Olmsted Brothers, establish visual and landscape continuity, identify and define the boulevard property lines, and to de-emphasize the boulevard's role as a traffic arterial.

For future maintenance and management, EDAW recommended first identifying key points or "hot spots" along the boulevard. Several references in the study recommended recapturing and creating view corridors. EDAW also recommended achieving visual consistency in elements for landscape character types, establishing the boulevard as an uninterrupted sequence of experiences.

In addition to these recommendations, the EDAW document pieces together multiple plans and correspondences between the Olmsted Brothers and Parks planners from the turn of the century to define and articulate their original design intent for sections of Lake Washington Boulevard:

> Bailey Peninsula [Seward Park] to City South Boundary [Hanford St.]
>
> A fringe of land should be acquired wide enough for drives, walks, and to preserve a foreground of woods.
>
> [Hanford St.] to Madrona Park
>
> Acquire land from the top of the hillside to the lake shore. The land on top should be wide enough to accommodate a crestline parkway. [EDAW further defines "parkway" as "an avenue or way in which there is an appreciable amount of informal natural landscape beauty." In contrast they define a Boulevard as a formal grass-lined landscape.]
>
> Madrona Park to Washington Park [Arboretum]
>
> A shore strip should be acquired which is from 150 to 200 feet wide. The steep ravine from the Denny Blaine Addition to the Friloch Club should be taken for the parkway. In addition, the sadle or ravine between the Frilock Club and Madison Street should be taken to link the [Arboretum] to the Lake Washington shore acquisition.

University of Washington

In 2006, Seattle Parks and Recreation approached the University of Washington's Landscape Architecture Program with the opportunity to initiate a VMP for Lake Washington Boulevard. A group of 18 undergraduate students under the direction of Landscape Architecture Chair, Iain Robertson, spent three months researching the historical Olmsted legacy, EDAW recommendations, and current human use patterns of the site. The students divided the site into four typologies: Parks, Slopes, Shoreline, and Boulevard, and created vegetation management recommendations for each typology. These concepts were presented to Park's Urban Forestry staff in March 2006 and serve as the framework for guidelines in this Vegetation Management Plan.

Public Involvement Process

A series of seven public process meetings were held between June and November of 2006. These meetings included two introductory meetings, one meeting each on three distinct Management Units (Lakeside, Boulevard, and Slope), a meeting presenting the draft VMP for review, and a meeting to release the final VMP and promote community organizations working to enhance the Boulevard. A complete inventory of advertisements and a list of the public meetings that were held are included in Appendix 3. Complete meeting minutes and some presentation documents are available on-line at http://www.seattle.gov/parks/Horticulture/VMP/LakeWashingtonBlvd.htm#past.

In July 2007 a Project Advisory Team (PAT) was formed to discuss several issues that Seattle citizens appeared to be divided over regarding the Draft Lake Washington Boulevard Vegetation Management Plan. Contentious issues included tree species selections, views from adjacent residential areas, wildlife habitat areas, maintenance needs, and recreation area access. The PAT convened for five meetings to deliberate the goals and objectives of the VMP. The outcome of the PAT was a revised set of Goals and Objectives, and the recommendation that staff revise the VMP draft to accommodate changes to the goals and objectives and clarify certain graphics and Best Management Practices descriptions.

A revised Draft VMP was completed in May 2008. Further revisions and refinements have now been incorporated to produce this final VMP in 2010.

Introduction to The Vegetation Management Plan

Purpose

The purpose of this Vegetation Management Plan (VMP) for Lake Washington Boulevard is to provide guidelines for future capital improvement projects, as well as maintenance and operations standards. The VMP can be used in a variety of ways and for multiple purposes. It can be used in its entirety for Boulevard-wide planning efforts, used in parts for small enhancement projects, or read for broad information and ideas. From this introduction, the VMP moves to historical maintenance issues and practices, to current goals and objectives for vegetation management, culminating with Management Unit-specific recommendations for capital improvements and maintenance. A series of references, maps, and appendices complete the document.

Vegetation Management Issues

For over a century, Lake Washington Boulevard has been a central piece of Seattle's boulevard and park system. It was celebrated for its eclectic mix of traditional boulevard, distinct parks, undulating topography, memorable vistas, and curving shoreline. In recent years because of the Boulevard's age, a significant portion of the vegetative elements have reached maturity and are deteriorating.

Figure 4 Japanese Knotweed

The natural features of the Boulevard including trees, shrubs, lawn, and soil have significant potential for improvement. The proliferation of invasive vegetation into much of Lake Washington Boulevard's landscape is of primary concern. These plants include Himalayan blackberry, English ivy, knotweeds (Fig.4), and reed canarygrass. (See Appendix 4 for a complete list of invasive plants that are particularly common and problematic in the Lake Washington Boulevard corridor.)

Trees are the dominant natural elements along the Boulevard ranging from deciduous and evergreen backdrop plantings to magnificent native and ornamental specimens on the lakeside. They are part of the indigenous slope forest, forest remnants along the lakeshore, street tree plantings, and formal landscape plantings. The indigenous forest occurs within Lakeview, Frink, and Colman Parks, and in some areas adjacent to the lakeshore. Bigleaf maple, western red cedar, red alder, and Douglas fir dominate these stands. Remnants of Pacific madrone, clustered along the lakeshore, are in serious decline. Formal street tree plantings occur extensively along the lakeshore from Colman Park to Seward Park, and sporadically along the northern section of the Boulevard. Linden, poplar, flowering cherries, and maples are popular street trees in neighborhoods and along the lakeside.

Ornamental shrub masses and hedges are a minor part of the Boulevard landscape. Most are used for screening of parking lots. Native shrubs and creepers occur throughout the

forested switchbacks and on much of the steep slopes west of the Boulevard. Invasive waterside shrubs and brambles have become established along the lake.

Vehicular compaction, erosion, and poor drainage are factors of concern along the Boulevard. Significant vehicular compaction compounded by poor street tree locations near the Boulevard result in stunted, unhealthy, and deteriorating trees. Erosion and slope stability are a problem along the steep slopes adjacent to the lakeshore and through the switchbacks. Surface water and saturated soils are a problem in several areas along the Boulevard. Water seeps down the adjacent hillsides and across the pavement resulting in unstable slopes and sloughed soils that create standing water and mud in some areas on the Boulevard. A high seasonal water table continues to be a problem in this area.

Illegal topping and removal of trees from adjacent residential property owners has further compromised the integrity of Boulevard vegetation, particularly on the west slopes (Fig.5). The most egregious example of this activity in recent years is the tree cutting in Colman Park which resulted in a greater than $500,000 settlement with the adjacent homeowner. Seattle Parks adopted a Tree Policy in June 2001 that regulates the permit process for pruning and removal of trees on Parks property by private homeowners. Explication of the Tree Policy later in this document will clarify its application to this VMP.

Figure 5 Farris residence - forest where illegal tree cutting occurred in foreground.

Encroachment of neighboring landscapes is another significant issue for management of Boulevard vegetation. Some adjacent homeowners have formal landscaping, including hardscapes, that encroach on Seattle Parks property. In some cases formal hedges delineate false property boundaries that inappropriately suggest limited visual and physical public access to public property. Where encroachment is encountered, Parks Property Management staff will use this document to determine appropriate vegetation management to mitigate encroachments.

Project Area and Vegetation Data

This VMP is intended for parcels defined by Seattle Parks Property Management GIS as Lake Washington Boulevard property between Madison Ave. and Seward Park. The VMP is not intended as a management plan for distinct named parks within this project area (i.e. Frink, Colman, Madrona). Many of the parks within this part of the Boulevard have VMPs specific to the park itself and the park-specific VMPs shall supersede the Lake Washington Boulevard VMP. In cases where no VMP exists for a specific park within the Lake Washington Boulevard area covered by this VMP, the Lake Washington Boulevard VMP shall be used as a management tool until such time that a park-specific VMP is created. Parks within this MU are (parks in bold have completed VMPs or Master Plans):

Washington Park Arboretum, Harrison/Denny Blaine Park, Lakeview Park, **Denny Blaine Park**, Viretta Park, Howell Park, **Madrona Park**, **Leschi Park and Natural Area**, **Frink Park**, **East Portal Park/I-90 Greenspace**, **Colman Park**, Mt. Baker Park, Sayres Park, **Genesee Park**, **Seward Park**.

Data collected for this VMP may include information gathered in specific parks that are technically outside of the scope of this VMP.

Shoreline Exclusion

Lake Washington's shoreline has been and is currently the subject of several long-term studies by both engineers and habitat biologists. Vegetation management strategies have been developed for Lake Washington's shoreline within these studies. This VMP will not address shoreline management or maintenance. The Lakeside Management Unit, as defined by this VMP, is from five feet inland of the shoreline, as defined by the Ordinary High Water Mark (OHWM), inland to the eastern boundary of the Boulevard Management Unit. For more information regarding shoreline plans and projects, please use the following resources. All of these resources are available via the internet addresses posted below and at the Seattle Public Library Central Location, 1000 4th Ave., in the reference section.

Seattle Shoreline Park Inventory and Habitat Assessment
http://www.seattle.gov/parks/projects/shoreline.htm

Seattle's Urban Blueprint for Habitat Protection and Restoration (Fig.6)
http://www.cityofseattle.net/salmon/blueprint.htm

Factors Affecting Chinook Populations
http://www.cityofseattle.net/salmon/

Figure 6 Seattle's Urban Blueprint for Habitat and Protection Restoration

Near-Term Action Agenda for Salmon Habitat Conservation
http://dnr.metrokc.gov/WRIAS/8/near-term-action-agenda.htm

Washington Department of Fish and Wildlife – Habitat Web Site
http://wdfw.wa.gov/habitat.htm

Funding Opportunties

There are numerous governmental organizations, partnerships, and foundations that provide funding for urban habitat restoration projects ranging from street tree planting to reforestation projects. A comprehensive list is available excerpted from the Orchard St. Ravine VMP (Seattle Parks, 2006) in Appendix 5. The following three governmental funding sources are particularly applicable to this VMP:

Seattle Department of Neighborhoods – Neighborhood Matching Fund, (206) 684-0719
Green Seattle Partnership - Forest Stewards Program, (206) 292-5907 x117
King County – Urban Reforestation and Habitat Restoration, (206) 296-7266

Vegetation Management Goals and Objectives

The goals of this VMP are derived from two main sources – the original Olmsted design intent for the Boulevard and the goals of the Seattle Parks Urban Forest Restoration Program. These goals are further defined with explicit management objectives in Table 1.

Boulevard Design Intent Goals

As articulated in the Olmsted papers and reiterated through both the 1986 EDAW study and 2006 University of Washington studio, the overall goals and objectives for vegetation management on Lake Washington Boulevard are listed in Table 1 below.

Table 1 Lake Washington Boulevard Design Intent Goals and Objectives

Goals	Objectives
Preserve and enhance a sense of regional identity in a multi-mile lakefront pleasure drive	• Use native plants in all plant palettes, while preserving desirable ornamental species where appropriate • Continue to plant and maintain cherry trees in appropriate locations for visual enjoyment and to honor Seattle's ties to Japan
Preserve and enhance an uninterrupted landscape and ecological continuity from the Arboretum to Seward Park, while enhancing local "character areas"	• Create an anchor plant palette that will repeat species along the entire extent of the Boulevard to achieve a mix of informal natural scenery and formal plantings. • Create spacing regimes that will preserve opportunities for wildlife to move along the Boulevard while preserving the spectacular views defined by EDAW (1986)
Take advantage of the areas great abundance and variety of views: water, wooded hills, and distant mountains	• Provide panoramic views from within the Park property to mountains and the water in designated areas • Frame views from within the Park with native vegetation in all areas not designated panoramic • Create a backdrop of native vegetation on the western slope of the Boulevard
Identify and define Boulevard property lines	• Monument property lines during any project that occurs adjacent to a property ownership border

Urban Forestry Program Goals

The Urban Forest Restoration Program was established in 1994 to help protect and enhance vegetation in natural areas in Seattle's Parks. In 2005 the City of Seattle entered a partnership with non-profit organization Cascade Land Conservancy, called the Green Seattle Partnership (GSP), with the purpose of restoring 2500 acres of forested parklands, including the natural areas of Lake Washington Boulevard. The overarching goals of the Urban Forest Restoration Program are listed in Table 2.

Table 2 Urban Forestry Program Goals Relevant to Lake Washington Boulevard

Goals	Objectives
Promote native character in natural areas	• Use exclusively native plants in natural areas, native defined here as Southern Canadian to Northern Californian provenance (native is broadly defined here to account for the need to include species that can tolerate highly modified urban soils that some local native plants may not tolerate) • Create a map delineating “natural areas” and “developed parkland”.
Restore native forest stands to enhance natural forest processes	• Retain forested plant communities and other natural areas wherever possible • Reclaim areas for forested plant communities that have been eliminated by illegal cutting activity or neglect followed by noxious plant encroachments • Establish a maintenance program for natural areas to keep them free of invasive plants • Encourage a productive, healthy, native, mixed coniferous and deciduous forest, diverse in age, species, and canopy structure along the western slopes
Conserve soil and water quality	• Plant evergreen trees and shrubs in forestsand natural areas to intercept rainfall and protect and build soils • Plant native shrubs and grasses and carefully selected ornamental plants in the Lakeside Unit to protect water quality of Lake Washington • Use an Integrated Vegetation Management approach and Parks Best Management Practices to limit use of fertilizer and pesticide except where absolutely necessary • Plant hardy vegetation that can withstand impact of large events in areas that host large venues
Protect and enhance wildlife habitat	• Restore understory, shrub, and herbaceous plant communities • Retain and encourage recruitment of snags and large woody debris • Identify key wildlife habitat needs
Buffer land uses	• Clearly define Parks property and private property through monumenting, signage, and vegetation patterns
Insure public safety	• Follow Parks Trails Standards for all formal trails, which encourage visibility along the trail corridor • Follow Crime Prevention Through Environmental Design (CPTED) standards for vegetation along staircases • Enhance the health of the trees in the LWB VMP area with a tree pruning program as put forth in the Urban Forest Management Plan
Gain community appreciation for the benefits and needs of trees and engagement in planning, for planting, and caring for trees	

Vegetation Management Units: Existing Conditions and Design Intent

Vegetation Management Units (MU) are distinct areas along Lake Washington Boulevard that have unique features such that they merit a unique set of management prescriptions. This document addresses the bulk of the Boulevard land area into five distinct management units: Parks, Lakeside, Boulevard, Slope, and Landscaped Savannah.

Table 3 Summary of Management Unit Acreage

Management Unit	Acres
Lakeside	11.8
Boulevard	60.1
Slope	15.9
Landscaped Savannah	7.1
Total	94.9

The Parks Unit includes the natural areas with distinct parks properties areas such as Frink Park and Colman Park. As mentioned previously, management of the Parks MU is not treated in this plan as many of the individual parks have existing Vegetation Management Plans or Master Plans that address specific ecological concerns and human use patterns within those parks.

In this section, the Lakeside, Boulevard, Slope, and Landscaped Savannah MUs are addressed with detailed descriptions of the specific unit area, Olmsted design intent, human use patterns, soils and geology, vegetation, habitat features, and critical areas. Specific areas within these MUs that require unique management will be detailed within each MU's existing conditions description. The section following this will describe existing management strategies and detail a new set of management actions for future vegetation management.

Parks Management Unit

The Parks MU is mentioned here because it is shown on the maps within this plan. However, no management actions are described within this VMP that would apply to these areas, except for the Boulevard tree planting per the guidelines in the Boulevard MU section.

The named parks that are included in this MU and therefore excluded from this VMP are: **Washington Park Arboretum**, Harrison/Denny Blaine Park, Lakeview Park, **Denny Blaine Park**, Viretta Park, Howell Park, **Madrona Park, Leschi Park and Natural Area, Frink Park**, **East Portal Park/I-90 Greenspace**, **Colman Park**, Mt. Baker Park, Sayres Park, **Genesee Park**, **Seward Park** (parks indicated in bold have their own specific VMPs or Master Plans).

Lakeside Management Unit

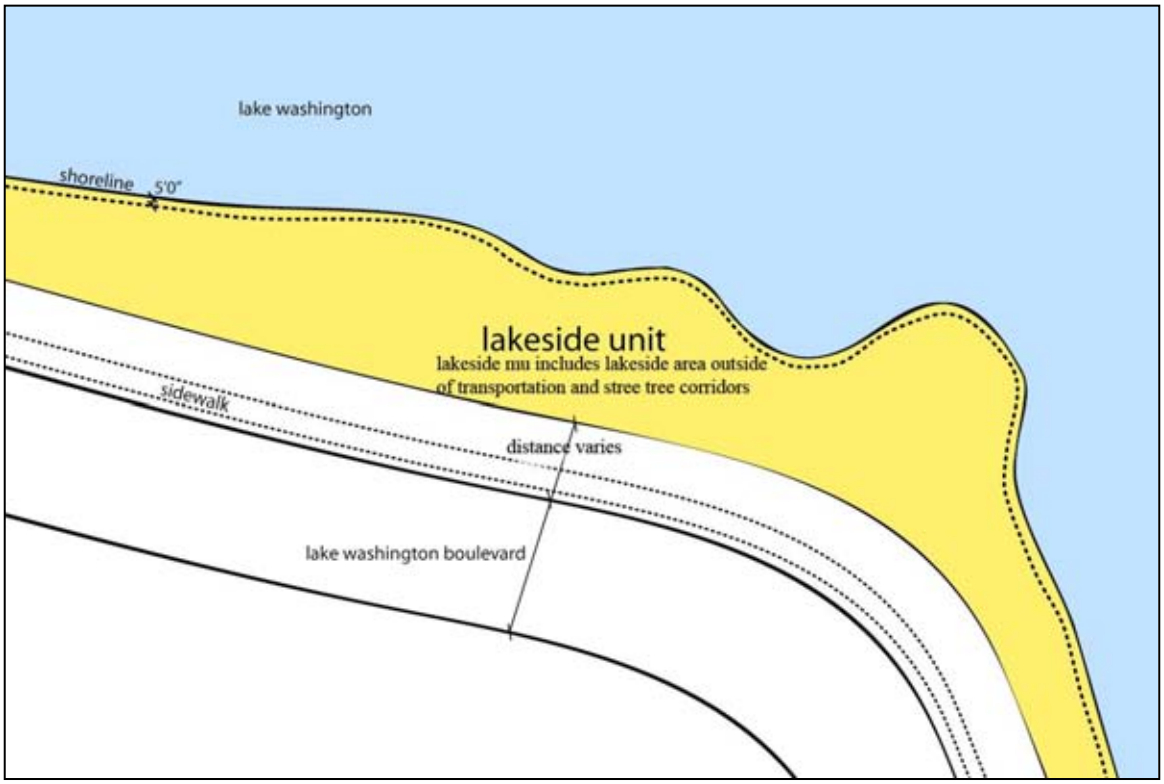


Figure 7 Lakeside Management Unit

Management Unit Area Description

The Lakeside MU extends from five feet inland of the shoreline, as defined by the Ordinary High Water Mark, to the eastern edge of the Boulevard MU. The lakeside typically features gentle slopes towards the shoreline; however, in a few locations the slope is much steeper. Along the lakeside, natural vegetation drift areas are found within a matrix of bulkheads (both buried and visible), landscaped parks, marinas, and beaches. The Lakeside MU totals 11.8 acres (Fig.7).

Unique Management Area - Seafair Zone

The Seafair Zone consists of five discrete areas along the shoreline between McClellan St. at the north end to the S. Adams St. dock at the south end – a distance of approximately 1.5 miles. These five areas total 11.4 acres, designated areas that are located within both the Lakeside MU and the Boulevard MU. In this zone annual Seafair Festival events including hydroplane races and the Danskin Triathlon are major summer recreational activities along LWB. The Seafair Festival and City of Seattle are partners in these events and Parks will work to manage areas of the Boulevard to support these activities in conjunction with other park uses. Seafair staff have identified five distinct locations along the Boulevard as critical to the success of managing these events. Four flat beach areas from 50th Ave. S. (Map Sheet 32) north to the McClellan Dock (Map Sheet 25) are used for viewing areas and the start/finish line for hydroplane races. The fifth location is the large

parking lot just off of S. Adams St. (Map Sheet 34-35), which is the only tenable helicopter landing site in the area – a mandatory safety feature for the races.

Human Use Patterns

The lakeside is used by humans for a variety of recreational activities including biking, walking (with or without dogs), resting, picnicking, fishing, bird watching, inline skating, and in the summer sunbathing and swimming. For a short period in the first weeks of August the lakeside experiences intense human use as fans watch the hydroplane races and triathlon during Seattle's annual summer Seafair festival.

Design Intent

The Olmsted Brothers' primary objectives in their design within the Lakeside Unit were twofold: to preserve, frame, and enhance an evolving continuum of unfolding views of the lake and distant mountains that are experienced while moving along the Boulevard; and to embrace and feature wild growths of native plant communities blended with appropriate ornamental selections. The intent is echoed years later in the purpose statement penned by Frederick Law Olmsted, Jr. for the National Park Service Organic Act: "To conserve the scenery and the natural and historic objects and the wild life therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations." (Olmsted, 1916). To retain a naturalistic aesthetic, the Olmsted Brothers recommended that new plantings should not be laid out in rows but in organic drifts of creepers, low bushes, and trees that would be conducive to harmonization with the existing native plants. On visiting Seattle to review the implementation of the Olmsted Brothers vision, John C. Olmsted was compelled to express disappointment in execution of that vision in a letter to then Parks Superintendent Edward Cheasty.

> *"So much of the local landscape effect along the greater part of these drives is due to natural wild growths that the greatest care should be taken in whatever planting is to be done to harmonize the new planting with the existing growths. I regretted to see that in some instances this has not been done, trees having been planted in regular rows and of uniform sorts, and shrubs of recognized garden varieties having been planted and the surface of the ground having been covered with grass instead of with wild creepers and low bushes…While the drives are successful in opening up the parks to the public and affording them the benefit of enjoying the wonderful views, the detailed landscape treatment has been very much neglected or has been done in a stiff and formal manner distressingly out of harmony with the wild beauty of the natural woods and groundscover growths."* (Olmsted, 1909)

The Olmsteds' vision clearly was one of using native vegetation in an organic and informal manner as the anchoring foundation for the landscape. Unfortunately economic expediency did not allow for implementation of this vision and we are left with the current visual legacy that does not reflect the initial design intent for the Boulevard.

Soils and Geology

Lake Washington's shoreline level was lowered between eight and eighteen feet in 1917 with the opening of the Ballard Locks. The lake lowering event exposed lake-bottom soils, characterized by heavy anaerobic clays with poor drainage. Annual fluctuations of the lake level, approximately two feet higher in the summer months, are controlled by the United States Army Corps of Engineers (USACOE) at the Ballard Locks. The interaction between this fluctuating water level and soils creates a very challenging environment for plant establishment as many native shoreline plants have life-cycles dependent on natural soil moisture regimes, which are seasonally opposite from the human-imposed lake hydrology that now exists.

Vegetation

The Lakeside MU is currently landscaped primarily as lawn. Other areas range from small landscaped planting beds, to native shoreline plant communities, to drifts of highly invasive species including Himalayan blackberry (*Rubus armenicus*), knotweeds (*Polygonum spp.*), and reed canarygrass (*Phalaris arundinacea*). There are a total of 423 inventoried trees in this MU, represented by over 50 different tree species as shown in Table 4. Cherry trees and willows comprise almost 40% of the total trees in the unit. Seventy-eight percent of the inventoried trees are in good or excellent condition while only six percent of the trees are either dead, hazard trees, or are in poor condition. Table 5 provides a summary of the tree conditions. The average diameter of trees inventoried in the Lakeside Unit is 12.4"; the average height is 34". These numbers are virtually identical to the tree height and diameter averages for trees in the Boulevard Unit, indicating a uniform average throughout the two units, which is a large portion of the study area. In this Unit 27% of the trees are greater than 50' in height.

Table 4 Lakeside Management Unit - Current Tree Inventory Summary (2008)

Species	Count	% of Total	Avg. Diameter (in.)	Diameter Range (in.)	Avg. Ht. (ft.)	Ht. Range (ft.)
Cherry sp.	98	23.1%	9.2	1-23	20	10-50
Other	69	16.3%	11.5	1-75	33	5-125
Willow sp.	45	10.6%	12.2	1-40	30	5-80
Bigleaf maple	35	8.3%	21.8	3-46	62	15-90
Birch sp.	32	7.5%	10.5	2-21	39	10-70
Populus sp.	28	6.6%	18.2	1-52	54	5-120
Norway maple	27	6.4%	7.4	3-30	28	15-80
Ash sp.	22	5.2%	12.9	1-35	41	5-80
Linden.	17	4.0%	12.8	3-28	38	12-65
Madrone	15	3.5%	25.7	1-42	52	5-75
Cedar sp.	14	3.3%	10.1	1-35	33	5-80
Spruce sp.	11	2.6%	10.8	1-24	38	5-85
Hawthorn sp.	10	2.4%	4.0	1-13	13	5-25
Total	*423*		*12.4*	*1-75*	*34*	*5-125*

Note: Only species represented by at least 10 individual trees were tallied by species for this table. Tree species represented by <10 trees were categorized as "other".

Table 5 Lakeside Management Unit - Summary of Tree Condition (2008)

Tree Condition	# of Trees	% of Total
Dead	8	1.9%
Poor	16	3.8%
Hazard	1	0.2%
Fair	49	11.6%
Good	229	54%
Excellent	103	24.3%
no condition noted	17	4%
Total	*423*	

Most vegetation along the lakeside lacks continuity in character and massing. Limited budgets have restricted opportunities for large-scale plant enhancement projects, with the exception of a few successful, if not controversial efforts, including a new bed of native vegetation at the Colman Park parking lot.

Vegetation data was collected in the Lakeside Unit (including the shoreline vegetation in the Parks MU) to determine a baseline of information on what currently exists. Four vegetation types were identified – Forested (FR), Scrub-Shrub (SS), Herbaceous-Emergent (HE), and Turf (TU). Forested areas were defined as those areas that had more than one tree present providing a total of at least 25% cover by canopy tree species or species that were at least 15' in height at the time of data collection. Scrub-shrub areas were defined as having at least 25% cover by shrub species. Herbaceous-Emergent areas were those areas with less than 25% cover by shrubs or trees as described above, and which were not maintained as turf grass by mowing. Turf areas were defined as all areas that are maintained as mowed turf grass. For each vegetation patch the following data was collected: dominant species, dominant invasive species, % cover by invasive species, presence of active restoration. Patch locations and perimeters were recorded in the field with GPS equipment, and the size of each patch was calculated using GIS.

Turf is the dominant vegetation type and comprises half of the total acreage in the Lakeside MU. The 5.6 acres of turf is distributed amongst 15 patches ranging in size from 1000 sq. ft. to 1.7 acres. Another 2.7 acres of the Lakeside Unit consists of Herbaceous-Emergent vegetation. This vegetation type is generally a narrow strip 3-5' wide along the eastern edge of the Unit dominated by reed canarygrass and blackberry. This vegetation is often there only because mowing equipment cannot reach these areas either due to terrain or soft soils found along the turf edge where it transitions towards the shoreline.

Forest patches (2.3 acres) have limited canopy, which is almost exclusively deciduous and not very diverse. Forty-seven of the forest patches have willow species as a dominant, and only two patches have any coniferous trees. Scrub-shrub patches (1.1 acres) have the least amount of acreage in the unit. They are characterized by willow species and blackberry. Overall, only about a quarter of the Lakeside Unit has woody vegetation in distinct patches. These patches are relatively small in size, are thick with invasive species, lack diversity of native species, and are almost entirely deciduous. Table 6 summarizes the vegetation data collected.

Table 6 Summary of Vegetation Types in the Lakeside MU

	Vegetation Type				
	Turf	Herbaceous -Emergent	Forested	Scrub-Shrub	totals
Size of Area (acres)	5.6	2.7	2.3	1.1	11.7
# of Patches	15	33	17	25	90
Avg. Patch Size (acres)	0.4	0.08	0.13	0.04	
Size range	0.02-1.7	0.02-0.26	0.03-0.9	0.009-0.18	
# of Restoration Sites	0	0	3	3	6
# of patches with blackberry as a dominant	4 (27%)	31 (94%)	16 (94%)	23 (92%)	74 (82%)
# of patches with reed canarygrass as a dominant	0	29 (88%)	8 (47%)	11 (44%)	48 (53%)
# of patches with >50% invasive cover	0	33 (100%)	12 (71%)	13 (52%)	58 (64%)

Habitat

Anadromous fish species, including threatened Chinook salmon, use Lake Washington to make their way out and back between the Pacific Ocean and freshwater spawning habitat. Along their journey to saltwater young fry need cool places to feed, rest, and find protection from predators. Shoreline studies document the dearth of critical forested habitat along the lakeside (City of Seattle, 2003). Structures including private docks and piers harbor bass that prey on young native fish. Rip-rap, bulkheads and other hardscape features limit opportunities for development of resting areas for migrating salmon (Toft 2003). While shoreline hardscape modification is not a component of this VMP, opportunities to plant large conifers and other lakeside vegetation could provide valuable allochthonous (from shore) inputs to salmon habitat including future coarse woody debris (logs) and leaf litter that feeds shoreline insects in the salmon feeding guild. The Lakeside MU also serves as a critical corridor for many resident and migratory birds, including herons, passerines, raptors, and shorebirds. A lack of coarse woody debris limits opportunities for complex guilds of amphibians and invertebrates on the lakeside.

Environmentally Critical Areas

Critical Areas of the Lakeside MU include small sections of wetlands, steep slopes, abandoned landfills, and liquification zones. Genesee Park, located halfway between Interstate 90 and Seward Park, rests on an abandoned landfill. The lakeside area adjacent to Genesee is part of a 1000' methane buffer zone and considered a potential earthquake liquification zone. Additional liquification zones include the arm of land connecting the Seward Park peninsula to the rest of the City's landmass, and a steep slope area (>40% slope) at the northern edge of Colman Park. Other critical areas include two linear wetlands, one approximately 1000 ft. long that traces the Lakewood Marina, and a second, approximately 1400 ft. long that follows the curved entry to Seward Park. Potential projects that would occur on steep slopes or liquification zones need to be reviewed and approved by Seattle Parks geotechnical engineering staff. Projects in wetland areas may require permitting by agencies such as the US Army Corps of Engineers, Washington State

Department of Ecology, the Washington State Department of Fish and Wildlife, and/or the City of Seattle.

Boulevard Management Unit

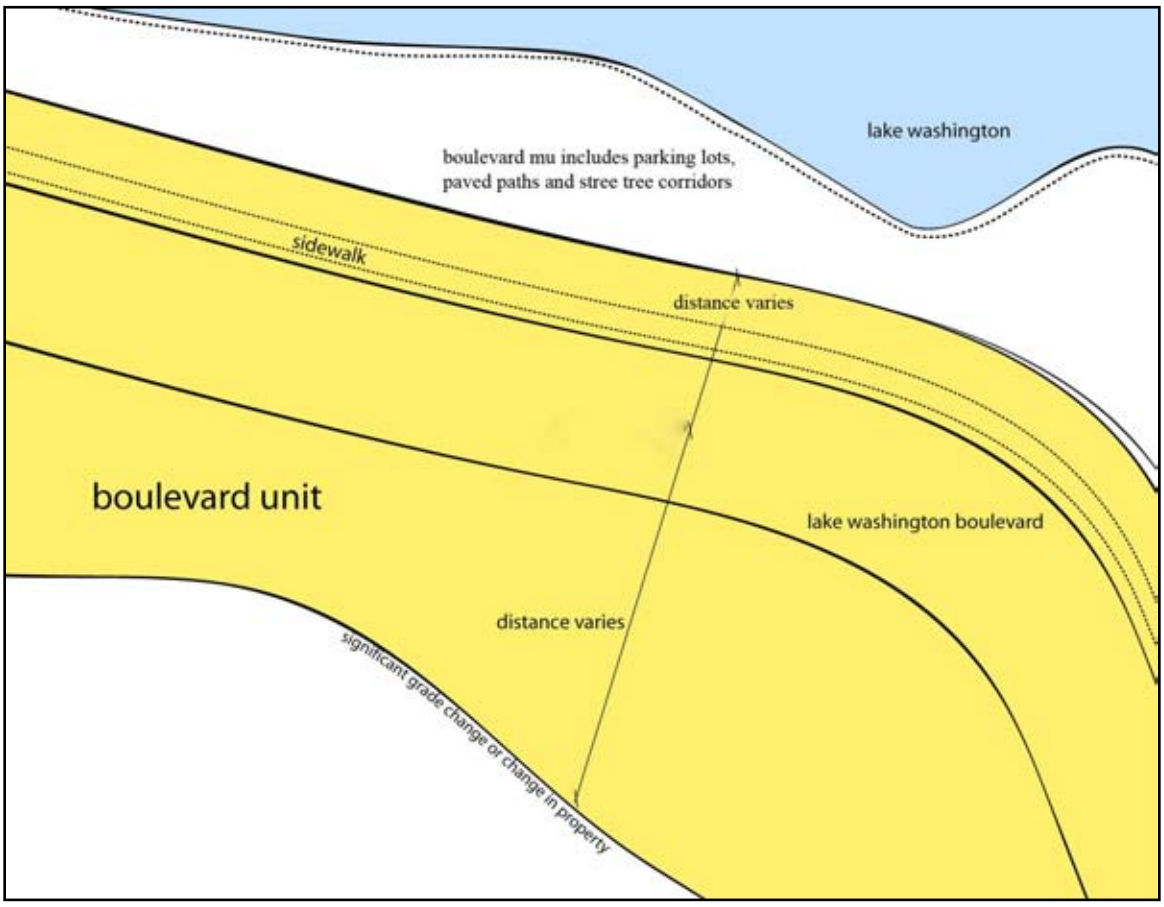


Figure 8 Boulevard Management Unit

Management Unit Area Description

The Boulevard traverses through parks, residential and commercial areas, forested slopes, and lawn. The Boulevard MU extends westward from the Boulevard centerline to a significant grade change or change in property ownership on the inland side of the Boulevard (Fig.8). It is the largest MU in the project area with a total of 60.1 acres. The eastern boundary of the Boulevard MU is defined as follows below based on the need for street trees to have adequate rooting volume to ensure optimal tree health under challenging conditions.

On the east side of the Boulevard, the MU includes all of the area bounded by paved pedestrian walkways, buildings, and roadway and parking infrastructure. Where the Boulevard MU is bounded by a paved pedestrian walkway or parking area, the boundary between the Boulevard and Lakeside MUs is at the eastern edge of the walkway or parking area. In cases where there is less than 8' of planting strip on the west side of the walkway

for street trees, the Boulevard MU extends eastwards 10' beyond the east edge of the walkway. This exception is made to accommodate future planting of street trees should the decision be made to move the street tree allee from the west to the east side of the walkway to allow for greater soil rooting volumes (and healthier growing conditions) for street trees. In cases where there is less than 8' of flat area between paved infrastructure (walkway, parking area) and the lake, the Boulevard MU eastern boundary is defined as the eastern edge of Boulevard pavement. Flat areas are defined as areas having less than 40% slope (22 degrees). In these cases, the Lakeside MU western boundary would extend all the way to the eastern edge of the Boulevard pavement to meet the Boulevard MU.

Human Use Patterns

Lake Washington Boulevard is a major automotive traffic arterial linking traffic corridors such as Hwy 520 and I-90 to neighborhoods, as well as providing a thoroughfare from Seward Park to the Arboretum and the University District. The Boulevard is also used by bicyclists and motorcyclists. The paved path adjacent to the roadway is primarily used for recreational activities such as jogging, walking, inline skating, and dog-walking.

Design Intent

The Boulevard MU is the central unifying feature of Lake Washington Boulevard. While the Lakeside, Slope, and Landscaped Savannah Management Units serve to promote a sense of visual diversity, the Boulevard MU links a variety of spaces – residential, park, commercial, and traffic arterial. The Olmsted vision for the Boulevard MU was to create a sense of unity by simplifying the tree palette and strengthening visual connections where the direction of the Boulevard may be ambiguous. The reclamation of the right of way in residential areas is vital to reconnect these areas to the overall design of LWB.

Soils and Geology

Much of the parent material for Boulevard soils is lake bottom sediments crossing occasionally through hardpan glacial till pockets as you move north and south. Both of these parent materials yield highly compacted soils that have further been modified, generally more compacted, by development of roads, houses, and businesses. This heavily compacted environment presents challenges for healthy tree establishment as oxygen and water do not travel well through these layers. Further exacerbating these challenging soil conditions are upslope sandy layers in some areas, particularly the Mt. Baker neighborhood, that allow water to flow through until hitting these difficult to penetrate hardpan layers resulting in water seeps. The geologic environment of the Boulevard requires creative engineering solutions to keep water both off the roadway and in the soil for newly planted trees.

Vegetation

The Boulevard is home to over fifty different varieties of trees. Among that mix, two tree types (ornamental cherries and Norway maple) comprise 50% of the total species count (Table 7). Many of the Boulevard trees are young or growing very slowly with an average tree diameter of 12 inches and an average height of 33 feet. These numbers are essentially

identical to those for the trees in the Lakeside Unit, indicating a uniformity of tree size throughout the two units. Only nineteen percent of the trees inventoried in this MU are over 50 feet in height. Many of the trees along the Boulevard are dwarfed and suffering because of poor planting locations, soil compaction, and automotive injury. A summary of tree condition is shown in Table 8. Other Boulevard MU vegetation includes mowed grass and occasional shrub plantings.

Table 7 Boulevard Management Unit - Current Tree Inventory Summary (2008)

Species	Count	% of Total	Avg. Diameter (in.)	Diameter Range (in.)	Avg. Ht. (ft.)	Ht. Range (ft.)
Cherry sp.	194	27.0%	9.7	2-32	17	5-35
Norway maple	170	23.7%	12.7	2-36	34	2-75
Other	69	9.6%	15.7	1-85	44	5-135
Ash sp.	68	9.5%	12.8	2-30	45	12-75
Linden.	38	5.3%	9.6	3-23	33	12-60
Oak sp.	37	5.1%	9.1	2-41	32	5-75
Birch sp.	28	3.9%	14.0	3-26	49	15-65
Bigleaf maple	25	3.5%	25.1	2-45	68	18-85
Pine sp.	21	2.9%	10.1	4-28	28	5-60
Tulip tree	18	2.5%	8.4	2-19	28	10-45
Hawthorn sp.	16	2.2%	4.3	2-6	13	10-25
Elm sp.	14	1.9%	21.4	10-40	50	35-70
False cypress sp.	10	1.4%	14.0	1-33	43	5-65
Populus sp.	10	1.4%	28.8	12-88	69	45-100
Total	*718*		*12.4*	*1-88*	*33*	*5-135*

Note: Only species represented by at least 10 individual trees were tallied by species for this table. Tree species represented by <10 trees were categorized as "other".

Table 8 Boulevard Management Unit - Summary of Tree Condition (2008)

Tree Condition	# of Trees	% of Total
Dead	5	0.7
Poor	38	5.3
Hazard	2	0.3
Fair	121	16.9
Good	351	48.9
Excellent	194	27
no condition noted	7	1.0
Total	*718*	

Habitat

Street trees provide a corridor for bird species to travel along the Boulevard. In its current short form with limited vertical canopy, this area does not offer nearly the opportunity possible to provide this ecological niche. Street tree canopy may also provide a small allochthonous carbon input to the Lake Washington shoreline.

Environmentally Critical Areas

All of the potential liquefaction zones and 1000' methane buffer associated with the old Genesee Park landfill mentioned in the Lakeside MU also affect the Boulevard MU. Steep slope and known slide areas associated with the Slope MU may impact the Boulevard, but are not considered to originate in the Boulevard MU itself.

Slope Management Unit

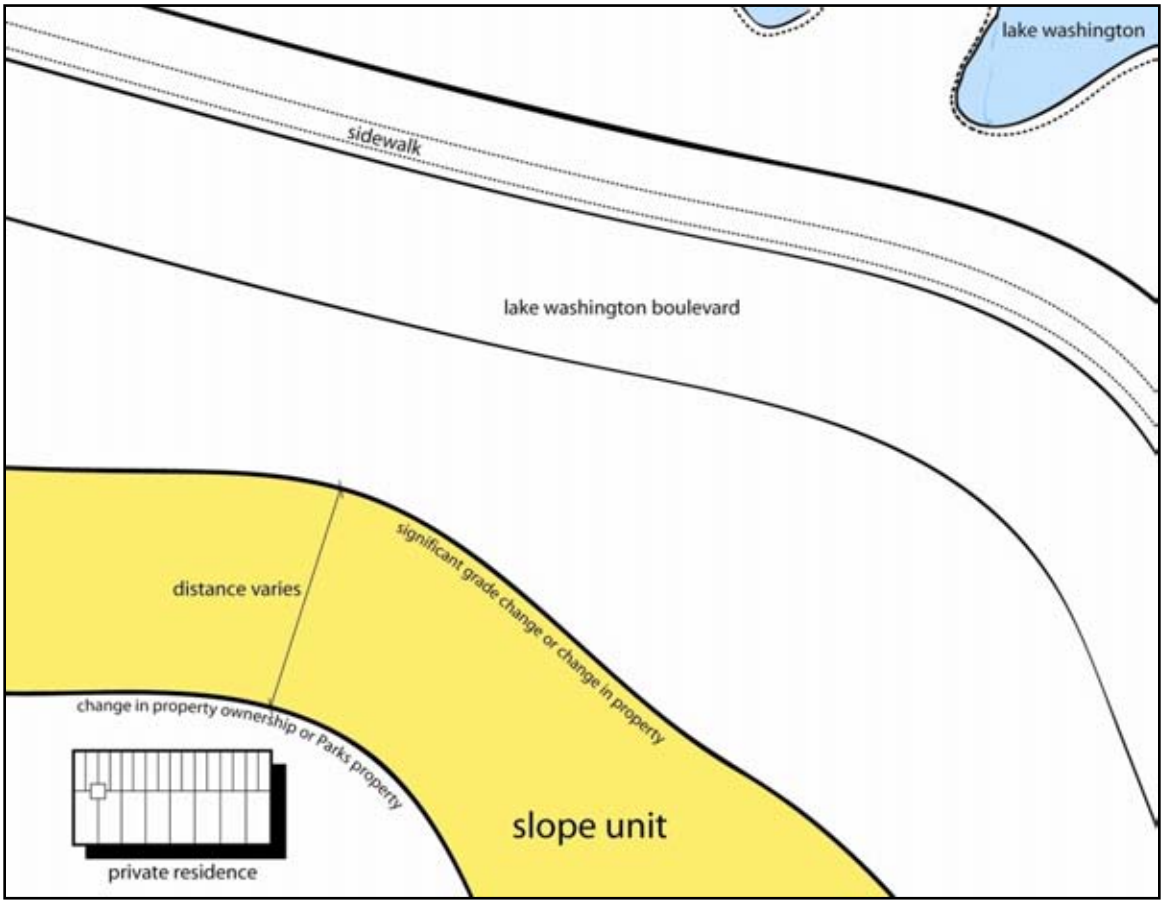


Figure 9 Slope Management Unit

Management Unit Area Description

The Slope MU is property owned by Seattle Parks and Recreation west of Lake Washington Boulevard where the grade changes significantly (to 15 degrees or greater = approx. 25% slope) from the flat or gently-sloped areas managed primarily for street tree plantings. The Slope MU consists of 15.9 acres, of which 5.0 acres are designated as the Mt. Baker Slopes Unique Management Area (Fig.9)

Unique Management Area – Charles St. to Judkins St. Median

The Charles St. to Judkins St. Median (Map Sheet 18) is an approximately 825'-long stretch of informal landscape ranging from 30-50-feet wide. It is considered an environmentally critical area as the entire slope is 40% or greater and is a known slide area. The current management scheme of mowing this grassy blackberry/ivy patch is not satisfactory from aesthetic, ecological, or geotechnical perspectives. This area is considered developed parkland and a design solution beyond the scope of this document will be required to improve this stretch of the Boulevard. This project is a high priority to improve the continuity of the Boulevard's habitat and aesthetic features. Should a capital improvement opportunity for this area arise, it will require further public process including the immediately adjacent neighbors, Parks landscape architects, and Parks geotechnical engineer.

Unique Management Area – Mt. Baker Slopes

The Mt. Baker neighborhood has several special features of interest that create challenges to vegetation management. This area stretches approximately 1.2 miles in length between Lakeside Ave. S. at Colman Park to S. Court St. north of Genesee Park (Map Sheets 23-29) and totals 5.0 acres within the Slope MU. These steep slope areas comprise a forest dominated by big-leaf maple emergent from sites logged for development. The area is currently managed as undeveloped forested parkland. The slopes between portions of the Mt. Baker neighborhood and LWB are critical area steep slopes traversed by a complex geology of four soil types ranging from sandy at the top of the slopes to layers of hardpan glacial till and lake-bottom sediments lower on the slope. Several seeps emerge from the hillside as water released from the sandy upslope is not quickly reabsorbed by compacted clayey layers below. Other gentler slopes in the area fit in the Landscaped Savannah Management Unit.

A total of 261 trees were tallied in the tree inventory for the Mt. Baker Slopes done in 2007. Thirty-eight percent of these trees were either topped or coppiced, and 40% of the trees will require active management (reduction, removal, or cleaning). Bigleaf maple dominates the species composition at 52%, and almost 70% of the total tree canopy inventoried is deciduous. The 28% of the trees that are evergreen consist mostly of western red cedar, with some Douglas fir and a few western hemlock and pines. Tree inventory information is summarized in Tables 9 and 10.

Table 9 Slope Management Unit /Mt. Baker Slopes - Current Tree Inventory Summary (2007)

Species	Count	% of Total	Avg. Diameter (in.)	Diameter Range (in.)	Avg. Ht. (ft.)	Ht. Range (ft.)
Bigleaf maple	137	52	14.5	3-40	55	15-100
Western red cedar	54	20	14.3	1-37	38	9-85
Other	38	14	N/A		N/A	
Cherry	19	7	9	3-14	25	9-65
Douglas fir	13	5	17.9	1-32	50	6-90
Total	*261*		*14*	*1-37*	*47*	*6-90*

Table 10 Slope Management Unit/Mt. Baker Slopes - Summary of Tree Condition (2007)

Tree Condition	# of Trees	% of Total
Diseased	8	3%
Poor	33	13%
Hazard	0	
Fair	97	37%
Good	109	42%
Excellent	13	5%
no condition noted	1	
Total	*261*	

Several neighbors have applied for pruning and tree removal permits for Park trees to enhance views or remove hazard trees in the Mt. Baker neighborhood. Tree permits have been granted in accordance with Seattle Parks Tree Policy. EDAW (1986) noted at the time, via a landscape scale survey, that this area is the predominant area with deteriorated tree condition and speculates a combination of legal and illegal view pruning, slope failure, and lack of maintenance are the causes. Concern has been expressed at several of the public meetings and through individual phone calls and e-mails about view management issues and potential impacts of large trees on future slides.

EDAW (1986) classifies this area as a lakeshore design element, noting that the historic intent for this area was to be:

> All native an informal, preserve existing to maximum extent on land side to enclose views, buffer built environment, informal grass strip from drive to walk, land side native at forest edge, lakeside from walk to water edge single to clustered, not in rows, native, frame & accent views.

The authors elaborate to classify the existing condition as:

> Much exotic, formal, gardenesque, some native or invasive limited buffer some forest or hedge, much open to residential, grass from drive to lake dominant, limited garden varieties, some forest remnant, most in rows, also single and clustered, not native.

Human Use Patterns

Human activity on the slopes includes active forest restoration efforts from neighbors, transient camps, and pedestrian use of historical, albeit poorly maintained, east/west stairwells. The Slope MU is a major area of organic yard waste and garbage waste dumping by humans; education of residents and gardeners regarding the hazards posed by large organic debris piles on wet steep slopes is greatly needed.

Design Intent

The Olmsted design intent for the Slope MU as interpreted by letters from the Olmsteds and by EDAW (1986) was to retain a wild and natural aesthetic utilizing and building upon existing native vegetation. The Boulevard was to be a "charming scenic drive among

native trees", according to Olmsted (EDAW, 1986). Olmsted expressed a desire to buffer LWB from the City, internalizing views using native evergreen and deciduous trees in the forested areas as a backdrop to enjoy vistas from within the Park itself. In its current form urban structures, including residential and commercial buildings, are not shielded from view by vegetation in the Slope MU. Active improvement to the slope will be required to establish the northwest regional identity for LWB by enhancing the slopes to a healthy, dynamic native forest. As expressed by several community members through the public process, this design intent may not be compatible in some areas with homeowner desires for views to Lake Washington and the Cascade Mountain Range.

Soils and Geology

The Slope MU geology crosses back and forth between dense glacial till layers and clay formations. In some areas sandy surface lenses resting on these materials create conditions prone to slides as evident in the many historic slide areas along LWB. Soils on the slope unit are poorly formed and soil formation in the last century has been hampered by logging and a lack of natural forest regeneration. Dumping of organic yard waste from neighbors can create a serious slide hazard as large piles of organic debris hold excessive moisture on these slopes.

Vegetation

The Slope MU is currently managed as undeveloped forested parkland with a canopy of primarily declining big-leaf maple and a few scattered native conifers. Native understory trees, shrubs, and groundcovers including beaked hazelnut, Indian plum, and swordfern are patchy and consistently invaded by non-native species. Much of the understory layer is dominated by Himalayan blackberry and English ivy. Patches of County listed noxious weeds including Japanese knotweed also dot the slopes. No tree inventory was done for the Slope MU, except within the Mt. Baker Slopes Unique Management Area.

Habitat

Deciduous forest habitat along the slopes is a uniquely long corridor for urban wildlife to travel north and south across our highly developed City. As development continues in Seattle with increasing population pressure, unique corridors such as this are increasingly important, particularly in light of our regions important role as a migratory bird stopover along the Pacific flyway. A variety of birds, mammals, amphibians and invertebrates occupy this forest. The slopes as corridor are likely an important feature for animals migrating between large forested patches like Seward Park and the Arboretum. Little is known about specific animals use patterns on the slopes and they present an excellent opportunity for urban forest remnant wildlife research. Opportunities to enhance habitat in the Slope MU are great and include planting a wider range of tree and shrub species and establishing multiple age classes in the canopy to increase diversity in both forest structure and function.

Environmentally Critical Areas

The Slopes MU by definition includes many areas of Environmentally Critical Area "steep slopes", slopes with greater than 40% change in inclination within 10 feet. Several historic slides are noted from the Mt. Baker neighborhood to immediately north of I-90. Small portions of the Slope MU are within the 1000' methane buffer associated with the old landfill under Genesee Park.

Landscaped Savannah Management Unit

Management Unit Area Description

Figure 10 Typical Landscaped Savannah Image

Numerous small areas along the Boulevard throughout the project area do not fit neatly into the Lakeside, Boulevard, or Slope Management Units. These areas are developed landscapes, generally well-treed with mowed lawn, with a limited or absent shrub layer. The trees are scattered and not arranged in a linear fashion as street trees. Landscaped Savannah as defined in this document has at least 25% canopy cover. None of the savannah areas reach the lakeshore, but they occur on both sides of the Boulevard. The total area of Landscaped Savannah is 7.1 acres (Fig.10). The current maintenance practice in these areas is regular mowing in the summer months and occasional removal and replacement of trees. On request window pruning has been permitted to gain passive view access between large trees in these areas. The landscaped savannahs provide semi-formal landscape features that transition from formal residential gardens into forested parklands and contribute to the forest canopy along Lake Washington Boulevard. Landscaped savannahs will be retained under the current management scheme.

Unique Management Area – Seattle Cherry Blossom Festival Sites

In the early 20th century the Japanese Government donated 1,000 cherry trees to be planted within several Seattle parks. While many of these trees have since expired, a continuing legacy of cherry tree planting and cultural celebrations has continued in Seattle with the cherry as a symbol of beauty and human life. Many of the cherry trees along Lake Washington Boulevard have been planted in various events over the last 50 years as part of this tradition. This VMP supports the continuation of that tradition, while managing for cherry trees responsibly. Many of the cherries planted along the Boulevard suffer from disease or insect outbreaks related to poor cultivar selection or environmental conditions. The two main areas or sites of focus are north of the entrance to Seward Park by the

Japanese lanterns, (Map Sheet 41) and the large lawn area adjacent to the Ferdinand St. Boat Ramp (Map Sheets 37 and 38), totaling approximately 2.1 acres.

From the beginnings of this document Seattle Parks has engaged in discussions with the Seattle Cherry Blossom & Japanese Cultural Festival Committee to develop a strategy for continuing this cultural legacy while being mindful of management issues. Special BMPs for resolving cherry tree issues are proposed later in this document.

Human Use Patterns

The landscaped savannahs are used in a variety of ways. Those areas that are east of the Boulevard provide shady places on lawn grass to picnic, and can help provide a visual transition between the linear arrangement of trees along the Boulevard and the more naturalistic plant arrangements that occur along the shoreline. Savannahs west of the Boulevard are often on gentle slopes and provide a visual transition between the Boulevard trees and the steeper and wilder Slope MU.

Design Intent

The savannah areas were not identified as specific "character areas" in the EDAW document (1986), nor were they discussed as discrete elements by the Olmsteds. However, they are a transitional landscape between the linear and more formal arrangement of vegetation in the Boulevard MU and what is intended to be the wilder, native, informal landscape of the Slope MU. Likewise, savannah areas on the east side of the Boulevard provide a transition between the more formal landscape of the Boulevard and the more informal areas of the Lakeside MU, where trees were intended to be "single to clustered, not in rows, native . . . [and to] frame and accent views" (EDAW, 1986).

Soils and Geology

The soils in this unit are generally similar to those in the Boulevard MU. Most of the savannahs are well away from the shoreline areas and have heavily compacted and modified soils that are difficult for plant establishment. Savannahs that are west of the Boulevard that include steeper slopes might have soils more like those found in the Slope MU. These can be a combination of dense glacial till, clay, and permeable sandy surface layers that do not absorb moisture and allow water to move rapidly downwards until contacting an impermeable soil layer and sending water laterally downslope in a concentrated area.

Vegetation

The defining characteristic of the savannahs is a combination of mowed lawn and trees. Tree species in these areas includes a number of the same species that are typical of the Lakeside and Boulevard MUs.

Habitat

Trees in the savannahs are part of the canopy connection between lakeside areas and inland slopes and also are part of a linear movement corridor for birds to move along the Boulevard.

Environmentally Critical Areas

The Landscaped Savannah MU does not include any environmentally critical areas.

Viewpoints

Major views and vistas along Lake Washington Boulevard were identified in the 1986 EDAW document. The criteria used to highlight these particular locations (22 in all) are not described. Each of these identified view locations was re-visited and described under current conditions during the development of this plan. Viewpoints are located in both the Boulevard and Lakeside MUs, thus a separate section in the document is dedicated to the description and management recommendations for these sites. Note that these viewpoints are not "Designated Public Viewpoints" as specified by Seattle Parks Department in their tree policy (City of Seattle DPR, 2001).

The documentation of these specific locations implies that the views along the Boulevard are static views limited to these locations only, when in fact there are a plethora of views from fixed points along the Boulevard. However, the experience of views along the Boulevard is also an experience of views unfolding along a continuum as one moves along this linear corridor. This experience is comprised of a combination of framed views and panoramic views, with a variety of depths (foreground, mid-ground, and background).

To clarify the characteristics of the views inventoried by EDAW, these views were classified for this VMP as either panoramic views or framed views. Panoramic views are defined here as views that are unbroken and wide as experienced from a fixed point or specific location. In contrast, framed views are defined here as narrow or focused views that are "framed" or bordered on both sides by vegetation or built elements as experienced from a fixed point or specific location. Panoramic views almost always extend with a lot of depth and usually include distant views, whereas framed views can be shallower in depth and may or may not extend beyond a fore and mid-ground.

An example of a view that is categorized as panoramic in this document is the view from north of the Lakewood Marina (Viewpoint 3 – Map Sheet 34). It is approximately 160° and takes in an unbroken view of the lake, wooded peninsula of Seward Park, distant hills and Cascade foothills and Mt. Rainier. An example of a view identified as a framed view in this document is the narrow 20° view at S. Massachusetts Ave. (Viewpoint 11 – Map Sheet 20) looking down the street right-of-way framed by homes on both sides. Of the 22 view locations inventoried by EDAW and re-visited for this document, 13 were panoramic views, 6 were framed, and the remaining three did not present a view at all. Three of the

view locations were outside the northern boundary of the area encompassed by this VMP and were not mapped.

More specific descriptions and photos of the viewpoints can be found in the Management Section of this document, along with the management recommendations for these sites.

Best Management Practices

This section describes the in-field vegetation management techniques that apply to all areas of the Boulevard and also to specific Management Units. Best Management Practices (BMPs) are technical tasks performed in the field to modify vegetation using the best available science and technology. The document "*Best Management Practices 2005-2010*" (City of Seattle, date unk.), referred to as "*BMPs*" hereafter is the primary level of information on Parks BMPs and provides a broad overview of how-to's for lawn care, tree care, and natural area maintenance. More detailed BMPs specifically for forest restoration are available in, "*Best Management Practices for Natural Areas*" (City of Seattle, 2008 in press). These documents cover practices including invasive plant removal, native plant selection and planting protocols, and ongoing care and maintenance of both individual trees and large plantings. All BMPs within these documents are applicable to Lake Washington Boulevard.

Additional management actions and priorities specific to each MU are described and/or illustrated in this section to ensure that volunteers and restoration professionals are managing vegetation in a manner that reflects the specific design intent for the Boulevard.

Landscape Maintenance and Plant Establishment BMPs for Developed Park Land

Best Management Practices for Landscape, Horticulture, and Forestry 2005-2010 (City of Seattle, date unk.) includes detailed recommendations for site implementation of landscape maintenance for developed park land. Key recommendations of that document and additional recommendations for this particular park follow.

Weeding

- Follow Pest Tolerance Thresholds for Plant Beds found on p.7-20 of *BMPs*
- Use Integrated Pest Management guidelines found in Chapter 3 of *BMPs*
- Ensure adequate erosion control measures are in place when weeding large patches adjacent to the lake shore
- Consult with Urban Forestry staff and Parks Resource Conservation Coordinator when planning pesticide applications to undeveloped parklands along the lakeside, particularly for noxious weeds such as knotweeds

Mulching

- Choose an appropriate material to match existing site design and plant needs. Annual/perennial beds should be mulched with a fine material such as SteerCo or sifted compost 1-2" deep. Tree and shrub beds should be mulched with wood chips 2-4" deep. Initial topdressing of 1" of compost below woodchips may enhance nutrient management and soil condition for trees and shrubs.

Irrigation

- Generally, most plants require at least 1 inch of water per week. Drought tolerant plants, once established, may need less.
- Monitor plants for water stress June – September
- Consider pedestrian access, park usage, and available personnel when establishing irrigation schedules

Fertilization
- Fertilization is an undesirable practice immediately adjacent to lakes and other water bodies as it is an underlying cause for eutrophication in urban waters
- Use only slow release or organic fertilizers adjacent to the lake and only when absolutely necessary

Pruning
- Direct new growth and flowering
- Train cherries early for form. Do not prune mature cherry trees except to remove dead wood or witch's brooms
- Prune all trees adjacent to stairways up to a minimum of 8' height

Plant Replacement
- General guidelines are to review the original plant design and order materials to match existing design. For this park area, please review the plant palettes of this VMP and incorporate native plant species in formal beds whenever possible
- At planting time, fertilize annual/perennial beds using slow release or organic fertilizers only
- Water and mulch new plants for a minimum of three years and as needed thereafter

Design
- Consult both Parks Landscape Architects and Urban Forestry staff before initiating any newly designed formal landscape beds to ensure compliance with this VMP

Landscape Maintenance and Plant Establishment BMPs for Undeveloped Park Land

The following BMPs are excerpted from *BMPs* and *Best Management Practices for Natural Areas*, except where noted. For additional explication of the following management and maintenance practices, please see *Sandpoint Magnuson Park VMP* (City of Seattle, 2001), section 6. Standard practices should be carried out as shown in calendar format in Table 11 (from *Sandpoint Magnuson Park VMP*, 2001).

Table 11 Three Year Plant Establishment Care Calendar (from Sandpoint Magnuson Park VMP, 2001)

	Month																							
	J		F		M		A		M		J		J		A		S		O		N		D	
Action																								
At Time of Installation																								
Mulching	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Watering	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Year 1																								
Mulching																–	–	–	–					
Weeding									•			–	–	–	–	–	–	–						
Watering												•	•	•	•	•	•	•						
Removing Tree Stakes																					–	–	–	–
Year 2																								
Mulching																–	–	–	–					
Weeding									•			–	–	–	–	–	–	–						
Watering												•	•	•	•	•	•	•	•					
Removing Tree Stakes	–	–	–	–	–	–	–	–	–															
Year 3																								
Mulching							–	–														–	–	–
Weeding									•			–	–	–	–	–	–	–						
Watering												•	•	•	•	•	•	•	•					
Removing Inorganic Mulch																						–	–	–

– Indicates range of time to perform action as needed

• Indicates specific time to perform action

Watering: All new plantings should be watered in at the time of planting. Regular three year watering should consist of at least 1" weekly for first two growing seasons, then taper to ½" weekly or 1" every two weeks for plantings in natural areas.

Removing Tree Stakes: Do not use tree stakes in natural area plantings. Tree stakes used elsewhere should be removed after 1 year.

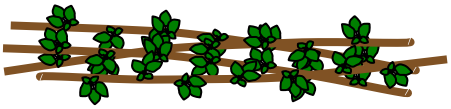
Removing Inorganic Mulch: Inorganic sheet mulch used in areas of severe invasive species problems should be removed during the dormant season after 3 years and entire area should be mulched with 4-5" layer of wood chips. Depending on site conditions and concern about re-invasion by weeds, entire planting area can be sheet mulched with a double layer of cardboard underneath the wood chips. Application of these techniques is usually limited to planting in natural areas and would not typically be necessary in a more developed landscape area.

Weeding

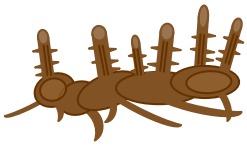
- Follow Pest Tolerance Thresholds for Natural Areas found on p.5-17 of *BMPs* (City of Seattle, date unk.). In general weed tolerance thresholds are slightly higher in natural areas, garden weeds that are not noxious or highly invasive are tolerated, except in demonstration gardens. Efforts should be made to remove garden weeds during the plant establishment phase, years 1-5 after planting.
- Use Integrated Pest Management guidelines found in Chapter 3 of *BMPs* (City of Seattle, date unk.)
- Ensure adequate erosion control measures are in place when weeding large patches adjacent to the lake shore
- Many noxious weeds particular to natural areas, such as knotweeds and reed canarygrass require specialized Integrated Vegetation Management Strategies to control or eradicate. Weed control methods for some plants especially problematic to Lake Washington Blvd. are listed below, others may be found in the Green Seattle Partnership, *Forest Steward Field Guide*, found at www.greenseattle.org.

Himalayan Blackberry and Evergreen Blackberry

- Cut and grub root wads (may be necessary to repeat for 2-3 growing seasons before planting).
- For sites with less than a ¼ acre of blackberry thicket, remove the entire infestation at one time
- For sites greater than a ¼ acre, remove no more than ½ of the original infestation at a time (annually), thereby phasing removal over two years minimum.

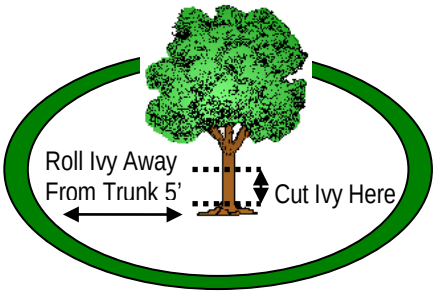


Blackberry Canes – Use caution when cutting and carrying these stiff, prickly canes – long sleeves and leather gloves are a necessity. Locate a clearing beyond trail view corridors and stack the canes to compost over time.



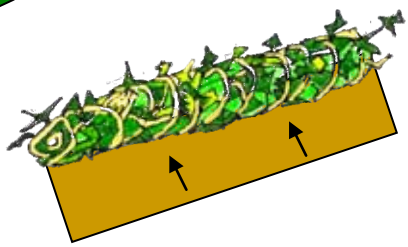
Blackberry Root Wad – Blackberries have large clumps of root crowns in the first 6-18" of soil. Below the crowns roots can grow up to three feet deep. Roots should be dug out entirely and placed on top of a stack of canes.

English Ivy



"Lifesaver" Tree Ring – Cut ivy at shoulder height and again at base of tree.
DO NOT attempt to pull vines out of tree. Roll ivy back away from tree in logs like those illustrated below. Clear at least 5 feet back from each tree trunk.

Ivy Wad – For small clumps of ivy, pull all vines out, wrap into a tight bundle and toss out of the trail view corridor.



Ivy Log – For large contiguous swaths of ivy, clip edges of five to ten-foot wide sections, roll into a log, clip root connections at end of roll and leave in place to compost.

- Create tree "life-savers" by cutting vines at shoulder height, then again at the base of the tree, then grub out a radius of at least five feet away from the tree. Do not attempt to pull vines out of the tree, they will decompose eventually.
- Remove ground patches of ivy by clipping edges of swaths and rolling into a mat.
- Take care to cut around or gently lift ivy mat over existing native plants.
- Clear ivy at least 10 feet beyond proposed planting area to create ivy-free buffer.

Field Bindweed (Morning glory)

- Hand pull at least three times per year; early growing season, mid-summer and late summer for at least three growing seasons.
- Flag site and monitor.

Bohemian Knotweed

- Chemical stem injection (only to be preformed by Parks staff or contractors) is the preferred method for this weed.
- Hand removal of knotweed is impractical and may exacerbate the problem
- Grubbing may work for very small patches – all material must be bagged and disposed of in a landfill immediately.

Cherry Laurel/English Holly

- Small, young plants may be hand-pulled or weed-wrenched.

- Cut seed heads, place in plastic bag and dispose of in a landfill immediately.
- Large plants require herbicide (only to be performed by Parks staff or licensed contractors).

Reed canary grass

- Reed canary grass is extremely difficult to control as rhizomes of the plant fragment and easily establish new plant colonies.
- Control may be achieved via shading with livestakes of willow and/or red-osier dogwood planted 2-3 feet O.C.
- Control may also be achieved by herbicide application with follow-up plantings to occupy the site.
- Integration of these two methods may be required depending on the site as side-lighting limits effectiveness of shading in shoreline areas and riparian corridors.
- Please see information from The Nature Conservancy (Global Invasive Species Team) in Appendix 6 for a complete discussion of Reed canary grass control methods. http://tncweeds.ucdavis.edu/moredocs/phaaru01.pdf

Weed Waste Disposal

- Invasive weed wastes are often not appropriate to dispose of in Seattle's green waste recycling system as this encourages the spread of weed propagules. Stems of some plants including blackberry canes and ivy vines may be collected for composting.
- Due to steep slopes and the high visibility of lakeside planting areas on-site composting is not appropriate for any area of Lake Washington Blvd. All weed wastes should either be removed to compost or discarded with garbage.
- Reproductive parts such as seed-heads and roots should be collected separately and placed in garbage bags to be disposed of in a landfill.
- Bohemian knotweed and other noxious weeds are capable of re-sprouting from plant fragments. All plant parts of Bohemian knotweed, purple loosestrife, garlic mustard, and giant hogweed should be removed from the site and disposed of in a land-fill. Flowering parts of purple loosestrife and tansy ragwort should be clipped into plastic bags and disposed of in a landfill.

Mulching

- Natural areas generally receive less maintenance than formal landscape beds and should be mulched to maximize survival of native plants and minimize weed germination. For most natural areas mulching with wood chips 4-6" will help suppress weed growth. Two layers of cardboard placed under woodchips will greatly reduce weed germination.

Irrigation

- Native plant areas should not require irrigation once plants are well-established at 3 to 5 years post installation.
- Temporary drip irrigation or hand-watering should be used for native plant establishment to discourage weed germination that is encouraged by broadcast sprinkling.
- Natural area plants should be watered weekly or bi-weekly for a minimum of three years after planting.
- Generally watering should occur from the 2nd week of June through the 2nd week of September. Exceptionally dry or wet years may require alternate schedules.
- Monitor plants for water stress May – September.

Fertilization

- Native plants planted in natural areas generally do not require fertilization. Should signs of nutrient stress be anticipated or occur an appropriate slow-release or organic fertilizer may be used at the time of plant installation or during establishment..

Pruning

- Native plants in natural areas should not be pruned except in the case of hazardous trees.
- Standing dead wood should be retained wherever possible to create wildlife habitat.
- Should shrubs encroach into walkways, they may be trimmed back. Consider replacing with smaller shrubs if the maintenance of shrub plantings adjacent to trail corridors is excessive.

Plant Replacement

- The plant palettes of this VMP offer guidelines for native plant species to include in plant replacements.
- Water and mulch new plants for a minimum of three years and as needed thereafter.

Design

- This VMP calls for an increase in natural areas versus lawn area for several areas of the lakeside, particularly the Seward Park area. Any new initiatives to expand natural areas must follow guidelines established herein, including evaluating the acre surrounding the proposed project area to ensure the proposed shrub and tree cover meets the guidelines of this VMP.
- Trails creation and restoration projects must follow all Parks and Recreation Standards as noted in *BMPs* (City of Seattle, date unk.). Trail maintenance and installation will observe pedestrian safety standards as described and depicted in the drawing below (from *Orchard St. Ravine VMP*, City of Seattle, 2006 - Fig.11).

Maintain clear areas next to pathways that are easy to see over, under, around or through – for a distance of 6-8 feet from the path edge, select and maintain vegetation that is generally no more than 2-3 feet in height, or trimmed up to 8-feet from the ground.

Figure 11 Typical Trail Corridor Vegetation Management *(from Orchard St. Ravine VMP, City of Seattle,2006)*

- Any natural area plantings must be approved by Seattle Parks Urban Forestry division.
- New natural area plantings should be prioritized as follows:
    1. Weed and plant within existing natural areas
    2. Expand existing natural areas
    3. Create new pockets of natural areas

Erosion Control BMPs for Critical Areas on Developed and Undeveloped Park Land

Erosion control plans are required for large projects in critical areas and are very site-specific. A temporary erosion and sediment control plan (TESC) needs to consider slope length, steepness, and level of soil disturbance. Depending on project size and scope, project review by Seattle Department of Planning and Development (DPD) may be required. For projects less than 750 sq. ft. that are considered "routine maintenance", such as invasive plant removal, no DPD filing or permitting is required. For routine maintenance projects > 750 sq. ft. or vegetation restoration projects <1,500 sq. ft., a site plan needs to be filed with DPD, but still no permitting is required. For vegetation restoration projects >1,500 sq. ft. in a critical area SEPA review is required and a TESC must be submitted and reviewed by DPD, Parks Geotechnical Engineer, and Urban Forestry staff.

There are a variety of erosion control products on the market. Products include simple elements such as jute fabric, wood chip or composted organic mulch, or more complicated engineered materials and structures such as compost blankets, compost or coir log berms, pipe slope drains, sediment ponds and silt fencing. Often a combination of methods is used to control erosion and sediment during a vegetation establishment or removal project. Small exposures of soil created during invasive plant removal or re-vegetation projects are often adequately controlled with jute fabric and a 4-6" wood chip mulch application. For larger projects, particularly on very steep slopes, coir log or compost berms, and slope pipe

drains may be needed to slow down and direct erosive surface flows and keep sediment in place.

Work Task Assignments – Volunteers versus Paid Staff

Any vegetation maintenance or restoration plan must include assignment of work tasks to a specific entity. No vegetation restoration work shall commence until a complete plan that includes all work tasks from invasive removal to plant watering has been delegated and all parties with work assignments have agreed to complete assigned tasks. Several project tasks are restricted work categories and only permitted to be performed by Parks staff or paid, licensed and insured contractors. Restricted work categories include; irrigation installation, steep slope work, herbicide application, and arboricultural work (any woody stem >6").

Lakeside Management Unit – Actions And Priorities

Lakeside Management Unit – Summary and Prioritization of Management Actions

Key Points

1. Landscape consists primarily of lawn with specimen trees and some areas of mainly scrub-shrub vegetation dominated by invasive species along the shoreline fringe. Approximately 35 acres are in this unit along 4.5 miles of shoreline; widths range from 10-400' with widths of 50-100' predominant.
2. There is very limited funding and staffing (2 FTE) to do current necessary maintenance (mowing, formal landscape bed maintenance, garbage collection, bathroom maintenance), and no provision for additional work associated with specific project initiation and follow-up care for natural area projects or others.
3. There is an interplay between natural area restoration along the lakeshore and human uses in this area (Seafair, lake access for kayaking/swimming/trail running) that must be balanced.
4. There is an interplay between natural area restoration (salmon enhancement, invasive weed control, Citywide forest canopy cover goals) along the lakeshore and the desire for views per the original design intent of the Boulevard that must be balanced.
5. Views for park users and re-establishment or maintenance of special views per the original design intent of the Boulevard are distinguished from views from individual private homes.

Major Implementation Strategies

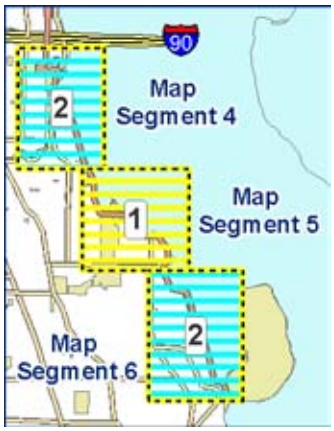
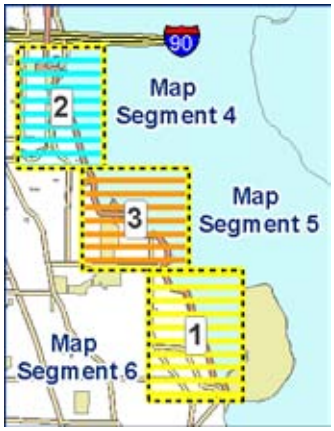
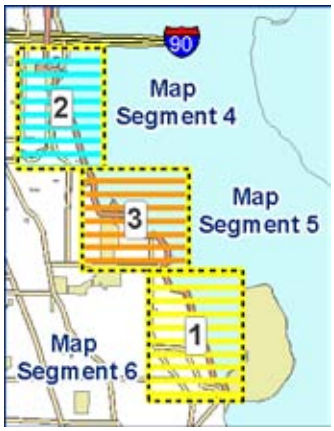
Maintenance

1. Lawn mowing, maintenance in existing restoration areas, vegetation management in Seafair Zone, noxious weed control, maintenance of formal landscape beds.

Capital Projects

1. Drift planting = Establishment of native species drifts along lakeshore areas that will provide low maintenance, ecological, and aesthetic enhancement
2. Tree planting = Planting of trees in lawn areas to increase canopy cover to 20-30% varying by Map Segment. Current range of canopy cover in these areas is 13-29%.
3. Hedge conversions = Replacement of formal monoculture hedges in landscaped beds with mixed plantings of at least 50% native species.
4. Formal bed replacement planting = Increasing native plant constituents in all formal garden beds.

Table 12 Prioritized List of Proposed Actions for Lakeside MU

Priority	MAINTENANCE	
HIGH	Landscaping, mowing and weed control (details pg 33) Priority Order: 1 – Segment 5 2 – Segment 4 2 – Segment 6	
	CAPITAL PROJECTS	
HIGH	Tree planting (details pg 59) Priority Order: 1 – Segment 6 2 – Segment 4 3 – Segment 5	
MED	Drift planting (details pg 49) Priority Order: 1 – Segment 6 2 – Segment 4 3 – Segment 5	

MED	**Blackberry Thicket Conversion** Convert thickets to native species drifts (see Master Plant Table, Appendix 7) Located throughout Seafair Zone.	
LOW	**Wetland Restoration** Projects will require site-specific plans and permits from ACOE, DoE, WDFW, and/or City of Seattle. Located in proximity to the Seafair Zone at Lakewood Moorage.	
As Funded	**Hedge Conversion** Replace formal monoculture hedges with 50%+ native species; can use Olmsted legacy plant list for remaining 50% (see plant list in Table 16, pg 56)	*Throughout entire Lakeside MU where applicable.*
As Funded	**Formal Bed Replacement Planting** Use natives and/or Olmsted legacy choices where possible. (see Master Plant Table, Appendix 7; and plant list in Table 16, pg 56)	*Throughout entire Lakeside MU where applicable.*

Lakeside MU Current Management Practices

The majority of the Lakeside MU lies in the southern half of the site between the south end of Mt. Baker Park and Seward Park (Map Segments 4, 5, and 6.) The majority of the Lakeside Unit is developed parkland and primarily managed by Parks district staff. District staff also work in conjunction with the Parks Major Projects Manager, citizen groups, and the Urban Forestry Division to maintain some shoreline restoration projects adjacent to the Lakeside MU. Regular vegetation management activities include mowing lawns, maintaining restroom and garbage facilities, weeding, planting, and irrigating formal landscape beds, planting native vegetation and controlling noxious weeds in natural areas,

brush cutting in the Stan Sayres area to maintain a Seafair viewing corridor, and maintaining trails. Heavy human use of comfort stations, lawn areas, and trails dictates these areas as maintenance priorities. Parks Natural Area Crews assist district staff in vegetation management of natural areas in the Lakeside Unit.

Lakeside MU Problems with Current Practices

Two main problems with current management of the Lakeside Unit are funding and conflicting uses. Almost four and a half of the seven miles of Boulevard have lakeside property with widths ranging from 10 to 400 feet, though most areas are on the order of 50-100 feet wide. Seattle Parks is the single owner of the greatest length of shoreline property along all of Lake Washington. There are approximately 12 acres of lakeside to manage for a complex variety of vegetation types and human uses along this four and a half mile stretch of shoreline. In the southeast district where 75% of the Lakeside Unit lies, there is the equivalent of two full time employees to maintain these areas. A majority of the time spent on maintenance goes to lawn mowing and formal landscape bed maintenance. Additional District staff work includes maintaining bathroom and garbage facilities. These essential services provide for clean, safe and fun human enjoyment of the Lakeside Unit. There is currently not a pool of funds available in regular operations and maintenance to enhance the natural areas of the Lakeside Unit or to initiate projects to enhance formal landscapes for the purpose of reaching the Park's design intent. Southeast district management and staff are eager to participate in natural areas enhancement and maintenance, but only so long as adequate long-term funding for maintenance staff is provided for these areas.

Natural area restoration and enhancement projects in the Lakeside Unit are currently opportunity-driven, either through special efforts of district Senior Gardeners, Parks capital improvement projects, or community-generated funding. Concern regarding how these restoration projects will be maintained in the long-term is a continuing conversation among restoration practitioners and management staff.

Figure 12 Seafair Festival hydroplane race fans along Lake Washington shoreline.

In addition to limitations on funding, natural area restoration in the Lakeside Unit is confounded by conflicts with other current park uses. Approximately one mile of lakeside vegetation from Stan Sayres Park to the Lakewood Marina is brush cut annually to create a viewing corridor for Seafair hydroplane races (Fig.12) A problematic element of this cutting is the presence of knotweeds (*Polygonum* spp.) in the area – noxious weeds that can spread by plant fragments as small as 1cm. Maintaining this mowing cycle will exacerbate the spread

of this weed without a strategic Integrated Vegetation Management strategy to control the weed before mowing occurs. District staff is working with the reforestation program on a long-term solution to this problem.

Figure 13 View across Lake Washington from Lakeside MU lacking desirable natural vegetation along lakeshore.

Other human uses that confound the restoration of natural areas are the desire for lakeside access for kayaking, trail running, and swimming. Through letters and comments in the public process a number of community members have expressed a desire for safe and unimpeded shoreline access throughout the Lakeside MU, suggesting that natural area vegetation enhancement is in direct conflict with recreational uses or that the two are mutually exclusive (Fig.13). At the same time salmon habitat studies indicate that dense vegetation along the shoreline is a critical habitat component. In order to satisfy the recreational needs of the community while protecting and enhancing critical habitat, care in planning natural area restoration projects will be needed. As an example, enhancement projects adjacent to trails and pathways will need to carefully follow Parks Trails Standards that specify only low-growing vegetation, such as lady fern, salal, and sword fern, within 3 feet of trails to allow visual access to walkers and joggers. Additionally, there are a variety of recreational access points that are not well-known to community members. These are shown on the maps at the end of the VMP.

A final point for consideration in the maintenance of lakeside vegetation is views. The design intent for LWB includes both panoramic and framed views from numerous unspecific fixed locations within the Park combined to also create a series of unspecific and evolving unfolding views as experienced while moving along the Boulevard. Under the current management scheme the vast majority of view foreground in this unit – what can be seen between the Boulevard corridor eastward to the lake itself – is turf. Implementing the Olmsteds vision for the Lakeside Unit, as well as meeting both salmon habitat enhancement goals and Citywide forest canopy cover goals, will require planting more trees and shrubs within natural areas of the Lakeside Unit. Spacing of large trees, those greater than 30' in height at maturity, indicated in the actions outlined below, will take into consideration the overall community desire for shoreline views from the residential areas adjacent to the Boulevard. However, views from individual homes will not take precedence over the overall VMP goals for increased natural area vegetation and framed views for park users including motorists and pedestrians.

Lakeside MU Desired Management Practices

The Lakeside MU consists of formal "developed" and informal "undeveloped" spaces. Management responsibility for the developed parklands (including mowed areas, formal planting beds, hedges, and built infrastructure) lies with Parks Central East and South East

District staff. Undeveloped parklands or "natural areas", are managed jointly by District staff and the Urban Forestry program. All tree maintenance and replacement is the responsibility of Parks Sr. Urban Forester.

Best management practices (BMPs) for developed parklands are already outlined in Seattle Park's *Best Management Practices for Landscape, Horticulture & Forestry* (date unk.) document. District staff maintenance of lawns and formal garden beds is expected to continue adhering to updates to that document. The following recommendations for future maintenance of the developed parklands are suggested to improve the Olmstedian character of LWB. These activities should take place as existing plantings mature, rather than removing and replacing functional vegetation units.

- Replace formal monoculture hedges in developed parkland areas with mixed border plantings to include at least 50% native species from the Lakeside palettes in this VMP (Tables 15, 17, 18 – Anchor and Wetland lists). Remaining 50% of species can be selected from Olmsted legacy plant list (Table 16) as appropriate.
- Increase native plant constituents of all formal garden beds. Can also use Olmsted legacy plant list (Table 16) to complement natives where possible.
- Plant more and larger specimen trees in lawn areas, mimicking the Landscaped Savannah landscapes (see Plant Palettes from Lakeside, Boulevard, and Slope MU: Tables 15, 17, 24, 26, 28 for species selections).

Natural areas of the Lakeside MU are currently heavily invaded with noxious weeds and out of character with the Olmsted design intent. The UW Studio produced several broad themes for improving management of the Lakeside MU (Table 13). These recommendations highlight the need for guidelines for natural area maintenance and restoration. Major recommendations include the need for natural area planting specifications and explicit instructions for increasing tree and shrub canopy in both developed lawn areas and undeveloped areas of the Lakeside MU. The following sections outline guidelines for future capital improvement and maintenance projects and are categorized into two functional groups; Drift Planting for clumps of vegetation and Tree Planting for individual tree placement.

Table 13 Management Recommendations for the Lakeside MU from the University of Washington Study (2006).

Area Type	Protocol for Management and Maintenance
New Planting	• Plant in areas that will frame the park user's view out towards the lake and woodlands. • Provide native plantings that will beautify the shoreline, provide habitat, restore species diversity, and promote native character. • Use plant masses to create low impact human areas facilitating greater use by migratory and native birds, mammals, and reptiles.

Area Type	Protocol for Management and Maintenance
Maintenance	• Use hardy anchor plants that will withstand heavy pruning and coppicing, which is intended to make caring for drift plantings easy for crews. In most cases mowing will be all that is needed to clean up and regenerate smaller, fresh, new growth. More selective pruning may be done in areas of high human use. • Limit intense pruning of Lakeside planting beds and edges to areas that are crucial for enjoyment of the shoreline by the public. • Aggressively remove all invasive species. Himalayan blackberry, knotweeds, and reed canarygrass are of particular concern on LWB because of their tendency to create monocultures and their existing prevalence along the shoreline.
Social Spaces	• Retain and enhance human spaces and experiences. • Preserve human use patterns by maintaining vegetation free corridors for shoreline access.
Gateways/Edges	• Enhance entrances, walkways, and resting spaces with plantings in the Olmsted style and tradition. By massing native plants, spaces can be created to give the user a sense of security, privacy, and serenity. • Establish transition zones between parks and natural areas, roads and walkways, open grass and habitat areas with the use of vertically scaled 'drift plantings' (see next section). These transition zones are intended to improve visual and cognitive understanding of the spaces and their intended uses while responding to desire lines and use patterns of people.
Habitat	• Improve habitat for migrating salmon fry along the by planting large trees and shrubs with canopy that will extend out onto the shoreline or into the lake. These shady areas will provide cool water zones for juvenile salmon to rest and hide from predators. • Create patches of shrubs and snags for songbirds and other native raptors and migratory birds to seek refuge and protection. • Install large woody debris from fallen or dying trees in planting drifts to enhance habitat for insects and fish. The increase in insect populations will stimulate the avian population by providing a larger food source. • Leave standing dead trees where human safety hazard is not an issue to create habitat for insect, avian, and bat populations. • Enhance soil organic matter by using detritus and fallen limbs as mulch.
Views	• Create spaces that enhance views out across the lake towards the Cascade.
Reuse of Materials	• Reduce the amount of refuse that will need to be hauled away. Dead trees should be mulched and reused to create mulch rings around other trees. Dead trees should be left as snags or installed as large woody debris in planting drifts where appropriate. • Use established plants as an on-site nursery. Poplar, willow, and dogwood stakes can be cut from growing plants to provide free plantings and to fill in areas in need of additional planting material.
Hazard Trees	• Inspect trees annually to identify hazard tree conditions. Do not plant black cottonwood adjacent to trails, sidewalks, and streets.

Drift Plantings

Figure 15 Lk. Washington Boulevard Lakeside MU vegetation c. 1903.

Figure 14 Visualization of proposed Lakeside MU drift plantings and additional tree plantings. Shrubs are planted 5' back from the shoreline and allowed to grow out over the water to provide cover.

The central vegetation management strategy for the Lakeside MU consists of establishing drifts of predominantly native plantings, which appropriately located, will weave together the Olmsted's aesthetic intent for the lakeside and the current needs for ecological enhancement, and low-maintenance park landscape features (Fig.15). Drifts allow plants to function for both human and wildlife activity. The drifts reference back to the Olmsted tradition of strategically placed plant masses that highlight the beauty of the native plant community, and frame views extending beyond the site towards the Cascade Mountain Range. Planting of native trees among drifts and both native and specimen ornamental trees in lawn areas will further this vision for the Lakeside MU (Fig.14).

An Anchor Plant Palette (Table 13) has been created to provide continuity of species selections for the majority of drift vegetation. Each new drift planting should be comprised of a minimum of 75% of the total plants selected from the Anchor Plant Palette. Relying on anchor species will create visual and spatial unity along the Lakeside MU. These anchor species can be mixed with up to 25% of species from other palettes in this VMP, which include additional natives and some non-natives selected for high human use areas. These lists were created to ensure that the right plants are chosen for the right places with regard to soil water saturation and other microclimatic factors to ensure plant health.

Drifts are defined here by both size and number of species within the drift. Small, Medium, and Large drifts range in size from 25 to 3500 sq. ft. and species diversity ranges from 1 to more than 5 species per drift. Drift prototypes are illustrated below in Figures

17,18,19. Combinations of the three drift prototypes can be used to create visually appealing vegetation units where natural areas blend into developed parklands.

An example would be a medium drift planted to a naturalistic aesthetic, blending five species with a small drift of one of those species flowing into a mowed or formal garden bed area. These prototypes were designed to create plant communities that are easy to maintain and that will grow together harmoniously. Lakeside plant drifts should be used creatively to preserve, frame, and enhance views of the mountains and distant shoreline.

Figure 16 Example of Large Drift at University of Washington Fishery Sciences Building

New drift planting and guidelines for managing and maintaining identified views will be compatible. Any project to install large drifts (>750 sq. ft.) will need to be approved by Urban Forestry staff and is subject to review by Parks Landscape Architects. An excellent example of the beauty and ecological functionality of a large drift is a red-twig dogwood drift, coppiced annually for color, found at the University of Washington Fishery Sciences Building, designed by Swift & Company Landscape Architects (Figure 16).

DRIFT PLANTINGS PROTOTYPES

Figure 17 Small Drift Prototype

Small Single Species Drift

- 25-1000 sq. ft.
- Located in small or narrow areas along the lakeside
- Can occur as emergent species, grasses, shrubs, or trees
- Can occur above existing bulkhead
- High use and isolated areas

Figure 18 Medium Drift Prototype

Medium 2-5 Species Drift

- 100-2000 sq. ft.
- Located in small to medium areas along the lakeside
- Can include emergent species, grasses, shrubs, or trees
- Can occur above existing bulkhead
- Neglected/unused areas
- Currently invasive drifts

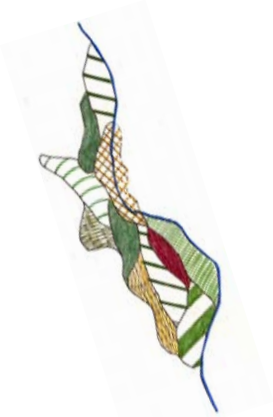


Figure 19 Large Drift Prototype

Large 5+ Species Drift

- 750-3500 sq. ft.
- Located in medium to large areas along the lakeside
- Can include emergent species, grasses, shrubs, or trees
- Can occur above existing bulkhead
- Defining feature is the option for a habitat core inaccessible to people
- Shapes larger human spaces and unused areas

DRIFT PLANTING PLAN

New drift plantings shall be installed in size to meet a targeted shrub community cover goal for each Map Segment (4, 5, 6). Table 14 projects target aerial drift cover for each Map Segment with significant lakeside acreage.

A total of 17 specific drift planting locations were identified in the field and mapped subsequent to the 2008 Draft of this VMP. New drift area acreages were calculated based on the cover goals for each Map Segment and the existing shrub cover that was mapped for this plan. Because existing shrub cover acreage includes cover by invasive shrubs (mainly blackberry) there is a net excess of new drift acreage to compensate for the amount of invasive cover that is likely to be removed throughout the Lakeside MU under the recommendations of this VMP. Additionally, the new drift areas identified are not necessarily intended to be planted in their entirety; rather they represent areas within which new drift plantings are to be placed. Thus the total new drift acreage as well as the new drift acreage for each Map Segment does not correspond exactly in value to the projected target acreages.

Table 14 Shrub Canopy Cover Goals for the Lakeside MU within Specific Map Segments

Map Segment 4

	(sf)
Total Lakeside MU area	109,255
Drift cover goal - 40%	43,702
Existing cover of drift shrub (native and invasive)	21,203

	Low inv. est	Hi inv. est
Estimated range of drift area covered by invasive species (55-77%)	11,250	15,500
Estimated range of existing drift area containing native species only	9,953	5,703

New drift planting areas identified	Area (sf)	Map Sheet #	Medium drift area (50%)	Small drift area (50%)
ND1	1,498	24		
ND2	3,451	24		
ND3	4,954	24		
ND4	6,878	25		
Total new drift area identified for Segment 4:	*16,781*		8,391	8,391

	Hi drift est	Low drift est
Total drift area (new areas identified plus existing areas with native species)	26,734	22,484
Drift area still needed to meet goal	16,968	21,218

Map Segment 5

	(sf)
Total Lakeside MU area	193,085
Drift cover goal - 20%	38,617
Existing cover of drift shrub (native and invasive)	60,671

	Low inv. est	Hi inv. est
Estimated range of drift area covered by invasive species (55-77%)	19,600	34,300
Estimated range of existing drift area containing native species only	41,071	26,371

New drift planting areas identified	Area (sf)	Map Sheet #
ND5	4,035	27
ND6	2,167	33
ND7	2,689	33
Total new drift area identified for Segment 5:	*8,891*	

Medium drift area (50%)	Small drift area (50%)
4,446	4,446

	Hi drift est	Low drift est
Total drift area (new areas identified plus estimated existing areas with native species)	49,962	35,262
Drift area still needed to meet goal	-11,345	3,355

Map Segment 6

	(sf)
Total Lakeside MU area	242,443
Drift cover goal - 50%	121,222
Existing cover of drift shrub (native and invasive)	64,990

	Low inv. est	Hi inv. est
Estimated range of drift area covered by invasive species (55-77%)	31,000	41,500
Estimated range of existing drift area containing native species only	33,990	23,490

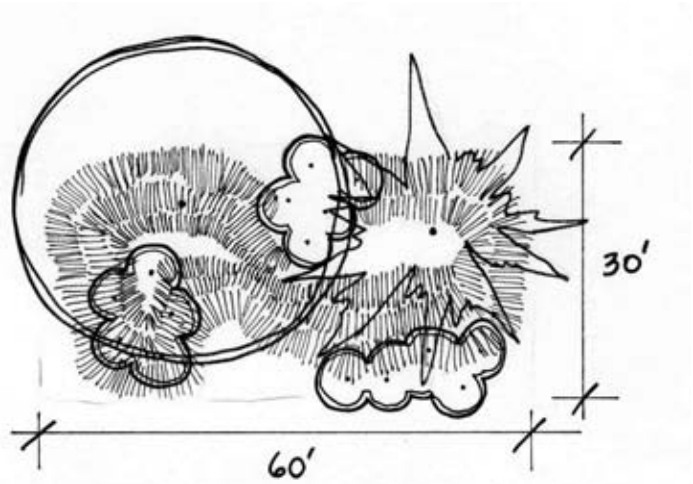
New drift planting areas identified	Area (sf)	Map Sheet #
ND8	1,211	35
ND9	2,881	36
ND10	3,630	36-37
ND11	6,713	37
ND12	10,361	37-38
ND13	2,727	38
ND14	5,816	38
ND15	1,061	38
ND16	3,639	39
ND17	1,647	40
Total new drift area identified for Segment 6:	*39,686*	

Medium drift area (50%)	Small drift area (50%)
15,874	23,812

	Hi drift est	Low drift est
Total drift area (new areas identified plus estimated existing areas with native species)	73,676	63,176
Drift area still needed to meet goal	47,546	58,046

DRIFT PLANTING EXAMPLE

For each new drift (ND) identified on the map sheets, and listed in Table 14, look up the acreage required for each size of drift specified. The new drift acreage could be achieved with any combination of drift sizes (S, M, L) in ratios for each Map Segment as specified in Table 14. Number of plants for a given area can be calculated based on the spacing guidelines in the Lakeside MU Plant Palettes that follow (Tables 15, 17, 18). A plan view of a typical large drift planting per these specifications is shown (Fig.20).



Large 5+species drift planting
Size: 1800 sq. ft = 0.4 acres

Plant Specs:
coniferous trees @ 50' o.c.
deciduous trees @80' o.c.
shrub groups @25' o.c.

For this drift:
1 conifer
1 deciduous tree
3 shrub groups of 5 ea = 15 shrubs
groundcovers as desired

Figure 20 Plan View Example of a Typical Large (5+ Species) Drift in the Lakeside Unit

The following protocols establish prioritization of implementing drift improvement or expansion within those areas.

- Any drift project will originate from an existing drift of trees and/or shrubs.
- Originating tree and shrub drift will be maintained for control of all noxious and garden weeds before the drift is expanded.
- Expansion of the drift to meet target drift canopy goal for each Map Segment will be considered in the context of the immediately adjacent acre north and south of existing drift.
- No drift expansion will occur in the Seafair zones.

DRIFT MAINTENANCE PROTOCOLS

In many areas, drift maintenance will be limited to weeding after drift vegetation has passed through a three year establishment care period. Drifts are anticipated to naturalize based on plant competitive ability driven by micro site conditions. Plants in undeveloped natural area drifts are expected to intermingle and compete with each other without being maintained as individual specimen plants. Establishment care will be required for any Parks or citizen-initiated drift planting. This three-year care period includes watering, mulching, and weeding new drift plantings.

Drifts that are planted as or blend into developed park land garden beds will be maintained for a groomed appearance on a gradient from wild blended plants to visibly individual specimen plants as one moves closer to the developed park land areas. As these

areas of the Boulevard are high visibility recreation areas, weeding here means removal of all noxious and obnoxious weeds as well as regular garden weeds.

Water and mulch will be needed to ensure plant survival. Watering should be done as needed, with a general assumption that in most areas the first year will require at least two gallons per plant per week. Mulch shall be initiated at 6" depth on the whole drift area for the first year and in the two subsequent years kept to a minimum of 3' diameter 6" deep mulch circles around each plant. Mulch is not to come in contact with woody plant stems. Fertilizer and pesticide use is to be kept to a minimum due to lake proximity and high recreation use. Any fertilizer or pesticide use along the Lakeside MU must be cleared with Parks Resource Conservation Coordinator.

Occasionally drift vegetation may need to be coppiced or pruned in order to accommodate management directives in this VMP. Examples include view pruning in the Seafair Zone, pruning to enable access to invasive plant root zones should a blackberry or other infestation occur within a drift, or pruning to maintain identified panoramic and framed views. Coppicing is a pruning practice in which an entire shrub is cut to a few inches above ground level. Coppicing should be done at seasonally appropriate times to avoid interfering with bird nesting season. No coppicing of Lakeside shrubs should take place from the beginning of February through May 15. With the exception of the Seafair Zone, coppicing is to occur no more frequently than a three year rotation for any given shrub community.

Lakeside Management Unit Plant Palettes

ANCHOR SPECIES FOR DRIFT PLANTINGS

Species from the Anchor Plant Palette (Table 15) should be used for 75% of new plantings to create visual and spatial unity along the lakeside. Drifts can be entirely formed from anchor species or be mixed with up to 25% of other species from the plant palettes in this VMP (see Master Plant Table in Appendix 7). Species selections outside of the anchor palette shall be selected for project-specific environmental conditions and reflect the visual quality of adjacent vegetation. The Master Plant Table includes extensive information such as mature height, moisture tolerance and shade tolerance for all plant species recommended in this document.

Table 15 Anchor Plant Palette for Drift Plantings.

Scientific Name	Common Name	Spacing
Canopy Trees		
Betula papyrifera	paper birch	3 trees* @ 6' o.c. 80' from nearest like group
Thuja plicata	Western red cedar	3 trees* @ 6' o.c. 50' from nearest like group
Understory Trees		
Acer circinatum	vine maple	3 trees @ 10' o.c. 50' from nearest like group
Shrubs		
Cornus sericea	red osier dogwood	5 shrubs @ 5' o.c. 25' from nearest like group
Gaultheria shallon	salal	same
Holodiscus discolor	oceanspray	same
Mahonia aquifolium	tall Oregon grape	same

Scientific Name	Common Name	Spacing
Mahonia nervosa	dull Oregon grape	same
Myrica californica	Pacific wax myrtle	same
Oemleria cerasiformis	Indian plum	same
Ribes sanguineum	red-flowering currant	same
Rosa nutkana	Nootka rose	same
Rubus parviflorus	thimbleberry	same
Rubus spectabilis	salmonberry	same
Spirea douglasii	hardhack	same
Symphoricarpos albus	snowberry	same
Groundcovers and Emergents		
Arctostaphylos uva-ursi	kinnikinnick	2' o.c.
Carex obnupta	slough sedge	same
Iris tenax	Oregon iris	same
Juncus ensifolius	daggerleaf rush	same
Polysitchum munitum	sword fern	same
Scirpus microcarpus	small-fruited bulrush	same

Olmsted Legacy Plant List for Formal Bed Replacement Planting

The following plant list in Table 16 offers some guidance for species selection that reflects the Olmsted tradition. In appropriate settings, such as formal bed replacement in the Lakeside MU, using species that were suggested by the Olmsteds for other parks nearby as a foundation for plant selection may be desirable. Up to 50% of the total species selected may be chosen from the Olmsted Legacy Plant Palette. This list was developed from correspondence by J.C. Olmsted as well as plant lists developed by Olmsted for Washington Park (Arboretum). This list is not a comprehensive list, but is a subset of the species that Olmsted suggested. It should not be interpreted as a list to be used in its entirety or even as groupings of species, but rather offers some specimen choices that have historical relevance. Olmsted used native species as the foundation for many of his planting plans, and some that he clearly found important are included in this list.

Table 16 Olmsted Legacy Plant List

Scientific Name	Common Name
Trees	
Acer pennsylvanicum	striped bark maple
Arbutus menziesii	Pacific madrone
Catalpa ovata	catalpa
Cornus nuttali	Pacific dogwood
Fagus sylvatica	European beech
Laburnum vulgare	golden chain tree
Magnolia acuminate	cucumber tree
Magnolia grandiflora	evergreen magnolia
Picea englemannii	Engleman spruce
Pinus strobus	white pine
Prunus emarginata	bitter cherry
Quercus palustris	pin oak
Quercus rubra	red oak

Scientific Name	Common Name
Rhamnus purshiana	cascara
Tsuga heterophylla	western hemlock
Tsuga mertensiana	black hemlock
Shrubs	
Amelanchier alnifolia	serviceberry
Calluna vulgaris.	Scotch heather
Ceanothus velutinus	snowbrush
Cornus mas	Cornelian cherry
Forsythia sp.	forsythia
Gaultheria shallon	salal
Mahonia aquifolium	tall Oregon grape
Mahonia nervosa	dull Oregon grape
Myrica cerifera	bayberry
Philadelphus lewisii	mock orange
Pinus mugo	dwarf pine
Pinus strobus 'nana'	dwarf white pine
Rhododendron macrophyllum	Pacific rhododendron
Ribes sanguineum	redflowering currant
Rosmarius officinalis	rosemary
Symphoricarpos albus	snowberry
Taxus baccata 'repandens'	ground yew (spreading English yew)
Vaccinium ovatum	evergreen huckleberry
Viburnum edule	highbush cranberry

Note: Species in bold indicate native species.

Additional Specialty Plant Palettes

The following plant palettes are to provide diversity in plantings for specific wetland environmental conditions.

Table 17 Wetland Plant Palette for Saturated Year-Round Conditions

Scientific Name	Common Name	Size	Light	Deciduous/ Evergreen/ Herbaceous	Soil Moisture	Flowers Y/N	Notes
Shrubs							
Salix lucida spp. Lasiandra	Pacific willow	60ft	FS	D	Moist	Y	
Emergents							
Carex lenticularis	shore sedge	1-3ft	PS	H	Moist, Saturated	Y	
Carex obnupta	slough sedge	1-5ft	PS, S	H	Moist, Saturated	Y	Shade tolerant
Carex stipata	sawbeak sedge	1-3ft	PS, S	H	Moist	Y	
Carex utriculata	beaked sedge	2-5ft	FS, PS	H	Moist, Saturated	Y	Shallow water, birds
Eleocharis plaustris	common spikerush	3ft	PS	H	Moist, Saturated	Y	
Juncus acuminatus	tapered rush	1-2.5ft	PS	H	Moist, Saturated	Y	Plant in 0-4" water

Scientific Name	Common Name	Size	Light	Deciduous/ Evergreen/ Herbaceous	Soil Moisture	Flowers Y/N	Notes
Sagittaria latifolia	arrowhead	1-5ft	FS	H	Moist, Saturated	Y	Full sun
Scirpus acutus	hardstem bulrush	3-9ft	PS	H	Moist, Saturated	Y	Plant in 2-8" water, birds, muskrats
Scripus atrocinctus	woolly sedge	2.5-5ft	PS, S	H	Moist, Saturated	Y	Up to 5' water
Scripus microcarpus	small fruited bulrush	1-5ft	S	H	Moist	Y	
Sparganium emersum	bur-reed	2-5ft	PS, S	H	Saturated	Y	Shallow water, muskrats, birds

Table 18 Wetland Plant Palette for Seasonally Saturated Soil Conditions

Scientific Name	Common Name	Size	Light	Deciduous/ Evergreen/ Herbaceous	Soil Moisture	Flowers Y/N	Notes
Trees							
Fraxinus latifolia	Oregon ash	40-80ft	FS	D	Dry, Moist	Y	35' at 20 years
Picea sitchensis	Sitka spruce	80-160ft	FS, PS	E	Dry	N	40' at 20 years
Pinus contorta	shore pine	20-35ft	FS	E	Dry	N	
Populus trichocarpa	black cottonwood	160ft+	FS, PS	D	Dry, Moist	N	35' at 20 years
Shrubs							
Cornus sericea	red osier dogwood	7-9ft	FS, PS	D	Dry, Moist	Y	Forms thickets, versatile
Lonicera involucrata	black twinberry	5ft	PS	D	Moist	Y	Forms thickets
Physocarpus capitatus	Pacific ninebark	5-10ft	FS, PS	D	Moist, Saturated	Y	
Rosa pisocarpa	swamp rose	3-6ft	PS, S	D	Moist, Saturated	Y	Forms thickets
Rubus spectabilis	salmonberrry	3-10ft	PS	D	Moist	Y	
Salix hookeriana	Hookers willow	20ft	FS	D	Dry, Moist	Y	
Salix sitchensis	Sitka willow	25ft	FS	D	Dry, Moist	Y	
Emergents							
Deschampsia cespitosa	tufted hairgrass	1-5ft	FS, PS	H	Dry, Moist	Y	
Glyceria elata	tall mannagrass	5ft	FS, PS	H	Dry, Moist	Y	
Glyceria grandis	reed mannagrass	2m	PS, S	H	Moist	Y	
Juncus ensifolius	dagger-leaf rush	0.5-2ft	PS, S	H	Moist	Y	
Luzula parvifolia	small flowered woodrush	2ft	PS	H	Moist	Y	

Scientific Name	Common Name	Size	Light	Deciduous/ Evergreen/ Herbaceous	Soil Moisture	Flowers Y/N	Notes
Mimulus guttatus	yellow monkey flower	3ft	PS	H	Moist	Y	
Petasites frigidus	coltsfoot	6-24in	FS, PS	H	Moist	Y	
Stachys cooleyae	Cooley hedgenettle	1-2ft	FS, PS	H	Dry, Moist	Y	

Tree Planting

Tree planting in lawn areas is needed to fulfill the design intent for the Lakeside MU. Additionally, the draft *Seattle Urban Forest Management Plan* (City of Seattle, 2007), includes a goal of increasing canopy cover in developed Parks property from 19% to 25%. The majority of the Lakeside MU is not developed in a manner that precludes tree planting, such as athletic fields. This area is then an ideal space to plant more trees towards the Citywide developed park canopy goal. A major conflict with planting trees in lawn areas of the Lakeside MU lies in the Seafair Zone around the Mt. Baker Rowing and Sailing Center (Map Sheets 27-34, Map Segment 5). Due to considerations for Seafair use, low density tree planting in this area and higher density tree planting in adjacent areas is prescribed here to meet canopy cover goals.

Table 19 designates existing canopy cover, canopy cover goals, and mature trees per acre objectives for lawn areas in each Map Segment.* At least 70% of the plants for each tree planting project in these areas should be native trees from the Drift Planting or Slope Planting Palettes (Tables 15, 17, 18), up to 30% of the remaining plantings can be drawn from the Boulevard Street Tree Palettes (Tables 24, 26, 28). Mature tree density is calculated based on an average tree spread for native trees of 40 feet and ornamental trees of 30 feet. Mature trees are classified as those greater than 4" diameter at breast height (dbh). A formulaic example for how to use the table and the native versus ornamental guideline follows.

Table 19 Tree Canopy Cover Goals for Lawn Areas in the Lakeside Management Unit

Map Segment	Current Canopy Cover	Canopy Cover Goal	Map Segment Lakeside Acreage	Current Mature Tree Density Trees/Acre	Mature Tree Density Trees/Acre GOAL
4 – Colman and Mt. Baker Parks	29%	30%	2.8	25.2	9.5
5 – Mt. Baker, Genesee, and Stan Sayres	17%	20%	3.3	8.6	6.5
6 – Gateway to Seward Park	13%	30%	5.0	8.0	9.5

* The LIDAR data used to generate the canopy analysis in this document does not distinguish between very tall shrubs and trees, and is therefore an imperfect analysis In some cases where canopy is noted on the maps contained in this document, that canopy may represent trees and/or shrubs along LWB.

TREE PLANTING AREA EXAMPLE

In Map Segment 6, Gateway to Seward Park, there is currently only 13% canopy cover. This lack of tree cover meets neither the Olmsted goals for the site nor Seattle's Urban Forest Management Plan goal of 25% canopy cover in developed parklands. Should funding arise to implement a tree planting project in this area, an increase of that canopy to 30% is recommended per Table 19 above.

To determine the total number of mature trees the project area should hold, measure the project area in acres (43,560 sq. ft. = 1 acre) and multiply by the number of mature trees per acre. To determine planting number, subtract any existing mature trees from your total (2 immature trees count for 1 mature tree). Do not count immature trees less than 1" dbh. Plant twice as many trees as the desired mature tree number to account for mortality. Soil under lawns of the lakeside area is a difficult growth media and mortality is expected. Typical plan view examples of tree planting in one acre for each of these Map Segments is shown below. Trees are shown at desired density at maturity and do not include the additional trees installed to account for mortality.

SUMMARY FORMULAS

Total Mature Trees for Site = Area (acres) x Mature Tree Density (trees/acre)
Trees to Plant = (Total Mature Trees – Existing Mature Trees – ½ Existing Immature Trees) x 2
Native Trees to Plant = A range from (Trees to Plant x 0.7) to Total of All Trees to Plant
Ornamental Trees to Plant = A range from zero to (Trees to Plant x 0.3)

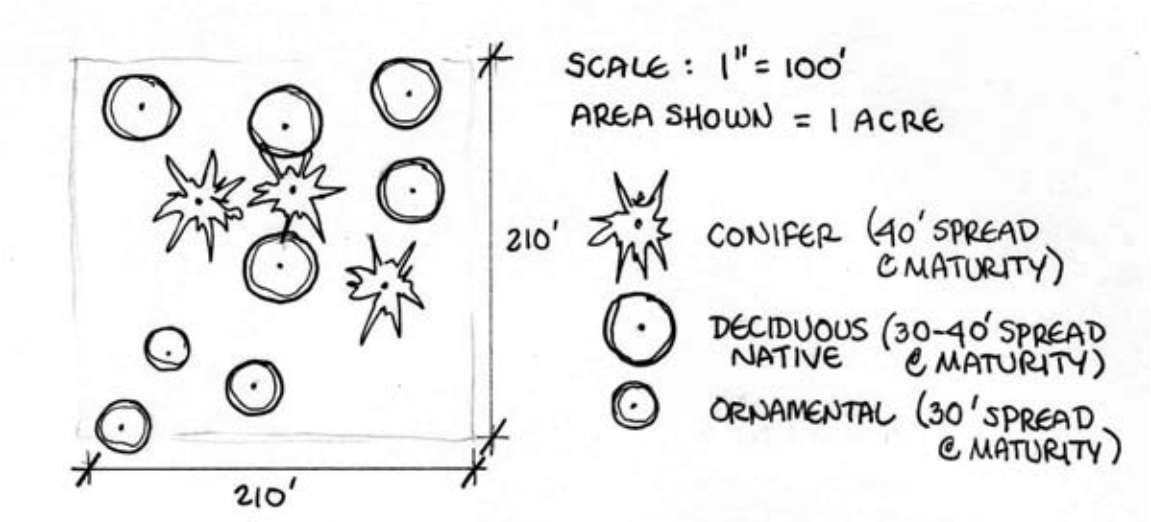


Figure 21 Typical Tree Density at Maturity in Planted Areas of Map Segments 4 and 6 (9.5 trees/acre)

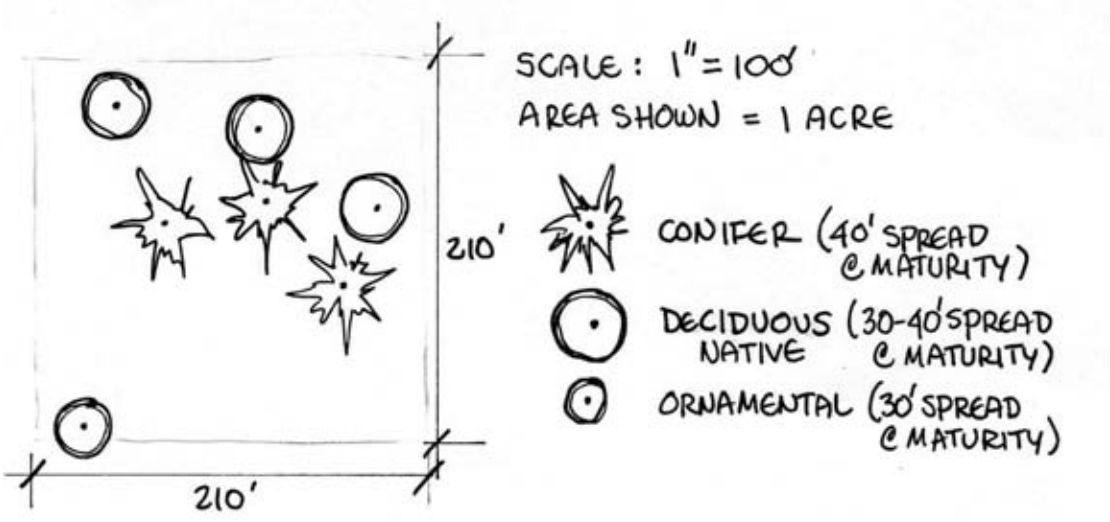


Figure 22 Typical Tree Density at Maturity in Planted Areas of Map Segment 5 (6.5 trees/acre)

THINNING TREES ON THE LAKESIDE

Should the unusual situation arise where all of the project trees establish to a healthy mature size and a tree canopy significantly greater than 20-30% goal is established in a given area, thinning may be prescribed as a management strategy. All thinning activities must be approved by Parks Sr. Urban Forester. Any thinning prescription will be restricted to retain at a minimum the canopy cover goals recommended in Table 19.

Unique Management Area - Seafair Zone

Five areas have been identified by Seafair staff as critical to the success of Festival events. These areas of concern run from the McClellan St dock south to the S. Adams St. parking lot (Figure 23). The five areas from north to south include: the lawn and beach areas from the S. McClellan St dock south to S. Hanford St, the flat area at the S. Horton St. end used as
a start/finish line, the lagoon immediately north of Stan Sayres Park, and the area of flat beach between 49th Ave S. and 51st Ave S. In these specific areas, no additional drift plantings will occur. In these areas trees may be replaced in-kind or with similar species, any changes to tree

Figure 23 Seafair mgmt zones from McClellan St. dock to S. Adams St.

quantities or species will be reviewed with Seafair staff.

The fifth and southern-most area of concern is the parking lot at S. Adams St. Due to helicopter landing needs, a critical safety component for the hydroplane races, trees in this area will be replaced in-kind, but no additional planting of large trees will occur in this lot. Improvement to the wetlands adjacent to the Lakewood moorage are unlikely to impact the helicopter use, however any planning for this area should consider the potential impact of helicopter activity on the proposed restoration. These marked areas will be mowed for maintenance, trees will be replaced in kind, but no additional tall trees or shrub drifts will be placed in these areas.

Boulevard Management Unit – Actions and Priorities

Boulevard Management Unit – Summary and Prioritization of Management Actions

Key Points

1. Landscape consists mainly of lawn and specimen trees. Current major tasks are a combination of maintenance and specific projects. These include specimen tree management (removals, replacement, tree maintenance), hazard tree management (pruning, removals), and mowing of lawn areas.
2. Challenges to tree establishment are: mechanical damage from cars, mowers, pedestrians; effective watering; and inappropriate species selection.

Major Implementation Strategies

Table 20 outlines the following proposed actions by priority for Boulevard MU.

Maintenance

1. Hazard Tree Management = Prune and remove trees as needed for public safety
2. Lawn mowing

Capital Projects

1. Tree planting = plant trees along the Boulevard with the following guidelines:
   - Choose optimal locations to minimize tree damage.
   - Seek additional funding to improve establishment care (water wells, mulch, more frequent watering).
   - Use different tree typologies to reflect character of different portions of the Boulevard.

     Neighborhood Typology = allees of deciduous street trees 30' o.c.

     Open Typology = deciduous street trees along waterfront at 60' o.c. to allow open views

     Threshold Typology = indigenous evergreen trees @ 45' o.c. as lead-in to forested parks along Boulevard (Madrona, Frink, Colman, and Seward Parks)

     Enclosed Typology = inland sections planted with trees @ 45' o.c. creating complete canopy cover over Boulevard in contrast to Open Typology sections along waterfront
2. Shrub planting = plant shrubs to delineate between Park and non-Park property with the following guidelines:
   - May only be planted on the Boulevard MU on the residential side of the Boulevard
   - May only be planted to areas where Boulevard does not cross a major grade change or residential property boundary for at least 15 feet
   - May be not greater than 10' wide

- Must consist of at least 50% native plant species from Boulevard Shrub Palette (Table 29)
- Must consist of vegetation less than 3 feet mature height
- May be pruned only for plant health, but not for shape
- May use up to 50% of species chosen from Olmsted legacy plant list (Table 16)

Table 20 Prioritized List of Proposed Actions for Boulevard MU

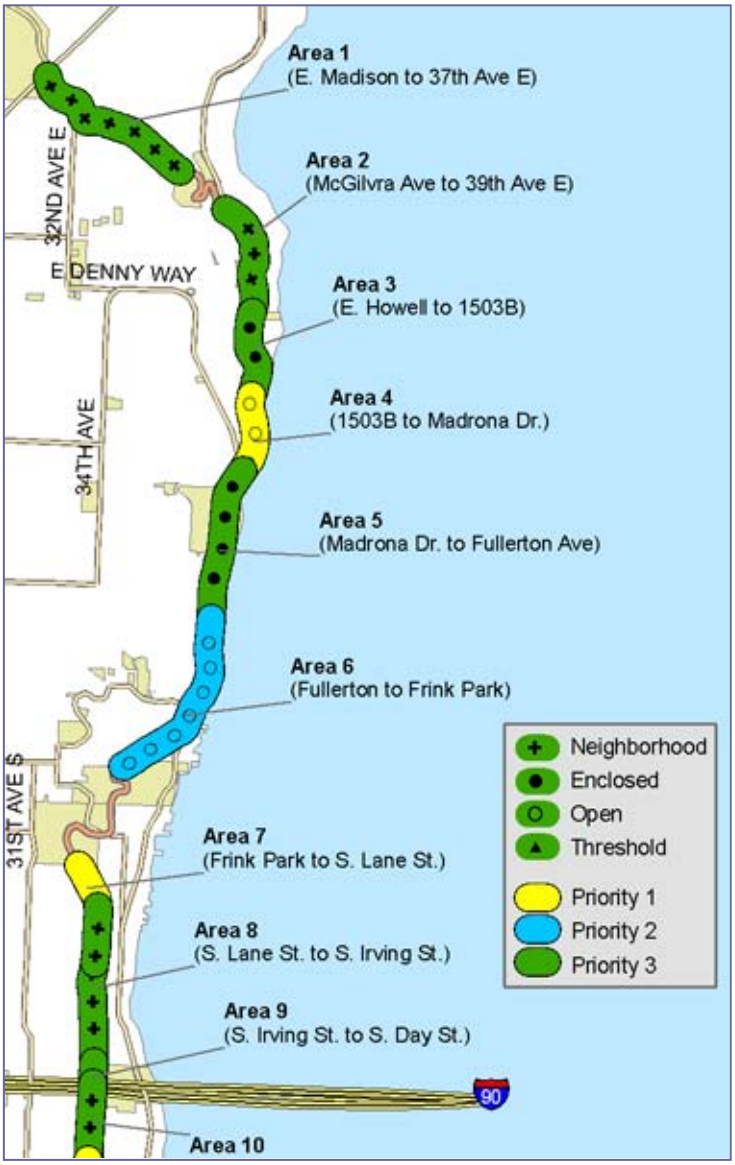
Priority	MAINTENANCE
HIGH	Hazard tree management Lawn mowing Performed throughout Boulevard MU wherever needed.

CAPITAL PROJECTS

HIGH — Tree planting
(details pgs 68-78)

Typology Areas North of I-90:

Area	Typology	Tree Spacing
1	Neighborhood	30' o.c.
2	Neighborhood	30' o.c.
3	Enclosed	45' o.c.
4	Open	60' o.c.
5	Enclosed	45' o.c.
6	Open	60' o.c.
7	Threshold	45' o.c.
8	Neighborhood	30' o.c.
9	Open	60' o.c.



HIGH

Tree planting
(details pgs 68-78)

Typology Areas South of I-90:

Area	Typology	Tree Spacing
10	Neighborhood	30' o.c.
11	Threshold	45' o.c.
12	Threshold	45' o.c.
13	Open	60' o.c.
14	Enclosed	45' o.c.
15	Open	60' o.c.
16	Threshold	45' o.c.

MED

Shrub planting
(details pg 78)

Needed in locations throughout the Boulevard MU

Current Management Practices

Tree removal, tree replacement, tree maintenance, and mowing of lawn areas are the current management tasks for the Boulevard Unit. District staff are responsible for mowing, while Urban Forestry staff determine when trees need to be removed, what species they will be replaced with, and provide for maintenance of establishing trees, as well as any pruning required.

Problems with Current Practices

Figure 24 Example of poor Boulevard tree planting location. Trees have limited soil volume for rooting and are buckling the walkway.

Tree establishment is a continuing problem along the Boulevard (Fig.24). Mechanical damage to trees from cars, pedestrians, and lawn care equipment has led to a number of tree deaths or disease entry points. Watering continues to be a problem as resources for watering establishing trees are limited. Establishing trees are currently getting 5-10 gallons of water every other week instead of the 15 gallons per week that would greatly enhance establishment. Additionally, tree installation practices could be improved. Watering contractors indicate that many of the trees they water do not have properly installed tree wells, therefore water will often run off a planting mound rather than soaking into the root zone. Contractors also indicate that most of the mulch applied on installation of the trees has decomposed by the second year of watering.

Species selection is of primary importance to ensure survivability of plantings. Currently 27% of Boulevard MU trees are cherry, and in many cases these trees are planted in inappropriate locations. As mentioned previously, Parks staff are working with the Seattle Cherry Blossom & Japanese Cultural Festival Committee to ensure that the legacy of celebrating the cultural importance and visual excitement of cherries along the Park property continues, however, in some areas, particularly street tree plantings, cherries will be replaced with more site-appropriate species from the Boulevard plant palettes (Tables 24, 26, and *28*).

Boulevard Desired Best Management Practices

Alternative locations for some Boulevard trees may be a practical solution to many problems identified above, particularly shifting of some trees from the street side of the paved walking path to the lakeward side of that path. The EDAW study indicated several major capital improvement projects for the transportation corridors (bicycle, vehicle and pedestrian) that cannot be accommodated with trees in current locations. Establishing

new tree plantings on the opposite side of the path will create opportunities to realize those transportation objectives. Increased funding for tree establishment would dramatically improve the success of the tree replacement program. Additional funds would be used to annually recreate eroded water wells, add fresh chip mulch, and increase the number of summer watering days.

Boulevard Tree Placement

Guidelines for tree placement will generally be consistent with Seattle Department of Transportation guidelines as follows. Any tree planted in the Boulevard MU shall be:

- 3½ feet back from the face of the curb or roadway edge for unimproved areas
- 5 feet from underground utility valve connections boxes or other maintenance boxes
- 10 feet from power poles
- 7½ feet from driveways
- 20 feet from street lights or other existing trees
- 30 feet from street intersections

Boulevard Tree Typologies and Tree Spacing

The management and maintenance guidelines for the Boulevard MU include a series of street tree typologies based on site character and human use patterns. These typologies are Neighborhood, Threshold, Open, and Enclosed and are summarized below (Table 21). Tree spacing will vary for each typology.

The Department of Transportation recommends that tree spacing shall be a function of mature crown spread, and may vary widely between species or cultivars. For Lake Washington Boulevard, view management for pedestrians, drivers, and the adjacent residential community are also important considerations for spacing. Tree spacing for each typology in this plan are indicated in the table below.

Table 21 Boulevard MU Tree Spacing

Boulevard Tree Typology	General Tree Characters	Tree Spacing
Neighborhood	Small to Medium Deciduous Ornamental	30 ft. OC
Open	Small to Medium Deciduous Ornamental	60 ft. OC
Threshold	Large Native and Ornamental, Mostly Coniferous	45 ft. OC
Enclosed	Medium to Large Deciduous Ornamental	45 ft. OC*

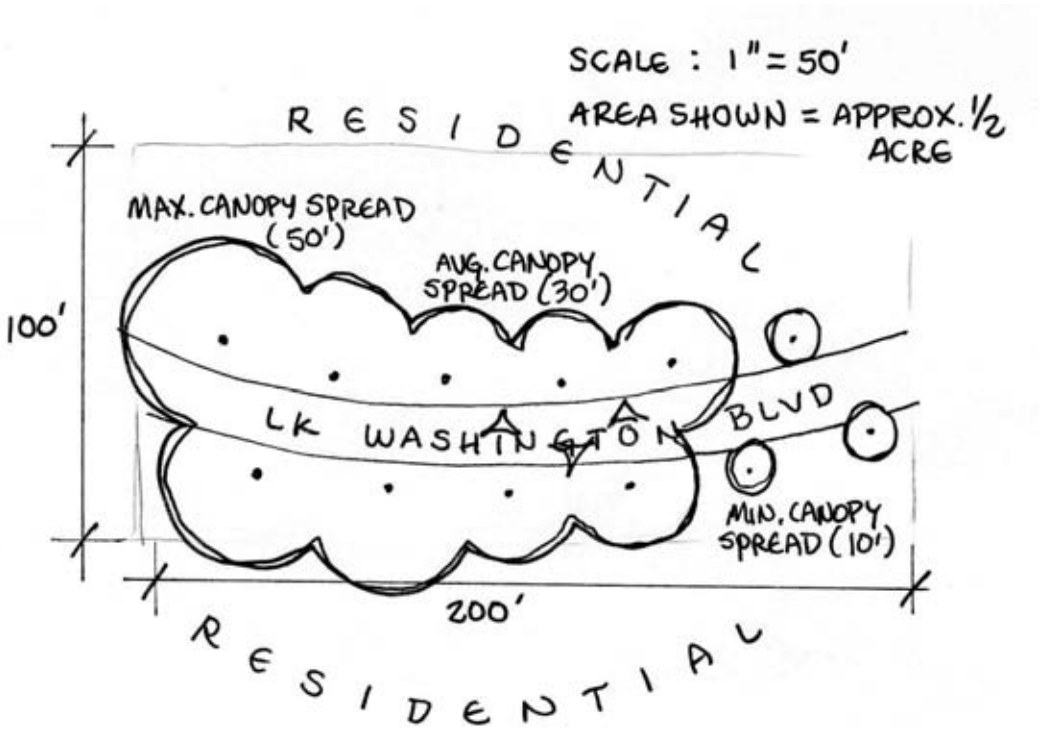
* Except Swamp white oak and scarlet oak, which shall be planted 65 ft. OC

NEIGHBORHOOD TYPOLOGY

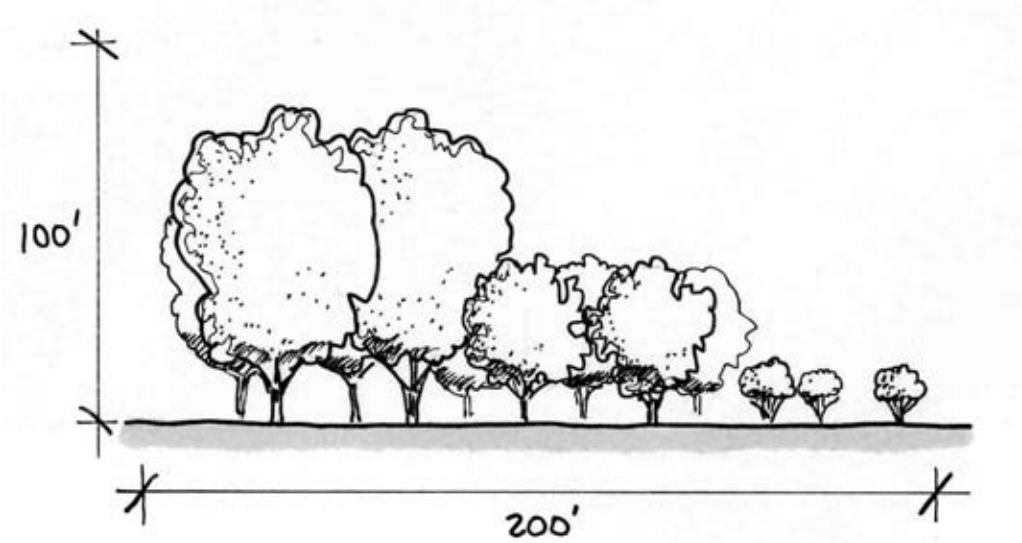
The Neighborhood Typology is characterized by a cadence of allees of street trees in the right of way and rhythms in the shared residential right of way spaces (Table 22). These trees are meant to be larger deciduous trees that shape the space above the street level and create a dappled light. Most importantly, these rows of trees are meant to reconnect the residential portions of the boulevard to the waterfront portions. These trees should be chosen from the palette of street trees used along the waterfront sections of the boulevard. Their architecture should be upright and full. They should not arch across and cover the street, but they should form a succinct canopy line along the boulevard. Seattle citizens have been engaged in neighborhood tree planting projects through Seattle Department of Transportation's Tree Stewards Program and Department of Neighborhoods grant projects. Street tree projects along LWB within neighborhoods could emulate these models and use existing resources to acquire plant materials. A Neighborhood and Street tree palette to select species follows the Open typology section.

Table 22 Neighborhood Typology Tree Placement Strategy for Boulevard MU

	Street Trees	Curb	Priority
Area 1	This section shall be fitted with a row of street trees on both sides of the boulevard. All of the trees in this section are to be planted with the standard spacing.	Madison: Retain Curbs. East: Curbless and Cubical LWB Bollards.	Low
Area 2	This section shall be fitted with a row of street trees on the slope side of the boulevard. All of the trees in this section are to be planted with the standard spacing.	Retain curbs and sidewalks.	Low
Area 8			Low
Area 10			Low



PLAN VIEW – NEIGHBORHOOD TYPOLOGY
Typical for Areas 1, 8, 10: 30' spacing of trees



CROSS -SECTION – NEIGHBORHOOD TYPOLOGY
Typical for Areas 1, 8, 10: 30' spacing of trees

Figure 25 Plan View and Cross-Section of Typical Neighborhood Typology Tree Planting in Boulevard MU

OPEN TYPOLOGY

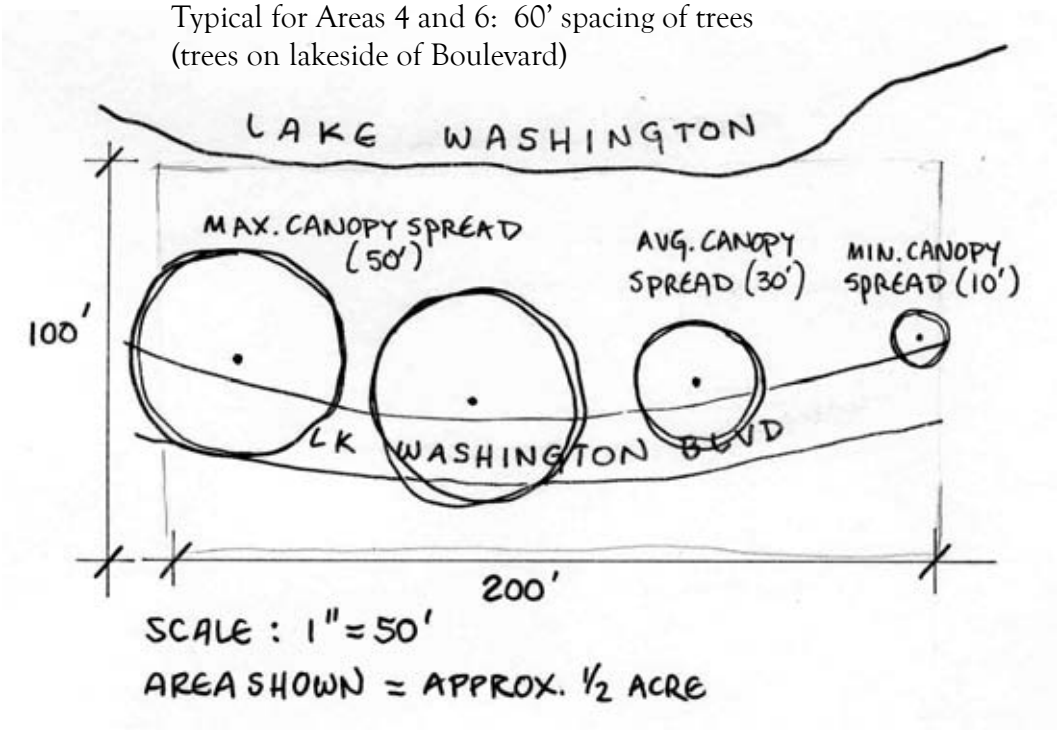
The open typology refers to the sections of street trees along the waterfront where the Boulevard is straight or gently curving with open views (Table 23). These portions of the boulevard trees are meant to create open views over the lake and allow for the most light to penetrate the canopies. In this typology the canopies are not meant to connect over the Boulevard (Fig.26). These long running portions should be managed to contrast with the enclosed typology (Fig.28). The character of the trees along these portions of the Boulevard should create a succinct canopy line along the Boulevard, but the tree canopies do not connect over the Boulevard or enclose it. Also, these trees should have airy canopies that allow for the light to penetrate through them onto the Boulevard below.

Table 23 Open Typology Tree Placement Strategy for Boulevard MU

	Street Trees	Curb	Priority
Area 4	Placement of street trees along the lakeside of LWB shall use the standard spacing. There is sufficient room to place the trees 4'-5' back of the roadside bollarding.	West side: Retain Curb. East side: Cubical LWB Bollards.	High
Area 6	Placement of street trees along the lakeside of LWB shall use the standard spacing. There is sufficient room to place the trees 4'-5' back of the existing curb.	Retain sidewalk and curb.	Medium
Area 9	A single line of street trees shall run along the upper portion of the open space. This line would then run into the residential templating in the block leading into the I-90 viewpoint.	Retain sidewalks and curb. Cubicle LWB Bollards.	Low
Area 13	Street trees shall be placed on either side of the boulevard, except through Genesee and Stan Sayres Park. The existing Tulip street trees in Stan Sayres shall be preserved and maintained. On the west side of the Boulevard, the street trees shall be set back 5'-6' from the pavement edge. If a path exists that blocks this area, a capitol improvement project of shifting the path down the slope shall be sought and implemented. If this is not an option, a subtle mounding of the earth between the path and the Boulevard up to 3' at the time of installation of the new street trees shall be constructed.	East side: 6"-9" Curb. West side: Curbless with Cubical LWB Bollards Genesee/Stan Sayres Area: 6"-9" Curb.	Medium
Area 15	This section shall be fitted with street trees on both sides of the Boulevard. On the west side, the trees shall be set back 5'-6' from the pavement's edge. If a path exists that blocks this area, a capitol improvement project of shifting the path down the slope shall be sought and implemented. If this is not an option, a subtle mounding of the earth between the path and the boulevard up to 3' at the time of installation of the new street trees shall be constructed.	East side: 6"-9" Curb. West side: Curbless with Cubical LWB Bollards. In cases where the boulevard leads to residences on west side: 6-9" Curb.	Medium

PLAN VIEW – OPEN TYPOLOGY

Typical for Areas 4 and 6: 60' spacing of trees
(trees on lakeside of Boulevard)



CROSS-SECTION – OPEN TYPOLOGY

Typical for Areas 4 and 6: 60' spacing of trees
(trees on lakeside of Boulevard)

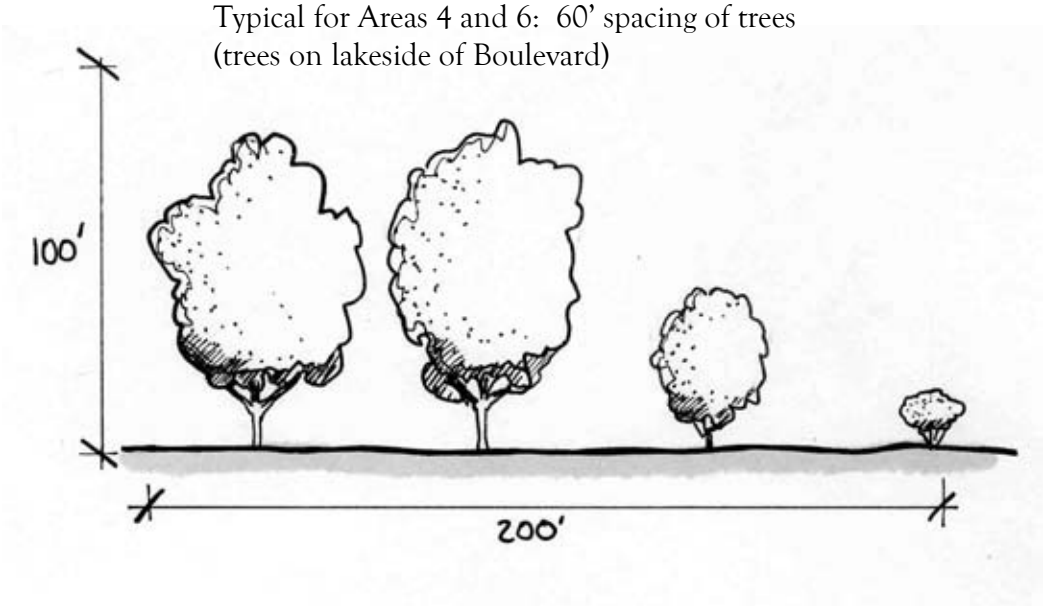


Figure 26 Plan View and Cross-Section of Typical Open Typology Tree Planting in Boulevard MU

Table 24 Neighborhood and Open Typologies Street Tree Palette

Scientific Name	Common Name	Height (ft)	Spread (ft)	Flowers	Fall Color	Comments/Notes
Acer campestre	hedge maple	30	30		Yellow	
Acer griseum	paperbark maple	25	20		Brilliant red	Peeling, cinnamon colored bark
Acer saccharum	sugar maple	100	40		Orange/red	
Cercis canadensis	Eastern redbud	25	30	Red	Yellow	
Fraxinus americana	white ash	80	50		Red/Purple	Choose seedless varieties
Fraxinus pennsylvanica 'Urbanite'	green ash	50	40		Deep Bronze	
Liriodendron tulipifera	tulip tree	60	30	Yellow-green	Yellow	Good next to buildings
Magnolia grandfolia 'Little Gem'	little gem magnolia	15	10	White	Evergreen	
Magnolia x loebneri	star magnolia	20	20	Large white	Yellow	
Magnolia x soulangeana	saucer magnolia			White-pink		
Prunus sargentii	Sargent cherry	40	40	Pink	Copper/Orange	Excellent urban tree, req. early shaping
Prunus x yedoensis 'Akebono'	Akebono cherry	35	40	White-pink	Yellow	Drought sensitive, use as specimen, but not as street tree
Styrax japonica	Japanese snowbell	25	25	White	Yellow	
Tilia americana	American linden	50	25			
Tilia cordata	De Groot'linden	30	20		Yellow	Suckers less than other Lindens
Tilia mongolica	Mongolian linden	35	30			Fragrant Flowers
Ulmus wilsoniana 'Prospector'	elm hybrid prove. W. China	40	30		Yellow	Resistant to Dutch Elm disease

THRESHOLD TYPOLOGY

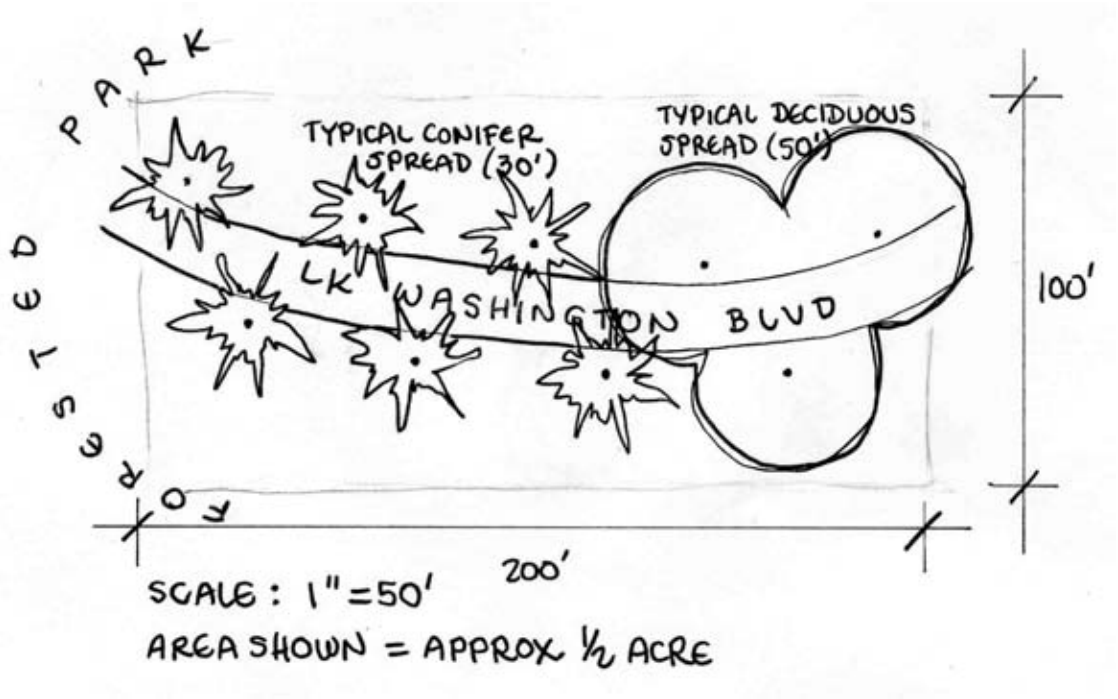
The Threshold Typology defines the areas of trees leading into the four forested parks the Boulevard travels through: Frink, Colman, Madrona, and Seward (Table 25). These short sections of street trees are meant to signal the significance of the parks and to lead travelers along the historic boulevard route through these parks. The character of these trees should be that they communicate the experience of these forested and regionally indicative areas. Thus, these sections of street trees should be indigenous evergreen trees. Also, these are the sections where the recommended management is to space the trees closer together (Fig.27). This is meant to slow travelers by exposing the speed they are traveling through the quicker pacing of the passing trees.

Table 25 Threshold Typology Tree Placement Strategy for Boulevard MU

	Street Trees	Curb	Priority
Area 7	These trees shall be set back 5'-6' from the pavements edge on the east side to the boulevard. On the west side the trees shall be set back as far as a constant set back is available with adjacent residences. This section of street trees shall be planted using alternate spacing.	East side: Curbless with Cubical LWB Bollards. West side: 6"-9" Curb.	High
Area 11	These trees shall be set back 5'-6' from the pavements edge on both sides of the boulevard. This section of street trees shall be planted using alternate spacing.	6"-9" curb.	High
Area 12	These trees shall be set back 5'-6' from the pavements edge on both sides of the boulevard. This section of street trees shall be planted using alternate spacing.	Cubical Bollards.	High
Area 16	These trees shall be set back 5'-6' from the pavements edge on both sides of the boulevard. This section of street trees shall be planted using alternate spacing.	6"-9" Curb.	High

PLAN VIEW – THRESHOLD TYPOLOGY

Typical for Areas 7, 11, 12, 16: 45' spacing of trees



CROSS-SECTION – THRESHOLD TYPOLOGY

Typical for Areas 7, 11, 12, 16: 45' spacing of trees

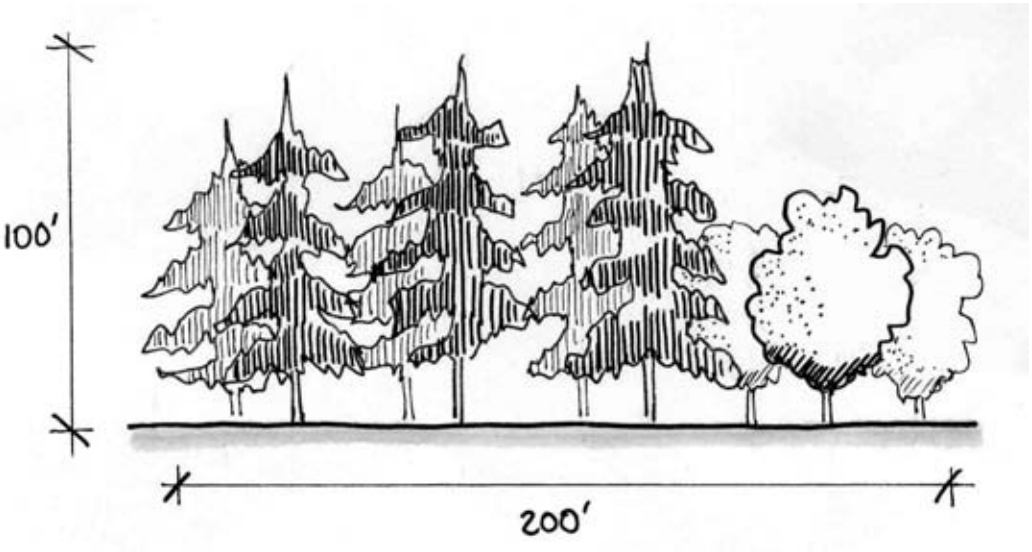


Figure 27 Plan View and Cross-Section of Typical Threshold Typology Tree Planting in Boulevard MU

Table 26 Threshold Typology Tree Palette

Scientific Name	Common Name	Height (ft)	Spread (ft)	Flowers	Fall Color	Comments/Notes
Abies amabilis	silver fir	20-50	15		Evergreen	
Acer macrophyllum	bigleaf maple	75	50		Yellow	
Acer saccharum	sugar maple	100	40		Orange/red	
Cedrus deodora	deodor cedar	80	40		Evergreen	
Chamaecyparis	false cypress	80	25		Evergreen	
Cryptomeria japonica	cryptomeria	100	30		Evergreen	
Fraxinus americana	white ash	80	50		Red, purple	Choose seedless varieties
Fraxinus pennsylvanica 'Urbanite'	green ash	50	40		Deep bronze	
Pseudotsuga menziesii	Douglas fir	200	30		Evergreen	
Sequoia sp.	redwood	200	30		Evergreen	Low pest problems
Thuja plicata	western red cedar	200	30		Evergreen	Native American cultural value

ENCLOSED TYPOLOGY

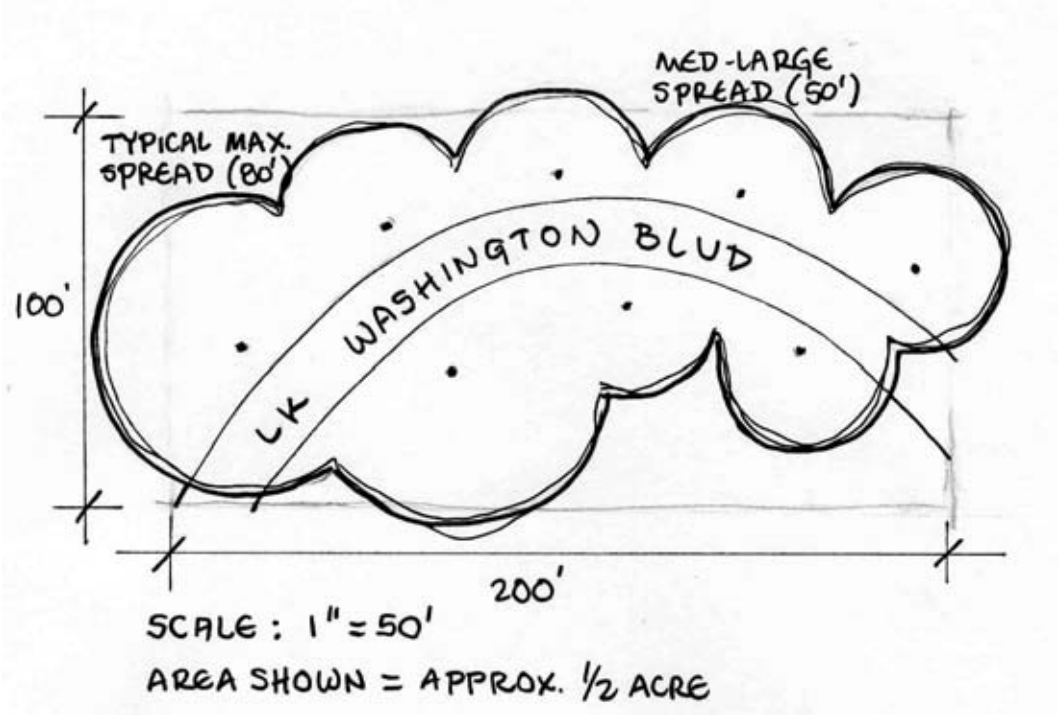
The enclosed sections of the Boulevard are in response to the topography and light available along the Boulevard (Table 27). These sections of trees are meant to be managed to contrast the open sections of the Boulevard by enclosing the street while it is set away from the water and traveling around bends. The street trees along these sections should be larger species with an architecture that will span across the Boulevard and shade the space below (Fig.28). At a mature age these trees should provide a constant canopy over and along the Boulevard, creating short enclosed sections of allees through the curving and distanced sections of the Boulevard.

Table 27 Enclosed Typology Tree Placement Strategy for Boulevard MU

	Street Trees	Curb	Priority
Area 3	This area should contain a row of street trees on both sides of the Boulevard. The trees should be set back as far as possible from the Boulevard's edge as right of way space allows (no greater than 6').	Retain Curb	Low
Area 5	This area should contain a row of street trees on both sides of the Boulevard. The trees on the west side should be set back 5'-6' from the pavement edge. The trees on the east side should be placed in the existing right of way strip along the park.	West side: 6"-9" Curb. East side: Curbless with Cubical LWB Bollards	Low
Area 14	This area should contain a row of street trees on both sides of the Boulevard. The trees on either side of the Boulevard should be placed 5'-6' from the pavement edge.	West side: 6"-9" Curb. East side: Curbless with Cubical LWB Bollards	High

PLAN VIEW – ENCLOSED TYPOLOGY

Typical for Areas 3, 5, 14: 45' spacing of trees



CROSS-SECTION – ENCLOSED TYPOLOGY

Typical for Areas 3, 5, 14: 45' spacing of trees

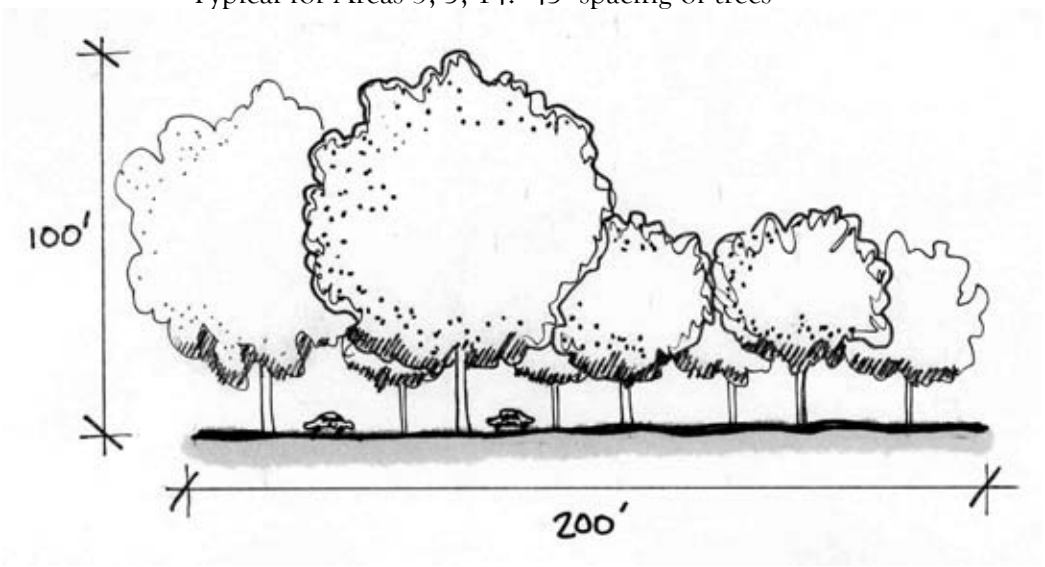


Figure 28 Plan View and Cross-Section of Typical Enclosed Typology Tree Planting in Boulevard MU

Table 28 Enclosed Typology Street Tree Palette

Scientific Name	Common Name	Height (ft)	Spread (ft)	Flowers	Fall Color	Comments/Notes
Acer griseum	paperbark maple	25	20		Brilliant red	Peeling, cinnamon colored bark
Acer macrophyllum	bigleaf maple	75	50		Yellow	
Acer saccharum	sugar maple	100	40		Orange/red	
Betula papyrifera	paper birch	60	35		Yellow	Showy white bark
Fraxinus americana	white ash	80	50		Red, purple	Choose seedless varieties
Fraxinus pennsylvanica 'Urbanite'	green ash	50	40		Deep bronze	
Quercus bicolor	swamp white oak	100	80		Varies	Shaggy, peeling bark
Quercus coccinea	scarlet oak	100	80		Red	
Quercus garryana	garry oak	60	40			
Quercus rubra	red oak	50	45		Red	
Tilia americana	American linden	50	25			
Tilia mongolica	Mongolian linden	35	30			Fragrant flowers
Ulmus x 'Homestead'	Siberian elm hybrid	60	35		Yellow	Resistant to Dutch Elm Disease

Boulevard Shrub Placement and Maintenance

In general the Boulevard MU is maintained to trees and lawn. In some cases a shrub/herbaceous plant community may be desired in the Boulevard MU by homeowners or the Parks Department to help delineate between park and non-park property (Fig.29). Examples of these areas include sites just north of Seward Park and Colman Park where many property owners have established shrub beds. Existing shrub beds are confusing to the public as they do not have a consistent design theme and frequently encroach onto Park property in an irregular manner. Linear boulevard shrub communities must be approved by Parks Urban Forestry Staff, District Staff, and Landscape Architects and may be planted in the Boulevard MU (Table 29) only to the following specifications:

- May only be planted on the Boulevard MU on the residential side of the Boulevard
- May only be planted to areas where Boulevard does not cross a major grade change or residential property boundary for at least 15 feet
- May be not greater than 10' wide
- Must consist of at least 50% native plant species (see palette below)
- Must consist of vegetation less than 3 feet mature height
- May be pruned only for plant health, but not for shape
- May use up to 50% of species chosen from Olmsted legacy plant list (Table 14)

Table 29 Boulevard MU Shrub Plant Palette

Scientific Name	Common Name	Deep Shade - Moist Soil	Partial Shade - Well-Drained Soils	Sun - Moist Soil	Sun - Well-Drained Soils
Shrubs					
Gaultheria shallon	salal	x			
Mahonia nervosa	low Oregon grape	x			
Groundcovers/Herbaceous					
Achlys triphylla	vanilla leaf		x		
Arctostaphylos uva-ursi	kinnikinnick				x
Athyrium filix-femina	lady fern	x		x	
Blechnum spicant	deer fern	x			
Cornus canadensis	bunchberry	x			
Dicentra formosa	Pacific bleeding heart	x		x	
Fragaria chiloensis	coast strawberry				x
Linnea borealis	twinflower		x		x
Mainanthemum dilatatum	false lily-of-the-valley			x	
Polystichum munitum	swordfern	x	x	x	x
Scirpus microcarpus	small-fruited bulrush			x	
Trillium ovatum	Western trillium		x		
Viola sempervirens	trailing yellow-violet		x		

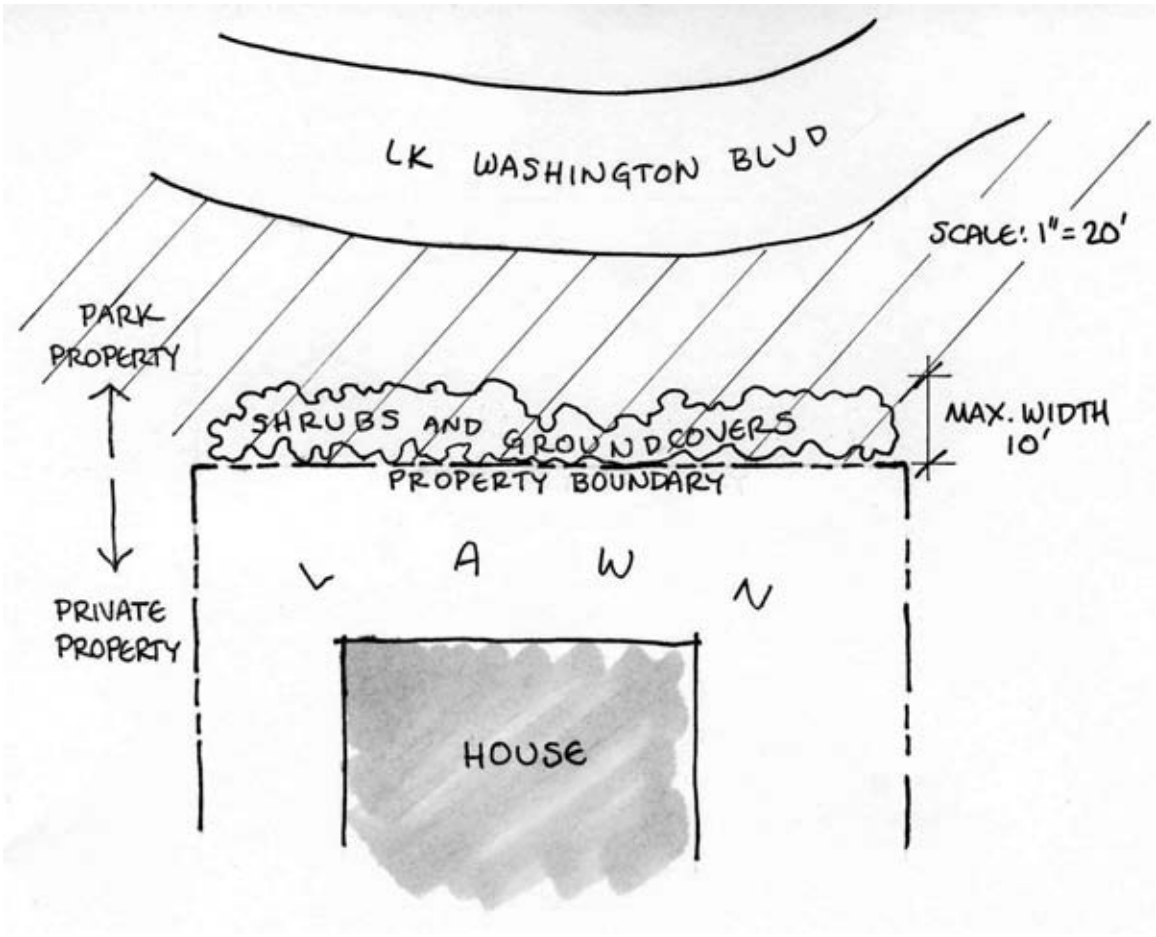


Figure 29 Plan View of Typical Shrub Planting in Boulevard MU

Slope Management Unit – Actions and Priorities

Slope Management Unit – Summary and Prioritization of Management Actions

Key Points

1. Landscape is characterized by natural area/forested parkland with aging trees at the end of their lifespan and heavily invaded understory layers.
2. There is an interplay between revitalizing these degraded habitat areas and concerns over slope stability and private landowner views from residences atop these slopes. 38% of existing trees inventoried in Mt. Baker Slopes have multiple leaders due to topping or coppicing.

Major Implementation Strategies

Maintenance

1. Hazard tree management = pruning and removals for public safety

Capital Projects

1. Perform complete tree inventory throughout MU to identify and assess hazard trees
2. Remove and eradicate invasive plant species in following order of priority:
   - blackberry, clematis, ivy, knotweeds, WA State Class A and B listed weeds
   - English and Portugese laurel, English holly
   - any other undesirable/invasive species
3. Establish healthy native plant communities with all vegetation layers (canopy, understory, shrub, groundcover).
4. Design and implement planting of stairway areas in one of three styles:
   - colonnade = vertical plant elements w/ native groundcover
   - radiance = Magnolia trees @ regular spacing w/ native groundcover
   - rhythm = arching pairs of trees @ regular spacing to create arbor
5. Design and implement project at Charles St. to Judkins St. Median

Table 30 Prioritized List of Proposed Actions for Slope MU

Priority	MAINTENANCE	
HIGH	Hazard tree management	Throughout entire Slope MU
	CAPITAL PROJECTS	
HIGH	Complete tree inventory	Throughout entire Slope MU
HIGH	Hazard tree removal and/or pruning	Mt. Baker slopes
CMTY	Remove and eradicate invasive species	Throughout entire Slope MU
CMTY	Design and implement stairway planting	Stairways in Slopes MU
CMTY	Design and implement project at Charles St. to Judkins St. median	

CMTY = Determine by community

Current Management Practices

The Slope Unit is considered natural area and currently managed as undeveloped forested parkland. Very limited maintenance currently occurs on the Slope Unit of LWB. The primary responsibility for management of Slope areas lies with the Urban Forestry Program and current funding limits the ability to initiate or maintain vegetation enhancement projects on the slopes. Parks Sr. Urban Forester manages hazard tree issues on the slope in collaboration with Parks Geotechnical Engineering staff. Slope vegetation enhancement is opportunity driven, often generated by citizen interest. Maintenance work on slopes includes hazard tree removal and "windowing" tree trimming by neighbors via Park's Tree Policy permit process. These projects generally include an invasive plant removal and native plant installation component as part of the permit requirement in order to compensate for canopy cover lost during maintenance activities.

Problems with Current Practices

Figure 30 Typical Condition of Trees in Slope Unit, 2006

Two main problems facing current Slope Unit management are available funding and view conflicts with the adjacent residential community. Many of the trees in the Slope Unit are near the end of their natural lifespan and are inundated with invasive weeds in the shrub and herbaceous vegetation layers (Fig.30). Major capital improvement and maintenance funding will be required to establish the next generation of forested canopy in these areas. During the public involvement process many neighbors expressed concern regarding future planting on the slopes in light of private views. The dynamic forest canopy implicated by the desired management practices below will change over time, affecting views in different ways during different life stages of the newly planted trees. Best Management Practices for multiple tree planting which address survivability issues that later allow for single "leave trees" in the Slope Unit and the continued opportunity for window pruning via Park's Tree Policy permits will allow some flexibility for view management for adjacent residents. However, as noted earlier, desire to manage this unit for private residential views may be in conflict with the design intent for the Slope MU, which is to manage this unit as forested parkland.

Slope Desired Best Management Practices

The original intent of the Olmsted design for the Slope MU was to promote cohesiveness and continuity along the length of the Boulevard with the forested slopes as a backdrop and a buffer of the built environment to the west. Since the time of the Olmsted plan a significant increase in residential development has occurred and invasive plants have heavily compromised this forested area. Much work to establish and manage native vegetation to provide safe slope conditions and remove non-native invasive species that deteriorate the Northwest forest is needed. Significant improvement to stairway plantings should merge formal tree plantings with the adjacent native understory and emphasizes the contrasts between the formally maintained stairways and naturalistic slope aesthetic.

The slope planting palette is entirely native, however plantings can be installed and managed to define formal versus informal places via spacing and clustering of plant communities. In the naturalistic forest areas, a clump-gap mosaic planting aesthetic should be followed while more formal linear swaths will be appropriate along stairwells. In most cases invasive plant species will need to be removed before establishing any new plantings. The following management practices apply to the Slope Unit with special attention to

treatment of slope edges – areas that border the Slope MU, and stairways that link the residential communities to the lakeside via the slopes.

Invasive Plant Priorities

Table 31 indicates a prioritization for removing specific invasive plants on the slopes based on their level of threat to native vegetation. First tier species should be removed first, followed by second, then third tier plants.

Table 31 Prioritization of Invasive Species Removal in Slope MU

	Common Name(s)	Action
First Tier	Blackberry, clematis, ivy, knotweeds or any other plant on the WA State Noxious Weed Control Board's Class A or B lists (See Appendix 4)	Remove and Eradicate
Second Tier	English and Portuguese laurel, English holly	Contain and eventually remove when adjacent native shrubs are reaching their second generation
Third Tier	Any undesirable non-native plant not on the Slope MU plant palette (Table 30)	Remove when adjacent native canopy of trees are of similar height

Table 32 Slope MU Plan Palette

Scientific Name	Common Name
Evergreen Canopy Trees	
Arbutus menziesii	madrone
Pseudotsuga menziesii	Douglas fir
Thuja plicata	western red cedar
Tsuga heterophylla	western hemlock
Deciduous Canopy Trees	
Acer macrophyllum	bigleaf maple
Alnus rubra	red alder
Cornus nuttalli	Pacific dogwood
Betula papyrifera	paper birch
Fraxinus latifolia	Oregon ash
Understory Trees	
Acer circinatum	vine maple
Amelanchier alnifolia	serviceberry
Magnolia stellata (ONLY IN STAIRWAY PLANTINGS)	star magnolia
Prunus emarginata	bitter cherry
Prunus virginiana	chokecherry
Rhamnus purshiana	cascara
Taxus brevifolia	Pacific yew
Shrubs	
Cornus sericea	red osier dogwood
Corylus cornuta	hazelnut
Holodiscus discolor	oceanspray
Lonicera involucrata	black twinberry
Mahonia aquifolium	tall Oregon grape
Oplopanax horridum	devil's club
Oemlaria cerasiformis	Indian plum

Scientific Name	Common Name
Physocarpus capitatus	Pacific ninebark
Rhododendron macrophyllum	coast rhododendron
Rosa nutkana	Nootka rose
Rubus spectabilis	salmonberry
Sambucus racemosa	red elderberry
Spiraea douglasii	hardhack
Symphoricarpos albus	snowberry
Vaccinium ovatum	evergreen huckleberry
Vaccinium parvifolium	red huckleberry
Groundcover	
Arctostaphylos uva-ursi	kinnikinnick
Adiantum pedatum	maidenhair fern
Asarum caudatum	wild ginger
Blechnum spicant	deer fern
Gaultheria shallon	salal
Lonicera ciliosa	orange honeysuckle
Mahonia nervosa	low Oregon grape
Polystichum munitum	sword fern

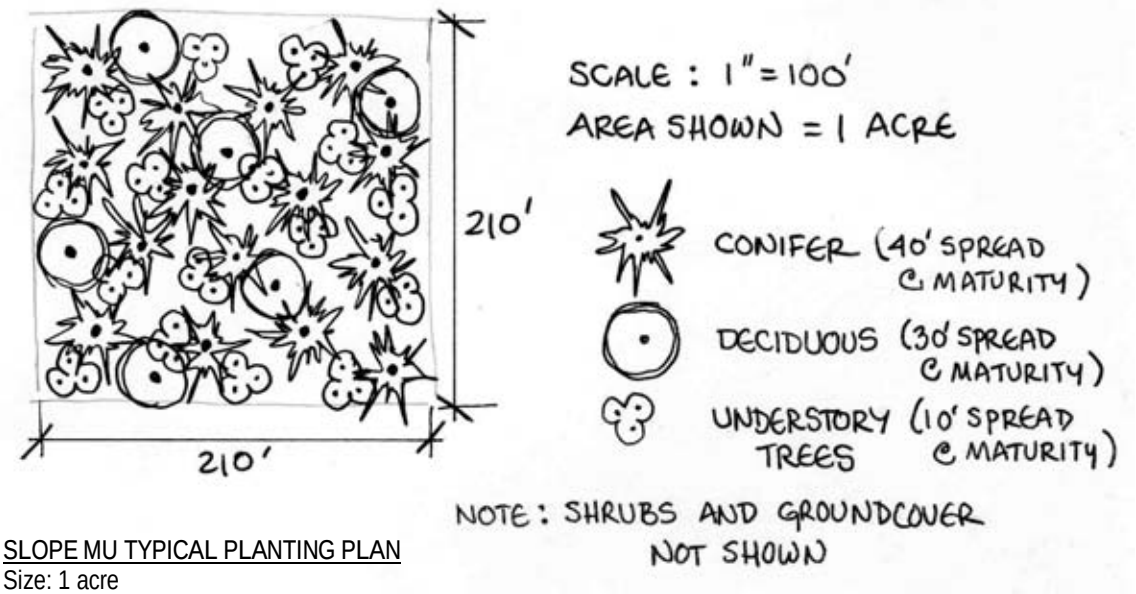
Slope Plant Spacing and Phasing Protocols

The overarching goal of these plant spacing protocols for the Slope MU (including the Mt. Baker Slopes) is to encourage a productive native mixed coniferous and deciduous forest, diverse in age, species and canopy structure (Table 33). New plant installations will need to take advantage of funding opportunities, but would ideally be staged in groups staggered in age to avoid an even-age stand along the Boulevard. Within stands two-age class structure is desired and a second generation of conifer or deciduous trees should be installed approximately 20 years after initial planting to ensure continuous forested canopy on the slopes (Fig.26). Understory trees, shrubs and ground cover should be replanted as mature specimens decline. Canopy tree spacing protocols are for mature trees.

Table 33 Slope MU Plant Spacing and Phasing Protocols

Plant Type	Planting – Slope MU	Planting – Mt. Baker Slopes	Type (within group)	Measurement	Placement	Notes
Coniferous Canopy Trees	50' OC from nearest coniferous tree group	150' OC from nearest coniferous group to be planted on lower 1/3 of slope only (no trees on slopes exceeding 70%)	Single species	From central tree	3 trees at 6' spacing	When trees reach 20', the healthiest tree will be selected as a "leave" tree and any other surviving tree of the group may be snagged or removed.
Deciduous Canopy Trees (>30 ft)	80' OC from nearest deciduous tree group	100' OC from nearest deciduous group to be planted on lower 1/3 of slope only (no trees on slopes exceeding 70%)	Single species	From central tree	3 trees at 8'spacing	When trees reach 20' tall, the healthiest tree will be selected as the "leave" tree and any other surviving trees of the group may be snagged or removed.

Plant Type	Planting – Slope MU	Planting – Mt. Baker Slopes	Type (within group)	Measurement	Placement	Notes
Understory Trees (< 30 ft)	50' OC from nearest understory tree group	50' OC from nearest understory tree group	Single species	From any understory tree group	3 trees per group at 10' spacing	Do not plant within 10' of pathways. May be pruned or removed to make room for next generation of canopy trees.
Shrub	25' OC from nearest shrub grouping of same species	25' OC from nearest shrub grouping of same species	Single species	From any shrub group of same species	5 shrubs per group at 5' spacing	May be pruned or removed to make room for next generations of canopy trees
Ground Cover	2' OC	2' OC	n/a	n/a	n/a	



SLOPE MU TYPICAL PLANTING PLAN
Size: 1 acre

Plant Specs and totals for typical acre shown at maturity:
Coniferous trees @50' o.c. = 15-17 conifers/acre
Deciduous trees @80' o.c. = 6-7 deciduous trees/acre
Understory trees (grps of 3x) @50' o.c. = 45-51 understory trees/acre
*Shrubs (grps of 5x) @25' o.c. = 350 shrubs/acre
*Groundcover @2'o.c.planted in 10% of site = 1100 grndcvrs
20% of site = 2200 grndcvrs
30% of site = 3300 grndcvrs

* *not shown on drawing due to scale and planting density*

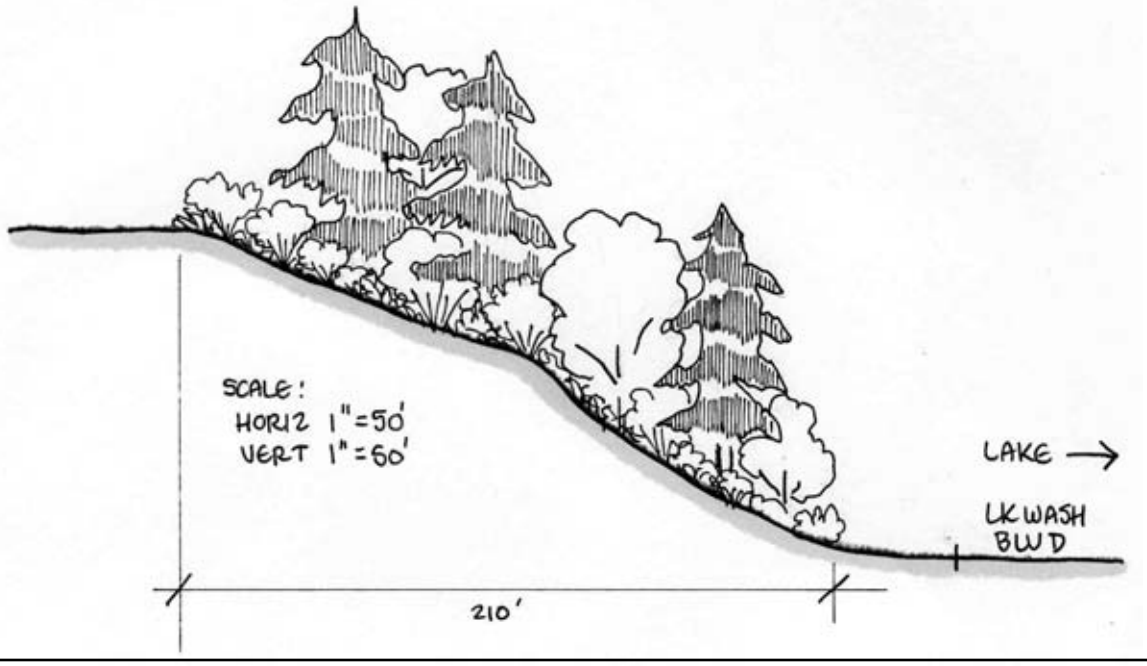
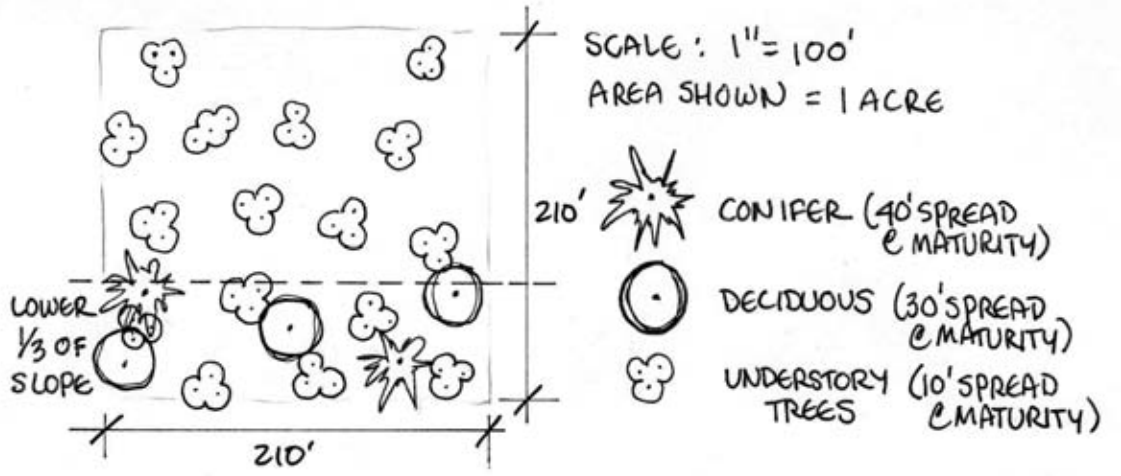


Figure 26 Typical Plan and Cross-Section Views of Planting at Maturity for 1 acre of Slope MU



MT. BAKER SLOPES TYPICAL PLANTING PLAN
Size: 1 acre

Plant Specs and totals for typical acre shown at maturity:
Coniferous trees @50' o.c. = 2 conifers/acre (located on lower 1/3 of slope only)
Deciduous trees @80' o.c. = 2-3 deciduous trees/acre (located on lower 1/3 of slope only)
Understory trees (grps of 3x) @50' o.c. = 45-51 understory trees/acre
*Shrubs (grps of 5x) @25' o.c. = 350 shrubs/acre
*Groundcover @2'o.c.planted in 10% of site = 1100 grndcvrs
20% of site = 2200 grndcvrs
30% of site = 3300 grndcvrs

* *not shown on drawing due to scale and planting density*

NOTE: No trees are to be planted on slopes exceeding 70%

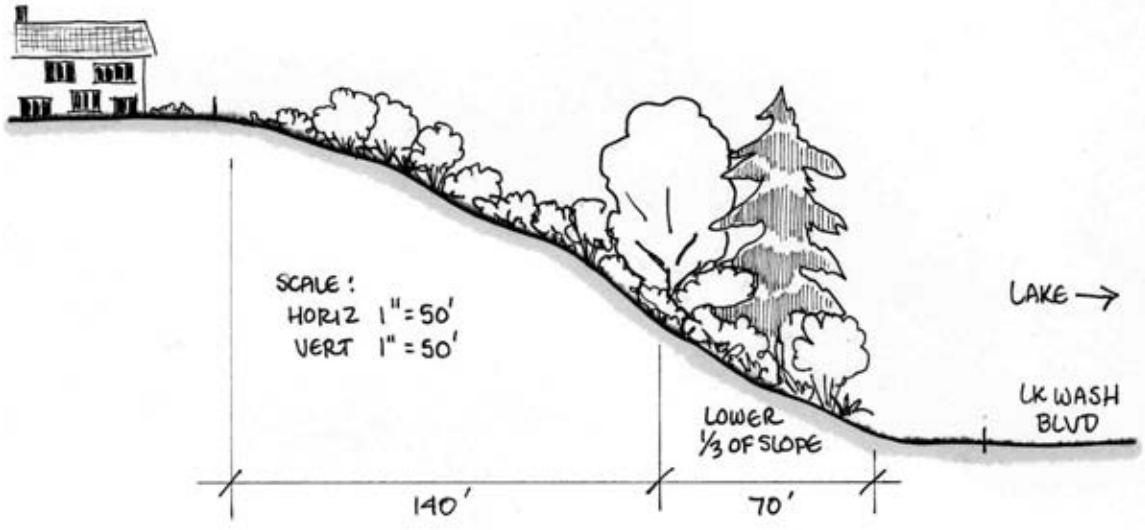


Figure 27 Typical Plan and Cross-Section Views of Planting at Maturity for 1 acre of Mt. Baker Slopes

Edges

The Slopes MU backs up to several different property types. Plantings at these edges should provide a responsive treatment to the adjacent surroundings.

Table 34 Planting and Maintenance Guidelines for Slope MU Edge Areas

Edge Type	Goals	Maintenance Guidelines
Private Property	Provide a native Pacific NW forest as backdrop to the residential community.	• Remove invasive plants from edges and plant to native trees, shrubs and groundcover • Hazardous trees are to be snagged to create habitat or felled if a snag does not relieve the hazard to property • Hazardous trees are identified by Seattle Parks and Recreation certified arborist or a third party hired by Seattle Parks and Recreation
Parks	Gradually transition from forested slopes to the distinctive vegetative character of each park.	• Ornamental trees contributing to a parks distinction may be planted into the slope area no farther than 150' from the park boundary • Shrubs from slopes should be chosen to resemble the form and texture of the shrubbery on the adjacent park land • Arbutus menziesii should be a large proportion of canopy trees adjacent to Madrona Park
LWB	Create a native Pacific Northwest backdrop for the pleasure drive experience of LWB. Blend into formal boulevard plantings. Enable safe driving conditions.	• Deciduous canopy trees should be planted no closer than 40' to boulevard allee tree trunks; existing trees within this distance should be snagged or removed • Coniferous canopy trees should be planted no closer than 25' to boulevard allee tree trunks; existing trees within this distance should be snagged or removed • Understory trees should be planted no closer than 25' to boulevard allee tree trunks; existing trees within this distance should be snagged or removed • Shrubs should be maintained in either an undulating pattern to mimic the rhythm set by the boulevard trees or in a straight line where a pony wall is present. In the event that a pony wall should or is removed, the shrub layer should continue its previous maintenance pattern
Stairways	Create safe and aesthetically pleasing pedestrian corridors using native vegetation.	• Trees should be planted no closer than 25' OC to staircase • Large and medium sized shrubs should be planted no closer than 10' OC to staircase. Existing shrubs that grow into the staircases should be removed • Groundcovers and very small shrubs (<2' spread) may be planted up to staircase

Unique Management Area - Mt. Baker Slopes

The forest in this zone is currently managed by Parks as a native deciduous forest dominated by big-leaf maple with the primary management activity being hazard tree removal as needed. Funding constraints limit the ability to address a well-known invasive plant species problem in this area. A current tree inventory of the slopes (Appendix 8) reveals a high need for tree maintenance on these slopes as 40% of the trees are in need of either stem reduction or removal. The EDAW (1986) recommendations for this area, identified in that document as Area 14L, are mixed with recommendations for other areas, however some items specific to this area that would impact vegetation management on the slopes are called out below.

- Reclaim and define privatized land within R.O.W.
- Maintain and strengthen forest buffer on land side where existing in Area 14.

EDAW also recommends a million dollar structural improvement to the Boulevard in this area to improve drainage and provide bollards with swales to eliminate parking encroachment. Built construction elements are not the concern of this document, however these improvements would likely improve growth conditions for vegetation in this section of the Boulevard and are recommended here as well.

Elements included to strengthen the forest buffer in the first draft of this document raised concerns among neighbors regarding residential view management and potential impacts of tree mass on steep slope slides. A survey of slope trees in this area found 45% of the trees to have multiple leaders due to topping or coppicing (Appendix 8). Neighbors are clearly responding to view and slope concerns by pruning trees via private contractors either legally through the Tree Policy Permit process or illegally.

Parks geotechnical engineering staff have visited the site and reviewed site geologic and soils records. Additionally through the development of this document Shannon & Wilson, a well-known geological and engineering firm, was hired to do a study of the slopes in this area (Appendix 9). Due to the nature of the soil layers, Parks engineers and Shannon & Wilson's principal Engineering Geologist have stated that slides in this area will occur regardless of the vegetation community established on the site. In other words, future tree selections will neither increase nor decrease slide potential because the nature of the slopes is to slide at a specific separation in the soil strata. Several citizens and Parks staff have noted that small trees and shrubs have been taken out in previous slides, so anecdotal evidence also dictates that small versus large trees are not a remedy to the slide issue. Slide frequency and magnitude is likely higher than would be found in a natural forest system due to intense peak sheetflow runoff from impervious surfaces in the adjacent residential community.

Shannon & Wilson (2007) note that large trees may serve to lessen slide severity when planted on the lower 1/3rd of the slopes. Large trees at the bottom of slopes serve as a

counterweight against slide soil weight and can also buffer the roadway from slide colluvium (slide soil deposits). The experts also note that large trees that fail at the top of the slope due to wind shear may create erosion issues due to large exposures of soil with rootball tipping. The overall recommendation of the geologist for this area is to plant large trees, but to limit them to the lower 1/3rd of the slopes in this area and to not plant trees on slopes steeper than 70%. A detailed map of these recommendations is found in Appendix 9.

As with all other Slope MU areas, the desired management practice for this area is to control invasive plants and increase native vegetation canopy cover. In light of concerns regarding views and geotechnical considerations for this area, Parks has modified the standard slope BMPs for this specific area. The goal of all other Slope MUs is to increase native conifer cover (Fig.27). That goal is modified for this area to read "increase native tree and shrub canopy cover." Slope MU tree spacing guidelines for mature coniferous canopy trees are 50' OC, deciduous canopy trees at 80' OC.

For the Slope MU from S. Court St. (Map Sheet 29) north to the intersection of Lk. Washington Blvd. S. and Lakeside Ave. S. (Map Sheet 22) this spacing will change to mature conifer canopy trees at 150' OC, and mature deciduous canopy trees at 100' OC. This spacing will ensure a continuous corridor for wildlife while allowing gaps of more than 100' between conifer tree canopies. Many of the homes in this area have less than 100' frontage, so in most cases there will be less than one evergreen tree per parcel. The total number of conifers on the slopes will not change significantly from the present number. The mature deciduous canopy tree number will ultimately be less than its present status, however those trees will be allowed to express their full growth form without topping. These spacings are changed for the "Coniferous Canopy Tree" and "Deciduous Canopy Tree" categories only. Spacing for "Understory Tree", "Shrubs", and "Groundcover" will remain consistent with Slope MU management. Additionally, "Coniferous Canopy Tree" and "Deciduous Canopy Tree" categories will only be planted on the lower 1/3 of the slopes.

Current Tree Policy permit requirements dictate that any tree work initiated on park property by an adjacent private property owner is done so with the informed consent of his or her two adjacent neighbors. Due to the high level of concern among neighbors on the Mt Baker slopes regarding view issues, any project initiating tree planting on the slopes should be preceded by a written notification to the resident immediately adjacent to the Park property being planted and the two homes immediately adjacent to that property. This notification should take place at least one month in advance of a planting project. Any planting initiated by Seattle Parks and Recreation in this area will provide notice to those neighbors. The purpose of this notification is to offer neighbors an opportunity to work together towards ideal sightline spacing. This notification and related discussions will not be an opportunity to reduce the number of canopy trees to be planted in a given area as specified in this section.

In summary, in response to citizen concerns, the Slope MU in the Mt. Baker neighborhood has been modified from overall Slope MU management by the provisions of this document in two ways; 1) Mature Coniferous Canopy Tree groups will be spaced 150' on center and planted only on the lower 1/3 of the slope and not on slopes steeper than 70%, 2) Mature Deciduous Canopy Tree groups will be spaced 100' on center and planted only on the lower 1/3 of the slope and not on slopes steeper than 70%. The forest will continue to be managed as a deciduous tree dominated forest community. This area is known to be a critical slide area by other City Departments and Parks will continue to manage this area for safety by removing hazard trees where necessary.

Due to the high demand for tree pruning and removal permits for this area, explication of Tree Policy permit process as applies to this area is merited here. As noted in the Slope MU Management Section, tree spacing for canopy trees is based on mature trees. Any consideration of removal of trees for view relief via the Tree Policy Permit process will consider mature canopy trees to be at least 20' in height. Any homeowner wishing to improve the slope vegetation by removing invasive plants and installing vegetation with no tree removal involved may do so without applying for a Tree Policy Permit, but must contact Parks Urban Forester for approval of a planting plan before work begins. Minor funding for plants and other materials for these projects may be available through the Green Seattle Partnership. Citizens wishing to take on this work will be considered "Adopt-an-Area" stewards and will need to register as Parks Adopt-an-Area volunteers. Any vegetation plan that calls for window pruning or tree removal of any kind (including invasive trees over 6" diameter) must apply for a permit through Parks Sr. Urban Forester.

Unique Management Area - Stairways

There are several staircases that link Lake Washington Boulevard to the residential neighborhoods nearby. Stairways are not identified on the maps but should rather be field located. A partial list includes stairways at the following street right-of-ways: E. Olive St. (Map Sheet 7), E. Pine St. (Map Sheet 7), E. Spring St. (Map Sheet 8), E. Wellington St. (Map Sheet 11), S. Lane St. (Map Sheet 17), S. Judkins St. (Map Sheet 18), Dose Terrace @ Colman Park (Map Sheet 23). The following guidelines for stairway vegetation enhancement should be applied to any staircase along the Boulevard. For implementation of a stairway vegetation enhancement project, a Parks Landscape Architect must approve the planting design. Three prototypes are available for vegetation designs along the staircases. They are:

Colonnade – A formal design with vertical ornamental planting elements such as juniper planted at regular spacing with native groundcover in between (Fig.34).

Radiance – Stairways lined with Magnolia trees at regular spacing and native ground cover (Fig.35).

Rhythm – Arching pairs of trees at regular spacing create arbors to walk under creating a rhythm of darkness and light (Fig.33).

In all cases, stairways should be managed for active and regular removal of invasive plant species and restriction of native or ornamental shrubs growing into staircase pedestrian corridors. Shrub vegetation planted within 10' OC of stairways must be below three feet height and two feet in spread. Following CPTED (Crime Prevention Through Environmental Design) guidelines for safety, all tree species must have lower limbs that grow into stairways pruned to no less than 10' height. Ideally species will be selected with natural growth forms that have major branching starting over 8 feet tall.

Figure 33 Visualization of Rhythm Planting for Stairways along Lake Washington Boulevard

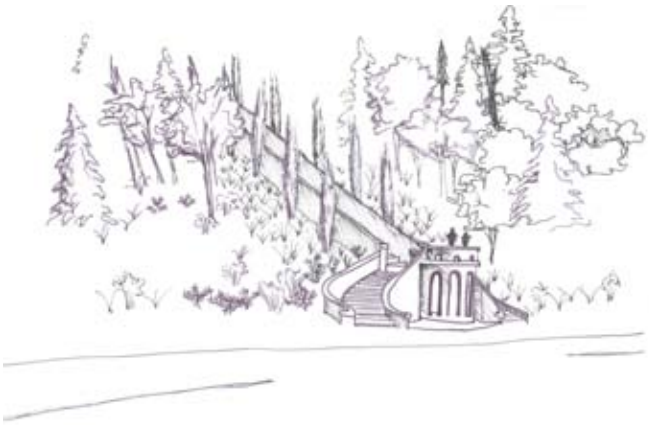


Figure 34 Visualization of Colonnade Planting for Stairways along Lake Washington Boulevard

Figure 35 Visualization of Radiance Planting for Stairways along Lake Washington Boulevard

Unique Management Area - Charles St. to Judkins St. Median

A detailed design beyond the scope of this document will be required to improve this stretch of the Boulevard. As stated previously, neighbors, and Parks Geotechnical, Landscape Architecture, and Urban Forestry staff will all need to approve a future design for this site. General guidelines for this project are that it will include at a minimum a 25% tree canopy cover with at least three large native coniferous species included in the design at a minimum of 250' OC spacing. All other trees may be shorter in stature and must be selected from the Boulevard tree palettes (Tables 24, *26*, *28*).

Landscaped Savannah Management Unit – Actions and Priorities

Landscaped Savannah Management Unit – Summary and Prioritization of Management Actions

Key Points

1. Landscape consists of mowed grass or formal/maintained landscape beds under scattered trees.
2. Cherry Blossom Festival Sites are a major part of the Landscaped Savannah MU.

Major Implementation Strategies

Table 35 lists the proposed actions and highlights the priority areas.

Maintenance

1. Lawn mowing, tree care, maintenance of formal landscape beds
2. Specific cherry tree care in Cherry Blossom Festival sites (structural pruning, disease control)

Capital Projects

1. Cherry tree planting = replacement planting and establishment care/structural pruning of young trees in identified legacy Cherry Blossom Festival Sites, between Ferdinand St. boat ramp and Seward Park, and other appropriate locations
2. Tree planting = replacement planting and establishment care of trees as necessary removals occur due to disease/damage/death and of trees that have already been removed and have not been replaced

Table 35 Prioritized List of Proposed Actions for Landscaped Savannah MU

Priority	MAINTENANCE
HIGH	Lawn mowing, tree care, maintenance of formal landscape beds Throughout Savannah MU
	Cherry tree care In Cherry Blossom Festival sites
	CAPITAL PROJECTS
HIGH	Design two legacy areas for cherry tree plantings (details pg 97) In Cherry Blossom Festival sites
HIGH	Replace blocks of ailing cherry trees (details pg 97) In Cherry Blossom Festival sites and other locations in Savannah MU
HIGH	Replacement of trees that have been removed (details pg 97) Throughout Savannah MU
	Remove and replace trees as needed (details pg 97) Throughout Savannah MU
MED	Implement design of legacy areas for cherry trees (details pg 97) In Cherry Blossom Festival sites

Cherry Blossom site in lawn area adjacent to Ferdinand St. boat ramp (map sheets 37 & 38)

Cherry Blossom site north of Seward Park entrance @ Japanese lanterns (map sheet 41)

Current Management Practices

All of the Landscaped Savannah MU is actively managed and maintained parkland. Regular maintenance activities performed by District staff consist mainly of mowing lawn areas, and weeding, planting and maintaining formal landscape beds. Tree maintenance consists of hazard pruning and tree removals. Planting and care of new trees is limited.

Problems with Current Practices

The main problem with current management in the savannahs is inadequate funding for planting and establishment care of new trees to replace removals. As a result the overall tree numbers and canopy cover in these areas is in decline. Specific problems in the Cherry Blossom Festival Sites have to do with unchecked disease or insect outbreaks related to poor cultivar selection or environmental conditions.

Landscaped Savannah Management Actions

New tree plantings are needed to replace overall tree loss in the landscaped savannah. The savannah MU shall continue to consist of lawn or formal landscaped beds interspersed with specimen tree plantings. Species selections may be derived from any of the Lakeside, Boulevard, or Slope tree palettes (Tables 13, 15, 16, 22, 24, 26, 30).

Unique Management Area - Seattle Cherry Blossom Festival Sites

Seattle Park's discussions with the Japanese Cherry Blossom Festival Committee resulted in several points of mutual understanding between the Department and the Japanese community. From these initial discussions four major outcomes have emerged that will require further development with Parks Landscape Architects and Urban Forestry staff.

1. Two central locations for additional cherry plantings will be the entrance to Seward Park by the Japanese lanterns and the large lawn area adjacent to the Ferdinand St. Boat Ramp (Map Segment 6).
2. Parks staff met with cherry tree experts from Japan to discuss species selection and potential replacement culitvars for the Kwanzan cherries that are not currently faring well on the Boulevard. These cultivars have been added to tree palettes in this VMP.
3. The Committee has agreed that replacement of some sections of street tree cherries with more environmentalyl suited species is acceptable. One area to be re-planted specifically with cherry, but an alternate cherry cultivar from the newly appended list, is the strip of Kwanzan cherries from the Ferdinand St. Boat launch (Map Sheets 37 and 38) to Seward Park. (Map Sheet 41). Other areas where cherry is planted, but not faring well, may be replaced with trees from other genera on the tree palette lists.
4. Volunteers from the Cherry Blossom Festival Community will be engaged in the care and maintenance of cherry trees along the Boulevard as these

species require specialized care. Parks staff will facilitate the training of these volunteers.

The two central locations for cherry plantings are the entrance to Seward Park by the Japanese lanterns and the large lawn area adjacent to the Ferdinand St. Boat Ramp (Map Segment 6). Parks staff will work with experts from the Seattle Cherry Blossom & Japanese Cultural Festival Committee on species selection and a volunteer program of tree care for these areas. Figure 36 illustrates a general concept for these plantings that will need to be further developed with Parks Landscape Architecture staff. The general principles of this vision are that cultivars will be both disease-resistant and environmentally appropriate and of various heights and spreads to provide visual interest. Visiting Japanese scholars noted the importance of clumping cultivars together as cherries fare better when planted adjacent to like cultivars.

Figure 36 Visualization of Cherry grove around the Taiko Gata Stone Lantern at Seward Park

Where cherries are to be replaced in the Boulevard MU both Parks Urban Forestry and Landscape Architecture staff will need to approve species selections. All replacements must come from the Boulevard plant palettes and shall be selected from the smaller, flowering trees varieties within those palettes. Examples of suitable replacements where cherry is not to be replaced in-kind include Eastern redbud, Japanese snowbell, and any of the magnolias listed. The intent is not to remove or replace all street tree cherries, but to replace those in inhospitable environments with more appropriate species.

Care and maintenance of cherry trees will need to focus on proper structural pruning of newly planted trees at the time of planting and for the ensuing 5-7 years, and control of insects and disease particular to these species (cherry bark tortrix and brown rot).

Viewpoints

Viewpoint 1 Seward Park @ Andrews Bay

Viewpoint 1 – Seward Park @ Andrews Bay/Japanese Memorial Overlook (Map Sheet 41)

Dir. of View	N
Degrees of View	140
Experience	drive-by, scenic stop
Type of View*	panoramic
Dominant Features	
Foreground	turf, lakeshore, lake
Midground	lake, bathouse, I-90, wooded Seward Park peninsula
Background	distant hills, Cascade foothills

RECOMMENDED ACTION

Remove blackberry from all areas within the foreground. In HE 41 and SS48 any installed plants should be native and planted low on the slope and not exceed 5-6' at maturity. Low-growing natives could also be planted closer to the top of the slope in foreground areas without obstructing midground and far away views. Reed canarygrass could be replaced with native emergents. Work in HE41 must be consistent with the Seward Park VMP.

Viewpoint 2 Mt. Baker Park s. of Lakewood Marina

Viewpoint 2 – Mt. Baker Park south of Lakewood Marina (Map Sheet 36)

Dir. of View	N-S
Degrees of View	200
Experience	drive-by, scenic stop
Type of View*	panoramic
Dominant Features	
Foreground	turf, lakeshore, lake
Midground	lake, I-90, marina, residences, wooded Seward Park penisula
Background	distant hills, Cascade foothills, Mt. Baker, Mt. Rainier

RECOMMENDED ACTION

Remove blackberry from all areas within the foreground. Currently there are new shoreline plantings on the E and S-facing sides of the peninsula, which will obstruct the views from the benches located here. Native shrub planting on N/NW side of peninsula is recommended to maintain open views on E-S facing side. Shrubs planted on E-S side should be low-growing (<3-5' at maturity) and clumped rather than planted densely throughout.

Viewpoint 3 North of Lakewood Marina @ S. Adams St.

Viewpoint 3 – Lakewood Marina @ north side (Map Sheet 34)

Dir. of View	N-SE
Degrees of View	160
Experience	drive-by, scenic stop
Type of View*	panoramic
Dominant Features	
Foreground	parking lot, turf, lake
Midground	lake, I-90, wooded Seward Park peninsula
Background	distant hills and foothills, Mt. Baker, Mt. Rainier

RECOMMENDED ACTION

This site lies within the Seafair Zone. Remove blackberry in all areas of view foreground. Coppice and mow per VMP guidelines for Seafair. Consider shrub conversion of SS32 and SS33 to low-growing native thicket (e.g. snowberry, Nootka rose, spirea).

Viewpoint 4 50th Ave. S.

Viewpoint 4 – 50th Ave. S. (Map Sheet 32)

Dir. of View	N-E
Degrees of View	100
Experience	drive-by, scenic stop
Type of View*	panoramic
Dominant Features	
Foreground	turf, benches, lakeshore, lake
Midground	lake, I-90, residences
Background	distant hills, Mt. Baker

RECOMMENDED ACTION

This site lies within the Seafair Zone. Remove blackberry in all areas of view foreground. Manage as turf in TU15 per VMP. Consider conversion of non-native HE20 and HE21 to native emergent vegetation (e.g. small-fruited bulrush, soft rush, shore sedge, hardstem bulrush).

Viewpoint 5 Genesee Park/Mt. Baker Rowing and Sailing Center

Viewpoint 5 – Mt. Baker Rowing and Sailing Center/Genesee Park (Map Sheet 29)

Viewpoint 5 –At shoreline looking north

Viewpoint 5 –At shoreline looking south

Dir. of View	N-S
Degrees of View	120
Experience	drive-by, scenic stop
Type of View*	panoramic
Dominant Features	
Foreground	turf, lakeshore, rowing club building, meadow, landscape beds
Midground	lake, parking lot, scrub-shrub/open meadow, residences
Background	I-90, distant hills and foothills, Mt. Baker

RECOMMENDED ACTION

This area is within the Seafair Zone. Manage as turf per VMP in TU12. Most of the shoreline here is bulkhead but there is one beach area without bulkhead at HE17 that could be converted to native emergent vegetation (e.g. small-fruited bulrush, soft rush, shore sedge, hardstem bulrush) without obstructing views or beach access.

Viewpoint 6 Mt. Baker Park @ S. Horton St.

Viewpoint 6 – Mt Baker Park @ S. Horton St. (Map Sheet 28)

Concrete rubble shoreline armoring at Viewpoint 6

Dir. of View	N-SE
Degrees of View	160
Experience	drive-by, scenic stop
Type of View*	panoramic
Dominant Features	
Foreground	turf, lakeshore vegetation (reed canarygrass, spirea, blackberry), tree, lake, walkway
Midground	lake, I-90, Seward Park peninsula
Background	distant hills and foothills, Mt. Baker,

RECOMMENDED ACTION

This area lies within the Seafair Zone. Remove blackberry in all areas of view foreground. Manage TU11 as turf per VMP. Consider converting SS23 to a native shrub drift of low-growing species (e.g.snowberry, Nootka rose, spirea) that will not conflict with views or Seafair Zone management protocol but can withstand coppicing. This area is a good candidate to be considered for shoreline restoration/rip-rap removal as approximately 200-300' of shoreline here is armored with concrete rubble.

Viewpoint 7 Mt. Baker Park near Shoreland Dr./McClellan St.

Viewpoint 7 – Mt. Baker Park near Shoreland Dr/McClellan St. (Map Sheet 25)

Dir. of View	N-S
Degrees of View	160
Experience	drive-by
Type of View*	panoramic (formerly)
Dominant Features	
Foreground	turf, walkway, blvd trees, scattered shoreline trees, lake
Midground	windows of lake, I-90, wooded Seward Park peninsula, east lakeshore/residential
Background	windows of distant hills and Cascade foothills

RECOMMENDED ACTION

Currently lots of new planting in this area has occurred in the turf areas off of the shoreline - conifers, *Arbutus unedo*, and deciduous trees. This view is already considerably obstructed (FR8) and thus should be managed for vegetation and not a panoramic view. New plantings could include madrona on the upland slope, and shoreline vegetation like red osier dogwood along edge. Remove blackberry and ivy from FR8 and HE7 and replace with appropriate native shoreline vegetation (e.g. snowberry, Nootka rose, spirea, thimbleberry).

Viewpoint 8 Colman Park @ Dose Terrace

Viewpoint 8 – Colman Park @ Dose Terrace (Map Sheet 22)

Dir. of View	E-SE
Degrees of View	80
Experience	drive-by, scenic stop
Type of View*	panoramic (formerly)
Dominant Features	
Foreground	turf, native shoreline vegetation (shrubs and trees), lake
Midground	lake, dock
Background	wooded Seward Park peninsula, east lakeshore/residential

RECOMMENDED ACTION

This viewpoint lies within Colman Park and should be managed per the Colman Park VMP.

Viewpoint 9 Colman Park Bridge (lower)



Viewpoint 9 – Colman Park @ lower bridge (Map Sheet 22)
The series of three photos at left illustrate the unfolding view at this location from a car driving southeast on Lake Washington Boulevard. Obstructing vegetation is a large non-native privet at the left.

Viewpoint 9 – Colman Park @ lower bridge. The view for a pedestrian standing at the bridge

Dir. of View	E-SE
Degrees of View	45
Experience	drive-by, scenic stop
Type of View*	framed
Dominant Features	
Foreground	bridge, street, framing vegetation
Midground	lake, Seward Park
Background	tip of wooded Seward Park peninsula, eastern lakeshore residential, distant mountains

RECOMMENDED ACTION

This site lies within Colman Park and should be managed per the Colman Park VMP. Consider modification or removal of obstructing non-native vegetation on northeast side of bridge. Trees 1022 and 1023 in lower Colman Park have potential to block views if they grow taller.

Viewpoint 10 Colman Park upper bridge – interior

Viewpoint 10 – Colman Park interior @ upper bridge (Map Sheet 21)

Dir. of View	E-SE
Degrees of View	50
Experience	drive-by, scenic stop
Type of View*	framed
Dominant Features	
Foreground	Colman Park interior vegetation, Lk Wash. Blvd.
Midground	none
Background	none

This site lies within Colman Park and should be managed per the Colman Park VMP.

Viewpoint 11 S. Massachusetts Ave.

Viewpoint 11 – S. Massachusetts Ave. (Map Sheet 20)

Dir. of View	E
Degrees of View	20
Experience	drive-by
Type of View*	framed
Dominant Features	
Foreground	street, residential
Midground	lake, I-90
Background	eastern lakeshore residential, Cascade foothills

No management is being proposed here as none of the landscape falls within Parks jurisdiction.

Viewpoint 12 East Portal Park/I-90 Greenspace

Viewpoint 12 – East Portal Park @ I-90 Greenspace (Map Sheet 19)

Dir. of View	NE-SE
Degrees of View	180
Experience	drive-by, scenic stop
Type of View*	panoramic
Dominant Features	
Foreground	landscape beds, East Portal Park, sidewalk
Midground	lake, I-90
Background	eastern lakeshore residential, Cascade foothills, downtown Bellevue

This site lies within East Portal Park and overlooks the I-90 Greenspace in the foreground. Both of these Park areas should be managed per their own VMPs and Park Plans.

Viewpoint 13 S. Norman St./Charles St. to Judkins St. median

Viewpoint 13 – S. Norman St./ Charles St. to Judkins St. median (Map Sheet 18)

Dir. of View	N-E
Degrees of View	100
Experience	drive-by
Type of View*	panoramic
Dominant Features	
Foreground	residential, rooftops, street, ivy slope
Midground	lake
Background	eastern lakeshore residential, Cascade foothills, downtown Bellevue

RECOMMENDED ACTION

General guidelines for this site are a minimum of 25% tree canopy cover with at least three large native coniferous species included in the design at a minimum of 250' OC spacing. All other trees may be shorter in stature and must be selected from the Boulevard tree palettes (Tables 24, *26*, *28*). Further detail can be found on page 94.

Viewpoint 14 S. Dearborn St.

Viewpoint 14 – S. Dearborn St. (Map Sheet 17)

Dir. of View	E-SE
Degrees of View	20
Experience	drive-by
Type of View*	framed
Dominant Features	
Foreground	street, residential, powerlines
Midground	lake, I-90
Background	eastern lakeshore residential, Cascade foothills

No management is being proposed here as none of the landscape falls within Parks jurisdiction.

Viewpoint 15 S. Alder St./Leschi Marina

Viewpoint 15 – E. Alder St./Leschi Marina (Map Sheet 13)

Viewpoint 15 – shoreline vegetation, blackberry, and concrete rubble to the water's edge

Dir. of View	NE
Degrees of View	90
Experience	drive-by, scenic stop
Type of View*	panoramic
Dominant Features	
Foreground	sidewalk, parking lot
Midground	marina, lake
Background	eastern lakeshore residential, Cascade foothills, downtown Bellevue

RECOMMENDED ACTION

The shoreline in this viewpoint area is part of Madrona Park and should be managed per the Madrona Park VMP. Blackberry removal and replacement with native lakeshore shrubs and emergents is recommended if consistent with the VMP. The ivy-covered slope that lies between the Boulevard and the parking lot is within the Boulevard MU. Conversion of this slope to native species should be considered. Tree canopy is sparse here. Boulevard tree planting recommended in this area is the Open Typology.

Viewpoint 16 N. of Madrona Dr.

Viewpoint 16 – N. of Madrona Dr. (Map Sheet 8)

Dir. of View	N-S
Degrees of View	180
Experience	drive-by
Type of View*	panoramic
Dominant Features	
Foreground	turf, road, lakeshore w/invasive vegetation
Midground	lake, I-90
Background	eastern lakeshore residential, Cascades

RECOMMENDED ACTION

This area lies within Madrona Park and should be managed per the Madrona Park VMP. Consider shrub conversion of all of SS4, which has lots of blackberry, knotweed, and buddleia, to native scrub-shrub. In area surrounding large cottonwood in SS4 (trees 57 and 60) mediuma nd taller growing shrubs could be planted (e.g. red osier dogwood, oceanspray, willows). From tree 57 southwards shrubs should be lower-growing to leave views open to the south for southbound travelers on the Boulevard (e.g. snowberry, Nootka rose, spirea).

Viewpoint 17 Denny Blaine Park

Viewpoint 17 – Denny Blaine Park (Map Sheet 5) Lower park at the water's edge

Viewpoint 17 – Denny Blaine Park (Map Sheet 5)
Upper park from Lake Washington Blvd.

	Upper park	Lower park
Dir. of View	E	E-S
Degrees of View	30	100
Experience	drive-by	scenic stop
Type of View*	framed	panoramic
Dominant Features		
Foreground	turf, landscape beds, trees, turf terrace	
Midground	parking lot, turf, lake	shoreline
Background	none	

This site lies within Denny Blaine Park and should be managed per the Denny Blaine VMP.

Viewpoints Removed from Consideration

The following viewpoints identified by EDAW (1986) were omitted in this document because they were either outside the project area covered by this VMP or because no view exists anymore at the particular location.

				Dominant Features		
Dir. of View	Type of View*	Degrees of View		Foreground	Midground	Background
upper Viretta Park @ E. John & 39th			no view			
McGilvra Blvd.	NE	10	framed	streets, residential, ivy	trees	lake, 520 bridge,distant hills
Arboretum Playfields	S	20	framed	footpath, shrubs	turf, playground, playfields, building, Madison Ave traffic	none
Hwy 520	N	180	no view			
Montlake	N	180	no view			

*** Type of View (per VMP definition)** = These are categories used in the LWB VMP (2008). Panoramic views are defined as views that are unbroken and wide as experienced from a fixed point or specific location. Framed views are defined as narrow or focused views that are "framed" or bordered on both sides by vegetation or built elements as experienced from a fixed point or specific location. Panoramic views almost always extend with a lot of depth and usually include distant views, whereas framed views can be shallower in depth and may or may not extend beyond a fore and mid-ground.

Vegetation Management Contacts

Five main entities are responsible for managing vegetation along the Boulevard. The primary responsibility for managing Boulevard vegetation in developed park land lies with Seattle Park's Central East and South East district staff, the line between the districts being Interstate 90. Parks Sr. Urban Forester is responsible for managing individual trees greater than 6" diameter and overseeing many provisions of the Seattle Parks Tree Policy including permit applications related to trees. The Urban Forester works with the Parks Natural Area Crews, paid contract crews, and volunteer groups to implement forest restoration projects in undeveloped park land. A Major Projects Manager is currently assigned to manage shoreline restoration projects along Lake Washington. Colman Park has its own gardener responsible for restoration, funded by an illegal cutting settlement. The following contact numbers are provided to help you contact the appropriate City personnel to address your questions and concerns.

Parks Central East District Crew Chief	(206) 684-4750
Parks South East District Crew Chief	(206) 386-1946
Parks Senior Urban Forester – Tree Policy Permits	(206) 684-4113
Parks Urban Forester - Reforestation Programs	(206) 233-5019
Department of Neighborhoods Tree Fund	(206) 684-0719
Parks Property Management	(206) 684-4860
Parks Superintendent's Office	(206) 684-8011
Parks Adopt-a-Park Volunteer Coordinator	(206) 684-8028
Seattle Department of Planning and Development	(206) 684-8850
Seattle Public Utilities	(206) 684-3000
Parks Resource Conservation Coordinator	(206) 615-1660
Parks Major Projects Manager – Shorelines	(206) 684-7053
Colman Park Reforestation	(206) 615-1046

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MAPS