

1.0 INTRODUCTION

1.1 Purpose and Need for Concept Plan

This Concept Plan was developed for use as a guide in managing and enhancing Frink and Upper Leschi Parks (referred to throughout the plan as “the Park”). The main users of the plan will be Friends of Frink Park (FFP), Seattle Department of Parks and Recreation (DPR), and volunteers and consultants organized by these two groups. The primary purpose of the plan is to guide these organizers in improving the Park in ways that reflect the desires and needs of Park users, and that are based on ecologically-sound principles. The plan is intended to give voice and shape to a long-term vision for managing the natural, recreational, and cultural resources of the Park.

The need for this plan was identified by the local community – those who use the Park. A group of these people formed a community organization known as Friends of Frink Park, which eventually initiated the process of developing this plan. A number of problems have been identified in the Park by DPR, FFP and other users, such as declining forest health and a lack of plant diversity, a severe invasive plant problem, a confusing trail system with steep slippery trails and deteriorating stairways, a deeply eroded stream, and a lack of awareness of the Park’s cultural and historical legacy. In addition to these existing issues, there currently is no long-term plan for restoring the resources in the Park, or even for regular maintenance.

The Park has suffered from a general lack of active management and resources from the City. This is a likely consequence of the fact that the Park is not a city-wide destination that draws significant numbers of users. It is a densely forested urban Park that is limited in the types of uses it will accommodate, and as such, has received less attention than the more popular parks in Seattle. Park users have stepped into this void and volunteered significant time and effort towards improving trails and managing invasive plants. This deep investment in the Park by its neighbors clearly demonstrates the need for a plan that is developed with extensive citizen involvement. This plan is an attempt to balance the needs of these citizens with the policies and objectives of Seattle DPR.

1.2 Primary Participants in Plan Development

The organizations described below were integral to developing this Concept Plan, and therefore constitute the project team. The plan would not exist without the significant contributions of each organization.

Friends of Frink Park (FFP) – The idea for this Concept Plan was hatched by FFP, a non-profit community group of committed Park users. FFP provided the impetus for initiating the plan, secured funding for the planning process, and selected the consultant that would coordinate the effort to develop the plan. Members of FFP supervised the planning process, organized and attended project team planning meetings, contributed content for specific sections of the plan, compiled survey results, offered comment and presentations on the process at public meetings, and provided feedback on draft versions of the plan. As the plan was developed, FFP organized work parties to continue ongoing projects and to start new projects that would be included in the plan.

Seattle Department of Parks and Recreation (DPR) – Staff of DPR participated in the planning process by attending project team planning meetings and presenting at public meetings. The staff developed sections of the plan and provided maps and mapping resources to the process. DPR staff provided feedback on draft versions of the plan and helped implement portions of the plan by organizing work parties in the Park. The Park is, of course, owned and managed by DPR, and the agency thus makes the final determination as to the plan contents and the manner in which plan sections are ultimately implemented.

Sheldon & Associates (S&A) – Sheldon & Associates is the environmental consulting firm that was hired to manage the planning process and develop the Concept Plan. S&A staff coordinated planning efforts among project team members and attended project team planning meetings. They determined the components of the planning process, organized and ran the public meetings, organized public tours, developed public surveys, authored sections of the plan, developed graphics for the plan, provided feedback to other authors of plan sections, and compiled and edited the plan.

J&A Associates (J&A) – J&A Associates is a consulting firm that was hired by DPR to provide historic information and review of the Concept Plan. J&A partners provided the historic research and documentation for Section 3 and a review of the Concept Plan as it relates to historic context.

1.3 Goals of Concept Plan

The main goals for this plan were developed based on public feedback from meetings, questionnaires, guided tours of the Park, a detailed survey, information and comments from FFP members; and planning team meetings. These broad goals are meant to communicate an overall vision for the Park and the Concept Plan. Following the major goals of the plan are the more specific goals for each resource plan which are discussed in more detail in each following section.

Major Goals of Plan

1. Make the Park and park features more inviting to park users while retaining the sense of ungroomed, natural space.
2. Find a balance between neighborhood concerns and park visibility, access and usage.
3. Restore forest habitat for long term sustainability.
4. Integrate Olmsted vision and historic features with current use, site conditions, and long-term management so as to balance the dynamic characteristics of an ecological landscape with the value of a cultural landscape.
5. Establish and facilitate long-term stewardship of Frink/Upper Leschi Parks.
6. Restore and enhance aquatic resources.
7. Generate funding for management of Park.

Forest Management Plan Goals

- Assist natural processes
- Promote native character
- Conserve soil and water quality
- Protect and enhance wildlife habitat
- Buffer land uses
- Ensure public safety

Trail Plan Goals

- Clarify the trail system of the park for users
- Remedy unsafe trail conditions such as broken stairs and steep slippery slopes
- Correct conditions that are causing trail damage such as ponding, erosion, and trampling
- Re-route trails that are poorly aligned or located
- Close certain trails to prevent slope damage and undesirable use
- Provide a more complete experience of the Park's features by constructing trails to take people to these places
- Maintain the valued sense of intimacy throughout the Park's trail network
- Provide improved loop route through the Park that minimizes elevational changes and the need for walking on roads
- Create a walking trail alongside Lake Washington Boulevard

Aquatic Resource Plan Goals

- Collect baseline information on the stream and assess its specific needs
- Stabilize stream channel by reducing downcutting and erosion
- Decrease invasive plant species coverage in riparian corridor and in wetlands
- Increase native plant species diversity in riparian corridor and in wetlands
- Increase opportunities for aesthetic enjoyment of stream corridor and wetlands
- Enhance wildlife habitat in riparian corridor and in wetlands

Edge Plan Goals

- Better maintain and define vegetated Park edge along public corridors
- Identify Park boundary using vegetation, vegetation management techniques, and/or signage as appropriate
- Increase use of the Park by neighbors who currently feel the Park is uninviting and unsafe due to its outward appearance
- Increase stewardship of the Park
- Reduce incidences of dumping in the Park by limiting vehicle pullouts and educating local residents
- Educate local residents about invasive species issues and gardening adjacent to a natural area
- Enhance park identity through coherent design elements

Education/ Public Outreach Plan Goals

- Broaden the volunteer base
- Increase educational opportunities for Park users
- Prioritize and implement the Concept Plan
- Determine the future organization of FFP, and create an efficient and streamlined infrastructure
- Assess how the Education/Public Outreach Plan might best be implemented
- Initiate a school outreach program

Sign Plan Goals

- Identify Park boundaries to reduce Park's anonymity
- Clarify public access points
- Provide way-finding assistance for trail users
- Provide users with interpretive information about the Park
- Ensure that all signs adhere to a theme that is consistent with the naturalistic features and historic legacy of the Park

1.4 Organization and Intended Use of Plan

A “concept” plan is one in which goals and general design ideas are proposed; highly detailed drawings such as grading plans or site-specific planting plans are generally not included. This broad approach allows for the plan to cover most major issues that need to be addressed in the Park, while leaving specific design decisions to those who will actually be implementing individual sections of the plan. The plan is intended as a guidance document with recommendations for ways to achieve stated goals. In that it is not a cookbook with detailed recipes for altering the Park, implementation of recommended projects may require further research and/or consultation with resource specialists such as DPR staff, volunteer experts or paid consultants.

The plan is organized into three introductory sections that describe the purpose and content of the plan, the planning process, and the history of the Park. These are followed by the individual plan components including:

- Section 4 – Forest Management Plan
- Section 5 – Trails Plan
- Section 6 – Aquatic Resources Plan
- Section 7 – Edge Management Plan
- Section 8 – Education & Public Outreach Plan
- Section 9 – Sign Plan

Each of these six sections is generally organized to include a description of existing conditions of the resource, results of any inventories that were conducted, a list of the goals of the component plan, and details of specific actions or programs that are recommended for managing or improving the resource. The recommendations are generally prioritized based on ecological value, feasibility, and the perceived importance of an issue to Park users, as expressed at public meetings, survey results, and other public comments received during the planning process..

The component plans are followed by a summary section that covers labor and funding resources for implementing the plan. The appendices provide very detailed information on such topics as invasive plant management methods, public survey results, and plant installation methods.

1.5 General Description of Park

Frink and Upper Leschi Parks are located near central Seattle, in the Leschi neighborhood, roughly 1/10th mile west of the shores of Lake Washington. This is an urban residential setting in which houses and roads border the Park on all sides, with the exception of part of the eastern boundary, which is adjacent to Lower Leschi Park.

The park totals approximately 22 acres and is bordered roughly by E. Yesler Way to the north, S. King St. to the south, 31st Ave S. to the west, and 34th Ave. S. and Lake Washington Boulevard to the east. The parkland formally known as Frink Park is 16.7 acres and makes up the southern portion of the plan area. The 5.2 acre forested portion of Leschi Park included in the plan area is known as Upper Leschi Park, and lies to the north of Frink Park. Both park areas are mostly undeveloped and forested. The only roads that traverse the Park are Lake Washington Boulevard and Frink Place, although a number of street ends abut Park boundaries and 31st Avenue S. parallels the west edge of Frink Park.

The topography of the Park is generally fairly steep, with a broad east-facing slope dominating the landscape. A small stream lies in a ravine that cuts through the central portion of the Park, the stream exiting the Park near the southeast corner via a storm drain. Street drains and hillside seeps supply most of the flow to the stream. Small slope wetlands are associated with most of the major seeps that surface in the Park, with many of these wetlands draining to the stream.

An extensive system of trails winds through the Park, totaling roughly 1.5 miles in length. There are approximately 20 trail entrances into the Park, mostly unmarked. Many trail sections are overly steep as they follow the steep topography of the Park, and the numerous seeps that occur on these slopes contribute to wet and muddy trail conditions in some areas throughout the wetter months of the year. Trail surfaces are mostly packed earth, with several limited sections that have been covered with wood chips or crushed rock.

The vegetation in the Park consists mostly of deciduous forest dominated primarily by bigleaf maple. Other tree species in the Park that form various associations with the maple include Pacific madrone, Douglas fir, western red cedar, black cottonwood, and red alder. The native species component of the shrub layer is dominated by hazelnut, indian plum, evergreen huckleberry, Oregon grape and salal, but non-native species are prevalent throughout most parts of the Park. There are extensive thickets of the invasive species Himalayan blackberry in the more open canopy areas, and other common non-native shrubs include English holly and cherry laurel. The most common herbaceous species in the Park is the invasive English ivy. This species covers a large percentage of the ground in the Park, and can be seen extending up many tree trunks into the forest canopy. Ivy is so successful in this forest that it has excluded most other species that are common to the ground layer of Pacific Northwest forests. The main exception is sword fern, which can be found in patches not dominated by ivy.

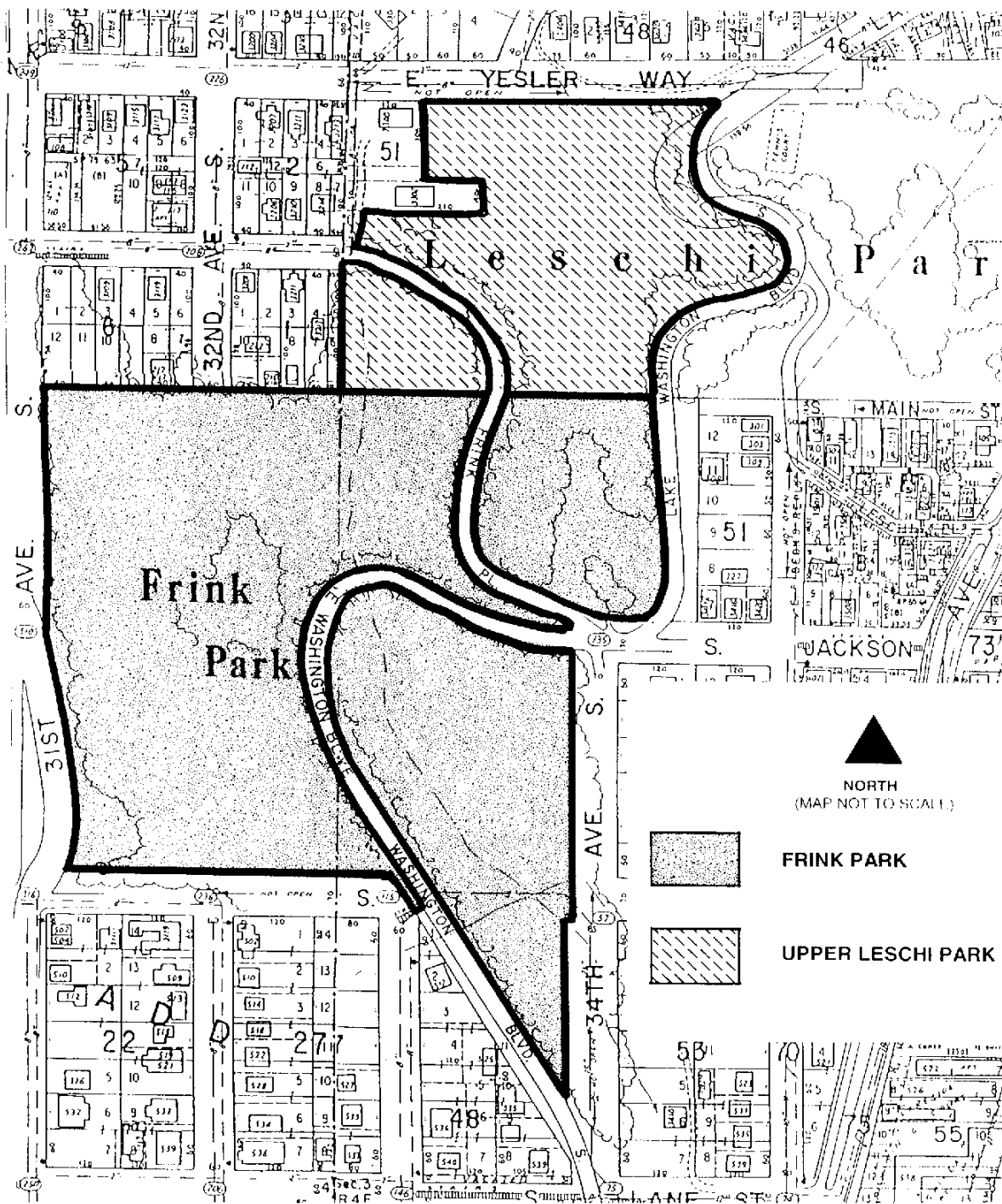


Figure 1-1. Frink and Upper Leschi Parks

2.0 DESCRIPTION OF PLANNING PROCESS

This section describes the history of the formation of FFP and the development of the Concept Plan. It provides detail on the public involvement process that went into developing the plan and presents a summary of the results of public surveys that were conducted as part of the process.

2.1 Citizen/Department of Parks & Recreation Partnership

DPR is responsible for managing and improving parks in the City of Seattle. However, there are a large number of City parks and park problems, and a limited amount of resources that can be applied to each park. Therefore, DPR relies heavily on volunteers for labor and planning on park projects. Conversely, many residents who live near parks and other park users count on having their voices heard by DPR when park alterations are being considered. Several citizen groups, such as FFP and Friends of Madrona Woods, have taken it upon themselves to actually initiate and oversee major planning processes and implementation of plan components, with DPR taking a lesser role in contributing limited funding, materials or cleanup/disposal services. In these cases, the citizen's group has propelled the process, providing the major momentum and the bulk of the labor, while DPR has taken more of a supervisory or sponsoring role.

This type of partnering arrangement has been shown to be critical to achieving results in small neighborhood parks that are not generally the focus of large capital improvement projects for DPR. For Frink and Upper Leschi Parks, DPR has contributed significantly to the preparation of the Concept Plan, and in the future will provide oversight and limited funding for implementation of the plan. However, the commitment of FFP members will be the key to realizing real improvements in the Park. It will be necessary for FFP to apply for grant applications, seek other funding sources, organize volunteer labor, and generally be the group that organizes and drives the process. DPR will likely take more of a support role to FFP's lead.

2.2 Founding of FFP and Initiation of Concept Plan Process

FFP is comprised of Park neighbors and other users of the Park who are committed to improving Park resources. FFP grew out of the work party efforts sponsored by the Leschi Community Council over the last two decades. It is an informal organization that is under the umbrella of the Leschi Community Council, and is accountable to the Community Council through its Greenspace Committee.

FFP was formed in 1998 and has at least 30 members. The group has the following committees: Trails & Forest, Aquatic Resources, Edge, Public Outreach & Education, and History. Each committee is chaired by one or two FFP members; the committee chairs have been the core group that initiated and carried out the planning process for the Concept Plan.

At a meeting of the Leschi Community Council that was held in December 1998, the Greenspace Committee recommended starting a planning process for Leschi Park. However, it was the consensus of the group that the need was greater for a planning process for Frink Park. Shortly after that meeting, FFP learned that DPR had allocated approximately \$50,000 for a reforestation plan for Leschi Park. FFP asked DPR to shift that budget allocation to a reforestation

plan for Frink Park, as well as the wooded (upper) portion of Leschi Park.

On 19 February 1999 a well-publicized meeting organized by DPR brought together about 50 community residents to focus on Frink Park. The planning process was thereby initiated, but it was made clear by DPR that their involvement would be limited only to planning for forest health. In order to expand the plan to a general focus for the Park, funding was sought from the Starflower Foundation, a local organization committed to the promotion and restoration of native plant communities in King County. Starflower agreed to finance the hiring of an environmental consultant to lead the planning process.

Six consulting firms submitted proposals for the work. A committee of four members of FFP was assigned to interview and select the firm. Sheldon & Associates was hired in May of 1999. FFP continues to contribute to the plan and steer the process.

2.3 Time Frame and Public Involvement Events

The Draft Concept Plan was developed during the period stretching from May 1999 to April 2000. Public involvement played a big role in putting together the ideas expressed in this plan. The major meetings, tours, and other events that were held as part of the planning process are listed in Table 2-1. The components of the public involvement process are described in greater detail below.

Table 2-1. Major Events in the Planning Process for the Frink Park Concept Plan		
Date	Event	Major Result
12/98	Leschi Community Council meeting	Decision to focus planning on Frink Park
2/19/99	Public meeting lead by DPR re: Frink Park	DPR enters planning process for Frink Park
3/99	FFP approaches Starflower foundation	Starflower agrees to fund Concept Plan
5/99	FFP hires Sheldon & Associates (S&A)	Work begins by consultant on planning process
5/26/99	Kickoff meeting for Concept Plan w/FFP & S&A	First time for project team members to meet and begin to develop strategies
6/8/99 & 6/12/99	Initial public tours of Park lead by S&A	Collect questionnaires on Park use
6/22/99	Public meeting lead by S&A	Presentation by FFP/DPR and scoping of public issues and concerns
7/27/99	Public meeting lead by S&A	Scoping of public issues and concerns
8/11/99	Project Team Meeting	Plan work assignments for preparing plan
9/11/99	Project Team Meeting	Status update on preparation of plan
10/12/99	Project Team Meeting	Finalize public survey
10/27/99	Project Team Meeting	Prepare for final public meeting
10/99	Public Survey Mailed Out	Release of detailed survey to all residents in Leschi neighborhood
11/9/99	Public meeting lead by S&A/ Public surveys returned	Presentation of general ideas for Concept Plan
4/00	Draft of Concept Plan Delivered to FFP	Internal review of draft plan by FFP
7/00	Draft delivered for DPR Core Review Process	Official DPR review of draft
Pending	Final version of Concept Plan delivered	Plan completed

2.3.1 Public Tours/Questionnaire

Guided public tours of Frink Park were held on June 8 and June 12, 1999 to familiarize neighbors with the Park and to gather impressions and input from both first-time and seasoned Park users. At the end of each of the tours, questionnaires were handed out and filled in by participants before they left. A total of 22 questionnaires were returned. A summary of the results follows in Table 2-2. A blank copy of the questionnaire is included in Appendix A.

Table 2-2. Frink Park Tour Questionnaire Results	
Question	Number of Responses
List Three Positive Attributes of the Park:	
Natural undeveloped state/ lots of green/ mostly wooded/ native growth	19
Privacy/ seclusion/ quiet/ hidden feel in Park	9
Intriguing maze of trails/ extensive trails/ good trail linkages / potential trails	7
Places to be near water/ flowing water / stream.waterfall .bridge / wetlands	9
Diversity/ diverse edges/ variety of ecological features	3
Size	2
Urban refuge /prox. to mv neighborhood	2
Views/potential views/ views into Park down slopes	3
Wildlife / bird refuge	3
Rhododendron dell	1
Several cleared open areas	1
Bigleaf maples - canopy shady yet open	1
No signs	1
Historic value	1
List Three Negative Attributes of the Park:	
Difficult trails/ steep trails/ narrow over grown trails/ bad trails when wet	14
Invasive/non-native plants (blackberry, ivy, nightshade)	13
Unclear access/ lack of or uninviting access/lack of signage from streets/ lack of maps/ lack of directional markers on trails/ confusing trails	9
Not enough conifers	1
Dumping/ litter	3
Lack of pedestrian safety at bridge and elsewhere / car traffic / dangerous trail crossings of streets	3
No walking trail along boulevard	1
Urban art	1
Areas of human impacts/ erosion from mountain bikes	2
Lack of areas to sit, rest, picnic along trails	1
Nettles	1
Stream in poor condition in spots/ stream goes underground	2
Overgrowth interferes with safety	1

Table 2-2. Frink Park Tour Questionnaire Results

Question		Number of Responses
Slope erosion		1
Lack of accessibility for disabled (even if only in certain specific areas)		1
Is this your first visit to Frink Park?		
Yes		2
No		20
How often do you visit the Park?		
Daily		9
Weekly		9
Monthly		4
How do you use the Park?		
Exercise:	General exercise	4
	Road biking	2
	Running	4
	Walking	12
Walking dog		7
Leisure walking/enjoy nature		16
Thoroughfare (to water, to Leschi)		10
Picnicking		3
Other: artistic inspiration, bird watching, weeding, education, family gatherings, photography		6

2.3.2 Public Meetings

A series of three public meetings were held during the plan development process. The meetings were held in the evening at the Central Area Senior Center, and were publicized using fliers, ads in the Leschi News, and notices posted in the neighborhood. Two brainstorming/public-input meetings were held in the summer months to gather information from the community regarding their thoughts about the Park. The intent was to hear about people's issues and concerns, as well as the features they like and don't like, and what they want to see happen to their Park in the future. Presenters took time at each meeting to explain to participants the importance of their role in the process, not only in plan development, but also in plan implementation in the future. The third and final meeting was held on November 9, 1999 to present draft portions of the plan and to receive input about the general direction of the plan. The goal of this meeting was to ensure that the plan accurately reflects the concerns and preferences that we had heard from the community at the previous public meetings. Minutes of all three of these meetings can be found in Appendix A. The first meeting was attended by 38 people, 24 attended the second meeting, and 25 people came to the final meeting.

2.3.3 Summary of Written Survey Results

To widen the circle of neighborhood involvement and awareness of the public process beyond those who attended the public meetings, a six-page neighborhood survey was developed and folded into the October issue of the monthly *Leschi News*, a community newspaper published by the Leschi Community Council. Respondents were asked to fill out the survey and return it by mail or in person at the November 9 public meeting. Over 2,000 surveys were mailed out; a total of 60 surveys were returned. Survey results are summarized below. The raw survey results can be found in Appendix A.

Park Use:

- 68% of respondents visit the Park at least monthly
- 45% of respondents live within 2 blocks of the Park
- 70% of respondents use the trails primarily as a way to enjoy the Park
- 30% of respondents use the trails as a means to get somewhere else (mostly Leschi and the lakeshore)
- Spring, summer, and fall receive the most use in an even distribution of all 3 seasons
- Trail conditions, darkness, and wet weather were the most frequently cited influences on Park use (91%)

Trails:

- 88% of respondents were somewhat or very interested in restoring pedestrian corridor along Lake Washington Blvd. from the south entrance of the Park to the tennis courts
- 83% of respondents were somewhat or very interested in having a trail that runs under the existing bridge near the waterfall, allowing people to cross from the waterfall area to the streamside trail without crossing the road
- 82% of respondents were somewhat or very interested in restoring a trail that runs through the woods above and parallel to Lake Washington Blvd.
- Approximately half of respondents felt that the number of pullouts along Lake Washington Blvd. should be kept the same, and half felt that the number should be reduced
- Approximately half of respondents felt that there was an adequate number of benches and half felt that there could be more (3% wanted fewer benches)

Forest Health:

- 82% of respondents were somewhat or very supportive of creating canopy openings in the forest to promote conifer regeneration
- 71% of respondents preferred a mix of native and ornamental species in the Park as compared to native species only
- 66% of respondents felt that it was valuable to know where the boundary between Parks Department property and private property is

Aquatic Resources:

- 60% of respondents felt that access to the stream and wetlands were inadequate
- 64% of respondents supported moving the trail upstream of the grate where the stream goes underground and installing a footbridge to cross the stream rather than simply using plants to hide the grate or doing nothing at all
- 77% of respondents wanted the stream to be more visible from Park trails (11% had no

opinion)

- 75% of respondents wanted the stream to be more audible from Park trails (18% had no opinion)

History:

- 93% of respondents were somewhat or very interested in knowing the history of the Park and its historical features
- 87% of respondents want to see an interpretive sign on the history of the Park
- A wide range of opinions as to what to do with the caretaker's cottage area were expressed as 16% wanted it preserved as is, 25% wanted it enhanced, 33% wanted to see it developed in some way as an informal gathering place, 6% wanted all traces of the cottage removed, and 13% had no opinion.
- 67% of respondents were somewhat or very interested in having a self-guided tour brochure developed and made available

3.0 HISTORIC PERSPECTIVE ON FRINK PARK

“Although I have been familiar with Frink Park in a general way, in consequence of my study of the Park system, I visited the Park in the company of the Superintendent, and was much pleased with the romantic and secluded ravine and steep wooded hillsides, which give a decidedly marked and interesting character to this little park.”¹ - John C. Olmsted, 1906

“The desire to see the city of my adoption the most prosperous and beautiful in all things which make a city great has been my only incentive.”² - John. M. Frink, 1908

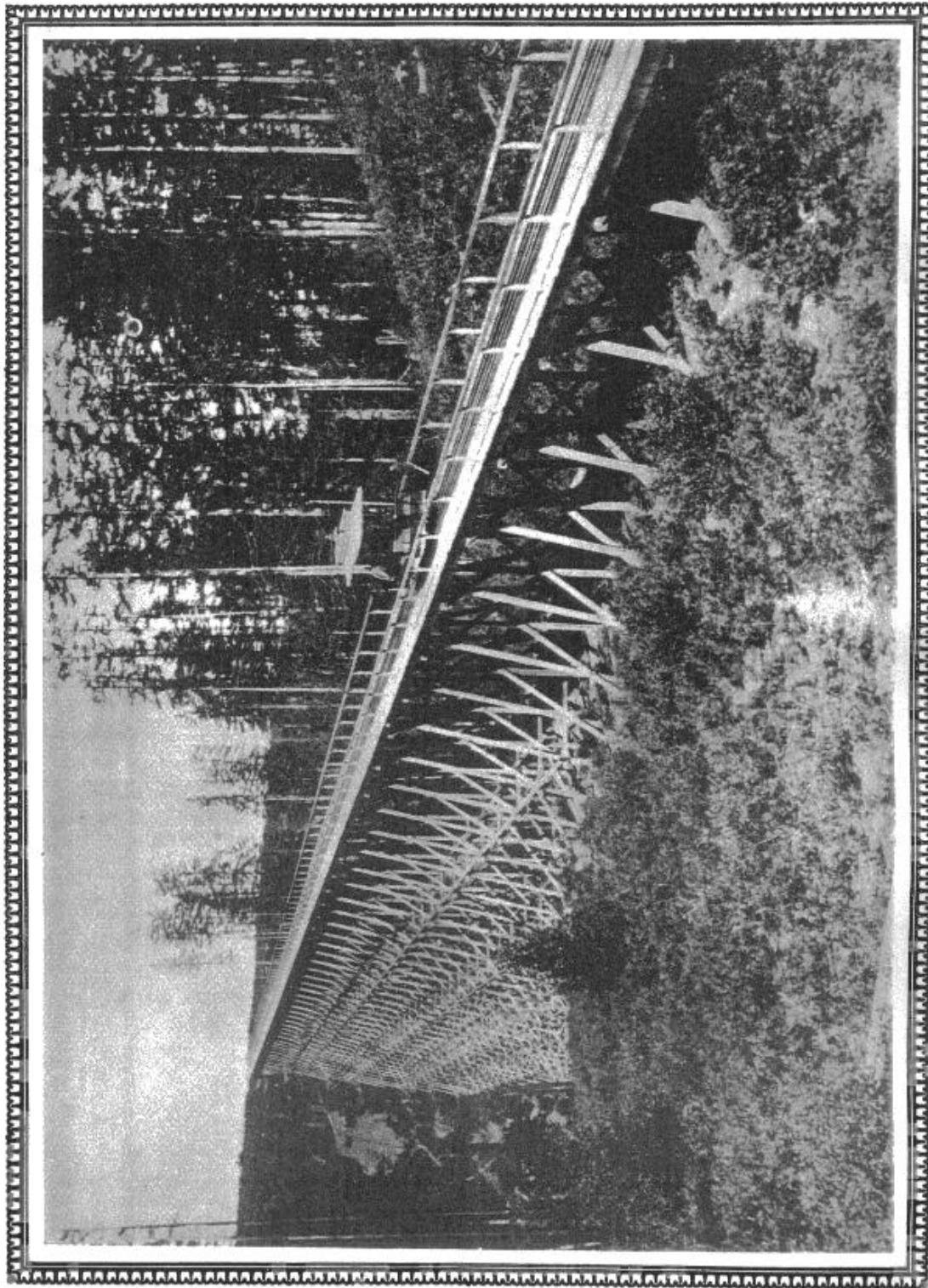
3.1 History and Overview of Frink and Leschi Parks & Olmsted Boulevard System

Early history of the area near Frink Park indicates that Duwamish and other coastal Salish native people camped along the shore of Lake Washington in the vicinity of Leschi Park and traversed the hill to reach Elliott Bay for salmon fishing. Settlers arriving later also used this route to reach Lake Washington from Elliott Bay and for transporting goods such as coal, which arrived by barge from across Lake Washington. Later a warehouse was built on the shore for storing produce brought by farmers from around the lake on its way to market. Passenger and later car ferry service was provided from the Leschi dock.³

Platting of the land in the area began in 1883, including the land now known as Frink Park, which was platted, by Judge Thomas Burke and his wife, Carrie E. Burke. He reserved the steep slope area naming it “Washington Park.” In response to the growing demand for transportation to the lake especially in the summer, the Seattle Construction Company built the Second, Mill & Jackson St. cable car line in 1888 (Figure 3-1). The route came from downtown to the lake via Mill Street (now known as Yesler Way) and returned to downtown via Jackson Street (Figure 3-2). A large wooden trestle was built traversing “Washington Park” to carry the cable car from the lake up the hill to 31st Avenue and Jackson Street.

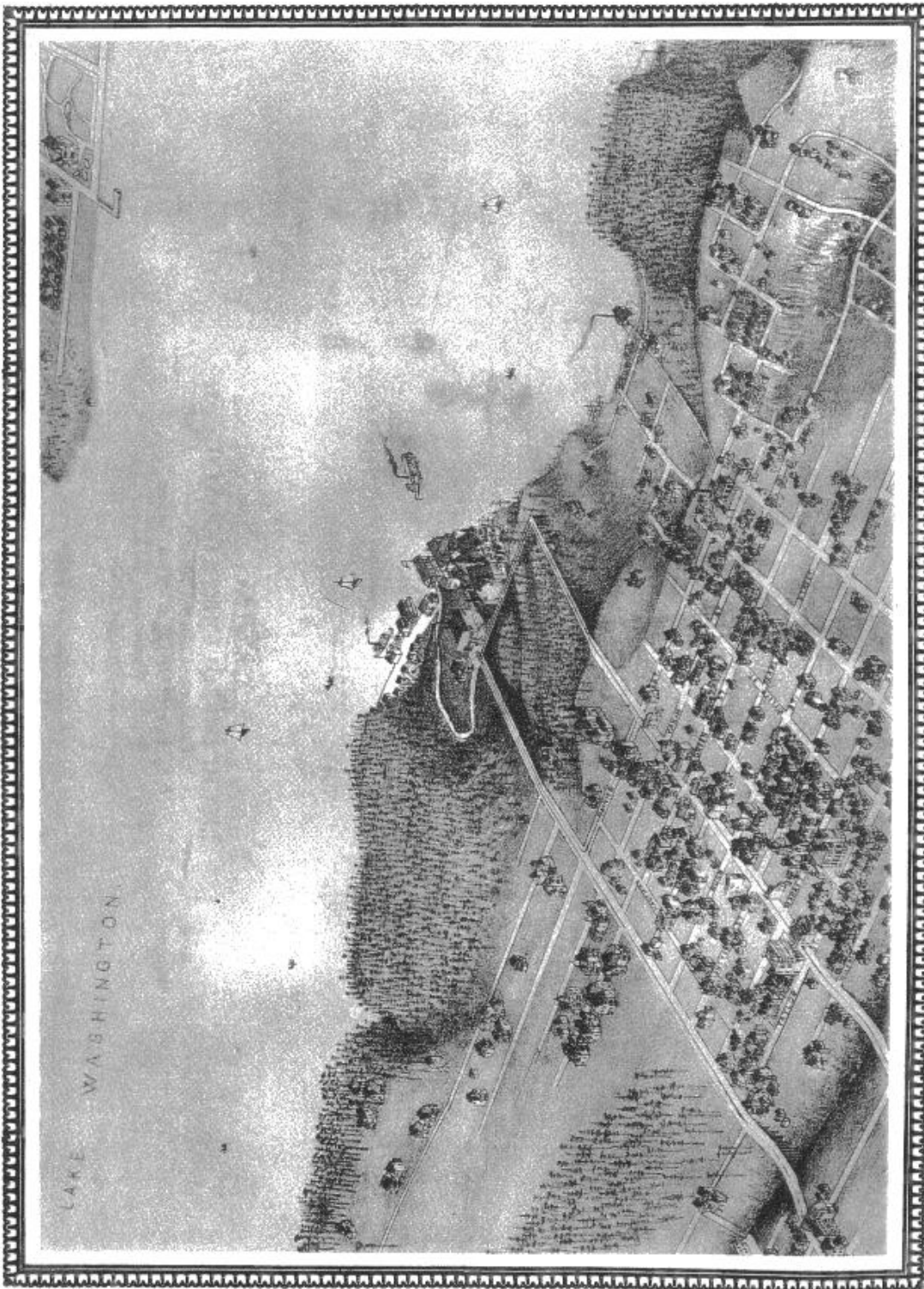
The Jackson Street trestle was abandoned in 1891 due to safety concerns and the cable car route was moved to the Yesler trestle, which connected Yesler to the Lakeshore. The new route connected Yesler to Jackson via 30th Avenue. That same year the cable car company commissioned Carl Neus, a nursery and floral businessman in the area, to lay out and furnish plantings for a Park adjacent to the large casino and dance pavilion that had been built on the lakeshore in 1890. Owned by the cable car company, the private park was named for Chief Leschi of the Nisqually tribe, who with others led the Indian attack on Seattle in 1856 from this site to protest the unacceptable reservation lands being imposed by Governor Stevens.⁴

The cable car line was successful in bringing real estate development to the Yesler and Jackson corridor. John Melancthon Frink (1855-1914), owner of Washington Iron Works, the first manufacturing company in Seattle, built a house with a spectacular view of Lake Washington. It was located on the brow of the hill between 30th and 31st Avenues south of Lane Street overlooking the Rainier Heights landslide area. A number of mudslides had occurred in the 1890’s in this landslide area, with one of the largest in 1898 destroying 16 houses and the sawmill below.⁵



Yesler Cable Car Trestle early 1890's
Historical Society of Seattle & King County

Figure 3-1. Yesler cable car trestle in the early 1890's



Historical Photography Collection,
University of Washington Libraries

Portion of 1891 Lithograph by Koch

Figure 3-2. Portion of 1891 lithograph of Leschi waterfront and uplands

In the early 1900's, the Seattle Park Commissioners took on the task of promoting comprehensive park planning for Seattle. In the 1902 full-page newspaper article "Let Us Make a Beautiful City of Seattle," Mr. Frink is quoted in a list of civic leaders as saying "*I have always advocated the policy of making provisions for parks and boulevards.*" He and many other civic leaders, expressed support for being taxed for the same.⁶ The Park Commissioners turned to the leading landscape architects, the Olmsted Brothers of Brookline, Massachusetts, for advice on developing a comprehensive system of parks and parkways for Seattle.

John Charles Olmsted, along with his assistant Percy Jones, arrived in Seattle in the spring of 1903 and spent over a month touring the city, taking detailed field notes and developing his recommendations for Seattle's entire park system. The 1903 Olmsted Brothers Report to the Parks Commissioners described the Rainier Heights Landslide area from Day Street to almost Yesler Way as "*mainly grassy slopes with scattering trees and groves...*" and noted that "*...the land near the top sank apparently from twenty to thirty feet, while the shoreline was pushed out into the lake correspondingly.*"⁷ The report recommended that the City acquire the entire landslide area for park purposes, noting that it would be cheaper for the City to own the area than to have it developed with streets and houses that might slide over time. The report also states that "*Already the street railway recreation ground called Leschi Park, at the north end of the landslide, is overcrowded on Sunday afternoons...*"⁸

Olmsted also recommended taking advantage of the views and creating a parkway along the crest of the hill or, if that was too expensive, along the lakeshore. The development at Leschi, including a large dance pavilion, presented an obstacle for routing the boulevard along the lake shore, so the routing of the parkway was not resolved until several years later when the Park Commissioners were in the process of beautifying the city for the Alaskan Yukon Pacific exposition.

In 1906, after purchasing the 15.5-acre "Washington Park," John M. Frink, who had joined the Board of Park Commissioners earlier that year, and his wife, Abbie H. Frink, donated the land to the City for park and parkway purposes. Having previously instructed one of their members, Mr. Blaine, to attempt to finance the purchase, the Park Commissioners praised Mr. Frink's action, stating: "*It is with great sense of pride and deep sense of gratitude that the board recognizes the liberality of Mr. and Mrs. Frink and the import of their gift in attracting the attention of other well-disposed citizens to the need of our city for additional park land for park, play and recreation grounds. In Mr. Frink the Board recognizes its most earnest member, one who, having the ability, acts. On the park board as in every capacity in which he has served, Mr. Frink is ever in earnest...*"⁹ Mr. Frink served as president of the Board in 1908-9 and continued on as a member of the Board until 1914.

In 1906 Olmsted visited the Park site "*and was much pleased with the romantic and secluded ravine and steep wooded hillsides, which give a decidedly marked and interesting character to this little park.*"¹⁰ The Olmsted Brothers proceeded to develop designs for the Park, preparing plans and sketches over the next six years. Ten of these plans, along with several topographical maps, can be found today in National Park Service archives at Fairsted in Brookline, Massachusetts.¹¹ Regarding their 1907 plans, Percy Jones, Olmsted's assistant wrote "*It appears to me that both Frink and Cowen Parks will have to be worked out to a great extent on the ground using our plans as a basis and changing as it may seem desirable.*"¹² It is also

interesting to note that the Olmsted Brothers prepared plans for J.M. Frink in 1910 for his private residence.¹³

In preparation for the Alaskan Yukon Pacific (AYP) Exposition in 1909, the Park Commissioners sought to have the new park and boulevard system ready for visitors to the city. The boulevards were viewed as entryways to the Exposition. The boulevard now known as Lake Washington Boulevard was originally known as four different boulevards: Washington Boulevard from the University where the AYP Exposition was sited to Madison Street; Blaine Boulevard from Madison Street to Yesler Way; Frink Boulevard from Yesler Way to Colman Park; and Lake Washington Boulevard, from Colman Park to Seward Park. The Park Commissioners reported that by the end of 1909 \$101,310.62 had been spent on Frink Boulevard and \$13,039.27 on Frink Park for acquisition, improvements and operations expenses. In 1909 alone, \$7,395.62 was spent on Frink Park, of which \$5,875 was for land purchases.¹⁴

The 1909 Park Commissioners' Annual Report described Frink Park, noting that "*A delightful feature of the park is the beautiful dogwood and other natural growth, through which winding paths with rustic seats have been constructed, making it a beautiful retreat during warm weather.*"¹⁵ Historic photographs show that at least one of these rustic wooden benches had the name of the Park in large letters as part of the back rest¹⁶ (Figure 3-3). Commenting on Seattle's boulevards in general, Olmsted wished that there had been a "*greater degree of beauty and especially of harmony of the necessary construction work with the romantic and sylvan character inherent in the land through which the park drives have been carried*" and bemoaned the "*stiff and formal manner distressingly out of harmony with the wild beauty of the natural woods and ground-covering growths.*"¹⁷

By 1911, five additional acres had been added to the Park through purchase and condemnation.¹⁸ Following a site visit that year, Olmsted continued to urge that the Park be extended down to the lake if possible. In 1912, after the construction of the concrete bridge, the Olmsted Brothers recommended removal of the wooden bridge that had been in their earlier plan. Also, Olmsted noted that the Park was still lacking the overlook at 31st and Jackson.¹⁹

3.2 Park Founders and Designers Vision for Frink Park

The 1903 Olmsted report recommended that "*The different parks of the city should not be made to look...like each other..., but on the contrary every advantage should be taken to give each one a distinct individuality of its own.*"²⁰ The Olmsted park and boulevard system along Lake Washington is made up of a series of parks linked by the boulevard. Olmsted linked existing parks with a broad parkway and added additional park land where opportunities existed, especially wooded ravines. He wanted to take advantage of views and shoreline access wherever possible. His vision was for "*parks embodying natural woods and beautiful landscapes located within the borders of the city or close enough to the heart of the population to be available for the great mass of the people. ...In short, I distinctly advocate the expenditure of practically all of the half million dollar loan in parks having landscape advantages, mainly upon areas along the shore of Lake Washington...*"²¹

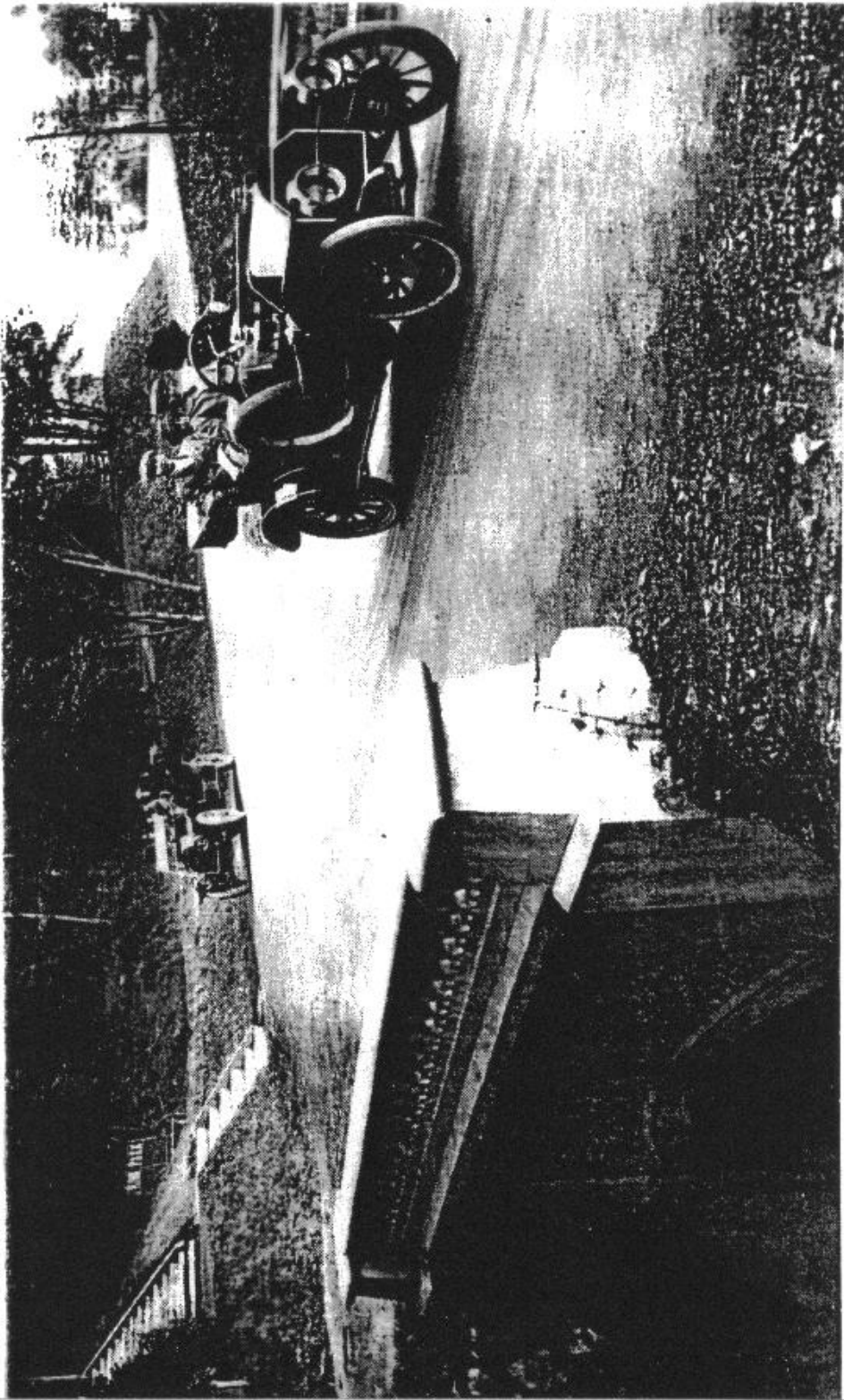


Figure 3-3. Lake Washington Boulevard through Frink Park, circa 1911
Seattle Municipal Archives Photographer Collection – No. 29054

For the general area of what was to become Frink Park, the 1903 Olmsted report stated that *“the land in general could be fitted for enjoyment by the public,”*²² calling for a pleasure drive and a few walks. In 1906 John Olmsted described the Park, saying: *“Except in a few limited areas the natural ground covering should not be disturbed. What would be an inappropriate roughness of the surface in most Parks where the slopes are comparatively gentle, is not only unobjectionable in this Park, but is an element of natural beauty entirely harmonious with the general character established by the steep slopes and dense woods.”*²³ He noted that the center of the Park was a grassy region that had been terraced by landslides and suggested that creating *“a series of pools in the middle and lower part of the ravine...might...by stopping the scour of the brook, put a stop to the slipping.”*²⁴ Olmsted suggested the pools could be made *“partly by excavation and partly by means of little dams concealed by boulders and plants.”* He also thought that *“in the heart of the park an acre or two more might be grubbed and seeded with grass to contrast with the more wild and densely wooded parts.”*²⁵ He suggested *“there should be a general but cautious thinning of the alders throughout the Park and a more desirable class of forest trees should be introduced in place of them.”*²⁶

In 1909, John Olmsted wrote to Park Board President Cheasty about his review of the City’s boulevards through natural landscapes, saying *“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. The drive and its accompanying walk must of course be distinctly artificial in order to be durable and convenient in use, and where there is a parking strip [planting strip] between the drive and walk it may very properly be covered with grass; but there should be trees and shrubs planted irregularly in these strips and they should be of wild sorts except in cases where the surroundings are more completely formal than is usually the case. The avoidance of formality should even extend to the drain inlets, which should usually be formed by a flat stone resting on a smaller stone at each end set into the bank over the hole of rustic character instead of the tile and iron grating. Where the land outside of the walk along the drive is of prevailing wild character the guard rail, where necessary, would in general look best if made of substantial natural poles with the bark on. ...There are many cases in which it will be necessary sooner or later to introduce flights of steps. Particular pains should be taken to design these on curves or broken lines and avoid long straight flights of a stiff and formal appearance. All cement concrete work, whether in walks, steps, or retaining walls, should be made much darker than the natural color...and the surface of all such concrete work should be more or less roughened. Much of the concrete work which has already been done is unfortunately light and glaring in color, excessively smooth, and altogether too citified to harmonize with the character of the surroundings.”*²⁷

In 1912, in a letter accompanying a plan for the Park, the Olmsted Brothers stated that *“we have planned a number of walks which will better enable visitors to the park to stroll from one part to another and to become more intimate with the park that would otherwise be possible.”*²⁸

3.3 Remaining Historic Elements

It appears that the majority of the work that laid the foundations for what is Frink Park today was done from about 1903 through the 1940's, with the period of Olmsted Brothers involvement lasting from 1903-1913. The Park boundaries are the same as when they were established in 1908 after a period of land donations, condemnations, and acquisitions that created Frink Park. The curve of 31st Avenue appears to extend into the southwest border of the Park, and Frink Place, connecting Washington Street to Lake Washington Boulevard and Jackson Street, was established through the Park by ordinance in 1927. Frink Park still retains many elements that help tell its story. The most obvious of the man-made structures are the boulevard with its decorative concrete bridge, the numerous trails and the waterfall. There are still remnants of the caretaker's cottage and traces of the early tennis courts. If one searches it may be possible to find evidence of the cable car trestle bridge footings.

Park Boundaries

The boundaries of Frink Park were established between 1906, when John M. Frink donated the bulk of the park's acreage, and 1908, when the remaining land donations, condemnations, and purchases by the City were completed. Those boundaries are still intact today and total 16.7 acres of DPR property not counting the street rights-of way (Figure 3-4). The land forming Upper Leschi Park was acquired between 1908 and 1980, and currently totals 5.2 acres (Figure 3-5).

Lake Washington Boulevard

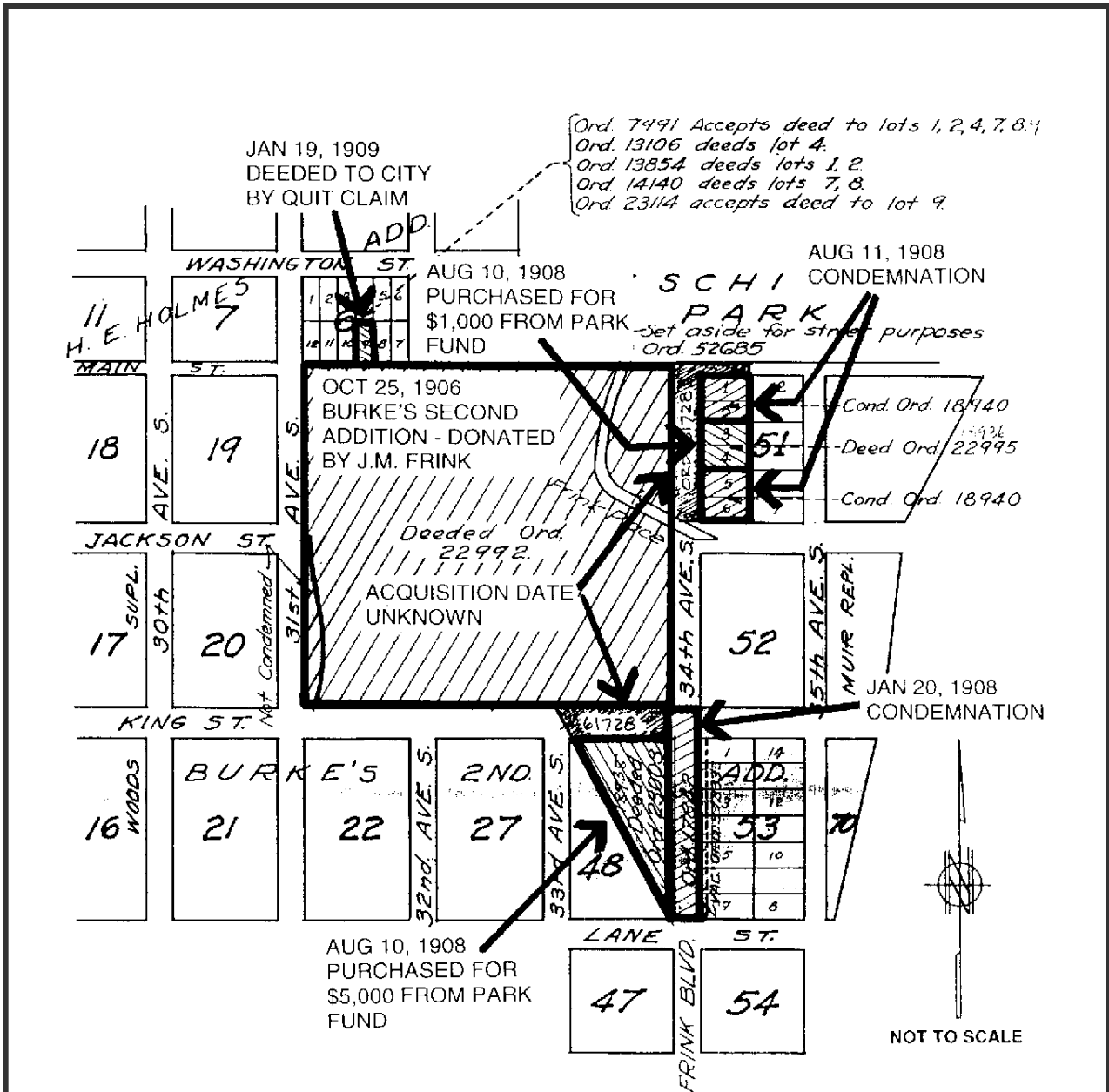
In 1906, Olmsted had recommended a curved roadway partly through the Park where the boulevard now runs, stating that "*The little wood road now in use gives a hint of how such a drive might be laid out.*"²⁹ Olmsted had originally proposed in 1906 that the boulevard would be ideally located at the crest of the hill or else along the waterfront.³⁰ When neither location proved practical, the road was routed through the Park. The boulevard was graded in 1909 and macadamized (paved) and opened to the public in 1910. It was originally named Frink Boulevard, which was later changed to Lake Washington Boulevard.

Frink Place

In 1912 the Olmsted Brothers advised on the location and grading of the connection between Washington Street and the boulevard. The original drawings showed it more in line with the caretaker's cottage.³¹ In 1927, City Council established by ordinance the right-of-way alignment for Frink Place, and sidewalks were added in 1930.

31st Avenue and King Street

The Olmsted Brothers advised the City on how best to accommodate the needs of the City, adjacent property owners and the Seattle Electric Company, which wanted to run an electric street railway along 31st Avenue. The City thought the grade would be too steep, but Olmsted recommended the split roadway (with the retaining wall evident today along 31st Avenue just south of Jackson Street) so both the street railway and the property access needs could be met.³²



Adapted from Seattle Park Department Frink Park Property Map, 1/6/31.

NOTE: STREETS WITHIN PARK BOUNDARY ARE NOT VACATED

TOTAL AREA 19.30 ACRES

SEATTLE PARK DEPT.
FRINK PARK
 PROPERTY MAP
 DR. BY R.S.R. 1-6-31.
 CH. BY J.B.R. *O.K. INC. #*

Figure 3-4. Frink Park land acquisitions and boundaries

Trails and Entry points

On his first site visit, Olmsted carefully described the existing trails and entry points. The city engineer provided topographical maps for Olmsted's planning, but these unfortunately were not accurate. Olmsted wrote to his wife after visiting the Park in June, 1907, to check out the staking that had been done based on the drawings, saying: "*It is extremely annoying to try to work on such wretched topographical maps.*"³³ He resorted to having the work done in the field. Many of the trails that Olmsted described in his site visit reports are still in use today, though in some cases details have been lost over time. Stairs shown in historic photos east of the bridge as well as west of the waterfall are no longer visible today (It is unknown if they were removed or are buried.). In the letter accompanying their plan in 1912, the Olmsted Brothers called for providing "*a walk paralleling the boulevard.*"³⁴ Such a walk is apparent in the historic postcard views and in historic photographs, but is no longer visible today (Figure 3-6).

Waterfall and Pond/Marsh

Olmsted recommended a series of pools along the creek partially to help reduce the erosion³⁵, sketching his idea in a letter dated 3/14/07 to Jones (Olmsted employee)(Figure 3-7), and later including it on a plan sheet dated 2/4/08 (Figure 3-8). He suggested concealing the little dams with boulders and plants.³⁶ When the concrete bridge replaced the wooden bridge, Olmsted recommended that "*a path cross the brook somewhat north over the dam.*"³⁷ The existing dam that appears in photos from 1913³⁸ was restored through community effort in 1985.³⁹

Structures

Bridge

The decorative concrete bridge was built between 1909 and 1911 as part of the boulevard. The Municipal Archives photo⁴⁰, although dated 1907 by Don Sherwood was most likely taken sometime between 1909 and 1911 (Figure 3-9). In 1973 the northwest corner of the bridge was damaged. After more than a decade it was finally restored to its original appearance just in time for the 1984 National Association of Olmsted Parks conference in Seattle. The Engineering Department had proposed in 1980 to replace the bridge rails in Frink and Colman Parks with 42 inch high barriers. After strong community outcry, the Engineering Department agreed to redirect their project because of the historic significance of the boulevard bridges. While the location of the bridge was part of the boulevard laid out by the Olmsted Brothers, no records have been found to determine the designer of the bridge.



Frink Boulevard, Frink Park, Seattle Washington
Arbes/Knight Collection



Lake Washington Boulevard, Frink Park, Seattle Washington
Sheldon & Associates, Inc.

Figure 3-6. Lake Washington Boulevard at Frink Park bridge, circa
1913 (above) and 1999 (below)



Algonguin Hotel
AMERICAN PLAN ONLY
ABSOLUTELY FIRE-PROOF
CLAS. T. CAJVEY, Manager

Dayton, Ohio. 14 March 07

Frink Pk



Set one forked pool
+ make it the
largest of prairie

From Olmsted Brothers correspondence 3/14/07

Figure 3-7. Sketch of stream channel pool plan, 1907

Figure 3-8. Revised preliminary study of Frink Park, 1908 (available in the printed copy of the concept plan due to copyright issues)



Figure 3-9: Frink Park Bridge under construction (Seattle Municipal Archives Photographic Collection - No. 29052), circa 1911

Caretaker's Cottage Foundation

In 1910, a house with a garage and storage shed for the caretaker of Leschi Park was built above Lake Washington Boulevard and north of Frink Place. It remained in service until 1964, and was removed in September 1966. A portion of the garage was left as a rain-shelter for picnics. The stone wall and fireplace still remain as a reminder of the time when compensation for a Park foreman included a rent-free residence.

Landscape

Rhododendron Dell

There is an extensive grove of large native rhododendrons bordering the trail below the boulevard bridge. Although there is no historic record that has been found about when these were planted, it is possible that they were planted as part of the Park development. Rhododendrons were extensively used at the AYP Exposition grounds. Oral history from Wayne Jones, the DPR lead gardener for the Park in the 1980's indicates this area was originally called Dogwood Trail, but that in the 1930s, as part of a Work Progress Administration (WPA) project the dogwoods were removed. This is reinforced by the 1909 Park Commissioner's report describing the dogwoods.

Alder/Fir Forest

In his site visit report in 1906 Olmsted noted that above 34th Avenue in the vicinity of King Street was a "thick young fir and alder woods."⁴¹ Olmsted recommended "a general but cautious thinning of the alders throughout the park" and replacing them with "a more desirable class of forest trees."⁴² It is not certain if the area was originally logged by the early settlers as

there are no large stumps left as remnants, but there are no large trees remaining. There were several saw mills built on the shoreline below, so it is possible that any large conifers that may have grown in the area were removed. There is knowledge of landslides in the area that may explain in part why only younger trees remain. Also the Jackson Street trestle cut east-west through the middle of the Park.

Views

John C. Olmsted was interested in creating a viewpoint at Jackson and 31st Avenue and was disappointed this was not accomplished. In his field notes in 1906 he states that “*The view is almost unobstructed and is very fine.*”⁴³ He had recommended that the parkway be routed along the crest of the hill from James Street, south to the vicinity of what is now Colman and Mt. Baker Parks. He had picked out the end of 35th Avenue just south of James Street as being “*one of the finest view points on the west shore of Lake Washington.*”⁴⁴ Given that the boulevard was not at the crest of the hill, and James and 35th was not acquired as a viewpoint (DPR now owns a viewpoint just below at Terrace and 36th), Olmsted may have been particularly interested in trying take advantage of views from 31st. It is possible that the views that were available in the early part of the century were a result of previous slides that may have taken out the trees below. In addition, the Jackson Street trestle had recently been removed thus leaving a clearing where it reached 31st Avenue.

Olmsted wrote to his assistant James F. Dawson in 1912, as they struggled with how best to provide an entry at Jackson Street, suggesting confining their effort to the terrace without the stairs, saying “*It is a shame to spend limited funds on not very admirable improvements when money is so urgently needed for important land acquisitions.*”⁴⁵ An official entry at 31st and Jackson was never constructed, though there is a trail entrance there. Today the views at 31st Avenue and Jackson are obscured by trees in the Park, but as one proceeds south on 31st the vista opens up. There are good views of Lake Washington from the upper part of 31st above the retaining wall where it turns west to King Street.

Open Areas

Olmsted had recommended adding to a then cleared area at the heart of the Park “*to contrast with the more wild and densely wooded parts.*”⁴⁶ This was apparently recommended based on incorrect topographic information that Olmsted received from the city, and a clearing was never constructed at the suggested location.

Landforms

Steep Slopes and Landslides

The area of Frink Park was shaped by landslides and erosion from the creek. Landslides in the area are mentioned in the 1890's. More recently in 1951, a landslide occurred across the boulevard and into the ravine near the south boundary of the Park. The proposal to clean up the slide at the time was to distribute the material that had slid onto the boulevard along the edge of the boulevard for the entire length of Frink Park.⁴⁷

Trestle Footing Holes

The Jackson trestle was built in 1888 and abandoned in 1891. About 300,000 board feet of lumber were used to build it, and it was claimed to be the longest wooden trestle in the world.⁴⁸

Both the Jackson and Mill Street (Yesler Way) trestles reportedly swayed in the wind. The Jackson Street trestle was removed by 1900. Olmsted noted that what he originally interpreted as slide areas were more than likely the trestle footing holes, saying *“The sudden depressions which I thought were and recorded as numerous landslides, Thompson told me were the holes left when footings wer[e] set for a great timber trestle used by a cable street railway years ago to get from the top of the hill down to Lake Washington. It was the Jackson St. line. After the street railway was taken away leaving no sign except these long trench-like holes, I saw at once that they were artificial as soon as their origin was stated to.”*⁴⁹ There may still be remnants of the original holes, but this has not been documented.

Tennis Courts

Clay tennis courts were built in 1911 at the corner of 31st Avenue and King Street. They were later abandoned by 1935, and then, as part of a WPA effort, restored in 1941. The courts were permanently abandoned in 1956. The flat rectangular area where the tennis courts were can still be identified in the southwest corner of the Park. There has been mention by community members of an additional set of historic tennis courts that were located east of the boulevard, but this is not reflected in the Sherwood Files.

3.4 Integration of Plan with Historic Elements

Frink Park is historically significant as a portion of the Olmsted park and boulevard system that was conceptualized, planned, and described in the 1903 Olmsted Brothers Report to the Parks Commissioners. It is also significant as an example of a rustic, naturalistic, wooded park advocated for and designed by the Olmsted Brothers to provide an informal, “wild” place for people in the middle of the city. Frink Park was intended to be a neighborhood park with woodland trails for the enjoyment of the forest setting on foot, as well as a pleasure drive along the Boulevard for those passing through the Park by car. Overall, the Park today still functions very much as it was intended by the Olmsted Brothers as they had planned the park and boulevard system and did the specific design work for Frink Park. Due to this historic and cultural legacy, the continued preservation of significant features in the Park is important as the new plan is conceptualized and implemented. Optimally, Seattle DPR should initiate a thorough inventory and assessment of the Olmsted park system and its many individual parks in Seattle. Based on this, DPR should develop design guidelines and standards for work done in these historic landscapes so that there is a consistent style within and among parks, where originally intended by the Olmsted Brothers. Restoration and design in parks like Frink should be based on an understanding and expression of the conceptual and historic framework which is the foundation of these parks, as well as whatever detailed knowledge remains of the actual specific design elements that were used and were typical of naturalistic parks of the period, as well as features that were unique to Frink Park in particular.

Forest Management Plan

Frink Park was originally intended as a naturalistic forested park, and remains that way today. However, the forest is in declining health, and the plant communities are lacking in the diversity of native species that one would hope to find. As detailed in section 3.3, Olmsted generally described the young fir and alder woods that he found when he visited Frink Park in 1906, but there is no documentation of the other species or plant communities that he observed. Nor is there any written record of any plantings that were installed or lists that were compiled of

recommended species to plant, either from the Olmsted firm during the period of time that they were involved in the design of the Park, or from the Parks Department that constructed projects in the Park in the ensuing years. Olmsted did suggest that the alders be judiciously thinned throughout the Park, and replaced with other species of “forest trees”. The proposed forest plan is very much in accordance with this suggestion, and generally strives to preserve and improve the forest component of this woodland park.

No specific planting plans or lists have been found for Frink or Upper Leschi Parks. These may have been lost, or were never done by the Olmsted Brothers, with the details of planting in the Park left to the Parks Department. There are good indications that some of the invasive species that are currently present in the Park were planted during the early part of the Park’s existence. Photographs of the waterfall area taken in 1913 illustrate new plantings of a ground cover that appears to be English ivy (Figure 3-10). Plant lists by Dawson (Olmsted employee) for slopes along the boulevard in Interlaken Park, which is similar to Frink in its steep and wooded character include suggestions for planting non-natives such as English ivy, *Vinca minor* (periwinkle), wild clematis, wild blackberry, and Oriental bittersweet. At the time, these species were commonly used and recommended for parks, and concern over invasive species was practically non-existent. Included in this list, Dawson also suggested planting snowberry, salmonberry, spirea, elderberry, currant, ferns, salal, and Oregon grape, all common native species that are found in the Puget Lowland forests. This mixture of fast-growing, vigorous non-natives and locally common natives may well have been a fairly typical plant palette for the wooded parks in Seattle. These parks were often on steep unstable slopes, had wet clay soils, and were intended to remain natural looking “*and harmonize with the native growth of the vicinity.*”⁵⁰ In the case of Interlaken Boulevard, as with other boulevards being built for the AYP Exposition, there may also have been a desire to plant fast-growing species that would make the projects look more finished for the Exposition. Regardless of how these species were initially introduced to Frink Park, the most aggressive invasive species, including English ivy, are targeted for removal or at least “control” by this plan.



Figure 3-10: Frink Park waterfall area, 1913 (Seattle Municipal Archives Photographic Collection No. 29053)

Trail Plan

When John C. Olmsted made his first site visit to Frink Park in 1906, there were some paths in the park and a wagon road in the northeast portion of the Park, in the vicinity of what is now S. Frink Pl. (Figure 3-11 available in the printed copy of the concept plan due to copyright issues). A grading plan dated 9/24/12 (Figure 3-12 available in the printed copy of the concept plan due to copyright issues) shows a network of proposed trails that is quite similar to what exists in the Park today, as well as what is shown on a 1931 City of Seattle DPR map of the Park (Figure 3-13). Particular items of interest are:

- the entrance at 31st and Jackson, which went through numerous schematic iterations including a grand entrance (Figure 3-14 available in the printed copy of the concept plan due to copyright issues) [*we have found no evidence that this was ever built even in its most scaled down version (Figure 3-15 available in the printed copy of the concept plan due to copyright issues)*];
- the switchback stairway along the south end of the Park through the King St. right-of-way between 32nd and Lake Washington Boulevard (Figure 3-12) [*we have found no evidence that this was ever built*];
- the proposed trail north of the waterfall area between the waterfall and S. Washington crossing the stream corridor and ascending the ridge to the east that was never built (Figure 3-12) [*we have found no evidence that this was ever built*];
- the trail paralleling the Boulevard on the east side from the south end of the Park to the current location of the tennis courts in Leschi Park, which was built as evidenced by photographs taken in 1911 (Figure 3-6), and is still shown in part on the 1931 map of existing trails (Figure 3-13), but does not exist today;
- the proposed trail in the southeast portion of the Park that crosses the stream via a bridge and joins the trail through the Rhododendron glen (Figure 3-12) [*we have found no evidence that this was ever built*];
- and numerous flights of stairs shown in the 1912 grading plan (Figure 3-12) proposed for the trails in the steepest areas in the inner portion of the Park to ameliorate the grades [*unknown how many were built*].

In general, the Olmsted Brothers recommended construction techniques and design styles for paths and roads that were harmonious with the “romantic and sylvan character” of the landscape. This would suggest paths that follow the shape of the land, and bring the user through the Park’s forest to experience the solitude that it offers. Alignment, width, and trail surface should not interfere with the user’s “intimate” experience of a woodland park in the city. Wide-open corridors with paved or graveled trails that may be appropriate in larger, more heavily used, and more formal settings are not desirable in Frink Park and would substantially alter the mood of the Park to its detriment, and the detriment of the Park user. New trail alignments and re-routes or reconstructions should avoid long straight sections that appear stiff and formal. Trails in the Park should be of a relatively narrow width (up to 36” wide) and have a packed earth tread unless dictated otherwise by moisture and soil conditions, where substantial trail reconstruction and repair is necessary. These trail segments are to be surfaced with compacted, crushed rock as described in DPR trail standards for longevity, durability, and safety. The proposed Boulevard Trail, in a less wild setting along the road, could be a more formal “developed” trail and be wider (up to 5’) and have a surface appropriate for universal access. All trail construction should be low-impact, and include preservation or salvage of native vegetation, and replanting of disturbed

areas. Any built features such as bridges, benches, boardwalks, bollards, and railings should fit with the natural setting, and be constructed out of materials such as wood and/or stone.




Figure 3-11. Revised Topography of Frink Park, 1907 (available in the printed copy of the concept plan due to copyright issues)

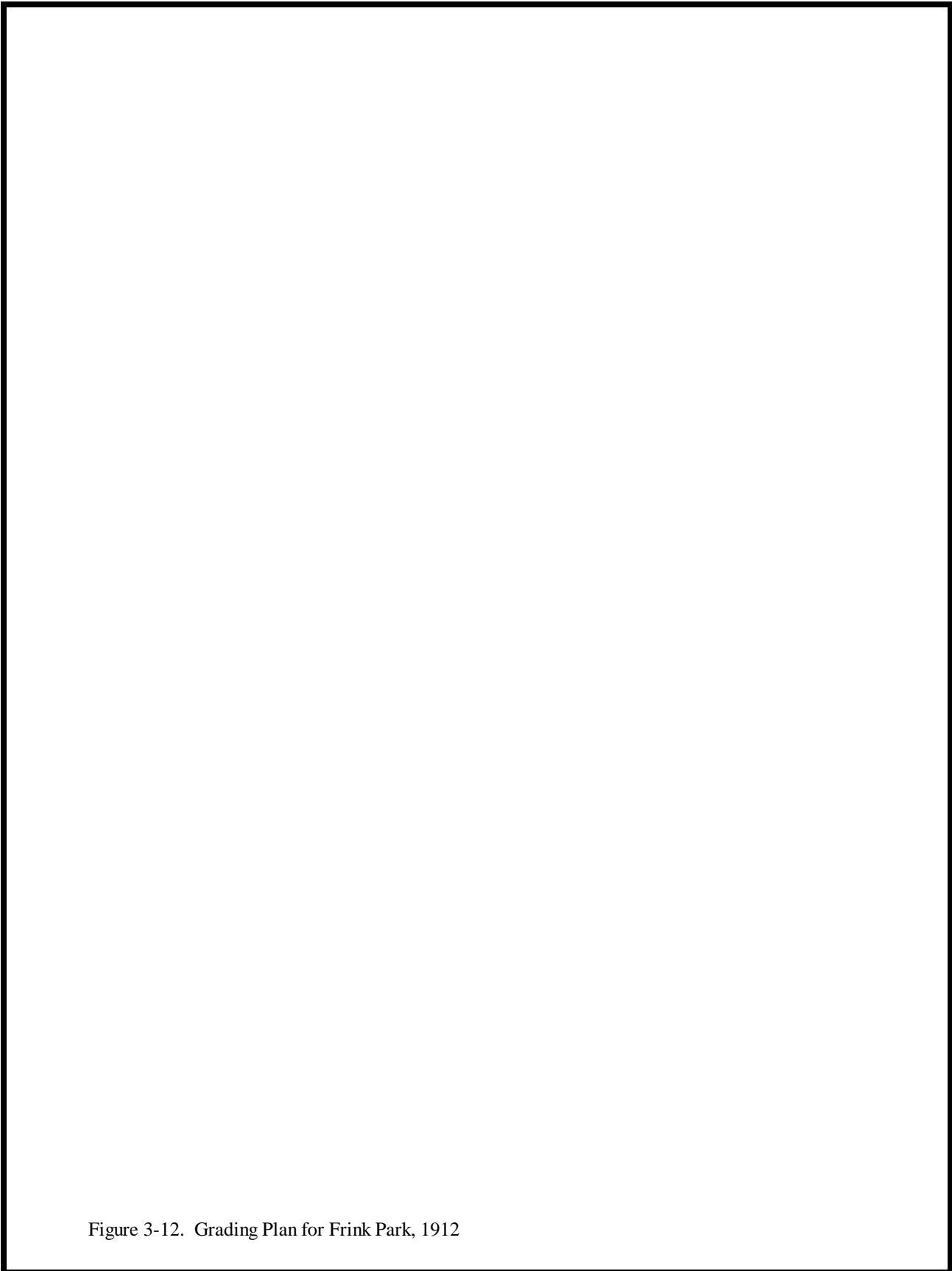


Figure 3-12. Grading Plan for Frink Park, 1912

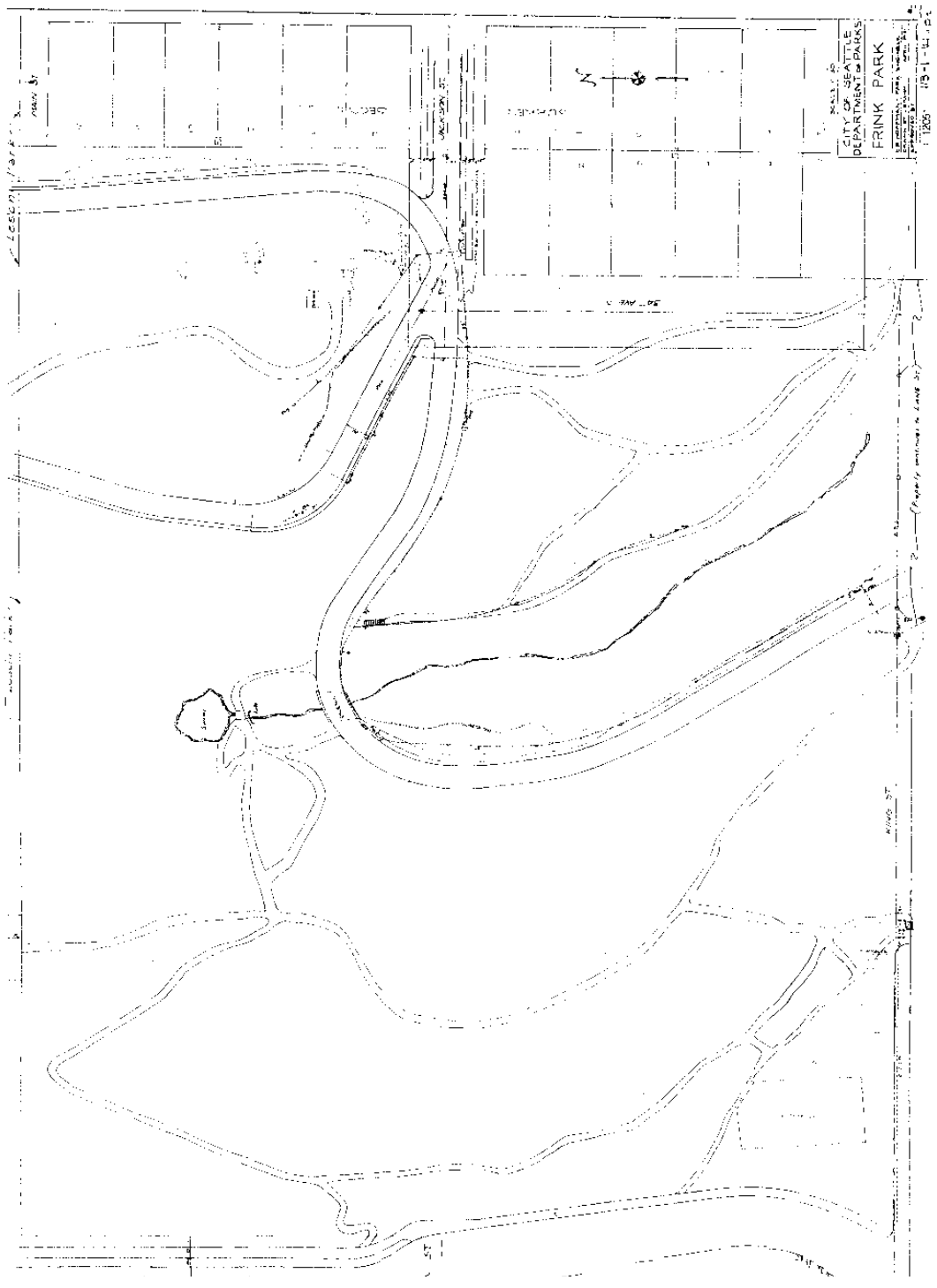


Figure 3-13. Seattle Dept. of Parks and Recreation Map of Frink Park, 1931




Figure 3-14. Grading Study for Jackson St. entrance, 1912 (available in the printed copy of the concept plan due to copyright issues)




Figure 3-15. Proposed entrance steps at Jackson St., 1912 (available in the printed copy of the concept plan due to copyright issues)

Aquatic Resources Plan

The streambank and channel stabilization projects recommended in the plan are consistent with the Olmsted Brothers' overall vision of an informal, natural, wooded Park. The proposed work, which would ultimately result in a mixture of stepped pools, boulder cascades, and slow-moving glides liberally strewn with river rock and woody debris, is perhaps a bit more natural-looking and varied than Olmsted's directive to create a series of step pools created with check dams concealed by boulders and plantings (Figure 3-8). Olmsted's idea was to create these step pools in the middle and lower reaches of the stream; his sketches show the first pool at the confluence of two streams, which is likely the small west branch joining the main branch above the waterfall. The proposed plan does not include any pools upstream of the waterfall, and indeed long stretches of the stream channel from Lake Washington Boulevard downstream have too steep of a gradient to create pools. Overall, the proposed plan for the stream is in keeping with Olmsted's concept of reducing erosion in the stream corridor and creating more visual interest, as well as maintaining the wild and un-designed feel characteristic of the rustic woodland parks of the time.

Olmsted didn't mention anything specific about the wetlands in the Park, except as they were included in the ideas he had about creating step pools in the stream corridor in the vicinity of the waterfall and downstream of it. Again, the proposed wetland projects maintain and enhance the Olmsted Brothers' vision of an aesthetically pleasing forested park in the city.

Edge Improvement Plan

In keeping with the Olmsted Brothers' descriptions of the desirability of natural landscapes in urban areas, the Park edge should offer a gradual transition between the more built environment of the city (sidewalks, roads, houses, etc.) and the wild landscape of the forested Park. At the same time, identifying the Park better with signage and a recognizable edge will let people know that there is a public park amongst the trees, and how they can access it. Finally, a greater awareness among Park neighbors of issues having to do with invasive plants on adjoining properties will help the overall health of the forest and greatly aid the management of these undesirable plant species in the Park.

Sign Plan

The Olmsted Brothers had no apparent provision for signs in Frink Park, but other Olmsted parks in Seattle were visited as part of this planning process to discern any consistent themes or particular materials that were used elsewhere. Materials and placement of any signs in the Park should be consistent with the concept of Frink Park as a natural park along the Olmsted boulevard system that is visited on foot primarily by the immediate neighborhood, and is enjoyed as a thoroughfare by vehicular traffic. The majority of written and verbal comment received as part of this planning process has reinforced that concept. Materials should be natural (wood or stone preferred), and signs should be placed judiciously and minimally so as to not disrupt the feeling of escaping the city and the adventure of being in the forest.

¹ John C. Olmsted to Shrewsbury – 11/28/06 - pg 7

² Seattle Sunday Times 12/27/08 - pg 17 *Frink Tells Why He Opposes Canal*

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- ³ Wade Vaughn, Seattle Leschi Diary 1982 - pg 28
- ⁴ Wade Vaughn, Seattle Leschi Diary 1982 - pg 36-7, 44, 53-4
- ⁵ Wade Vaughn, Seattle Leschi Diary 1982 - pg 46, 55
- ⁶ Seattle PI 9/21/02 pg 40 *Let Us Make A Beautiful City*
- ⁷ Olmsted Brothers to Blaine - Report of Olmsted Brothers adopted by City Council 10/19/03 - reprinted in the First Annual Report of the Board of Park Commissioners, 1884-1904 - pg 56
- ⁸ OB to Blaine - Ibid. - pg 56
- ⁹ Board of Park Commissioners Resolution - 10/25/06 - pg 159 of Board Minutes
- ¹⁰ JCO to Shrewsbury - 11/28/06 - pg 7
- ¹¹ National Parks Service, Frederick Law Olmsted National Historic Site, Pre-Cataloguing Inventory, Frink Park #2708 - 12/9/92 (Copies of the plans will be available for research at the Seattle Municipal Archives in 2000)
- ¹² Jones to JCO - 3/18/07 - pg 2
- ¹³ Olmsted in the Pacific Northwest Private Estates and Residential Communities, an inventory by Catherine Joy Johnson - pg 14
- ¹⁴ Sixth Annual Report of the Board of Park Commissioners, Seattle, Washington, 1909, compiled by Roland W. Cotterill - Summary of Park Fund Expenditures, 1909, and Summarized Statement
- ¹⁵ Sixth Annual Report, Ibid. - pg 31
- ¹⁶ Frink Park #29054 Don Sherwood Parks History Collection, Seattle Municipal Archives Photograph Collection
- ¹⁷ JCO to Cheasty - 6/14/09 - pg 9(10)
- ¹⁸ Sixth Annual Report of the Board of Park Commissioners, Seattle, Washington, 1909, compiled by Roland W. Cotterill - pg 29
- ¹⁹ OB to Thompson - 5/29/12 - pg 2
- ²⁰ OB to Blaine - Ibid. - pg 78
- ²¹ JCO to Shrewsbury - 11/28/06 - pg 2 & 6
- ²² OB to Blaine - Ibid. - pg 56
- ²³ JCO to Shrewsbury - 11/28/06 - pg 14
- ²⁴ JCO Visit to Frink Park - 11/26/06 - pg 3
- ²⁵ JCO Visit to Frink Park - 11/26/06 - pg 2
- ²⁶ JCO to Shrewsbury - 11/28/06 - pg 14
- ²⁷ JCO to Cheasty - 6/14/09 - pg 5-7
- ²⁸ OB to Blaine - Ibid. - pg 1
- ²⁹ JCO to Shrewsbury - 11/28/06 - pg 11
- ³⁰ OB to Blaine - Ibid. - pg 55-57
- ³¹ Plan 2708-18, National Park Service Frederick Law Olmsted National Historic Site (see note ¹¹)
- ³² Frink Park Report by JCO - 5/14/07
- ³³ JCO to Sophie Olmsted - 6/1/07 - pg 4
- ³⁴ OB to Thompson - 5/29/12 - pg 2
- ³⁵ JCO Visit to Frink Park - 11/26/06 - pg 3
- ³⁶ JCO to Shrewsbury - 11/28/06 - pg 13
- ³⁷ OB to Thompson - 5/29/12 - pg 2
- ³⁸ Frink Park #29053 Don Sherwood Parks History Collection, Seattle Municipal Archives Photograph Collection
- ³⁹ "Frink Park draws 150 friends" - Madison Park Times - June 1985
- ⁴⁰ Frink Park #29052 Don Sherwood Parks History Collection, Seattle Municipal Archives Photograph Collection
- ⁴¹ JCO Visit to Frink Park 11/26/06 - pg 1
- ⁴² JCO to Shrewsbury - 11/28/06 - pg 14
- ⁴³ Frink Park, Seattle Visit by JCO - 11/26/06 - pg 1
- ⁴⁴ OB to Blaine - Ibid. - pg 58
- ⁴⁵ JCO Visit to Frink Park 11/26/06 - pg 2
- ⁴⁶ JCO Visit to Frink Park 11/26/06 - pg 2
- ⁴⁷ Department of Parks and Recreation Memo - Slide in Frink Park - 2/14/51
- ⁴⁸ Seattle Times - 7/16/44 - per Wade Vaughn, Seattle Leschi Diary 1982 - pg 40
- ⁴⁹ Frink Park Visit by JCO - 6/1/07 - pg 2
- ⁵⁰ James F. Dawson to Ferdinand Schmidt - 11/19/09 - pg 2

4.0 FOREST PLAN

The forest in Frink and Upper Leschi Parks developed after a period of rapid development and logging in the Seattle area. The removal of the original forest of the Park set in motion a process called secondary succession, or forest replacement, where short-lived deciduous species prepare the site for re-colonization by longer-lived conifers. However, urbanization of the surrounding area has compromised the forest's structure and function and altered normal successional processes by cutting off sources of conifer seeds, thereby reducing conifer colonization, reducing wildlife, increasing invasive plant pressure, and changing topographic features.

The Forest Plan Section documents the characteristics of this urban forest by providing an inventory of existing vegetation and an analysis of the current structural and functional condition of the forest. This section also includes a brief summary of the wildlife species (birds, mammals, amphibians and reptiles) that have been observed or are expected to currently occur in Frink and Upper Leschi Parks, and how these species might change over time with increased forest health. The plan then outlines a strategy to restore forest health, proposing general management goals and site-specific projects.

4.1 Natural History of the Forest

Frink Park was donated to the city by developers of the adjacent land in part to preserve the native characteristics of the site. While no original vegetative history of this Park has been found to date, much can be ascertained from photographs and the remaining vegetation on the site. In the early 1900's the Park supported carefully tended promenades of open canopy and rhododendron walks set in a backdrop of native forest. In recent times, this has become an unmanaged mixed forest of native and non-native plants. This brief history provides some of the missing pieces in the story of the development of this urban forest.

As much of Seattle was logged between 1880 and 1920, it can be assumed that by the early 1900's the native forest that once graced Frink Park had been either widely logged or "high graded" (selective cutting of high quality trees). Once a native forest of western red cedar (*Thuja plicata*), western hemlock (*Tsuga heterophylla*), Douglas fir (*Pseudotsuga menziesii*), and grand fir (*Abies grandis*), the forest is now comprised largely of bigleaf maple (*Acer macrophyllum*), with scattered coniferous trees. Recent surveys of the Park have found the largest trees to be between 100 and 125 years old. What was once an understory dominated by species like vine maple (*Acer circinatum*), oceanspray (*Holodiscus discolor*), salal (*Gaultheria shallon*), hazelnut (*Corylus cornuta*), snowberry (*Symphoricarpos albus*), sword fern (*Polystichum munitum*), twinflower (*Linnaea borealis*), vanilla-leaf (*Achlys triphylla*), and youth-on-age (*Tolmiea menziesii*), is now a much-simplified understory of sword fern, Oregon grape (*Berberis nervosa*), and English ivy (*Hedera helix*). The present forest is an early stage in the natural regeneration of a Pacific Northwest forest, a process known as secondary succession. For species that were common to native forests of the Puget Lowlands prior to large-scale logging, refer to Table 4-1.

Forest succession in the Pacific Northwest is almost predictable in terms of species composition and timing (see Figure 4-1). Site factors such as soil quality, slope and aspect, and prevailing precipitation contribute to the speed at which the forest proceeds through each stage and the

Table 4-1. Dominant Species in Mature Forests of Puget Lowlands

Common Name	Scientific Name	Habitat
Trees:		
Bigleaf maple	<i>Acer macrophyllum</i>	Moist to dry open woods
Bitter cherry	<i>Prunus emarginata</i>	Moist to dry open woods
Black cottonwood	<i>Populus trichocarpa</i>	Moist to wet open woods, stream banks
Cascara	<i>Rhamnus purshiana</i>	Dry forest, shade
Douglas fir	<i>Pseudotsuga menziesii</i>	Dry forest, sun
Grand fir	<i>Abies grandis</i>	Dry forest, sun
Pacific dogwood	<i>Cornus nuttallii</i>	Dry forest, sun
Pacific madrone	<i>Arbutus menziesii</i>	Dry forest, sun
Pacific willow	<i>Salix lasiandra</i>	Dry to moist open woods
Red alder	<i>Alnus rubra</i>	Moist to wet open woods, stream banks
Scouler's willow	<i>Salix scouleriana</i>	Moist open woods
Sitka spruce	<i>Picea sitchensis</i>	Moist to wet forest, sun or shade
Sitka willow	<i>Salix sitchensis</i>	Wet open woods, sun
Western hemlock	<i>Tsuga heterophylla</i>	Dry to moist forest, shade
Western red cedar	<i>Thuja plicata</i>	Moist to wet forest, shade
Western yew	<i>Taxus brevifolia</i>	Moist forest, shade
Shrubs:		
Devil's club	<i>Oploplanax horridum</i>	Stream banks, wet areas
Evergreen huckleberry	<i>Vaccinium ovatum</i>	Forest shade
Hazelnut	<i>Corylus cornuta</i>	Forest openings and shade
Indian plum	<i>Oemleria cerasiformis</i>	Forest openings and shade
Kinnikinnik	<i>Arctostaphylos uva-ursi</i>	Forest shade, dry slopes
Many-flowered rose	<i>Rosa gymnocarpa</i>	Forest openings
Mock orange	<i>Philadelphus lewisii</i>	Open dry forest
Ninebark	<i>Physocarpus capitatus</i>	Moist forest
Nootka rose	<i>Rosa nutkana</i>	Moist forest openings and wet areas
Oceanspray	<i>Holodiscus discolor</i>	Dry forest openings
Oregon grape	<i>Berberis nervosa</i>	Forest shade
Prickly currant	<i>Ribes lacustre</i>	Forested wet areas
Red elderberry	<i>Sambucus racemosa</i>	Dry forest shade or openings
Red huckleberry	<i>Vaccinium parvifolium</i>	Moist forests, on stumps and nurse logs
Red-flowering currant	<i>Ribes sanguineum</i>	Forest openings and edges
Red-twig dogwood	<i>Cornus sericea</i>	Stream banks, wet areas
Rhododendron	<i>Rhododendron macrophyllum</i>	Dry forest shade
Salal	<i>Gaultheria shallon</i>	Dry forest shade
Salmonberry	<i>Rubus spectabilis</i>	Wet areas, forest openings
Serviceberry	<i>Amelanchier alnifolia</i>	Forest openings
Snowberry	<i>Symphoricarpos albus</i>	Dry forest openings
Thimbleberry	<i>Rubus parviflorus</i>	Moist forest openings
Twinberry	<i>Lonicera involucrata</i>	Wet areas
Vine maple	<i>Acer circinatum</i>	Wet to dry forest shade and openings
Herbs:		
Bead lily	<i>Clintonia uniflora</i>	Moist forest shade
Bleeding heart	<i>Dicentra formosa</i>	Forest shade
Bunchberry	<i>Cornus canadensis</i>	Forest shade
Deer fern	<i>Blechnum spicant</i>	Forest shade
False lily-of-the-valley	<i>Maianthemum dilatatum</i>	Dry to moist forest shade
False solomon's seal	<i>Smilacina racemosa</i>	Forest openings
Foam flower	<i>Tiarella trifoliata</i>	Forest shade and openings
Foxglove	<i>Digitalis purpurea</i>	Forest edges
Fringe-cup	<i>Tellima grandiflora</i>	Forest shade and openings
Goat's beard	<i>Arunacus sylvester</i>	Moist forest openings
Horsetail	<i>Equisetum arvense</i>	Moist to wet forest openings
Miner's lettuce	<i>Montia sibirica</i>	Moist to wet forest openings
Stinging nettle	<i>Urtica dioica</i>	Moist to wet forest openings
Self-heal	<i>Prunella vulgaris</i>	Moist forest shade
Skunk cabbage	<i>Lysichitum americanum</i>	Wet forest shade and openings
Slough sedge	<i>Carex obtusa</i>	Wet forest shade
Starflower	<i>Trientalis latifolia</i>	Forest shade and openings
Stream violet	<i>Viola glabella</i>	Wet forest shade
Sword fern	<i>Polystichum munitum</i>	Moist forest shade and openings
Trailblazer	<i>Adenocaulon bicolor</i>	Forest openings
Twisted stalk	<i>Streptopus amplexifolius</i>	Forest shade
Vanilla leaf	<i>Achlys triphylla</i>	Forest shade
Western trillium	<i>Trillium ovatum</i>	Forest shade
Youth-on-age	<i>Tolmiea menziesii</i>	Forest shade and openings

composition of species within each stage. After a disturbance such as fire, landslide, or logging, fast-growing “pioneer” plants find root in recently disturbed sites. Species such as fireweed (*Epilobium angustifolium*), bracken fern (*Pteridium aquilinum*), and bull thistle (*Cirsium vulgare*) rapidly colonize disturbed sites, giving way over time to a shrub-dominated stage typically characterized by vine maple, Oregon grape, salal and dewberry (*Rubus ursinus*). In wetter sites, the shrubs are more typically salmonberry (*Rubus spectabilis*) and willows (*Salix* spp.) While conifer seedlings may begin growth in this stage, red alder (*Alnus rubra*) and black cottonwood (*Populus balsamifera* ssp. *trichocarpa*) are fast-growing trees that come in and quickly overtop and shade out slow-growing conifers and slightly slower-growing bigleaf maple. Alder, and in wetter sites cottonwood, will soon reach their peak and will be rapidly replaced by the slightly more shade-tolerant bigleaf maple. Bigleaf maple is a longer-lived tree and helps to stabilize the forest understory that established in the nitrogen-rich soils created by the alder.

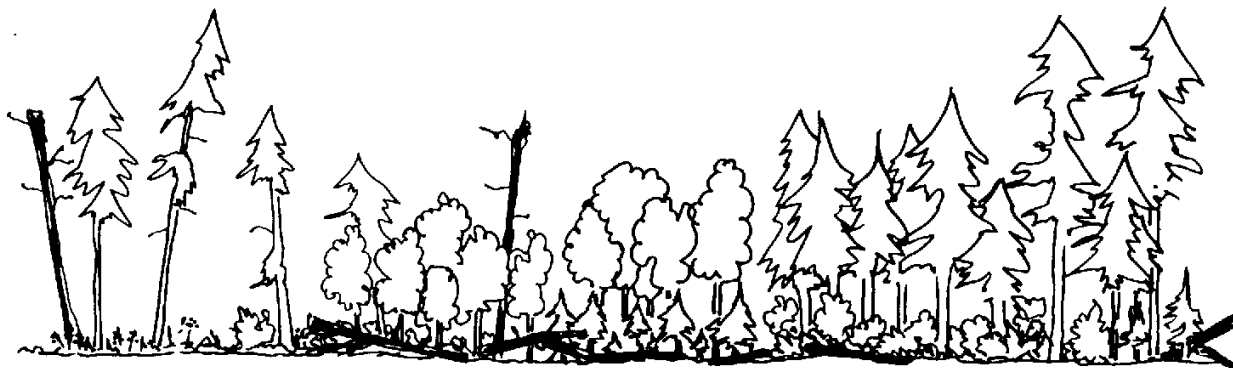
As bigleaf maple grows to maturity, conifer seedlings slowly populate the stand, coming into the area from seed sources in surrounding stands. Beneath the canopy of bigleaf maple, cedar and hemlock slowly rise from the forest floor. In more open areas, where full light is available, Douglas fir, grand fir and madrona rapidly rise above the maple, eventually overtopping and shading the maple. Over the course of several hundred years, and barring further disturbance, Douglas fir will slowly begin to dominate the forest. However, Douglas fir seedlings do not readily grow in the heavy shadow of their parents, and finally the long suppressed cedar, grand fir and hemlock will rise to dominate the forest. Of course, the shrub and groundcover layers also undergo changes in species composition as the tree canopy shade increases. Depending on local factors and the nature of each disturbance, the process of forest succession can take hundreds, or even thousands of years.

A second process affecting the forest is the exposure of forest edge to developed urban environments. Frink and Upper Leschi Parks support a forest remnant surrounded by residential properties and manicured park landscapes. Forest edges have ambient conditions of higher light levels, higher wind speeds, and lower humidity. Edges contain a greater number of species overall, but fewer “interior” species. That is, many more bird species can be counted on forest edges, but birds that require interior forest habit may be absent. Exposed edges are also more vulnerable to blowdown of trees.

A third process results from these edge effects. Non-native, invasive plants from surrounding urban landscapes have colonized the forest of the Park. These species include English ivy, clematis (*Clematis vitalba*), Himalayan blackberry (*Rubus discolor*), herb Robert (*Geranium robertianum*), Japanese knotweed (*Polygonum cuspidatum*), and cherry laurel (*Prunus laurocerasus*). These species out-compete the native vegetation found in the Park. They ultimately reduce plant species diversity and may have an adverse effect on tree growth.

4.2 Forest Inventory

The forest inventory upon which the forest plan is based was conducted in summer/fall of 1999 by DPR staff. For this inventory, 1/10-acre representative plots were sampled, one for every acre of the Park, totaling about 14 plots. Data collected included tree height, diameter, species, health and canopy status and level of tree species regeneration (seedlings less than five feet in height). An increment bore was used to determine age for every 10th representative tree, resulting in



PIONEER
HERBACEOUS
SPECIES COLONIZE
AFTER DISTURBANCE
(0-5 YRS)

EARLY SUCCESSIONAL
SHRUB AND TREE
SPECIES
(3-15 YRS)

FAST-GROWING
DECIDUOUS TREES
AND CONIFER
SEEDLINGS
(5-40 YRS)

CONIFER DOMINATED
CANOPY WITH SHADE-
TOLERANT SHRUB
UNDERSTORY
(OVER 40 YRS)

NATURAL SUCCESSION IN A PUGET LOWLAND FOREST



BIGLEAF MAPLE
DOMINATED FOREST
WITH INVASIVE
SPECIES UNDERSTORY

CANOPY GAPS
CREATED TO
ESTABLISH CONIFER
SEEDLINGS
(0-10+ YRS)

INVASIVE SPECIES
CONTROL AND
RESTORATION OF
UNDERSTORY PLANT
COMMUNITY DIVERSITY
(0-15+ YRS)

MIXED CANOPY
FOREST WITH NATIVE
SPECIES UNDERSTORY
(OVER 30 YRS)

URBAN FOREST RESTORATION IN A PUGET LOWLAND PARK

Figure 4-1. Forest succession and vegetational change

roughly one tree cored per two plots. Data from the plots were then used to develop average measures of species composition for each stand type.

The forest of Frink and Upper Leschi Parks was inventoried for tree and plant composition utilizing two types of vegetative survey methods. Data from an inventory done previously was referred to in writing the forest plan. This vegetation survey was done by The Seattle Urban Nature Project (SUNP) as part of a privately funded project that is mapping the vegetation of various Seattle parks. The methods of the SUNP inventory involved delineation of forest stands using aerial photographs, followed by field verification of species composition and occurrence using a random sampling technique. A map was generated which shows invasive species coverage, general tree composition, stand size by diameter class, land use and wetland boundaries.

Forest Inventory Results

The majority of the canopy in the Park is comprised of bigleaf maple (see Table 4-2). Some 85 percent of the forest (by tree count) is maturing bigleaf maple, with diameters generally ranging between 18 and 32 inches. While bigleaf maple is dominant, other tree species are found throughout the Park. There are six specific mixed stands, designated below in Table 4-3 as Zones 1 through 6. In addition, two specific developed areas were also designated as vegetative zones: the Caretakers Site and the Meadow Site. These two were extensively planted and maintained in the recent past. The eight forest zones are described in detail below and Figure 4-2 shows the zone locations. The vegetation in the wetlands and stream corridor in the Park is addressed separately in Section 6 of this plan.

Table 4-2. Tree Species as Percent of all Trees in Forest of Park

Species	% All Trees
Acer macrophyllum	56.8%
Prunus emarginata var. mollis	9.3%
Thuja plicata	7.8%
Populus balsamifera ssp. trichocarpa	4.0%
Arbutus menziesii	4.0%
Alnus rubra	3.7%
Pseudotsuga menziesii var. menziesii	2.8%
Quercus agifolia	0.4%

Table 4-3. Trees Species as Percent of Trees in Each Forest Zone

Stand	Stand Name	Species	% Of Stand
Zone 1	Acer macrophyllum / Arbutus Menziesii	Acer macrophyllum	46.7%
		Alnus rubra	13.3%
	Bigleaf Maple/Pacific Madrone	Arbutus menziesii	26.7%
		Thuja plicata	6.7%
Zone 2a & b	Acer macrophyllum / Mixed Conifer	Acer macrophyllum	76.9%
		Prunus emarginata var. mollis	15.4%
	Bigleaf Maple / Mixed Conifer	Thuja plicata	7.7%
Zone 3	Pseudotsuga menzeisii / Acer macrophyllum	Acer macrophyllum	55.6%
		Prunus emarginata var. mollis	11.1%
	Douglas Fir / Bigleaf Maple	Pseudotsuga menziesii var. menziesii	22.2%
Zone 4	Alnus rubra / Populus balsamifera ssp. trichocarpa / Acer macrophyllum	Acer macrophyllum	25.0%
		Alnus rubra	25.0%
		Populus balsamifera ssp. trichocarpa	42.5%
	Red Alder/Cottonwood / Bigleaf Maple	Thuja plicata	2.5%
Zone 5	Acer macrophyllum / Rhododendron spp.	Acer macrophyllum	63.6%
		Arbutus menziesii	27.3%
	Bigleaf Maple / Rhododendron	Thuja plicata	9.1%
Zone 6	Pseudotsuga menziesii / Thuja plicata	Acer macrophyllum	7.4%
		Arbutus menziesii	3.7%
		Pseudotsuga menziesii var. menziesii	37.0%
		Quercus agifolia	7.4%
	Douglas Fir / Western Red Cedar	Thuja plicata	44.4%

Zone 1— Bigleaf Maple/ Pacific Madrona (*Acer macrophyllum* / *Arbutus menziesii*) Zone

Of great interest are the large Pacific madrona stands that occur along the south-facing ridge in the north quarter of the Park. This ridgeline provides optimal sun exposure. Moisture is collected on higher slopes to the west and filters down through sandy loams to this area. Bigleaf maple is not as dominant in this canopy as it is elsewhere in the Park, but it still comprises about 51 percent of the canopy. An occasional western red cedar can be found in the understory of this zone. A healthy stand of Pacific dogwood can also be found along the east edge of this zone.

Madrona is not a large component of the Park forest (see Table 4-2). Generally found in mixed forest with conifers, the shade-intolerant Pacific madrona is a common sight in Western Washington forests, but it is usually not found in large numbers. Therefore the good-sized stand of large madrona (diameters ranging from 28 to 35 inches) along the top of the ridge north of the Caretaker’s Site is an unusual occurrence in Seattle Parks. The madrona appear to be part of an area around the caretaker’s cottage that was once maintained for aesthetic and horticultural purposes. These trees were either left standing during early logging of the Park, or they were planted as part of the early landscaping efforts. The size (diameter) of the madrona compared to surrounding maples, coupled with the relative shade intolerance of madrona, would indicate that these trees were here before the maples. There are many introduced species near the remaining

foundation of the caretaker's cottage (see Zone 7 description) that indicate a history of formal landscaping at this site.

The madrona of Frink Park are suffering from *Natrassia mangiferae*, a fungal infection that is widespread in the Pacific Northwest. A majority of the older trees will need to be removed in the near future or topped and left as wildlife snags, if feasible.

The understory of this zone includes salal and several other shade-tolerant plants. The invasive species English ivy, cherry laurel, and English holly are present in this area. English ivy makes up approximately 80 percent of the herbaceous layer. Hazelnut is a dominant shrub (50 percent cover), with Oregon grape occupying a smaller portion of the shrub layer. Unlike many other portions of the Park, this area does not have a large component of sword fern, probably due to lower soil moisture in this area. The predominance of madrona and Oregon grape indicates that this is one of the drier habitats of the Park. No tree saplings were found in the understory of this area.

Zone 2a & Zone 2b Bigleaf Maple/Mixed Conifer (*Acer macrophyllum*, *Mixed Conifer*) Zone

Bigleaf maple has been found in all of the sites inventoried. In the western half of Frink Park and along the east facing slopes of Zone 2a and 2b the overstory is maple (67% of the stand) with a few conifers in both the understory and overstory. The two areas share a predominance of bigleaf maple, English ivy population, and eastern aspect. Slope, presence of conifers and secondary understory populations distinguish the two areas from each other. As the largest distinct type of forest stand in the Park the Bigleaf Maple / Mixed Conifer Zone is most representative of the forest. A majority of the trees in this area range from 70 to 120 years of age, have obtained full size, are slightly crowded at canopy level, and will soon begin to drop limbs as they age. There are a few openings caused by the death of large maple, however the only natural regeneration in the openings is a very small number of maples, shrub species and invasive plants.

Zone 2a has slopes that exceed 30% in grade and some overstory of mixed conifer. Apparent surface water provides enough moisture to support the needs of the large maple and dense understory of the stand. The steepness of this area and the eastern aspect of the slope may have excluded early conifer growth on the slopes. The few conifers are an occasional Douglas fir that has risen above the maple overstory or a western red cedar that has gained foothold under the maple canopy. A majority of the maple in this stand is reaching early maturity as indicated by the trunk to crown ratio (the canopy is small compared to trunk diameter) and numerous dead branches or trunks spread through the stand. Sword fern and the non-native invasive English ivy are the common understory plants of this zone making up 40% of the shrub layer and 65% of the herbaceous layer respectively. The shrub layer is very diverse, with evergreen huckleberry (*Vaccinium ovatum*), two to three species of blackberry (*Rubus* spp.), Indian plum (*Oemlaria cerasiformis*) and salal.

In **Zone 2b** the conifer overstory is not as evident and the understory has a higher sword fern percentage than found in **Zone 2a**. The slopes of this zone vary from as much as 30% to as little as 15%. Understory species present are similar to **Zone 2a** and the maple overstory is similar in age, size, and health to **Zone 2a**. Sword fern and the non-native invasive English ivy are the most common understory plants of this zone making up 60% of the shrub layer and 65% of the

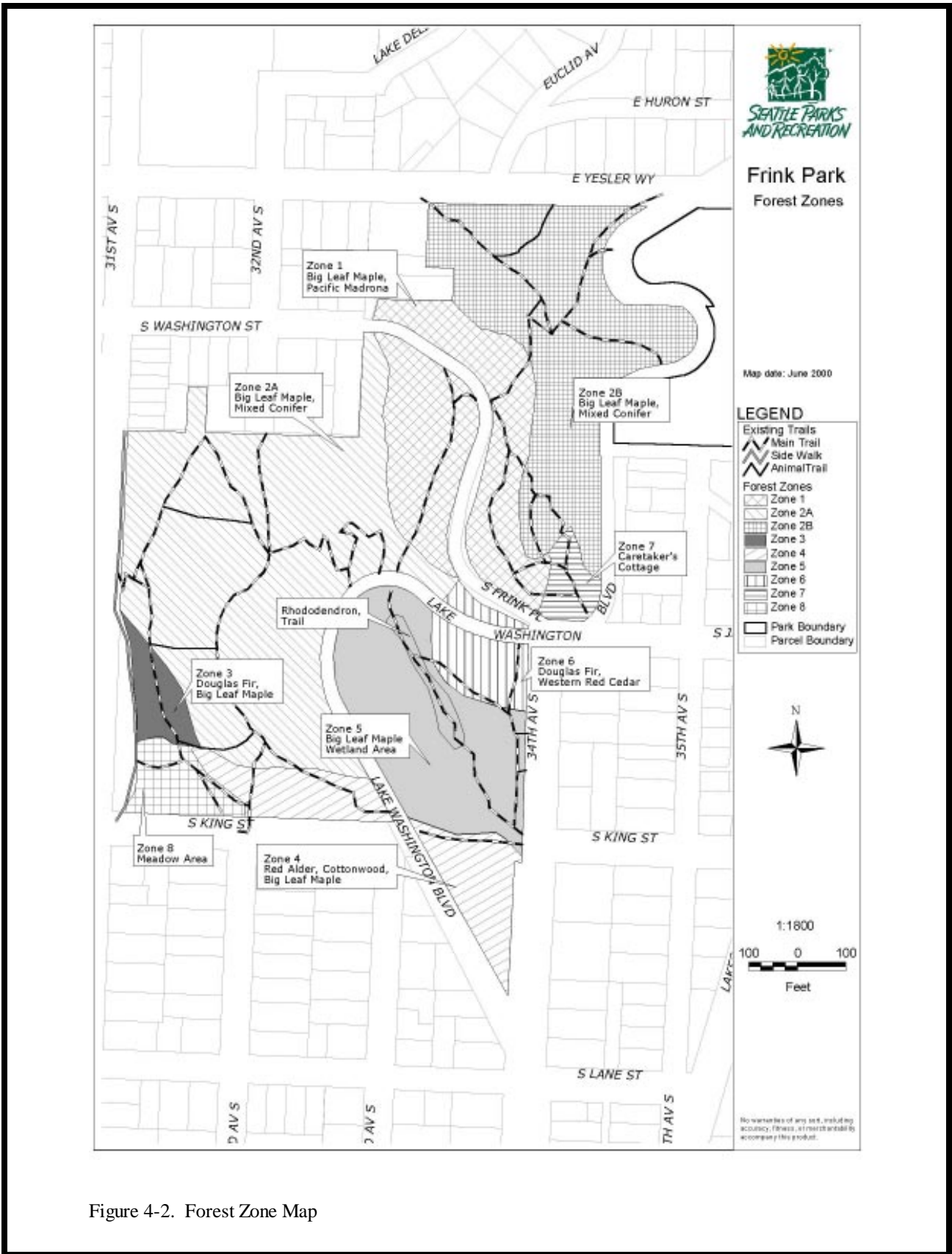


Figure 4-2. Forest Zone Map

herbaceous layer respectively. The shrub layer has some diversity but is limited to more xeric species than **Zone 2a**. Hazelnut, cherry laurel, blackberry and English holly (*Ilex aquifolium*) dominate the shrub layer. English ivy is present in every survey plot.

Zone 3— Douglas Fir/ Bigleaf Maple (*Pseudotsuga menziesii* / *Acer macrophyllum*) Zone

Some remnants of the old conifer forest can be found in the southwest corner of the Park. A small stand of juvenile to mature Douglas fir, approximately 120 feet tall, is found north of the Meadow Site at the corner of 31st Avenue and King Street. The greater sun exposure of southeastern slopes has probably contributed to the Douglas fir overtopping the bigleaf maple in the canopy. The Douglas fir that we see today were either saplings left after the original clearing or volunteers that grew from seed left in the soils following logging. Because bigleaf maple is such a large component in the understory of this zone, it has hampered the establishment of new trees. However, western red cedar has established in the understory and will most likely succeed both the bigleaf maple and Douglas fir over the next 60 years.

Hazelnut, Oregon grape, and Indian plum make up the taller shrub layer in this zone. The presence of these species indicates that 1) the site is fairly well watered but dries out during the summer, 2) has good soils, and 3) receives more light than surrounding areas during the summer. English ivy dominates the herbaceous layer of this stand. No tree seedlings were found.

The mixture of Douglas fir and western red cedar in this zone forms the foundation of a future forest for the Park. As the onsite seed sources for continuing forest development in the Park, these trees should be protected.

Zone 4— Red Alder/ Black Cottonwood/ Bigleaf Maple (*Alnus Rubra* / *Populus trichocarpa* / *Acer macrophyllum*) Zone

East of Zone 2 is a small pocket of one of the fastest-growing trees in the west, the black cottonwood. Cottonwood is usually found in close proximity to wet sites and with full southern exposure to the sun. While the steeper upper slopes of this stand may contain only four to five cottonwoods, they are indicators of the recent (70 years ago) logging of the site. Further evidence of recent transition from alder to bigleaf maple is found along the bottom of slopes and to the east of Lake Washington Boulevard. This area supports one of the last alder stands in the Park. This small band of alder exhibit the classic signs of alder stand decline as larger species begin to shade out the fast-living, quickly dying alder. There are numerous tightly packed stems in varying stages of decay.

The understory of this area is limited to English ivy, Indian plum, and hazelnut. The minimal sunlight due to shading from hazelnut and ivy has limited tree regeneration on this site. No tree seedlings were found in the area.

Zone 5— Bigleaf Maple/ Rhododendron (*Acer macrophyllum* / *Rhododendron spp.*) Zone

Moving uphill and north along the creek-side trail, a large grove of rhododendron occurs near the trail. Records are inconclusive as to the development and layout of this landscape, however enough physical signs remain to suggest that this area was planted, and was once a major focal point of the Park. Water is readily available from the creek and from sub-surface seeps from surrounding slopes. The original trail bed in some places is over six feet in width, however, rhododendron have grown to cover much of the historic trail surface. Along both sides of the creek in this ravine, bigleaf maple, cottonwood, salal, and Oregon grape are common. Before the

maple and cottonwood of this area overtopped the site, the rhododendron had full southern exposure. The now limited sunlight may contribute to the long, spindly branches and minimal leaf growth currently observed on the rhododendrons. Soil quality may also be a contributing factor, as rhododendrons prefer well-drained, rich, acidic soils, and the soils in this area appear to be predominantly sandy. The shrub species in this stand occur in dense thickets not seen in other portions of the Park.

The shrubs in this area are equally divided among rhododendron, hazelnut, Indianplum, and Himalayan blackberry. English ivy and sword fern dominate the herbaceous layer of this site. The density of the shrubs and ivy has restricted the development of any tree seedlings; no seedlings were found in this area.



Figure 4-3. Deciduous forest in Frink Park – shows lack of conifers, but good understory development

Zone 6— Douglas Fir/ Western Red Cedar (*Pseudotsuga menziesii* / *Thuja plicata*) Zone

The area immediately south of the junction of Frink Place and Lake Washington Boulevard is a stand of conifers that could represent the future forest conditions of Frink Park. In this area, Douglas fir and western red cedar are in close proximity to each other with few maples in the vicinity. An occasional madrona is found in the more sunlit southern portion of the stand. This stand is in the late seral stage of forest succession. The older, weaker Douglas fir have been overtopped and killed by faster-growing siblings. The more shade-tolerant cedar thrives in the shadows of the Douglas fir, and will come to dominate the canopy as Douglas fir continue to die.

Two exceptional trees border this stand: a large twin-trunk madrona (55 inch diameter) to the south, and a large cottonwood (45 inch diameter) is found along the western edge. These two trees are representative of the continuum of dry (madrona) to wet site (cottonwood) that surrounds this stand of conifer. The large madrona at this site is infected with the *Natassira* fungus and may only have a short time before it dies.

In the shade of the conifers English ivy has taken hold, has excluded all shrubs, and is threatening the Douglas fir and cedar. Along the southern perimeter of the stand extensive pockets of Oregon grape, salal, and hazelnut are thriving in the relatively sunny understory. It appears that this site was planted this way some years ago.

Zones 7 & 8— Caretaker’s Site, Meadow Site

Although trails and two major roads wind through the Park, there are only two apparent developed sites: an open meadow-like area at the southwest corner of the Park (31st and King Street) and the remains of the caretaker’s cottage (Frink Place & Lake Washington Boulevard). Both of these sites have been neglected in terms of forest maintenance for some time.

The rapid invasion by the species surrounding the Caretaker’s Site requires immediate attention. Along the southern portion of the site, Lombardy poplar (*Populus nigra* var. *italica*) has become the dominant tree of the canopy, overshadowing the dying madrona that occur in Zone 2. Laurel has been planted and has spread throughout most of this site. Laurel is a very aggressive broadleaf evergreen that is rapidly dispersed by its grape-like fruit. Weedy species such as English ivy, Himalayan blackberry and English holly are also present.

The Meadow Site was once a more formal park-type setting. The area was once well-cared for, as evidenced by the sycamore (*Platanus* spp.) along King Street, the elm (*Ulmus* spp.) and red maple (*Acer rubrum*) in the interior of the grassed area, the Lombardy poplar along the northern edges, and the recently planted horse chestnuts (*Aesculus hippocastanum*). Blackberry and ivy have created vegetative walls along King Street and 31st Avenue. Walnut and other invasive species block the view of the open area from 31st Avenue.



Figure 4-4. Caretaker’s Site – remaining walls, fireplace and Lombardy poplar

4.3 Summary of Wildlife Use of Park

Wildlife surveys were not conducted as part of this planning process. The information in this section was compiled based on casual observations made in the Park by members of the planning team, and from a bird list compiled by a local naturalist, Fran Wood. While not a comprehensive study of Park wildlife, this section is intended to bring to the Forest Plan at least a brief focus on existing and potential wildlife use of the Park.

Table 4-4 lists the wildlife species that have been observed or that are expected to currently occur in Frink and Upper Leschi Parks. Additional species may occur over time as the plant diversity and structural complexity of the forest increase, as snags and downed woody debris are added, and as the percentages of coniferous coverage goes up and invasive coverage goes down. But more likely than a significant increase in the number of species that use the Park, is an increase in the total number of organisms occurring in the Park, as potential habitat types are increased and enhance existing habitats are enhanced.

4.4 Forest Plan Goals

The focus of the DPR Urban Forestry Program is to develop, enhance and preserve the forests of Seattle's parks and open spaces. To that end, six goals are listed below to help define the direction of the Frink Park Forest Plan.

1. Assist natural processes

A major focus of this plan is to emulate the natural succession and regeneration that would be expected on an undisturbed site of similar habitat by proposing programs and projects that will promote the transition from deciduous to coniferous forest.

2. Promote native character

Proposed management activities will emphasize control of non-native species and planting of native species typical to urban forests of the Pacific Northwest.

3. Conserve soil and water quality

Vegetative cover will be retained and planted to buffer runoff and reduce erosion.

4. Protect and enhance wildlife habitat

Existing habitats will be managed for a healthy and diverse species composition, as set forth in DPR's Urban Wildlife and Habitat Management Plan (Miller 1994). Important edges and corridors will be identified and conserved.

5. Buffer land uses

Trees and shrubs will be planted and/or maintained to screen and separate types of land use.

6. Ensure public safety

The health and location of all significant trees will be evaluated. Potential hazards will be identified and mitigated for.

Table 4-4. Wildlife Observed or Expected in Frink and Upper Leschi Parks

Common Name	Scientific Name
Birds¹	
Sharp-shinned Hawk	<i>Accipiter striatus</i>
Cooper's Hawk	<i>Accipiter cooperii</i>
Red-tailed Hawk	<i>Buteo jamaicensis</i>
Bald Eagle	<i>Haliaeetus leucocephalus</i>
Peregrine Falcon	<i>Falco peregrinus</i>
Merlin (Pigeon Hawk)	<i>Falco columbarius</i>
American Kestrel (Sparrow Hawk)	<i>Falco sparverius</i>
Glaucous-winged Gull	<i>Larus glaucescens</i>
California Gull	<i>Larus californicus</i>
Ring-billed Gull	<i>Larus delawarensis</i>
Mew Gull	<i>Larus canus</i>
California Quail	<i>Callipela californica</i>
Band-tailed Pigeon	<i>Columba fasciata</i>
Rock Dove	<i>Columba livia</i>
Great-horned Owl	<i>Bubo virginianus</i>
Western Screech Owl	<i>Otus kennicottii</i>
Black Swift	<i>Cypseloides niger</i>
Vaux's Swift	<i>Chaetura vauxi</i>
Rufous Hummingbird	<i>Selasphorus rufus</i>
Anna's Hummingbird	<i>Calypte anna</i>
Northern Flicker	<i>Colaptes auratus</i>
Downy Woodpecker	<i>Picoides pubescens</i>
Pileated Woodpecker	<i>Dryocopus pileatus</i>
Hairy Woodpecker	<i>Dendrocopos villosus</i>
Red-breasted Sapsucker	<i>Sphyrapicus varius</i>
Olive-sided Flycatcher	<i>Contopus cooperi</i>
Western Wood-Pewee	<i>Contopus sordidulus</i>
Willow Flycatcher	<i>Empidonax traillii</i>
Pacific-slope Flycatcher	<i>Empidonax difficilis</i>
Hammond's Flycatcher	<i>Empidonax hammondi</i>
Warbling Vireo	<i>Vireo gilvus</i>
Solitary Vireo	<i>Vireo solitarius</i>
Hutton's Vireo	<i>Vireo huttoni</i>
Steller's Jay	<i>Cyanocitta stelleri</i>
American Crow	<i>Corvus brachyrhynchos</i>
Violet-green Swallow	<i>Tachycineta thalassina</i>
Barn Swallow	<i>Hirundo rustica</i>
Cliff Swallow	<i>Hirundo pyrrhonota</i>
Tree Swallow	<i>Tachycineta bicolor</i>
Black-capped Chickadee	<i>Poecile atricapillus</i>
Chestnut-backed Chickadee	<i>Poecile rufescens</i>
Bushtit	<i>Psaltriparus minimus</i>
Brown Creeper	<i>Certhia americana</i>
Red-breasted Nuthatch	<i>Sitta canadensis</i>
Winter Wren	<i>Troglodytes troglodytes</i>
Bewick's Wren	<i>Thryomanes bewickii</i>
Golden-crowned Kinglet	<i>Regulus satrapa</i>
Ruby-crowned Kinglet	<i>Regulus calendula</i>
Swainson's Thrush	<i>Catharus ustulatus</i>
Varied Thrush	<i>Ixoreus naevius</i>

Table 4-4. Wildlife Observed or Expected in Frink and Upper Leschi Parks

Common Name	Scientific Name
Hermit Thrush	<i>Catharus guttatus</i>
American Robin	<i>Turdus migratorius</i>
Northern Shrike	<i>Lanius excubitor</i>
European Starling	<i>Sturnus vulgaris</i>
Cedar Waxwing	<i>Bombycilla cedrorum</i>
Orange-crowned Warbler	<i>Vermivora celata</i>
Yellow-rumped Warbler	<i>Dendroica coronata</i>
Yellow Warbler	<i>Dendroica petechia</i>
Townsend's Warbler	<i>Dendroica townsendi</i>
Wilson's Warbler	<i>Wilsonia pusilla</i>
Western Tanager	<i>Piranga ludoviciana</i>
Spotted Towhee	<i>Pipilo maculatus</i>
Song Sparrow	<i>Melospiza melodia</i>
Fox Sparrow	<i>Passerella iliaca</i>
White-crowned Sparrow	<i>Zonotrichia leucophrys</i>
Golden-crowned Sparrow	<i>Zonotrichia atricapilla</i>
Dark-eyed Junco	<i>Junco hyemalis</i>
Black-headed Grosbeak	<i>Pheucticus melanocephalus</i>
Red-winged Blackbird	<i>Agelaius phoeniceus</i>
Brown-headed Cowbird	<i>Molothrus ater</i>
Purple Finch	<i>Carpodacus purpureus</i>
House Finch	<i>Carpodacus mexicanus</i>
Red Crossbill	<i>Loxia curvirostra</i>
Pine Siskin	<i>Carduelis pinus</i>
Northern Oriole	<i>Icterus galbula</i>
American Goldfinch	<i>Carduelis tristis</i>
Evening Grosbeak	<i>Coccothraustes vespertinus</i>
House Sparrow	<i>Passer domesticus</i>
Mammals	
Eastern Gray Squirrel	<i>Sciurus carolinensis hypophaeus</i>
Raccoon	<i>Procyon lotor</i>
Virginia Opossum	<i>Didelphis virginiana</i>
Norway Rat	<i>Rattus norvegicus</i>
House Mouse	<i>Mus musculus</i>
Big Brown Bat	<i>Eptesicus fuscus</i>
Silver-haired Bat	<i>Lasiorycteris noctivagans</i>
Little Brown Myotis	<i>Myotis lucifugus</i>
Amphibians	
Pacific Treefrog	<i>Pseudacris regilla</i>
Ensatina	<i>Ensatina eschscholtzii</i>
Rough-skinned Newt	<i>Taricha granulosa</i>
Reptiles	
Common garter snake	<i>Thamnophis sirtalis</i>
Northwestern Garter Snake	<i>Thamnophis ordinoides</i>

* Bird list provided by Fran Wood, local naturalist, from actual observations.

Mammal, amphibian and reptile lists compiled from expected species, based on existing habitats, and casual observations.

4.5 Analysis of Forest Health & General Improvement Programs

The forests of Frink and Upper Leschi Parks still have a significant amount of native vegetation (see Tables 4-3 and 4-5). However, the number and total cover of invasive species in the Park are daunting, and there were no tree seedlings found during the forest inventory. The lack of tree regeneration in the understory, and the continued suppression of tree growth by invasives are causes for concern over the future health of this forest. Despite these indicators of declining forest health, there is not an urgent need to make large-scale changes in the forest composition. Any changes in the number and type of species in this Park can be timed to gently nudge the forest toward an approximation of a native forest. The preferred outcome of the Forest Plan is the establishment of a self-sustaining forest, a forest that will fall into step with the natural forest succession of the area.

There are four impediments to natural forest succession in the Park. First, the dominance of bigleaf maple in the overstory forestalls the establishment of conifer seedlings due to the general lack of mature conifers acting as seed source. Second, and directly related to the first issue, the lack of seedlings or saplings in the understory means that, if left under current conditions, the forest will not naturally grow replacement trees to fill gaps in the canopy caused by the death of overstory trees. Third, the extensive cover of invasive plants in the Park provides overwhelming competition for native plants. And finally, the impending decline and loss of Pacific madrona will be a significant ecological and symbolic loss to the Park. All of these challenges must be met and overcome before the forest of Frink and Upper Leschi Parks can continue to develop toward a climax species composition dominated by coniferous trees and the associated shrub and herbaceous plant species. The following programs will provide a unified approach to these issues.

Changes in Canopy Structure and Effective Plantings

The introduction of conifer species throughout the Park can help the forest skip a few difficult steps in forest succession and will establish a seed source for the climax forest. However, the removal of large numbers of maples to create openings for conifer plantings cannot be justified at this time. If new trees do not rapidly close the canopy of the forest after a tree has died or been removed, the site may be quickly colonized by invasive species. Therefore, a slower approach is recommended for most zones. There are already a small number of openings in the canopy in almost every zone that can be used to introduce conifer species without large-scale removal of existing maples. To take advantage of these existing crown openings the following methods are recommended:

- a. **Identify canopy openings.** Initially this will be an easy task. Openings in the crown can be found simply by walking the trails and forest of the Park and looking for gaps in the overhead canopy that have the following characteristics: (See Appendix B for more detail on identifying canopy openings.)
 1. The opening is wider than the width of the canopy of the closest overstory trees.
 2. The distance from the center of the gap to any canopy tree trunk is a minimum of 40 feet.
 3. The opening is not on a north-facing slope - the closer the gap faces south, the better.

Table 4-5. Shrub and Herbaceous Species Distribution by Stand and Canopy Height

Stand	Shrub Height	<i>Hedera helix</i>	<i>Corylus cornuta</i> var. <i>californica</i>	<i>Mahonia nervosa</i>	<i>Polystichum munitum</i>	<i>Rubus parryanus</i> var. <i>benzilliana</i>	<i>Osmunda cerasiformis</i>	<i>Ilex aquifolium</i>	<i>Prunus laurocerasus</i>	<i>Rubus discolor</i>	<i>Penstemon equitum</i>	<i>Symphoricarpos albus</i> var. <i>laevigatus</i>	<i>Gaultheria shallon</i>	Dead tree	<i>Clematis</i> Species	<i>Cornus</i> sp.	Unknown	Unknown shrub	<i>Rosa physocarpa</i>	<i>Crataegus douglasii</i>	<i>Rubus leichmanii</i>	<i>Vaccinium parryifolium</i>	<i>Rosa</i> sp.	Stand Total
Zone 1	5	63.3	1.7	41.7	5.0	6.7	6.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	100
	15		1.7																					17
	30		61.7																					62
Zone 2a & b	1	42.5	0.3	0.3	0.3																			44
	2	15.0	2.5	7.5	2.8																			18
	3																							10
	4																							3
	5	17.5	1.3	31.3	1.8	0.8	0.3	1.3					2.5											54
	6					0.8	0.3																	8
	8					7.5	0.8																	1
	10					0.8	0.3																	5
	15		7.3			5.0	0.3																	9
	20		2.3			0.8	1.3																	3
30		0.5			0.5																			1
Zone 3	3	40.0																						40
	5		3.0	20.0																				23
	10																		1.0					1
Zone 4	15					20.0																		20
	1	20.0																						24
	2	26.7			3.7	0.3																		27
Zone 5	3																							1
	5					0.3																		1
	10					27.3	6.7	0.3	10.0												0.3			45
	15																							17
	20		16.7			18.3		15.0												0.7				33
	25		4.3																					5
	35		0.3																					0
Zone 6	1																							50
	2	20.0				50.0																		21
	5			5.5	1.0	2.5	2.5																	12
	8																							7
	10					0.5																		1
Zone 6	15		1.0	2.0				0.5																6
	20		1.0	1.0																				1
	25		6.0																					6
Zone 6	3	70.0		5.0	1.0																			78
	10		5.0																					5
Percent Of Total		40.4%	15.1%	9.7%	9.4%	8.6%	5.9%	3.1%	2.3%	1.5%	1.2%	0.6%	0.5%	0.3%	0.2%	0.2%	0.2%	0.2%	0.1%	0.1%	0.1%	0.0%	0.0%	0.0%
Invasives Equal		47.8% Of All Shrub and Herbaceous																						

- b. Remove invasive plants** in the northern half of the opening. Apply an appropriate method of controlling the regrowth of invasive plants. Remove competitive shrub species a minimum of three feet around each planting location. (See Appendix C for more information on removal of invasives.)
- c. Plant in irregular pattern** along the northern half of the gap, simulating small natural groupings of like species of Douglas fir, western hemlock, western red cedar, grand fir and western yew. All trees should be spaced 10 feet apart at a minimum. Site-specific plans will be established through DPR's Urban Forester and the groups responsible for the planting of the trees. Understory species will be included in the planting in areas that require clearing of invasives. (See Appendix D for planting recommendations for various site conditions)
- d. Monitor remaining bigleaf maple** and other species for health. As decline is noted in large-canopy dominant trees, begin the introduction of shade-tolerant cedar and hemlock along the northern side of the declining tree. Plant Douglas fir and shade-intolerant species south of the dying tree. Space all trees a minimum of 10 feet from the dying tree.

1. Removal or Reduction of Invasive Plants

Walking through the Park, a trained eye will notice the presence of many of the most invasive non-native plants found in the Pacific Northwest. English ivy is present in almost every sector of the Park (see Figure 4-5). English holly is dispersed throughout the Park as single trees or small groups of three to five. The crawling vines, clematis, nightshade, and blackberry invade the sunniest areas of the Park, and in some places create an impenetrable screen. Giant knotweed is found in large patches along the open edges of the Park. All of these plants present an active threat to the continued health of a forest and contribute to the inhibition or eradication of native species in the area.

While the decision to remove these invasive plants is typically not controversial, the question of where to start is usually a subject of many debates. The issue is that the level of invasiveness, or the magnitude of the problem, has overwhelmed most of those involved.

DPR's Urban Forestry Program has begun a study with the University of Washington to address the control of English ivy, and Frink and Upper Leschi Parks will be one of the test parks for this study. All current and potential methods will be investigated by the study. The results of this study should provide the most efficient and effective method of controlling this plant. Experimental methods will also be used on other invasive species. Some methods for invasive plant control are described in Appendix C.

2. Madrona Salvage

Fungal infections in Pacific madrone are currently under investigation throughout the Pacific Northwest. From 1996 to 1997 a large contingent of forest specialists studied the decline of Pacific madrone in the Northwest (see "The Decline of the Pacific Madrone: Current Theory



Figure 4-5. Note extent of English ivy on tree trunks

and Research", by A.B. Adams and Clement W. Hamilton eds. 1999. Available from University of Washington Center for Urban Horticulture). Three principle pathogens have been identified as affecting Pacific madrone in the Seattle area. These infections attack trees weakened by sun, stress, drought, mechanical injury, or other pathogens.

1. *Nattrassia mangiferae*, is a canker-causing fungal infection that principally causes damage to the cambium layer of the main stem of the tree. Interruption of the flow of nutrients and water increases stress on the tree, which decreases the tree's ability to ward off other attacks. Decline in branches causes a sooty mold to appear.
2. *Fusicoccum aesculi* is a fungus that leaves the branches appearing burned and is currently the most visible cause of branch death in Frink Park's madrone population. Branches and trunks that are older and not exposed to direct sun have a thicker layer of bark than do younger branches.
3. *Phytophthora cactorum* is the most common root disease in mature madrone. It infects both the roots and the main stem of the tree. *P. cactorum* kills the fine roots of the tree and also forms cankers on the lower bole of the tree.

In Washington State the first reported occurrences of *Nattrassia mangiferae* in 1969 followed a long dry summer and a cool wet winter. As the impact of this fungus was not noticed until this time it is likely that the fungus is an introduced pathogen which has taken hold in a population of trees weakened by environmental changes, declining habitat, air pollution, and loss of soil mycorrhizae.

Control and Management Options

Management options for the control of the pathogens mentioned above are limited at this time. No successful treatment has been identified, despite significant effort by numerous researchers in the Pacific region. Two important management objectives should be observed during planting and the maintenance of existing trees: 1) eliminate injury to roots, trunks and branches, and 2) maintain or create environments suitable to the tree. Injury to any portion of a madrone tree can allow pathogens to enter the living cells of the tree. Great care should be taken when planting trees, when pruning dead wood, or when working around trees in the forest. Removal of invasive plants on the trunk or in the area of a madrone should be done carefully as to avoid damaging the trunk of the tree. The suitable environment of the Pacific madrone is in well-drained coarse soils, with slightly high pH, and southern aspect with limited overstory. Although sunscald or burning of stems has been found to cause wounds, the madrone is a shade intolerant tree and does not do well under dense deciduous or conifer canopy. Well-drained soils are necessary to prevent the development of damping or root rots.

Current micro site research has indicated mycorrhizal interaction between indigenous species has contributed to the health of Pacific madrone. The loss of conifer habitat and subsequent changes in species composition attributable to urban development has limited this type of interaction. Studies are now examining the possibility of introducing, or inoculating roots with beneficial mycorrhizal spores. Mycorrhizal research has grown rapidly in the last five years. If this research is successful, and profitable methods of spore production and inoculation can be developed, there is a great potential that the decline in Pacific Madrone populations can be halted.

Recommendations

It is the recommendation of the Urban Forester that extraordinary methods be utilized only on the most significant madrone trees in the forest. At this time only one tree (the large madrone south of Zone 6) has been noted that has significant size, health and potential for seed production to warrant this approach. DPR will utilize appropriate available resources and technology in an effort to stop the decline of this tree. The remaining madrones of Zone 1 will not be addressed individually until suitable methods are developed. These madrone will be evaluated yearly for safety.

4.6 Prioritized Projects for Improving Specific Forest Zones

The following section outlines specific projects within each zone that are intended to contribute to a more natural forest within Frink Park. Extensive review of the makeup of this forest finds that it contains many of the elements necessary to describe the complete cycle of change in a typical native forest of the Pacific Northwest. As mentioned above, there are still excellent examples of various seral stages of forest development throughout Frink Park. Early successional pioneers are found in Zone 4. The next step, the transition from alder to maple, is found in Zone 2, and the gradual change from maple to conifer is found in Zone 3. The climax transition from Douglas fir to cedar is found in Zone 6, and large-scale canopy loss (secondary

succession) is illustrated through the loss of madrona in Zone 1. Specific projects to promote these successional processes are listed by zone and in suggested order of completion.

1. Zone 6

This site is in need of immediate attention due to the threat posed by ivy to the remaining trees.

1. Remove all invasives in this area (approximately 1.2 acres) to approximately 50' south of the large madrona that will be the focus of the madrona rescue operation.
2. Heavily plant the outer boundaries of this site with the appropriate mix of shade-tolerant and intolerant shrubs and herbs.
3. Plant at moderate density appropriate understory plants beneath the conifers.
4. Remove the remaining bigleaf maple in this stand.
5. Leave all dying or dead conifers, unless they present an immediate hazard to lives or property.

2. Zone 5

In Zone 5, the creek-side trail is an excellent place to practice good forestry and provide great recreational opportunities.

1. Cut back shrubs (esp. rhododendron) that impede foot traffic along the trails.
2. Plant extensively with cedar and hemlock in natural groupings (a minimum of 10 feet apart) along the trail and adjacent areas.
3. Plant appropriate shrub species along the length of the trail. (See Table 4-6 at end of Section 4.6)

3. Zone 7

The Caretaker's Site offers two options: remove only the most invasive plants found in the area, or remove all non-native plants, including the large Lombardy poplars. The poplars were planted some time in the past 30-40 years, presumably as landscaping near the caretaker's cottage. They are not native, but they are part of the history of this area, and should be considered as part of the whole picture in deciding what changes are to be made at the Caretaker's Site.

1. Remove all ivy, holly, and laurel in this area and plant native species such as oceanspray, mock orange, salal, Oregon grape, red-flowering currant, kinnikinnik, snowberry, sword fern, pearly everlasting, fireweed, and so on.
2. If desired, remove all Lombardy poplar on the site.
3. Remove or trim maples along Lake Washington Boulevard.
4. Plant numerous test plots of Pacific madrona in the sunny portions of this project area. Use the largest trees available. Collect seeds from healthy madrona in the Park for propagation at DPR's nursery.

4. Zone 3

This site is critical to the ultimate transition of the Park from maple to conifer. The site offers the most sun, has an established conifer overstory, and is in a good position for seed dispersal, either by gravity or by southwest winds. Projects in this area will expand this zone and increase the number of conifers in the understory. Work in this zone is a priority because the potential for success is high, the site is a very visible portion of the Park, and it is already in reasonably good health.

1. Remove all invasive plants along the trails within this zone and the open, northern perimeter of the Meadow Site (Zone 8). Replant with dry upland shrub species on a fairly dense spacing (2-foot spacing).

2. Girdle all bigleaf maple in this stand below eight inches in diameter. Girdling is the removal of a strip of bark all the way around the trunk of the tree and is a way of killing the tree without removing it. Girdled trees can also be topped and left as dead standing snags for wildlife use.
3. Plant large (greater than 6 feet tall) Douglas fir, cedar, hemlock and grand fir in cleared areas 12-15 feet from any existing conifer stem greater than 13 inches in diameter.

5. Zone 2a & b

The similarity of canopy spacing and eastern aspect of these two areas allows the application of similar reforestation efforts in both Zones. Use the planting plan outlined in **Changes in Canopy and Effective Plantings** section above to establish conifer plants in existing and future openings throughout Zone 2a and 2b. Zone 2b will be one of 2 initial study sites in an Ivy Control Project led by the University of Washington and all activities should be reviewed with the DPR's Urban Forester before they are started. Zone 2a has been the focus area of a single volunteer and significant amounts of this area have been cleared between initial inventory of the site and publication of this document.

Along the western border of Zone 2a, the sidewalk on 31st Ave, extensive stands of numerous invasive species have become established. Remove all non-native plants and replant with dry upland shrub species (see table 4-6). Invasive removal includes the removal of large amounts of ivy, and the removal of walnuts, apple and horse chestnut trees along this portion of the Park from the sidewalk to 60 feet inside the Park. Some help may be available from DPR staff.

1. Plant intensively in areas that provide potential non-trail access to the Park, specifically any place along 31st, Leschi St., or Lake Washington Boulevard where the slope will allow easy shortcut access.
2. Continue the ivy removal in Zone 2b and 2a. Planting of Zone 2a should begin as soon as practicable (Fall, 2000) with shade tolerant species. Follow up removal of ivy re-sprouts should be accomplished through the summer of 2000 in conjunction with maintenance activities along the Focus Area 4 and re-planting areas.
3. Plant conifers in Zone 2b in areas that are a minimum of 25' from any trail. Cluster large (6-8') conifer in groups of two to three with a spacing of 10 feet between trees. Conifer selection should favor cedar and hemlock.

6. Zone 8

The Meadow Site could provide an important function for the Park as an open and inviting area that could become a portal or entryway off 31st Avenue.

1. Remove all invasive plants along the south, west and north boundaries of this zone
2. Replant the boundary edges with salal, oceanspray, Oregon grape, kinnikinnik, trailing blackberry, and red flowering currant.
3. Establish working agreement with DPR and Seatrans to use tree crews for the maintenance, crown thinning, and crown inspection on all specimen trees in the zone.
4. Remove all trees that are non-native and do not meet specimen criteria.
5. Remove all invasives to the top of the northern grade and continue 50 feet down the grade.

7. Zone 1

See the madrona salvage recommendations described above.

8. Zone 4

As a remnant of the alder forest that once covered Frink Park, the alder and cottonwood composition of this zone should be maintained for as long as practical. However, as mentioned earlier, alder and cottonwood are short-lived species that will soon decline and die, opening gaps for other species to colonize. To preserve the characteristics of this site for as long as possible, projects in this area will focus on the removal of non native plants and limited replanting of early seral shrub species. No attempt should be made to thin or remove the numerous alder stems in the southern portion of Zone 4. Replanting in this zone will not be a priority until the other forest zones have been addressed

Table 4-6. Shrub Planting Priority and Palette Selection

Stand Aspect	Zone 1			Zone 2a & b		Zone 3	Zone 4		Zone 5	Zone 6
	SW	E	S	E	NE	E	E	S	S	S
<i>Corylus cornuta var. californica</i>	Low	Low	Low	Low	Low	High	Low	Med.	Low	High
<i>Polystichum munitum</i>	High	High	High	Low	Low		Low	High	High	High
<i>Mahonia nervosa</i>	Med.	Low	Med.	Med.	Med.	Med.			High	High
<i>Rubus parviflorus var. parviflorus</i>				Med.	High		High	Low	Low	
<i>Oemleria cerasiformis</i>	Med.	Med.	High	High		Med.	Med.	Med.	High	
<i>Pteridium aquilinum</i>	Med.	High	High	High	Med.					
<i>Symphoricarpos albus var. laevigatus</i>	High							High	High	
<i>Gaultheria shallon</i>		High	High							High
<i>Crataegus douglasii</i>								High		
<i>Rosa pisocarpa</i>						High				
<i>Rosa sp.</i>				High	High					
<i>Rubus laciniatus</i>									High	
<i>Vaccinium parvifolium</i>							High			
Species Palette	Dry / Partial	Dry / Sun	Dry / Sun	Dry / Partial , Wet / Shade	Dry / Partial	Dry / Partial	Dry / Partial	Wet / Shade	Wet / Shade	Dry / Partial

Planting priority is based on current species distribution. The goal is to increase species diversity

Low Plant is well established.

Medium Plant is present, but should be supplemented

High Plant is not well established and should be planted in large numbers.

Aspect Direction looking down slope.

Species Palette Recommended plantings based on aspect and current species composition.

5.0 TRAIL PLAN

An assessment was completed for the trail system of Frink and Upper Leschi Parks, including an evaluation of existing trail conditions and the need for new trails. From this assessment, a number of small project locations were identified, and five focal areas were selected. Focal areas are those that require extensive trail work and will receive a concentration of resources. The projects that are included in this plan are not detailed plans for construction. No trail construction should take place without a site-specific stationing plan that has been approved by Department of Parks and Recreation (DPR) staff. General guidelines for project design and construction can be found in this section and in Appendix E, which includes trail design standards proposed by DPR.

5.1 Existing Conditions

Frink and Upper Leschi Parks have approximately 1.5 miles of trails, not including a scattering of little-used pathways or social trails that have been established as shortcuts. Trails link three distinct sections of the Park: western Frink Park lies between 31st Avenue, S. Frink Place, and Lake Washington Boulevard, and is characterized by a steep east-facing slope, the majority of wetlands in the Park, and the waterfall area; southern Frink Park lies in the curve south of Lake Washington Boulevard and is characterized by the stream corridor and the rhododendron glen; and northeastern Frink Park and Upper Leschi Park lie to the northeast between S. Frink Place and Lake Washington Boulevard and are characterized by the dry north-south ridge and old Caretaker's Site.

The longest stretches of trail in western Frink Park run north-south, mostly on contour along the generally east-facing slope, which is the dominant landform. Shorter east-west sections of trail linking the contour trails run perpendicular to the slope and are quite steep in most places. Western Frink Park has the highest incidence of wet and muddy trail sections, which occur mainly around the waterfall vicinity, in the area south of 32nd Ave., where the trail passes through Wetlands 3 and 4, and in Focus Area 4. This area of the Park also has a number of animal trails between the two major north-south trails that are completely unstable, and so steep they are all but impassable. Much of the ground-layer trailside vegetation in this area is comprised of English ivy.

The main trail in southern Frink Park parallels the stream, passing through a rhododendron glen, and accessing the stream at its terminus near the south end of the Park. Another trail runs north-south at the top of the ridge close to the eastern Park boundary and joins the lower stream and rhododendron trail in two places. The trails in southern Frink Park are generally dry and of reasonable gradient, with the exception of the trail accessing the stream terminus between S. King St. and Lake Washington Boulevard, which is steep, overly wide, and slippery. The remaining trails suffer mostly from lack of maintenance, and the main tread is in some places at the far edge of its historic trailbed and overgrown by vegetation consisting mostly of English ivy.

Northeastern Frink Park and Upper Leschi Park trails are very steep in the northern half of this area, which is a shaded and forested north-northeast facing slope. In the southern half of this area, the trails are of very gradual and reasonable gradient where the ridge is dominated by madrona trees and drier soils. Trails in this third region suffer mostly from excessive gradient in



Figure 5-1. Narrow, ivy-strewn trails typical of Frink Park



Figure 5-2. "Tread creep" is common problem for trails that cross steep slopes



Figure 5-3. Trail system and proposed project map

the northern area, and confusing routing around the remains of the caretaker's cottage and the clearing of vegetation that has occurred in this area.

Access trails into the Park from public property are numerous, mostly unmarked, and in some cases enter the Park on overly steep, crumbling, or poorly aligned stairways. There are six trail crossings of the two roads that bisect the Park (Lake Washington Boulevard and S. Frink Place), none of which are indicated by crosswalks. Trails intersect through-streets in five other places besides the six aforementioned crossings, and occur at four street-ends in addition. There are also a number of unofficial access trails between private property and parkland.

5.2 Trail Plan Goals

Trails serve as a means to get people safely to places they want to go, allow them the experience of the place they are walking through, and provide a route for exercise. Trails should fit in with the surroundings and be unobtrusive, as well as fun to use. A well-routed and well-built trail looks as though it has always been there. A trail system should also be navigable by the user; in other words, the user should be able to understand the trail network. Trails in the Park can and should ultimately meet these expectations.

Specific goals of the trail plan are as follows:

1. Remedy unsafe trail conditions such as broken stairs and steep slippery slopes
2. Correct conditions that are causing trail damage such as ponding, erosion, and trampling
3. Re-route trails that are poorly aligned or located
4. Close animal and social trails to prevent slope damage and undesirable use
5. Provide a more complete experience of the Park's features by constructing trails and improving links between existing trails to take people to these places
6. Maintain the valued sense of intimacy throughout the Park's trail network
7. Provide improved loop route through the Park that minimizes elevational changes and the need for walking on roads

5.3 Trail Standards

Discussion and debate over trail standards for Frink Park have been focused mainly on trail width and tread surface. DPR trail standards and specifications for trails and structures can be found in Appendix E. Based on discussions associated with work done in Focus Area 4 as a demonstration project, as well as feedback from Park users throughout the planning process, it is recommended that the desire for a long-lasting durable trail surface and a maintainable trail corridor be balanced with safety concerns, aesthetic and historic considerations, and existing trail conditions. A range of trail tread widths up to a maximum of 36" for trails in the park is suggested. Trails may need to be wider than 36" in site specific locations, for example, to accommodate structures such as bridges, or to provide side-by-side walking and universal accessibility on the proposed Boulevard Trail. A tread surface of compacted crushed rock should be used in trail sections that require substantial repair or reconstruction work associated with gradient, drainage, or soil moisture problems. New trails should be constructed with a compacted crushed rock tread as well. Existing trails that do not require major work as described can be left with a packed earth tread.

5.4 Small Project Locations & Descriptions

A number of small projects were identified as part of the assessment of the condition of existing trails. These projects address specific problems in specific areas, such as unsafe stairs, overly steep trail sections, or muddy areas where water flows over the trail. They are generally of a smaller scale than the focus area projects, but several of them are included within focus areas and may be completed separately or as part of the focus area effort. Small project types include: stair replacement (ST), trail re-design (TR), water crossing (WC), or trail closure (TC). See Figure 5-3 for locations of all trail projects. The following tables list the projects that are proposed for improving existing trails. Trail projects are prioritized in Section 5.6. A trail stationing plan and cost estimate is provided in Appendix F, and includes many of the projects listed in this section.

Stair Replacement Projects

Three of the stairs listed in Table 5-1 are in considerable disrepair and will need reconstruction as soon as possible. All stairs in the table will be reconstructed using landscape timbers, with the exception of the concrete stairs at ST3, which would have only cosmetic repairs. Stairs will be installed to DPR standards as soon as practicable (see Drawing 11A & 11B in Appendix E for stair standards).

Table 5-1. Stair Replacement Projects

Stair	Location/Description	Condition
ST1	Stairs on the south side of Lake Washington Boulevard across from the waterfall area, on the trail that leads down into the rhododendron glen	Poor
ST2	Stairs at the intersection of 32 nd Avenue & King Street	Poor
ST3	Stairs on west side of Lake Washington Blvd at the south end of the Park (across from ST4)	Good, repairs would be cosmetic
ST4	Stairs on east side of Lake Washington Blvd at the south end of the Park (across from ST3)	Poor
ST5	Stairs between caretaker's cottage and Lake Washington Blvd/Frink Place intersection	Fair



Figure 5-4. Uneven steps at ST4

Trail Redesign Projects

These projects are mostly fairly small reroutes of trail sections or redesigns that are intended to address problems of steepness, unclear trail areas, inconvenient trails, or trail sections that result in ongoing wetland impacts from foot traffic. These projects may include installation of stairs, construction of new trail sections and closure of old sections, cutting back vegetation, and/or trail resurfacing.

Table 5-2. Trail Redesign Projects

Trail	Location/Description
TR1	Very steep area at the beginning of the trail from the Yesler Street end. Install stairs or widely spaced timber bars in trail.
TR2	Wide steep trail running north-south from the 32 nd & King Street entrance. The trail is not draining properly and water is running down the trail. Re-route trail. Project is in upper part of Focus Area 4 and could be accomplished separately or as part of focus area project.
TR3	Steep trail at the 31 st Ave. and Jackson St. entrance. Install stairs and/or regrade.
TR4	This short reroute would be focused on a trail between the NE corner of Upper Leschi Park and the bridge that is the old Yesler trolley conveyance. The reroute would include cutting back the blackberries and other shrubs and establishing a better trailway slightly south of the existing path. This would allow users to see the vista down into Lower Leschi Park and the lakeshore.
TR5	This is a short section of trail in Upper Leschi Park that is directly west of the tennis courts. Trail work will include installation of a landing and steps, and a better transition to the main Frink Place-Yesler right-of-way trail.
TR6	This would be a minor redesign project of the trail between Frink Place and the caretaker's cottage that would result in a better defined trail with more obvious treadway. This project is intended to prevent offtrail trampling of vegetation and littering. Project is in Focus Area 5 and could be accomplished separately or as part of focus area project.
TR7	This project would address drainage and trail passability on a steep, short, wet section of trail south of the 32 nd Ave street-end. Work might include installation of steps.

Water Crossing Projects

There are seven identified sections of trail in the Park that are wet and need alteration to redirect water off of the trail surface. Some have no existing drainage structures, and others have poorly constructed ditches or culverts. Redesigned water crossings might include water bars, culverts, rock-lined sumps, drainage dips & ditches, and leadoff ditches. Larger crossings might include turnpikes, bridges, and puncheon, and/or a combination of all three (see Drawing 9A & 9B in Appendix E for details of bridge/puncheon construction).

Table 5-3. Water Crossing Projects

Trail	Location/Description
WC1	South of 32 nd Avenue street end, associated with Wetland 1.
WC2	Along north-south trail that lies mid-slope between 31 st Ave and Lake Washington Boulevard. Wet segment is associated with Wetlands 3 and 4.
WC3	Along trail that intersects Lake Washington Boulevard at south end of Frink Park. Wet segment is west of stairs on west side of road.
WC4	The trail crossing the stream immediately above the waterfall. Part of proposed trail improvements in Focus Area 1.
WC5	Area along Lake Washington Boulevard that is outflow from Wetland 4. Potential problem for proposed new trail along east side of boulevard.
WC6	Wet area at south end of trail that links waterfall area to Upper Leschi Park.
WC7	Would be a trail crossing of the stream at the south end of the Park. Part of proposed new trail construction in Focus Area 2. Would likely be bridged.

Trail Closure Projects

Specific segments of trail are proposed for closure because they are informal social trails or original trails that were never properly constructed, or they are inappropriately sited trails. In all cases they are overly steep and hard to negotiate. The trail segments noted in Table 5-4 will be closed through the use of temporary signs, brush, plantings, dirt mounds, and temporary fencing as appropriate.

Table 5-4. Trail Closure Projects

Trail	Location/Description
TC1	Located in northwestern Frink Park on the steep slope northeast of 31 st Avenue and Jackson Street intersection
TC2	Located in western Frink Park on the steep slope directly east of 31 st Avenue and Jackson Street intersection
TC3	A small shortcut in Upper Leschi Park at the first switchback northeast of S. Frink Place
TC4	Very steep social trail in Upper Leschi Park between Yesler trail and Yesler right-of-way, traverses Wetland 10
TC5	Located in southwestern Frink Park on the steep slope southeast of 31 st Avenue and Jackson Street intersection
TC6	Located in southeastern Frink Park, crosses stream corridor just south of stream grate. Closure of the trail west of the stream grate will be associated with proposed new trail construction (NT4) in Focus Area 2. (SPU will need eastern portion of trail to access the stream from 34 th for clean out of stream intake)

5.5 Focus Area Projects

Focus area projects are those planned for discrete areas, but which contain a number of elements (e.g. Focus Area 4 features trail surface repair, drainage work, stairs, and a turnpike culvert). These areas should be approached holistically by looking for a solution that addresses numerous issues. There are typically a number of options for each project that will be investigated as the planning process continues. Focus area projects are described below and are identified in Figure 5-3.

Focus Area 1 - Wetland and Waterfall Area

The wetland area immediately above the Lake Washington Boulevard Bridge provides one of the most attractive sites in Frink Park. Currently a narrow trail winds from the west around a large cedar tree, crosses the west branch of Frink Creek, continues up onto the rock dam at the base of the wetland, drops back onto wet ground and then proceeds south to Lake Washington Boulevard. A re-alignment of this trail is proposed to protect the stream and the wetland area, as well as the large cedar tree, and to provide a more pleasant experience for Park users.

Project components are:

1. A. Improve existing trail section around the north side of the cedar tree by installing turn-pike or other appropriate trail structure.

Or

- B. Reroute trail to pass on south side of cedar tree using steps as necessary and align trail with the existing rock dam over the waterfall.

Issues to consider when choosing the preferred option include proximity of trail to west branch of stream, construction or addition of fill material over cedar tree roots, stability of slope south of cedar tree, placement of trail directly in the wetland, and the Park user's experience of the cedar tree from the trail.

2. Raise and improve the trail crossing of the stream immediately above the waterfall by installing a raised surface of wood or stone (e.g., puncheon, boardwalk, or large stepping stones). Stepping stones are recommended as they would require no maintenance, do not impede water flow, and would not be a significant visual change from the existing crossing. Stones would come closest to echoing the historic design elements of the waterfall area. This action would address drainage problems on this trail section, protect wetland features, and improve on the aesthetic appearance of the existing concrete slabs over the stream.
3. Tie the new steps that would go around the south side of the cedar (described in option B above) to the new steps and trail proposed on east side of the wetland. The new east steps would access the trail to Frink Place. This new access trail would address problems associated with three critical areas. The new trail would: a) avoid the wet area at the base of the Frink Place trail and along the north shoulder of Lake Washington Boulevard; b) avoid the eroded and overly steep portion of the Frink Place trail that is just north of the Blvd.; and c) reduce the pedestrian traffic along the Blvd. east of the bridge as Park users travel between Upper Leschi Park and the waterfall area via the Frink Place trail.

Focus Area 2 - Southeast Stairs and Ravine/Stream Access

The main purpose of the proposed work in Focus Area 2 is to provide a safer and more pleasant trail to access the lower ravine area in the southeastern corner of the Park, and to afford views of and access to the stream. Currently this route is a wide, straight corridor (Figure 5-5) with a rather treacherous set of stairs and a steep trail to a storm grate where the stream goes underground. The trail continues up the other side of the ravine to the trail junction near the 34th Avenue and King St. street-end. This trail revision would remove the poorly designed set of steps and add new character to the rerouted trail. The revision would bring Park users through the woods from the Boulevard to a new stream crossing on a gentler grade eliminating the existing trail corridor west of the stream. This work could be done in conjunction with stream and wetland projects described in Section 6. Access to the stream grate via the eastern portion of the existing trail will remain as required by Seattle Public Utilities (SPU)

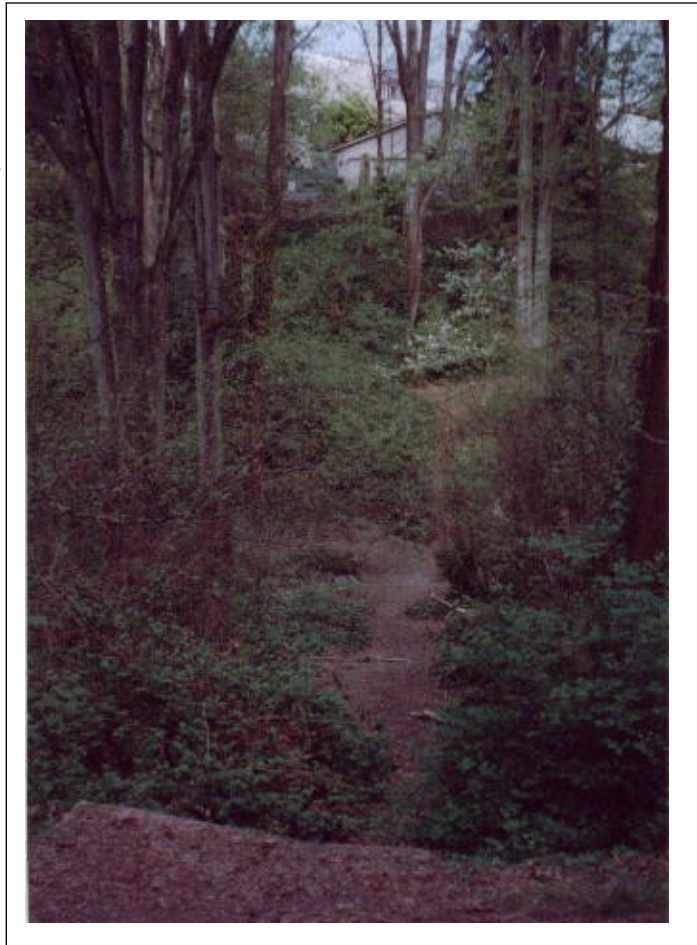


Figure 5-5. Trail corridor down to stream grate

Project components are:

1. Remove stairs and close existing trail west of the stream inlet/storm drain.
2. Construct new trail to north of existing trail, crossing slope more gradually below Lake Washington Boulevard.
3. Build trail through lower ravine, which will include a bridge crossing over the stream (see Drawings 9A, 9B, & 9C in Appendix E for bridge detail, and Figure 5-6 for examples of bridges used in other parks).
4. Revise trail to the east of stream to intercept the north-south rhododendron trail (some of this work could be done in concert with Focus Area 3).



Mercer Slough, Bellevue

Figure 5-6. Examples of bridges used in other local parks



Grand Forest, Bainbridge Island

Focus Area 3 - Rhododendron Trail

Formerly a focal place within the Park, the portion of trail along the east side of the lower ravine was once an eight foot wide, rhododendron-lined promenade with an open canopy. Neglect and lack of use have resulted in a much narrower trail that is difficult to negotiate. The rhododendrons along the trail have overgrown much of the historic trail bed resulting in a very narrow trail in some areas. Many of the rhododendrons appear to be in poor health which may be due to any one or a combination of the following: old age, high soil pH (alkaline soil), poor soil nutrients, inadequate light regime, competition or allelopathy from non-native species. Because of growth of the surrounding trees since the rhododendrons were planted, they are now heavily shaded by a dense forest canopy and may not respond well to pruning. The stairs leading down to this trail off Lake Washington Boulevard (east of concrete bridge) are not clearly marked, are difficult to negotiate and do not invite use.

Project components are:

1. Rebuild the steps (ST1) on the trail that are immediately south of Lake Washington Boulevard.
2. Maintain the Rhododendron glen with its sub-canopy by further researching some of the plant health concerns listed above and developing management options that address them. Soil pH, for example, can be tested, and adjusted if necessary by adding amendments that will lower the pH if the soil is alkaline.
3. Remove invasive species as specified in the Forest Plan and replace with appropriate native companion species such as salal, Oregon grape, and sword fern.
4. Replace or interplant existing rhododendrons exhibiting the poorest health with new plantings of the same.
5. Brush back trail and repair tread as needed to DPR standards. Connect this trail to the new trail (NT4) that would be constructed over the lower end of the stream in Focus Area 2.

Focus Area 4 – Early Demonstration Project At 33rd Ave. Street-end

The section of trail that has been selected by DPR to be an early demonstration project for the Trail Plan and new DPR trail standards is located in the southwest portion of the Park from the 33rd Ave street-end west to the first trail intersection. This area was chosen because it has overly steep trail sections and inadequate drainage structures, making it a muddy, slippery mess during the wetter months. In February and March of 2000, DPR organized volunteer labor groups and completed trail work along the lower 200 feet of this trail section. (Figures 5-7 and 5-8).

Project components that have been completed thus far are:

1. brush cutting
2. trail widening
3. surfacing trail with compacted crushed rock
4. installation of culvert at water crossing (WC3)
5. installation of timber steps just west of water crossing

Although complete, these project components are in some cases to be reconstructed to reflect trail standards and specific actions that had not been finalized at the time of initial work.

Work in the focus area has provided DPR and the rest of the planning team with an opportunity to gauge public reaction and generate discussion towards reaching consensus on trail standards and construction methods for the Park trails particularly with regard to trail surface and trail width.



Figure 5-7. Trail erosion at water crossing prior to repairs at Focus Area 4



Figure 5-8. Newly constructed water crossing and stairs in Focus Area 4 demonstrate initial implementation of DPR trail standards

Focus Area 5 – Caretaker’s Site

The trails that pass through the Caretaker’s Site lead through the remnants of a house, garage, and associated pathways from the previous use of the site as housing for a DPR caretaker. The trails on this drier upland ridge curve through patches of newly cleared and planted ground, areas dominated by invasive understory species, and patches of fairly intact native plant communities characterized by madrone, hazelnut, salal, and Oregon grape. Trails in the recently cleared areas and around the structural remains are generally not well-defined. The stairs that connect the Caretaker’s Site to the Lake Washington Boulevard/Frink Place intersection are passable because they are low gradient, but the stairway is overgrown and many steps are crumbling.

Project components/options are:

1. research historical significance and integrity of site
2. install temporary barriers or plantings to prevent off-trail trampling and littering
3. improve stairs between Caretaker’s Site and road intersection
4. improve trail entry/kiosk area
5. determine more specific use options for site

The Caretaker’s Site has been an informal gathering place in the Park for many years. It offers one of two open areas in the Park, and its stone walls are one of the few built structures that hint at some of the Park’s history. The area has been the site of solstice celebrations, community bonfires, and a meeting place for Park walking tours. Graffiti and litter are also commonly found here, both in the fireplace area and along short dead-end trail spurs. Trail placement, signage and vegetation management are variables for this area that can influence the types of uses it receives. Dense plantings along trails, combined with temporary roping or fencing to direct users until new plantings are well-established, may help to eliminate some of the undesirable activities that currently occur to the sides of the trail. If the trails and plantings in the area receive intensive work, and the area becomes a more attractive and desirable gathering place for the whole community, then those less responsible users may be influenced to modify their behavior.

Public comment indicates that a wide range of opinion exists with regard to the management of this site. Opinions expressed include: leaving it as is, rebuilding the structures and restoring the site as it was during the caretaker’s era, cleaning it up but otherwise leaving it as is, enhancing the site by cleaning it up and planting to create an informal gathering area, creating a gathering place/overlook, removing all traces of past use to re-grade and restore entire site as forest. Written survey results indicated that the majority of respondents (51 out of 63) wanted the invasive species managed at the site, 41% of those wanted an informal gathering place in addition to invasive management, while 51% wanted the site preserved as is or enhanced with plantings along with invasive management.

Because the site does have some historical characteristics it is recommended that a more thorough site inventory be done to determine its historical significance and integrity before any substantial changes are made, particularly with regard to the stone walls, steps, and fireplace area. FFP should generate additional community discussion to further define options for the site and work with DPR to determine the desirability and feasibility of their implementation.

5.6 Proposed New Trails

Several new trails are proposed for Frink and Upper Leschi Parks. The primary goal of the trail planning process has been to maintain, enhance, and develop enjoyable passages through the Park. Although DPR has focused on trail reconstruction and repair, Friends of Frink Park (FFP) has focused on the planning for the future of the Park. Trail needs have been assessed through direct contact with users, written surveys, and public meetings. While most of these proposals are feasible, it should be understood that DPR does not foresee any new funding at this time to support the construction of new trails. With so many trails in the Park in disrepair, DPR would like to see the majority of the repairs and renovations described in this plan to be completed before breaking ground on new trails. Table 5-5 describes the proposed new trails (see Figure 5-3 for new trail locations).

Loop Trail

The Loop Trail is a concept developed to improve the trail network in the Park such that users can walk a circular loop through the Park that brings them through or past the majority of special features and areas, keeping users in the forest while minimizing elevational changes and walking on streets. Most of the Loop Trail segments currently exist, with the exception of several proposed sections that would better link the existing trails together (Figure 5-9). Discussion about the Loop Trail at FFP Trails Committee meetings as well as public meetings held during the planning process centered on the routing of the Loop Trail and how this trail should be designated. Ideas that were discussed included:

1. developing the Loop Trail with proposed new sections as a wider trail corridor than other trails in the Park and/or with a more all-weather surfacing to differentiate it as the “main trail”, and to indicate to users that they are actually on the Loop Trail without having to use trail signs in the Park interior;
2. developing the Loop Trail with proposed new sections but to the same trail width and surface standards used for all other trails in the Park, using trail signs and/or maps at entrances and/or along the trail to direct users.

Definitive decisions were never reached with regard to how the Loop Trail should be further developed as a concept, but there was consensus that the purpose of the Loop Trail should be to enhance and expand the users’ experience of the woods through as many areas of the Park as possible, not to give people an experience of the trail itself. It is suggested that the trail work required to create the actual loop be done in the following order of importance starting with the highest priority:

1. NT2 – new trail north of Caretaker’s Cottage
2. NT1 – segment of Boulevard Trail from waterfall east to Lake Washington
Boulevard/Frink Place intersection
3. Crosswalks striped at two locations
4. NT5 – proposed new trail east of waterfall area
5. NT4 – proposed new trail in southeast section of park

Before further planning or work commences, FFP should work with DPR to determine more details about how the Loop Trail should be developed and designated.

Table 5-5. Descriptions of Proposed New Trails

Trail No.	Description	Pros	Cons	Process Involved	DPR Trails Program Opinion
NT1	The construction of a trail along the east side of Lake Washington Blvd from the south end of the Park to the east border of the Park at Frink Place and Lake Washington Boulevard	This trail would re-establish a historical trail along the Blvd. (see Figure 3-6, 3-12) and separate pedestrian and wheeled traffic. The trail would provide a "loop" element to the system, and could also be constructed to allow universal access to a portion of the Park.	If the construction of this trail leads to increased pedestrian traffic along the Blvd., there may be an increase in the chance of vehicle/bicycle and pedestrian accidents at Blvd. crossings. A broader, universally accessible path may result in bicycle usage of the intended footpath. Cost of construction would be substantial, and the process for approval may be lengthy. The additional trail maintenance responsibility would rest with DPR.	<ol style="list-style-type: none"> 1. Develop Design Funding 2. DPR CORE Approval 3. Design for DPR Review (Pam Alsbaugh, Landscape Architect - Central Div.) 4. CORE again - Determines level of Public Involvement Process (PIP) 5. Initiate PIP 6. Finalize Design 7. Finalize PIP 8. Develop Construction Funding 9. Construct trail 	Recommended
NT2	The construction of a new trail from the Caretaker's Cottage area, northeast across slope to the junction of three trails in the Northeast section of the Park.	Such a trail would allow greater vistas and views of Lake Washington. It would also provide a more direct, natural route with minimal elevational change to connect the Caretaker's Cottage area and the Northeast section of the Park.	The trail would be another intrusion in the Park, and add additional trail to maintain over the long term.	Same as above	Recommended
NT3	The construction of a trail along the east side of Lake Washington Blvd., from the Frink Place/Lake Wash. Blvd. intersection to Leschi Park tennis courts/parking area	Same as for NT1	Same as NT1	Same as above. Would require resolving minor encroachments along route.	Recommended
NT4	The construction of a new trail in Focus Area 2 between Lake Washington Blvd. and the trail to the rhododendron glen. Trail would cross the stream approximately 100' north of the stream intake grate.	This trail would provide users with an experience of the stream by way of a more gradual gradient and avoid the stream intake grate.	Proposed trail route would require cutting into a side slope that may not be stable enough to support a trail or would require expensive trail construction. The cost of building a new trail is greater than rehabilitating and improving the old one.	Same as above. Also do further research for information on historical location of trail in this area (proposed or built).	Undecided
NT5	The construction of a new trail from the waterfall area connecting to the Frink Place trail to the east	This trail would provide a link in the proposed Loop Trail that would allow trail users to stay off the road in the waterfall/bridge area.	Would require a substantial stairway to be installed	Same as above. Also do further research for information on historical location of trail in this area (proposed or built).	Undecided
Loop Trail	Loop Trail as described in Section 5.6	Would have a coherent circular loop trail in the Park	Will require some new trail construction	Same as above	Recommended

5.7 Prioritization of Trail Projects

All trail projects described in the Trail Plan are listed in Table 5-6 and assigned a priority from low to highest. A number of factors were considered in prioritizing these projects, and are listed below. This table is not, however, definitive. It is a recommended prioritization scheme that can be modified as desired and as trail conditions change.

Prioritization Criteria:

Highest: Designated based on safety. Projects are road crosswalks, unsafe stairs, and very steep trail sections.

High: Ongoing trail deterioration combined with high use. Includes projects such as Focus Area 4 where there is ongoing trail erosion from water flowing over the trail and tread creep from high traffic.

Moderate: Less pressing safety and trail deterioration issues. Trails are still passable but need work. Aesthetics considered.

Low: Cosmetic or other aesthetic considerations.

In trying to decide among equally rated projects, further considerations might include:

- Availability of funding
- Specific grant criteria
- Seasonal appropriateness
- Availability and qualifications of labor force
- Likelihood of authorization by DPR
- Interest and motivation of FFP and Park constituency

Table 5-6. Prioritization of Proposed Trail Projects

Site Number	Type Of Project	Severity	Crew Level
CROSSWALKS	Install 5 painted crosswalks	Highest	Professional
ST1	Replace worn steps	Highest	Professional
ST4	Replace steps	Highest	Professional
TR1	Trail re-contour to reduce grade	Highest	Trail Crew
WC3	Water crossing needed, design by DPR	Highest	Trail Crew
FOCUS AREA 2	Redo trail, rebuild steps	High	Design
FOCUS AREA 2	Remove steps, realign trail into switchback or cross grade	High	Design
FOCUS AREA 2	Close trail, realign trail to east side of ravine	High	Design
FOCUS AREA 4	Rebuild steps, re-grade, resurface trail, construct water crossing	High	Trail Crew
ST2	Replace steps	High	Professional
TC6	Trail closure	High	All, with DPR Standards
TR2	Trail re-contour to reduce grade	Highest	Trail Crew
TR7	Improve drainage, construct steps	High	Trail Crew
WC4	Water crossing needed, design by DPR	High	Trail Crew
FOCUS AREA 5	Redo trails to north of Cottage, enhance trails etc.	Moderate	All, DPR Design
FOCUS AREA 1	Rebuild trails at cedar and dam area along Lake Washington Blvd.	High	Professional
FOCUS AREA 3	Improve trail canopy to allow views of ravine	Moderate	All, DPR Design

Table 5-6. Prioritization of Proposed Trail Projects

Site Number	Type Of Project	Severity	Crew Level
FOCUS AREA 3	Cutback rhodies, supplement with low shrub plantings such as evergreen huckleberry and salal	Moderate	All, DPR Design
ST5	Replace steps	Moderate	Professional, Trail Crew
TC1	Trail closure	Moderate	All, With DPR Standards
TC2	Trail closure	Moderate	All, With DPR Standards
TC3	Trail closure	Moderate	All, With DPR Standards
TC4	Trail closure	Low	All, With DPR Standards
TC5	Trail closure	Moderate	All, With DPR Standards
TR3	Redesign trail for safety and accessibility	High	Professional
TR4	Redesign trail for safety and accessibility	Moderate	Volunteer Community
TR5	Re-route trail as it is too narrow	Moderate	Professional
TR6	Improve trailway definition to better direct trail users	Moderate	Trail Crew
WC1	Water crossing needed, design by DPR	Moderate	All
WC2	Water crossing needed, design by DPR	Moderate	All
WC5	Water crossing Lake Washington Blvd. is necessary, design by DPR	Moderate	Professional
WC6	Midtrail seep watercrossing, reroute trail	Moderate	Trail Crew
ST3	Fix steps – mostly cosmetic	Low	Professional
NT1	Along east side of Lake Wash. Blvd., south portion	NA	Professional
NT2	Traverse between Caretaker’s Site and Upper Leschi	NA	Professional, Trail Crew
NT3	Along east side of Lake Wash. Blvd., north portion	NA	Professional
NT4	In Focus Area 2 stream crossing north of stream intake	NA	Professional, Trail Crew
NT5	Between waterfall and Frink Place trail	NA	Professional, Trail Crew

5.8 Routine Trail Maintenance

Regular trail maintenance is the key to keeping trails in good shape. The following minimum maintenance actions should be done as part of a routine program for the trails in the Park.

Brushing

Remove brush to specified brushing/clearing limits as determined by FFP and DPR. Commonly used clearing limits are 4’ wide or 2’ to each side from the centerline of the trail, and 8’ high. Unique vegetation or other special features such as boulders and logs that add interest to the trail corridor can be maintained within these clearing limits, but must be identified prior to maintenance work. Cuttings should be removed, saved for wildlife-attracting brush piles, and/or used to propagate plants for future planting. Brush should be cut at the base without leaving stubs. Branches should be cut close to the main limb or trunk of the plant without damaging the branch collar, or tearing the bark. Do not top. Use thinning cuts rather than heading cuts.

Drainage Structures

Clear all drainage ditches, culverts, drain dips, and waterbars of debris and silt.

Trail Tread Maintenance

Remove organic debris and duff from the tread. Excessive organic matter on the trail tread will trap moisture much more than mineral soil and create muddy areas. Maintain tread to its proper specified width by removing any berms that have formed on the outside edge of the trail,

removing debris and soil (called slough) that has slid from above and deposited on the tread, and restoring proper outslope to the trail (Figure 5-10). Berms prevent water from draining off the trail tread, and slough narrows the tread and causes tread to creep or move out of its designated trailbed over time.

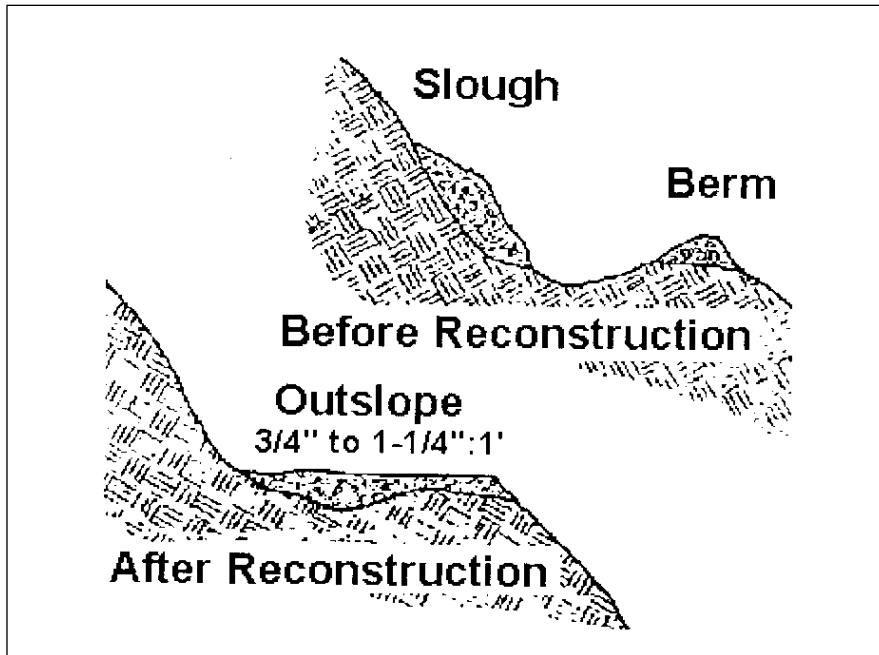


Figure 5-10. Trail tread maintenance (from Washington Trails Association)

Other Maintenance

Remove trash to discourage further dumping and littering. Block off social trails paying particular attention to trail sections that have switchbacks or old social trails and animal trails that are being re-vegetated. Clear puncheon, bridges, and turnpike of plants and organic debris. Replace broken structures and check them for loose fasteners e.g. drive down any nails that are sticking up on railings and bridge decking.

5.9 Trail Options Considered but not Included as Plan Elements

1. The construction of a new trail that parallels the west side of Lake Washington Boulevard from the south end of the Park to the waterfall at the Lake Washington Boulevard bridge. Trail would be mid slope between Blvd. And existing north-south trail.
Reasons for exclusion:
Trail would cross two large wetlands and unstable slopes, existing parallel trails already connect two areas of the park, construction would be costly, not recommended or supported by DPR
2. The construction of a new trail along the stream from the waterfall area, under the Lake Washington Blvd. Bridge and joining existing trail in the Rhododendron glen.

Reasons for exclusion:

Not pursued by constituency, adds additional trail in area of marginal soils and high moisture, construction would be costly

6.0 AQUATIC RESOURCES PLAN

The Aquatic Resources Section is divided into two segments – one for the wetlands and one for the stream. Some of the recommended restoration and management strategies for the wetlands in the Park overlap with those proposed for portions of the stream corridor, and in other cases the suggested treatments vary greatly. Most of the work proposed for wetland areas has mainly to do with removal of invasive species and replacement with native plants. The stream work also includes a revegetation component, but focuses on stabilizing the stream channel and banks as well. Obviously, stream and wetland projects should be integrated whenever possible to best achieve overall plan goals. Areas of overlap are noted in the text in both the stream and wetland segments where proposed actions are described.

6.1 Streams

6.1.1 Existing Conditions

Physical Description

Frink Park Creek flows above-ground through a wooded ravine in a southerly direction from the north end of the Park at Frink Place just east of 32nd Ave. S., where it flows out of a pipe from the street catch basins and from a small wetland just to the southwest (Wetland 11). It exits the Park via an intake drain/sediment trap structure located at the south end of the Park approximately 150' west of 34th Ave. S. and S. King St. From the intake structure the stream enters a drainage mainline and is tightlined (piped underground) south and then east and north, emerging and emptying into Lake Washington east of 34th Ave. S. and Lakeside Ave. S.

The total length of the stream's main channel aboveground in the Park is approximately 1300'. The stream is directly associated with floodplain Wetlands 5, 6, 7 and 8, and has a small west branch approximately 75-100' long originating in the drainage south of the 32nd Ave. S. street-end, associated with Wetlands 1 and 2 (Figure 6-1). This west branch of the stream joins the main channel in Wetland 5, the prominent wetland located above the constructed waterfall along Lake Washington Boulevard at the bridge. Historically the stream apparently had an east branch as well, which was located west of the current S. Frink Place, and joined the main creek downstream of the boulevard (Figure 6-2). The seeps and wet area on the trail between the waterfall area and Upper Leschi Park are likely remnants of this branch of the stream that was altered when the grading for construction of Frink Place was done in 1927.

The intake structure (Figure 6-3) at the terminus of the day-lit portion of the stream is maintained by Seattle Public Utilities – Drainage and Wastewater Division, and is visited regularly by a maintenance crew. Maintenance visits occur once or twice a month in the summer months and once a week or more during the winter, as major rain events dictate (Gary Mueller – Maintenance Supervisor, DWU, pers. comm.). Excess sediment in the intake trap is dug out by hand as needed. There is apparently no record of how often or how much sediment is removed.

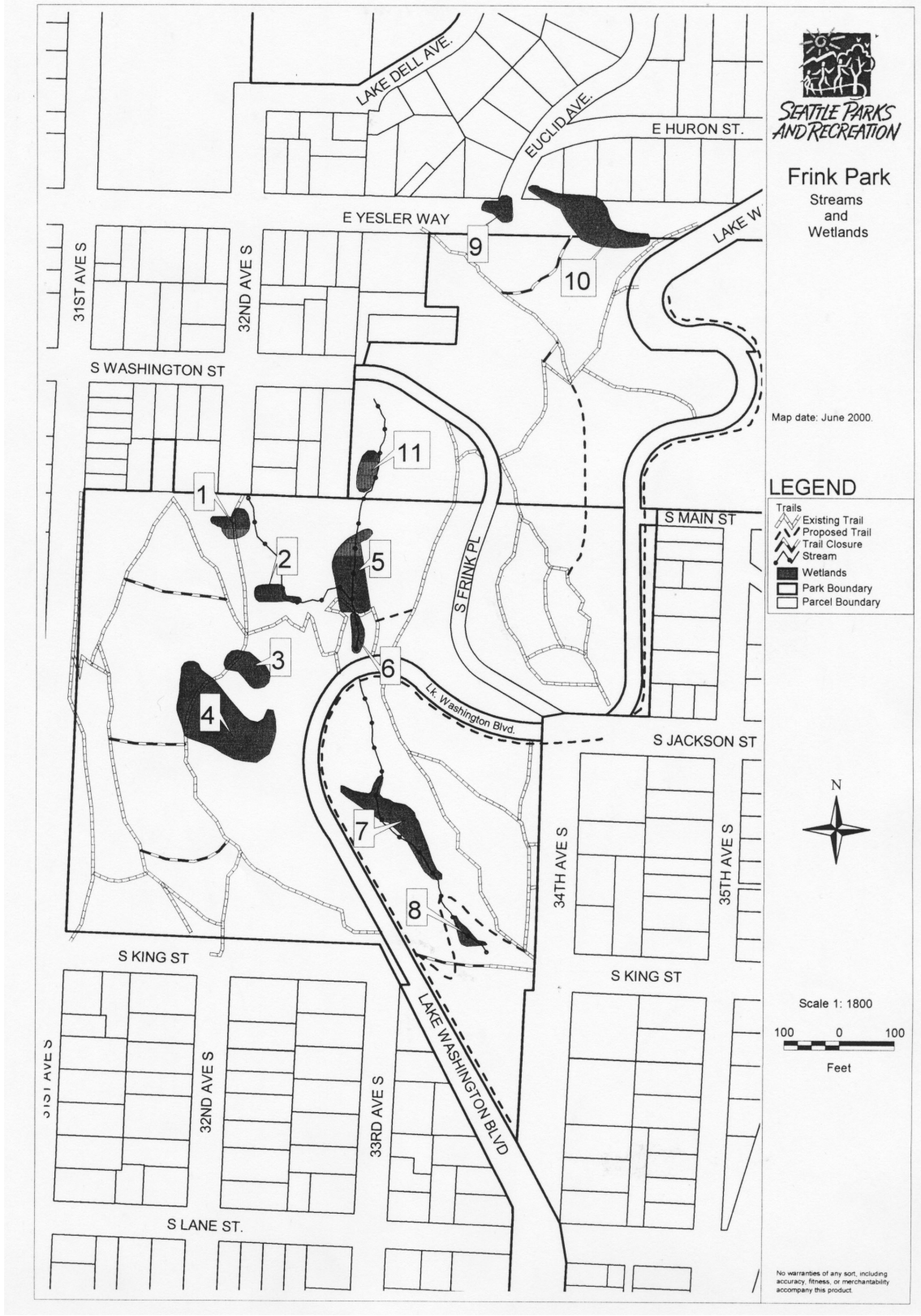


Figure 6-1. Stream and wetlands map

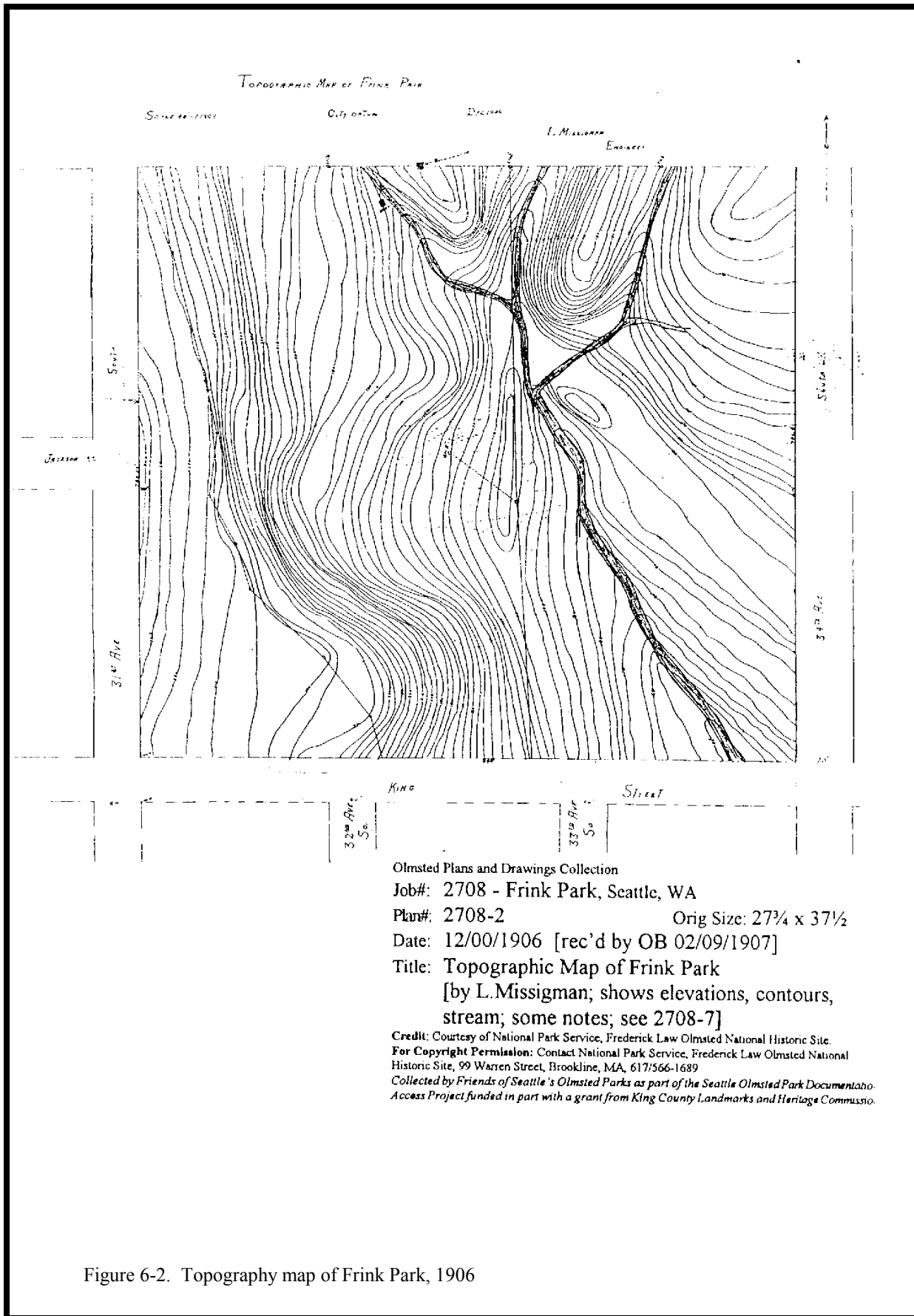


Figure 6-2. Topography map of Frink Park, 1906

Watershed and Hydrology

The watershed of this stream is relatively small (approximately 25 acres) and generally rectangular in shape, ranging roughly from E. Yesler Way in the north to S. Lane St. in the south, and from 31st Ave. S. in the west to 34th Ave S. in the east (Figure 6-4).

The stream is fed in two ways:

- 1) by stormwater in the form of surface flow and runoff captured by four catch basins on 32nd Ave. S. and along Washington Ave. that is directed into the stream at its headwaters just south of Frink Place; and
- 2) by groundwater and seep areas within the Park.

The stormwater component contributing to the base flow of the stream results in a flashy hydroperiod evidenced by pulses of high flows associated with storm events. The groundwater and seeps keep water in the channel throughout the year. This differs from the typical hydroperiod of an urban stream that has extreme high flows in winter and can dry up completely in the summer due to the lack of groundwater recharge. Specific flow rates for the stream are not known.



Figure 6-3. View of the catch basin and sediment pile at the stream intake

Riparian corridor vegetation

The riparian corridor is mostly wooded with a mixture of mainly deciduous shrub and tree species shading the stream. The most common shrubs include salmonberry (*Rubus spectabilis*), thimbleberry (*Rubus parviflorus*), and Himalayan blackberry (*Rubus procerus*), with a thick and pervasive groundlayer of English ivy (*Hedera helix*). Some portions of the riparian zone are almost entirely covered with invasive species. Some reaches have rhododendron (*Rhododendron macrophyllum*) and hazelnut (*Corylus cornuta*) as well as salal (*Gaultheria shallon*) and Oregon grape (*Mahonia nervosa*).

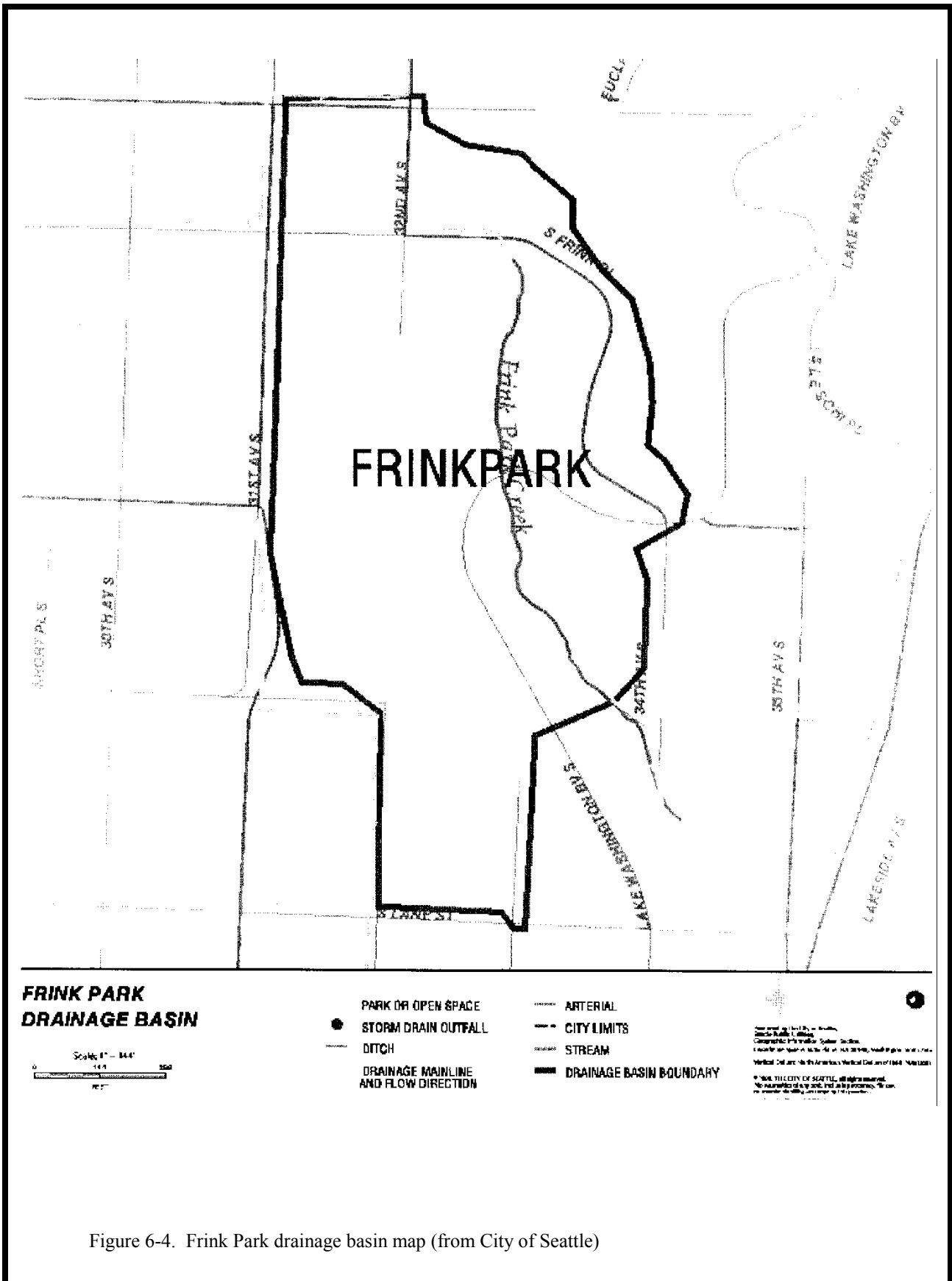


Figure 6-4. Frink Park drainage basin map (from City of Seattle)

Tree species found in the riparian corridor include bigleaf maple (*Acer macrophyllum*), red alder (*Alnus rubra*), and a few cedar (*Thuja plicata*) and hemlock (*Tsuga heterophylla*). Various emergent or herbaceous species such as skunk cabbage (*Lysichiton americanum*), horsetail (*Equisetum arvense*), and stinging nettle (*Urtica dioica*) are also found in this area. Lady fern (*Athyrium filix-femina*) in wet areas and sword fern (*Polystichum munitum*) in upland areas are the two prevalent ferns.

Channel morphology

The stream channel shape is characteristic of an urban stream with a relatively high level of disturbance and a low level of colonization of desirable riparian plant species. Disturbance in this system is due to unstable soils and frequent landslide events over time, as well as a flashy hydroperiod and increased stream discharge due to an increased frequency and magnitude of high flow events. The resulting channel incision or downcutting has led to unstable banks, an entrenched u-shaped channel, and increased sediment transport and deposition downstream.

These characteristics are manifested mostly in the stream's main channel downstream of the waterfall, and in the west branch above the waterfall. The main branch upstream of the waterfall is relatively undisturbed and stable in comparison.

The soils are a loose, unconsolidated sandy loam, and the channel substrate lacks substantial large material (cobble, rock, woody debris) throughout the majority of the stream's length. Existing streamside vegetation does not provide enough of a root matrix to hold the soil adequately, and where downcutting is ongoing, streambanks are particularly susceptible to the erosive scour of flowing water. Rates of bank erosion and downcutting are not quantitatively known.



Figure 6-5. Stream reach shaded by bigleaf maple canopy and downed wood. Sword fern and English ivy cover streambanks.

Legal definition and classification

The City of Seattle Municipal Code (SMC 25.09.020 Section B) defines 100'-wide riparian corridors and streams as regulated environmentally critical areas. Code differentiates between Class A riparian corridors, which are stable and established streams that flow year-round and may or may not support salmonids, and Class B riparian corridors that are intermittent, are not mapped by FEMA, and do not have salmonids but still demonstrate a high water mark. Frink Park Creek meets the criteria of a Class A riparian corridor. Seattle Department of Parks and Recreation (DPR), as the landowner, would be required to apply to Seattle Department of Construction and Land Use (DCLU) for permits for proposed alterations within the riparian corridor above ordinary high water mark (OHWM). Seattle DPR would also be required to apply to Washington Department of Fish and Wildlife (WDFW) for a Hydraulic Project Approval (HPA) for any work in the stream below OHWM. OHWM is generally defined as "the mark found by examining the streambed and banks to ascertain where the presence of water is common and usual".

6.1.2 Stream Goals

This Plan addresses six main goals for the stream and riparian corridor in Frink Park:

1. Collect baseline information on the stream and assess its specific needs.
2. Stabilize stream channel by reducing downcutting and erosion.
3. Decrease invasive plant species coverage in riparian corridor.
4. Increase native plant species diversity in riparian corridor.
5. Enhance wildlife habitat in the riparian corridor.
6. Increase opportunities for aesthetic enjoyment of stream corridor.

The long-term vision is to have a stream and riparian corridor in the Park that is enjoyed both visually and aurally, while providing better habitat for a greater variety and number of wildlife species. Stabilizing the stream channel and banks, replacing blackberry and ivy thickets with native riparian species, and bringing Park users to the stream in selected areas for visual and auditory enjoyment will realize this vision. The stream could alternately flow slowly and quietly through low gradient pools, and tumble noisily and steeply over jumbles of rocks. The riparian corridor could support a diverse mixture of native species that hide the stream in some places and reveal it in others. Plants can frame near views of the stream, and provide backdrops and roofs of foliage in the distance and overhead. Plants can also help stabilize the streambanks, and reduce the amount of sediment washed downstream. A stream with a stable channel, structural diversity including rocks and wood, and a riparian corridor filled with native species offers Park users an enhanced experience of place.

6.1.3 Objectives and Recommended Major Actions

Two primary objectives and six major actions for stream and riparian corridor enhancement are described below, with prioritized site-specific actions listed in the next section. Stream channel and bank stabilization work should be planned on site in further detail as a preliminary step to the construction process. Construction work as well, should be done with the guidance and oversight of a professional specializing in stream channel restoration.

Objective 1: Install monitoring devices.

As noted in the existing conditions section of this plan, there is no baseline database for Frink Park Creek. We know that the stream has some of the typical characteristics of an urban stream: a flashy hydroperiod, an incised channel, bank erosion, low native species diversity in the riparian corridor, dominant invasive exotic plants in the riparian corridor, and low biological integrity instream. However, there is no data to quantitatively describe these characteristics. For example, at what rate is the channel downcutting, at what rate are the banks eroding, and what are flow rates in the stream throughout the year? To more accurately and specifically address the problems in the stream, the establishment of monitoring stations and collection of baseline data is recommended below the waterfall area.

Action 1: Install bank pins and bed pins at known problem areas as shown in the stream profile in Figure 6-6. Monitor monthly and record data.

Installation of bank pins and bed pins at areas of concern along the stream will help ascertain the rate of bank erosion and bed incision. Areas of concern are places in the stream channel where erosion and downcutting are most extreme as shown on the stream profile where the height of the top of bank increases suddenly relative to the channel bottom (shown as spikes on the profile). These pins are simply rebar rods pounded into the channel substrate (bed pins) and into the bank (bank pins) so that they protrude a known distance from the soil surface. Monthly monitoring of the pins by measuring the length of rod that protrudes will determine the rate of change in the channel shape (details and data sheets for monitoring can be found in Appendix G). Areas that are changing the most can be prioritized for treatment, while other areas that are changing less dramatically can be assigned lower priority.

Action 2: Build and install plywood slot weir and monitor flows weekly and during significant rainfall events using attached data sheet.

Frink Park Creek flows year-round, but experiences a wide range of water levels and flow rates. Installing a channel constrictor made of plywood at one location in the stream will allow regular monitoring of this parameter. The channel constrictor directs all flow at one point in the channel through a slot of constant and known width. Depth and volume of the water flowing through the slot is measured regularly to ascertain the total discharge and velocity of the stream. To correlate discharge data with rainfall data, obtain regional rainfall data from the National Oceanic and Atmospheric Administration (NOAA) website (www.noaa.gov). The slot weir should be installed at a location that is accessible for monitoring, but not visible from trails to prevent vandalism. The best place for a slot weir is a place in the channel where the stream is already somewhat constricted, where there is already a natural nick point or change in bed elevation (drop off), and where the banks are of an appropriate height to enable installation and structural support of the weir.

Objective 2: Reshape and replant streambanks and add structure to stream channel (Figure 6-6)

Stabilizing the streambanks and channel will require restoring the channel geometry and reducing the susceptibility of the streambanks and channel to erosion and scour. While addressing instream conditions, channel improvements can also serve to enhance the aesthetic experience of Park visitors by providing a more diverse visual experience of the creek as well as better auditory enjoyment of the sound of running and falling water. Reshaping the banks by laying them back in areas where the stream flows unseen at the bottom of a deep narrow trench,

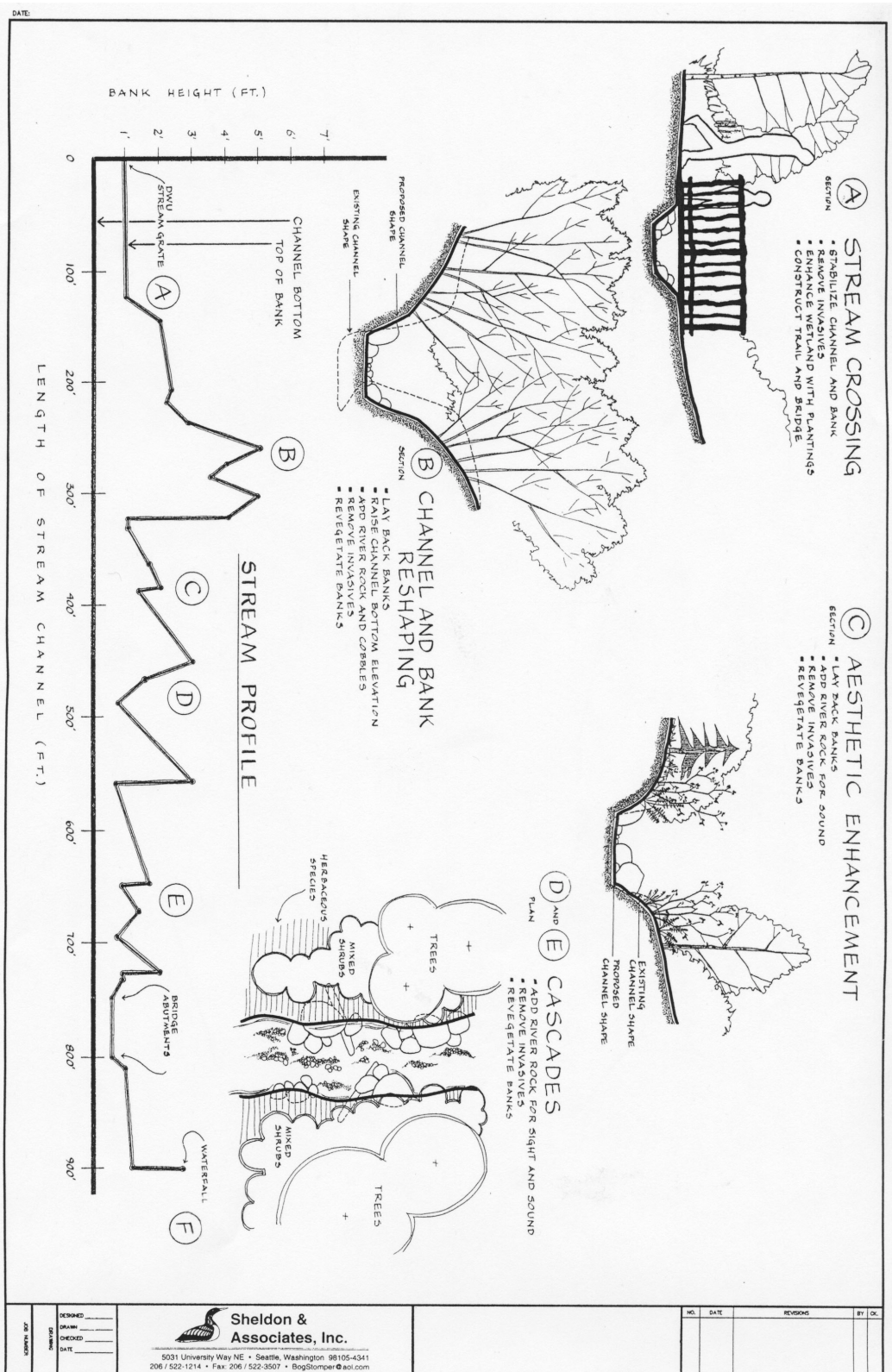


Figure 6-6. Stream profile and project sketches

as well as raising the channel bed by adding larger cobbles and river rocks will restore a more parabolic shape to the channel as well as make the channel substrate more resistant to scour. Reducing the invasive species present in the riparian corridor and replacing them with appropriate native species will increase bank stability, increase species diversity, and add legibility and integrity to the landscape.

Action 3: Lay back banks to restore channel geometry.

Areas along the stream where the channel is severely entrenched and the resulting channel shape is u-shaped with high vertical banks are target areas for bank reshaping. Banks should be dug back or laid back to achieve a parabolic channel shape. Finished bank slopes (horizontal:vertical) should ideally range from roughly 2:1 (50 percent slope) to 3:1 (33 percent slope) or less. Excess material should be evenly distributed throughout construction area and/or can also be added to channel if it is desirable to raise channel bed.

In most cases this work can be done by hand and should be performed during the season of low water and minimal rainfall (Aug-Sept). Construction sequencing should be as follows:

1. Obtain all necessary permits and project funding.
2. Determine limits of construction and mark boundary in the field. Install temporary erosion and sedimentation control as needed and required by City of Seattle.
3. Remove all invasive species from construction area (see invasive removal protocol in Wetland Section 6.2.2 and in Appendix C).
4. Reshape and regrade banks.
5. Cover construction area with jute mesh or equivalent erosion control fabric.
6. Plant bareroot and container stock by cutting directly through fabric.
7. Overseed with hand sown herbaceous species.
8. Install live stakes during dormant period in the later fall or early the following spring.
9. Monitor site for plant survival and vigor as well as re-invasion of non-native species for at least three years; supplement with desirable species and remove invasive resprouts as needed.

Action 4: Add cobble substrate to raise and stabilize channel bottom.

In areas where channel needs to be raised and/or stabilized, add to streambed 4-8 inches in depth of mixed-size, washed, rounded river cobbles ranging from ½ -2 inches diameter in size.

Action 5: Add large rock and wood to maintain desirable channel shape.

In areas where banks have been reshaped and/or channel stabilization is desired, add mixed-size rounded river rock (6-24 inches in diameter). Rock should be embedded into banks and substrate and should direct flow towards thalweg (main low-flow channel) and away from banks. Rocks should be grouped in jumbles that are irregularly spaced along the stream reach. The number of grade controls (groupings of channel stabilizing materials) used should be approximately one for every foot of vertical drop along the stream gradient.

Instream woody debris should only be used where banks are low and do not immediately slope steeply upward into upland areas. This is because proper installation of wood in the channel will require excavation of the bank to create a trench to embed one end of the log back into the bank. The size of logs used should match the overall scale of the stream and the size of the existing trees in the forest immediately surrounding. Suggested log diameters are from 6-12". Logs should be embedded in the streambank at least half of their overall length, and should be placed angled downstream so as to direct flows away from the banks. Logs should be used so that they

appear randomly placed (as fallen wood) and thus should not be notched, placed perpendicular to the channel, spaced regularly, or cut evenly. If installed properly in the streambank, no cabling will be necessary. Rootwads, bark, and in some places branches, can be left remaining on the trunk.

Action 6: Remove non-native invasive species within stream buffer (25-foot minimum width) and replant areas with native species.

Any non-native species within the target area(s) should be removed, with particular emphasis along the stream corridor on Himalayan blackberry and English ivy. Removal of these plants in wetland areas associated with the stream should be done as described in Section 6.2.2. Removal of invasive species in upland areas within the riparian corridor should be done in accordance with Seattle DPR’s best management guidelines and protocols being developed in the Park (see Forest Plan and Appendix C). Removal should only be done if follow-up planting and maintenance have been planned for the target area. Generally, maintenance and monitoring should be performed for at least 2-3 years after initial planting. Removal of undesirable plants is best done between late spring and early fall in preparation for fall planting. If herbicides are used to control invasive species, they should be applied before the plant goes dormant in late summer, and area should not be replanted for at least 30 days. Under no circumstances should foliar spraying be employed adjacent to stream and wetland areas. Recommendations for appropriate herbicide use can be found in Section 6.2.2 and should be discussed with Seattle DPR Urban Forester. Table 6-1 lists recommended species for planting in riparian areas.

**Table 6-1. Suggested native species for riparian corridor planting
(mixed sun-shade, relatively cool and moist)**

Layer	Scientific name	Common name	Type	Installation spacing (avg. density)*
Canopy	<i>Populus balsamifera</i>	Black cottonwood	BR, C	8-10’ o.c. (0.016/sq.ft.)
	<i>Thuja plicata</i>	Western red cedar	BR, C	8-12’ o.c. (0.012/sq.ft.)
	<i>Tsuga heterophylla</i>	Western hemlock	BR, C	8-12’ o.c. (0.012/sq.ft.)
Sub-canopy	<i>Acer circinatum</i>	Vine maple	BR, C	4-6’ o.c. (0.028/sq.ft.)
	<i>Cornus nuttalli</i>	Pacific dogwood	C	8-10’ o.c. (0.016/sq.ft.)
	<i>Cornus sericea</i>	Red osier dogwood	BR, C, LS	4-6’ o.c. (0.028/sq.ft.)
	<i>Rhamnus purshiana</i>	Cascara	BR, C	6-8’ o.c. (0.028/sq.ft.)
	<i>Salix lucida var. lasiandra</i>	Pacific willow	BR, C, LS	6-8’ o.c. (0.028/sq.ft.)
	<i>Salix sitchensis</i>	Sitka willow	BR, C, LS	6-8’ o.c. (0.028/sq.ft.)
	Shrub	<i>Lonicera involucrata</i>	Twinberry	BR, C
<i>Oplopanax horridus</i>		Devil’s club	BR, C	4-6’ o.c. (0.028/sq.ft.)
<i>Physocarpus capitatus</i>		Pacific ninebark	BR, C	4-6’ o.c. (0.028/sq.ft.)
<i>Rosa pisocarpa</i>		Peafruit rose	BR, C	2-4’ o.c. (0.063/sq.ft.)
<i>Rubus parviflorus</i>		Thimbleberry	BR, C	2-4’ o.c. (0.063/sq.ft.)
<i>Symphoricarpos albus</i>		Snowberry	BR, C	2-4’ o.c. (0.063/sq.ft.)
Groundlayer		<i>Achlys triphylla</i>	Vanilla leaf	P, S
	<i>Aquilegia formosa</i>	Red columbine	P, S	12-18” o.c. (0.063/sq.ft.)
	<i>Aruncus dioicus</i>	Goatsbeard	C	12-18” o.c. (0.063/sq.ft.)
	<i>Athyrium filix-femina</i>	Lady fern	C	12-18” o.c. (0.063/sq.ft.)

**Table 6-1. Suggested native species for riparian corridor planting
(mixed sun-shade, relatively cool and moist)**

Layer	Scientific name	Common name	Type	Installation spacing (avg. density)*
	<i>Blechnum spicant</i>	Deer fern	C	12-18" o.c. (0.063/sq.ft.)
	<i>Carex obnupta</i>	Slough sedge	PL, C	12-18" o.c. (0.063/sq.ft.)
	<i>Claytonia perfoliata</i>	Miner's lettuce	P, S	12-18" o.c. (0.063/sq.ft.)
	<i>Corydalis scouleri</i>	Scouler's corydalis	P, S	12-18" o.c. (0.063/sq.ft.)
	<i>Dicentra formosa</i>	Bleeding heart	P, S	12-18" o.c. (0.063/sq.ft.)
	<i>Disporum hookeri</i>	Hooker's fairybells	P, S	12-18" o.c. (0.063/sq.ft.)
	<i>Glyceria elata</i>	Tall mannagrass	PL, S	12-18" o.c. (0.063/sq.ft.)
	<i>Hydrophyllum tenuipes</i>	Pacific waterleaf	P, S	12-18" o.c. (0.063/sq.ft.)
	<i>Impatiens noli-tangiers</i>	Jewelweed	P, S	12-18" o.c. (0.063/sq.ft.)
	<i>Lilium columbianum</i>	Tiger lily	P, S	12-18" o.c. (0.063/sq.ft.)
	<i>Lysichiton americanum</i>	Skunk cabbage	P, S	12-18" o.c. (0.063/sq.ft.)
	<i>Mimulus guttatus</i>	Yellow monkeyflower	P, S	12-18" o.c. (0.063/sq.ft.)
	<i>Petasites palmatus</i>	Palmate coltsfoot	P, S	12-18" o.c. (0.063/sq.ft.)
	<i>Scirpus microcarpus</i>	Small-fruited bulrush	PL, S	12-18" o.c. (0.063/sq.ft.)
	<i>Smilacina racemosa</i>	False solomon's seal	P, S	12-18" o.c. (0.063/sq.ft.)
	<i>Streptopus amplexifolius</i>	Clasping twisted stalk	P, S	12-18" o.c. (0.063/sq.ft.)
	<i>Tellima grandiflora</i>	Fringecup	P, S	12-18" o.c. (0.063/sq.ft.)
	<i>Tiarella trifoliata</i>	Foamflower	P, S	12-18" o.c. (0.063/sq.ft.)
	<i>Tolmiea menziesii</i>	Youth-on-age	P, S	12-18" o.c. (0.063/sq.ft.)
	<i>Viola sempervirens</i>	Evergreen violet	P	12-18" o.c. (0.063/sq.ft.)

Type Codes: BR = bareroot, C = container, LS = live stake, P = 4" pot, PL = plug, S = seed

- **Installation spacing** refers to the spacing that should be used when installing plants. The spacing indicated is for containerized stock, and should be denser/closer together (25% more plants) for bareroot and live stakes to compensate for greater mortality. Plants should not be spread uniformly throughout a planting area but rather should be placed in random naturalized clusters or drifts of plants not evenly spaced. Clumping plants by one or two species rather than mixing all species evenly across the planting area is more naturalistic and preferred. Seed can be hand-broadcast at a rate of approx. 1 lb. per 500 sq.ft.
- **Average density** refers to the number of plants per square foot of planting area and is a number to be used when calculating the number of plants needed for a certain planting area, e.g. for a 2000 sq.ft. area to be planted with shrubs at an average density of 0.028/sq.ft., multiply 2000 sq.ft. x 0.028/sq.ft. to get 56 shrubs.

6.1.4 Site Specific Actions

Some site-specific actions recommended for the main stream channel below the waterfall as well as the west branch are listed below and located in Figure 6-4. These actions are listed in descending priority along with a summary of the prioritization criteria met by each project. More on-site planning and design of stream channel and bank stabilization work is recommended as the next step in achieving plan goals for the stream. No actions are suggested in the main channel above Wetland 5 (upstream of the waterfall). Best results will be realized if a qualified stream restoration professional guides both the next phase of detailed on-site planning and the construction work.

Specific projects can be prioritized in a number of ways. Cost, scale of the project, level of urgency, and ease of implementation can all be factors that determine prioritization. Additionally, projects that serve to achieve numerous plan goals may be most important, cost effective, and valuable as an integrated part of the plan. For example, a stream channel improvement project that also incorporates a wetland enhancement effort, riparian corridor planting, and a trail re-route or improvement focuses project funds, labor, and maintenance into one discrete area where the channel will be stabilized, the riparian corridor and associated wetland will be restored to native plant communities, and Park users will directly benefit by being able to see and experience the site on a new or improved trail.

Priority 1 Projects

Area B and C

1. Install bed pins and bank pins (Area B and C), as well as plywood weir (Area B), and monitor monthly (Action 1).

Prioritization Criteria: Low cost and small time investment will yield some useful baseline data that will help further assess the nature of the stream processes in the Park, and potentially help prioritize areas of focus for stream projects.

Area A

- 1. Do trail re-route project as described in Section 5.**
- 2. Remove invasives from Wetland 8 and stream corridor and replant with native species as described in Section 6.2.2 and Action 6 above.**
- 3. Add rounded river rock and wood to stream channel to enhance aesthetics of riparian area and stabilize banks and channel at new trail crossing at Wetland 8.**

Design and construction should proceed as outlined above in Action 5. Bringing Park users to the stream with a new trail and bridge would also suggest creating some sitting places for people using larger rocks and logs that would be integrated into the overall streambank and channel stabilization. With increased foot traffic in this area the use of rock, cobble and wood chips to direct use and to protect the soft soils along the bank is also recommended.
- 4. Build bridge across stream at new trail crossing at Wetland 8.**

Bridge should be wood/timber, and ideally would fit with the rustic character of an Olmsted designed woodland park. Design will need to pass DPR Design review and trails/structures standards that are currently being drafted.

Permits required: DCLU permit for work in a regulated environmentally critical area, HPA from WDFW for instream work

Prioritization Criteria: Comprehensive project including wetland restoration, new trail with stream crossing, and instream and riparian corridor restoration and enhancement in a highly visible area. Improved stream “access” and enjoyment was identified during the planning process as a very desirable goal. Existing trail was also identified as excessively wide, steep, and uninteresting along present alignment. A project in this area could build a partnership between Seattle DPR, Seattle Public Utilities, and Friends of Frink Park (FFP). This would be a fairly costly project that would involve coordinated planning to achieve numerous plan goals.

Area F

- 1. Rebuild trail crossing of historic waterfall and redirect stream flows over waterfall.**
Trail work should be done in accordance with Trails Section of the plan and meet DPR trail standards that are being drafted.
- 2. Remove invasive species and replant with natives as described in Wetlands Section for Wetlands 5 and 6.**
- 3. Reroute trail at southwest corner of Wetland 5 away from west branch of stream in accordance with Trails Section of plan. Add gravel and small cobble (1/4 inch-2 inch diameter) to streambed to stabilize bed and enhance aesthetics of channel (Action 4). Add 4-8 inch rounded river rock embedded into bank to improve aesthetics (Action 5).**

Permits required: DCLU permit for work in a regulated environmentally critical area, HPA from WDFW for instream work

Prioritization Criteria: This is another comprehensive project and is in perhaps the most visible part of the Park and in an area that contains the Park's most recognized historic feature (the waterfall). Distinctive features include the waterfall, stream, and the wetland above the waterfall. The trail here is well traveled and in very poor shape. The Park user's experience of this key area is much diminished by the presence of invasive species throughout the area, the poor trail conditions and trail alignment, and the untapped potential of the water features there. This would be a fairly costly project that would involve coordinated planning to achieve numerous plan goals.

Priority 2 Projects

Areas D and E

- 1. Add rounded river rock to create/enhance cascade south of Lake Washington Boulevard (Action 5).**
Rounded river rock of 6-18 inches in diameter should be used to improve the sound and visual characteristics of an already existing higher gradient reach of stream and cascade from the bridge abutment to approximately 50 feet downstream.
- 2. Remove invasives and replant stream banks and buffer (Action 6).**

Permits required: DCLU permit for work in a regulated environmentally critical area, HPA from WDFW for instream work

Prioritization Criteria: This stream project would enhance a highly visible and accessible (both visually and aurally) part of the stream in an area that already has high aesthetic value. Road access to the stream for construction purposes is very good via Lake Washington Boulevard, and this project would link nicely with work in Wetland 6.

Priority 3 Projects

Area B and C

- 1. Lay back banks (Action 3).**
- 1. Add cobble substrate (Action 4).**
- 2. Add large rock, but no woody debris (Action 5).**
- 3. Replant banks with native species (Action 6).**

Permits required: DCLU permit for work in a regulated environmentally critical area, HPA from WDFW for instream work

Prioritization Criteria: These areas are far less visible to most Park users and thus less of a priority from that standpoint, but are part of a complete stream corridor project and are definitely unstable areas. The lack of baseline data means that at this time it is difficult to identify the most critical areas for streambank and channel stabilization projects because we don't know how fast and how much the stream corridor is changing.

6.2 Wetlands

Wetlands are areas that are saturated or inundated at a frequency and duration long enough to support a prevalence of water-loving plants, or plants that are adapted for life in saturated soils. Though we commonly think of ponds with cattails or lily pads when we envision wetlands, there are a variety of wetland types in the Pacific Northwest. Wetlands can include ponds, marshes (both freshwater and saltwater), bogs, forested swamps, wet pastures, alpine meadows, the islands in braided river channels, and other types. Sources of water for wetlands may be streamflow, stream flooding, groundwater discharge (seeps or springs), snow-melt, surface runoff, direct precipitation, tidal flooding, or some combination of these. An area does not have to have standing water to qualify as wetland, or even be saturated year-round. If the surface soils are saturated for about four weeks during the growing season (roughly March through October in our area), then conditions are generally adequate to form a wetland. However, an area is only considered wetland if it is vegetated under normal circumstances. Wetland biologists use a list of plants that are known to commonly occur in wetlands in their region to determine if water-loving plants are present in an area. In general, a wetland will be saturated for an extended period of the growing season, will have soils with visual alterations (e.g., black or gray color, rust-colored mottles) due to this prolonged saturation, and will be dominated by water-loving plants.



Figure 6-7. Wetland 5 with waterfall highly visible from Lake Washington Boulevard

6.2.1 Existing Conditions

A total of 11 wetlands were identified in Frink and Upper Leschi Parks. Wetland locations are shown on Figure 6-1. The wetlands in the Park range in size from 0.02 acre (about 850 square feet) to 0.6 acre (about 26,000 square feet). Nine wetlands are located in Frink Park, generally near the stream corridor, while two wetlands occur in Upper Leschi Park in the Yesler right-of-way. Portions of seven of the wetlands are readily visible from existing Park trails or Lake Washington Boulevard; the remaining four (Wetlands 2, 8, 9 and 11) are more remote from the trail system. Wetlands 5 and 6 are above and below the waterfall (Figure 6-7), respectively, and so are highly visible, located as they are at a major focal point in Frink Park. Wetlands 1, 3, and 4 are readily viewed from the trail that connects 32nd Avenue to the King Street right-of-way. Wetland 7 can be seen from above, over the edge of Lake Washington Boulevard. The lower edge of Wetland 10 is crossed by the trail above Lake Washington Boulevard, across the street from the tennis courts in Upper Leschi Park.

According to Chapter 25.09 of the Seattle City Code, *Regulations for Environmentally Critical Areas*, all of the wetlands identified in the Park would qualify as degraded wetlands because they have been biologically diminished by invasive, non-native plants. The minimum buffer width required for the wetlands by the code is 50 feet. Seattle DPR, as the landowner, would be required to apply to the Seattle Department of Development, Construction and Land Use (DCLU) for permits to alter the vegetation in either the wetlands or wetland buffers, even for enhancement purposes.

Wetland Water Sources

Seven of the wetlands are directly adjacent to the stream that runs through the Park, but the primary sources of water for all the wetlands are hillside seeps. Several wetlands are also fed directly by storm drainpipes that collect runoff from nearby roads. Due to the process of downcutting that is occurring in the stream (see stream section), the wetlands along the stream corridor actually receive little water directly from the stream, except under flooding conditions. Water draining from the wetlands generally flows into the stream or into storm drains. Seep-fed wetlands are unusual in that they often occur on hillsides rather than in the low-lying depressions we more commonly associate with wetlands. They also remain saturated for a greater portion of the year, as they are supplied by the slow, constant discharge of groundwater.

While urban development has certainly altered natural drainage paths and surface runoff volumes in the Leschi area, it is likely that the relatively steep slopes of Frink Park have always discharged groundwater in the form of seeps. By 1900, Frink Park was already documented as a slide-prone area. The early slides may have been triggered by clear-cut logging practices that began in this area in the 1880s, but soil moisture was likely a significant contributor to the instability of the slopes. Most of the existing wetlands in the Park probably predate much of the urban development in the Leschi neighborhood.

Wetland Vegetation

Just as most of the Park is forested, most of the wetlands have a forested canopy. However, as is common for small wetlands, the majority of trees are rooted outside of the wetlands, and the actual wet area is dominated by shrubs or herbaceous plant species. The most commonly occurring native species in the wetlands are lady fern, giant horsetail (*Equisetum telmateia*), stinging nettle, and small-fruited bulrush (*Scirpus microcarpus*). Several wetlands have areas dominated by shrubs, primarily salmonberry. Willow (*Salix* sp.) and red-osier dogwood (*Cornus sericea*) shrubs are common only in Wetland 4. The trees that comprise the overhanging forest canopy of the wetlands are mostly big-leaf maple with some red alder, black cottonwood (*Populus balsamifera*) and Douglas fir (*Pseudotsuga menziesii*).

The non-native invasive species that occur in the wetlands are mostly creeping or climbing vines: Himalayan blackberry is prevalent in nine of the ten wetlands, English ivy is dominant in six wetlands, and climbing nightshade (*Solanum dulcamara*), clematis (*Clematis* sp.) and morning-glory (*Convolvulus* sp.) are common in several. Blackberry forms its densest thickets in the sunnier portions of wetlands, and so is more common in the wetlands that have limited tree canopy cover. Yellow iris (*Iris pseudacorus*), an invasive species that was introduced from Europe, occurs only in Wetland 5, but is quite pervasive in that wetland. English ivy is problematic in the wetlands, but not to the extent it is throughout the upland areas of the Park. In terms of percent cover, Himalayan blackberry is the most dominant wetland invasive in the Park. This species is tolerant of saturated soils, and commonly invades wetlands by tip-layering, where the tip of the vine grows long enough to bend down to contact the ground and grow roots.

Species richness, or the number of different species occurring in a given area, is low to moderate in these wetlands, relative to wetlands in less urbanized settings. Wetlands in the Park typically support 6-12 different plant species, with 2-4 of those generally being non-native species. Overall, we noted 34 different plant species growing in the wetlands in the Park, eleven of these being non-native. Table 6-2 summarizes the hydrologic sources and vegetation of the wetlands.

Table 6-2. Existing Wetland Hydrology and Vegetation

Wetland	Source of Hydrology	Dominant Native Plant Species	Dominant Invasive Species & Percent Cover	Other Species in Wetland
1	Seeps, storm drain	Lady fern Stinging nettle Giant horsetail	Morning-glory* 20 Himalayan blackberry* 25	Salmonberry, creeping buttercup*, English ivy*, Rhododendron
2	Seeps	Lady fern Giant horsetail	Himalayan blackberry* 15 English ivy* 25	Stinging nettle, Rhododendron, Holly*, Cherry laurel*
3	Seeps	Lady fern Giant horsetail Small-fruited bulrush	Himalayan blackberry* 30	Black cottonwood, Red alder, Stinging nettle
4	Seeps	Sitka willow Small-fruited bulrush Lady fern Giant horsetail	Himalayan blackberry* 60	Red alder, Black cottonwood, Red-osier dogwood, Scouring rush, Mannagrass, Bamboo*, English ivy*, Water cress, Hazelnut, Creeping buttercup*, Climbing nightshade*
5	Stream, seeps, storm drains	Lady fern Giant horsetail Water parsley	Yellow iris* 25 Himalayan blackberry* 25 English ivy* 40	Water cress, Climbing nightshade*, Creeping buttercup*, Stinging nettle, Mannagrass, Cooley's hedgesettle, Holly, Hazelnut, Red elderberry, Salmonberry
6	Stream, seeps	Lady fern	Himalayan blackberry* 40 English ivy* 15	Water cress, Creeping buttercup*, Mannagrass, Giant horsetail, Salmonberry
7	Seeps, stream	Giant horsetail Salmonberry	Himalayan blackberry* 60	Skunk cabbage, Small-fruited bulrush, Mannagrass, Rhododendron
8	Seeps, stream	Salmonberry Lady fern	Himalayan blackberry* 30 English ivy 10	Giant horsetail, Mannagrass, Stinging nettle, Creeping buttercup*, Water cress, Cherry laurel*, Youth-on-age
9	Seeps, storm drain	Salmonberry Lady fern Giant horsetail	Himalayan blackberry* 60 English ivy* 20	Stinging nettle, Creeping buttercup*, Clematis *, Giant knotweed*, Climbing nightshade*, Morning-glory*, Thimbleberry
10	Seeps, storm drain	Lady fern Sword fern	English ivy* 70	Climbing nightshade*, Morning-glory*, Stinging nettle, Creeping buttercup*, Bluegrass, Clematis*, Vine maple, Red-osier dogwood
11	Seeps, storm drain	Giant horsetail, Lady fern	Himalayan blackberry* 50 English ivy* 20	

*Denotes non-native species

6.2.2 Goals for Wetlands

The long-term vision is to increase Park users' awareness and enjoyment of the wetlands in the Park by restoring them to look more like wetlands rather than weed-choked areas. The hope is that this will also attract a greater number and variety of wildlife species. This can be done by clearing out the blackberry thickets and the English ivy groundcover and densely planting common plants that people generally associate with wetlands like sedges, bulrushes, and water-loving herbaceous species such as water parsley and skunk cabbage. A variety of fruit-bearing shrubs can be planted in the wetlands and their buffers to shade out the blackberry and provide increased feeding, nesting, and cover habitat for perching birds and small mammals. Snags and rotting logs can be installed to provide visual interest in the wetlands as well as habitat for amphibians (Pacific chorus frog, rough-skinned newt), cavity-nesting (black-capped chickadee) and insect eating (flicker, vole, shrew) birds and mammals, and perching birds (finch, wren).

Just as they do in the Pacific Northwest, wetlands in Frink Park play a very important role in contributing to local plant and wildlife diversity. However, these functions have been impacted by human disturbance of the wetlands and by the related increase in invasive species. There is, therefore, significant opportunity for enhancement.

The plan for enhancing or restoring the wetlands in the Park has four primary goals:

1. Decrease invasive plant species coverage in the wetlands.
2. Increase native plant species diversity in the wetlands.
3. Enhance wildlife habitat in the wetlands.
4. Increase opportunities for aesthetic enjoyment of accessible/visible wetlands.

6.2.3 Recommended Major Actions

To achieve these goals, four major actions are proposed for all the wetlands in the Park. Site-specific guidance for each wetland follows. Information on the growth needs and wildlife value of many of the plant species proposed for planting is provided in Appendix H.

Action 1: Hand-pull or cut invasive species from wetlands and buffers

Ivy, morning glory, clematis and climbing nightshade should be hand-pulled in the wetlands and in the buffers surrounding the wetlands out to at least 50 feet from the wetland edges. Creeping buttercup should simply be overplanted with native herbaceous species. Holly and laurel should be cut and the roots grubbed out if possible. The corms of yellow iris can be grubbed out with shovels. All debris from invasive plants should be removed from the Park.

Removal of Himalayan blackberry will be the most difficult task in the wetlands, and it is doubtful that it will be successful without the use of chemical controls. However, the wetlands will become increasingly choked with blackberry if a thorough, systematic approach to removal is not undertaken.

The following process for blackberry removal is recommended:

1. In August, when the plants are drawing resources back down into their roots (and therefore will draw down herbicide), cut all the canes at about 6 inches above the ground and remove the debris from the site.
2. Using a paintbrush and a relatively concentrated solution of Roundup®, dab or paint the freshly cut ends of the canes. Do this on the same day that they are cut. The process works best if several people cut and remove the plant debris, while only one person applies the herbicide. This way it is easier to keep track of areas that have been covered, and to avoid inadvertent human exposure by walking through an area that has already been painted.
3. Wait until about mid-November when at least ½ of the herbicide will be metabolized and then densely plant the area with shrubs and/or tree seedlings. Plant installers should wear leather gloves to protect against the small amounts of herbicide that will still be in the soil.
4. The next spring, March through May, hand-pull or cut all new shoots that you see, and then plant herbaceous species as desired.
5. Monitor these areas over the long-term and keep hand-pulling or cutting new shoots, and the blackberry will gradually die out.

Minimizing Wetland Soil Disturbance

When working in wetlands, it is very important to minimize disturbance of the soils and native vegetation. Because the soils may have high organic content, or be quite saturated, they are vulnerable to compaction or pock-marking with deep footprints. To minimize disturbance when pulling invasive species or installing plants in wetlands, the following advice is offered:

- Schedule most of the work in wetlands for late summer or fall when the ground is likely to be less saturated. Herbaceous species will need to be planted in the spring, but at least they require smaller holes than trees and shrubs.

- Have the fewest number of people necessary to perform the task do the work – don't trample a wetland with a large volunteer group.

- For very wet areas where your feet sink into the soils, bring wooden planks to stand on while digging planting holes or grubbing out invasive roots.

- Plant shrubs as live stakes where possible – this eliminates the need for digging wide holes.

Action 2: Plant variety of native shrubs and herbaceous species with wildlife value

The plants that are recommended in this plan for planting in the wetlands and buffers in the Park were selected because they commonly occur in similar wetlands in our region, are generally available at local nurseries that specialize in native stock, and most are valuable in terms of wildlife use. Shrubs were selected for the fruits and seeds they bear, the cover they provide, their potential for use in nesting, and their visual interest. Herbaceous species were chosen based on their food value, their potential to be used as nest material, their ability to thrive among invasive species, and their visual interest. A moderate variety of species was chosen, as wetlands such as those occurring in the Park do not typically have very high species diversity.

Some Words on Herbicide Safety

Roundup® is a glyphosphate-based herbicide that is the preferred choice when working near aquatic resources due to its relatively short persistence. The half-life of Roundup® in the environment varies depending on the soil conditions and the abundance of metabolizing bacteria in the soil, but it averages around 47 days. This means that after about 47 days, about ½ of what you apply will still be in the soil. It is therefore possible that some of the chemical will wash into nearby streams and wetlands with rainfall. This is why we recommend applying it during the driest period of the year. We also recommend applying it well before fall planting, thus allowing for some metabolizing before introducing new plants. Never use a spray application of any herbicide in the vicinity of wetlands or streams.

It is the policy of the Seattle Parks Department that anyone applying herbicide on Parks property be a licensed applicator and have expressed permission from the appropriate Parks staff. As with all herbicides, Roundup® should be applied with great caution and be considered hazardous to human health. Avoid direct skin contact and wear safety clothing such as long pants, long sleeves, gloves and goggles. Do not apply it in the rain or when rain is expected for that same day.

Wetland plants can be obtained from local nurseries or from salvage programs that harvest and store plants from sites that are going to be cleared of vegetation for development (see Appendix I for list of local native plant nurseries and salvage programs). They can also be grown from seeds or cuttings in specialized beds that have saturated soils (see Appendix J for instructions on building capillary beds). Wetland plants should not be harvested from local wetlands unless the site is designated for development, and approved for salvage by the landowner and the local jurisdiction. The only exception to this is the live stake method in which branches are cut from live shrubs or trees and planted. Permission for cutting branches from wetland shrubs need only be obtained from landowners. Plants intended for the Park should be obtained only from nurseries or sites that occur in lowland areas in western Washington, as these plants will be adapted for our local climate and growing conditions.

Plants can be established from a variety of forms: rooted in containers, bare root, live stakes, or whips for shrubs; containers, plugs, or seeds for herbaceous species. Most shrubs that are planted in wetland restoration projects are either in containers or are started from live stakes. See Appendix K for details on various planting methods. For the live stake method, branches are cut from live shrubs and planted in the wetland or buffer to start new plants in place. Willows, red-osier dogwood, alder and salmonberry are the best species to use for this method. The method simply involves cutting two-foot-long branches that are at least 3/8 of an inch in diameter, and driving them into the ground at least one foot. This is an inexpensive method of establishing new plants, as source plants can often be found onsite. For the herbaceous plants, some species are only available as plugs, while others may be found in both potted and seed form. It may be desirable to obtain the herbaceous species for the wetlands in the Park in a variety of forms and see what forms establish best in this location. Average costs for plants obtained from nurseries are: \$5.00 - \$6.00 for shrubs in 2 gallon containers, \$1.00 - \$2.00 for herbaceous species in 4 inch pots, and \$0.50 for sedges/rushes/aquatics in 6 cubic inch plugs. Live stakes can probably be obtained free from sources in the Park or other sites.

Plants should be installed in natural-looking clumps, rather than regularly spaced or lined-up. It is more typical to see groupings of one or two species in one spot and another two species in another spot, than to see a perfectly distributed mix of five different species. Issues that should be considered when laying out plants in the wetlands or buffers include maintaining view corridors into the wetlands from the trails, preventing easy access into wetlands from nearby trails, and, of course, the amount of water and light required or tolerated by each species. Plant most shrubs on 4-6 foot centers for 2-gallon sizes, although smaller shrubs such as snowberry and rose can be planted 2-4 feet apart. Larger shrubs such as Sitka willow and western crabapple should be spaced 6-10 feet apart. Plant live stakes about 2 feet on center (about 1/3 of the stakes you install will not take). Plant herbaceous species about 12-18 inches on center.

Action 3: Install snags, downed logs, and birdboxes for wildlife habitat

To further enhance wildlife habitat in the wetlands and buffers, it is recommended to install snags and down logs or woody debris. Snags can either be created from standing live trees that are killed by girdling and left in place, or by importing and installing trees felled from another location. Installing new snags is typically done with heavy machinery as the trees are extremely heavy and deep holes are needed (at least one-third of the length of the tree must be underground to support the aerial portion). Creating snags in place is easier, but is generally only done when there is an accompanying desire to create greater canopy opening in the same location. Both coniferous and deciduous hardwood species are used for snag creation. Created snags are generally a minimum of 12 inches in diameter and 15 feet above ground, although larger snags will provide for a greater variety of wildlife species. Trees that are girdled for the purpose of becoming snags are often topped at 20-30 feet above ground to minimize the hazard of falling limbs as the tree dies.

Downed logs can be placed in upland or wetland areas to create more habitat. If any trees are logged from the Park, they can be cut into 15-30 foot lengths and used for this purpose. When City crews cut hazardous tree branches in the Park; these could be used in wetlands or buffers for woody debris. Brush piles also offer habitat for birds and small mammals, and can be constructed from the smaller branches from any tree or shrub, with the exception of blackberry vines or other invasive species.

Birdboxes are another option for increasing habitat opportunities in the vicinity of Park wetlands. They could easily be constructed and mounted by local schools or by community volunteers. Birdboxes can be mounted on poles or trees, but need to be accessible to humans so they can be maintained. Birdboxes should be cleaned out of nesting material every winter to minimize the growth of microbes and transmission of disease to the birds using the boxes. Boxes should not be installed unless there is a committed group that plans to maintain them annually. Box dimensions and the sizes of opening vary for different birds. Good advice on bird box specifications can be obtained from local Audubon offices. Common species that are likely to use boxes in this urban Park include house wren, black-capped chickadee, house finch, and robin.

Action 4: Provide for long-term management of invasive species

Invasive species are aptly named in that they are well-adapted to be able to spread and establish in new areas, and to re-invade areas from which they have been cleared, but are then neglected. If we can successfully remove much of the invasive biomass from the wetlands over the next several years, and then perform maintenance on an annual basis, the invasive problem will never again get as bad as it is now. But, even if we can totally remove invasive species from the wetlands and their buffers, which is a huge task in itself, and get good establishment of native communities, the presence of invasive species in the remainder of the Park will continue to threaten the wetland areas. Unfortunately, annual monitoring and maintenance will be necessary for many years to come as long as there is a significant presence of invasive species anywhere in the Park.

Preferred Timing of Actions

Hand-pull invasives – July through October before heavy rains

Chemically treat blackberry – August

Plant container shrubs – Preferably October through November, OK in March through early May

Plant herbaceous species – March through early May

Install live stakes – October through February

Monitor for blackberry regrowth and cut new shoots – March through May

6.2.4 Site-Specific Actions

It is clear that the specific wetland projects need to be prioritized and accomplished over time, due to the cost of plants and the difficulties in getting volunteer labor. The plan lists the wetland projects below in order of recommended priority from highest to lowest. This order is based on: 1) visibility or level of use of a wetland area, 2) wetlands with invasive problems no greater than moderate, and 3) the potential for combining a wetland project with a related stream project. Visible wetlands are prioritized so we can meet the goal of enhancing the wetlands for aesthetic enjoyment, and to raise the public awareness of wetlands in the Park. Wetlands with no greater than moderate invasive levels are prioritized so that the problem in that area in can be controlled before it becomes worse. Wetland projects that are related to targeted stream restoration areas are also given priority in that this is a way to gain the most benefit from a riparian corridor restoration project.

This is only a recommended prioritization system. Park organizers may choose different priorities depending on funding, the potential to integrate a wetland project into a forest restoration project that is planned for the area surrounding the wetland, or other reasons.

Wetland 5

1. Control the yellow iris population in the south end of the wetland by hand pulling to thin plants. Iris, while invasive, is attractive and is currently the showiest plant in this wetland. It may be desirable to maintain a small iris population, at least until other emergent species are well established in this area.
2. Remove blackberry by cutting canes and dabbing cut ends with herbicide.
3. Plant shrubs around wetland edges in irregular clumps.
4. Plant herbaceous species in broad south half of wetland.
5. Because the soils in this wetland are so saturated and soft, it is especially important that the shrubs be planted in October, prior to any significant rains, and that the herbaceous species be planted in the spring by a minimal number of people. Care should be taken to avoid soil compaction or trampling of existing vegetation.

Wetland 6

1. Remove ivy from wetland and buffer by hand pulling.
2. Remove blackberry in wetland and buffer by clearing and grubbing entire slope above wetland to east and spot treating blackberry (cut and dab) on slope to west.
3. Stabilize slope of east buffer with anchored geotextile mat.
4. Plant native shrubs through holes in mat with layout that maintains view from bridge to wetland.
5. Plant shorter species (snowberry and wood rose) on upper slope, mid-height species (thimbleberry) on mid-slope, and taller species (red osier dogwood and ninebark) on lower slope.
6. Plant herbaceous species at toe of slope in wetland to increase diversity and visual interest.

Wetland 4

1. Remove blackberry on wetland edges and buffer by cutting canes and dabbing with herbicide.
2. Maintain views into wetland from trail by planting shrubs in clumps in wetland.
3. Plant shrubs densely in areas where blackberry now occurs, use live stakes for willow and red osier dogwood if available.

Wetland 8

1. Remove ivy from wetland and buffer by hand pulling.
2. Remove blackberry from wetland and buffer, back at least 25 feet from east edge of wetland, but cutting canes and dabbing with herbicide.
3. Plant shrubs densely in east buffer and along eastern wetland edge; lay out plantings to allow view corridor in wetland from proposed bridged crossing.
4. Plant herbaceous species along top of stream bank in wetland.

Wetland 1

1. Remove ivy and morning glory by hand pulling.
2. Remove blackberry by cutting canes and dabbing with herbicide.

3. Plant shrubs listed in Table 6-3 in clumps in wetland, especially where blackberry currently occurs. Use live stakes for red osier dogwood and willow. Also densely plant the stream banks for stabilization and shading.

Wetland 7

1. Hand-pull nightshade and morning glory.
2. Cut blackberry in both wetland and buffer (at least 25 feet back from edge of wetland) and dab with herbicide.
3. Plant shrubs densely around wetland edge to shade out blackberry (dogwood and willow can be live stakes).
4. Plant open-canopy areas in wetland (not currently in blackberry) with herbaceous species.

Wetland 3

1. Remove blackberry on wetland edges and buffer by cutting canes and dabbing with herbicide.
2. Plant red osier dogwood and rose densely along wetland edges to shade out blackberry.

Wetland 2

1. Remove ivy by hand pulling.
2. Remove blackberry by cutting canes and dabbing with herbicide.
3. Densely plant emergent species in main portion of wetland to out-compete invasives.
4. Plant red osier dogwood using live stakes around wetland edge, especially where blackberry now occurs.

Wetland 10

1. Remove ivy by hand pulling.
2. Plant shrubs densely in wetland (red osier dogwood and salmonberry can be live stakes).

Wetland 9

1. Remove ivy by hand pulling.
2. Remove blackberry from wetland and buffer by cutting canes and dabbing with herbicide.
3. Plant shrubs densely to out-compete blackberry (red osier dogwood can be live stakes)

Wetland 11

1. Remove blackberry in wetland and buffer by cutting canes and dabbling with herbicide.
2. Remove ivy by hand pulling.
3. Plant shrubs and emergent densely to compete invasives.

Table 6-3 summarizes the species that are recommended for planting. It is not essential that all the species listed for each site be planted, but that an adequate variety of species is represented. The numbers of plants listed in the table should be sufficient to eventually vegetate the specified areas. Numbers were reduced from typical densities that are recommended for bare ground to allow for the existing native plants.

6.2.5 Stream and Wetland Options Considered but Not Included as Plan Elements

1. Creation of pool below current location of stream grate at south end of Park

Reasons for exclusion:

Neighborhood opposition, low gradient, and concerns about de-watering of pond in summer months

2. Day-lighting of stream from stream grate at south end of Park to Lake Washington

Reasons for exclusion:

Property ownership – land is privately owned and stream does not continue to flow on DPR land, cost of daylighting is very high, no known historic salmonid use, stream is probably too minor to support salmonid rearing or spawning

3. Creation of open water pool upstream of waterfall

Reasons for exclusion:

Excavation would require severe disturbance of fragile wetland soils, habitat diversity is higher with emergent and scrub-shrub communities than open water, backing up water at trail crossing would require raising the trail bed and reconfiguring top of waterfall

Table 6-3. Recommended Plantings for Wetlands

Wetland No.	Recommended Species for Planting		Available Forms of Plant	Approx. Planting Area	Recommended Approx. Number of Plants
	Common Name	Scientific Name			
WL 1	Red-osier dogwood Sitka willow Pacific ninebark Black twinberry	<i>Cornus sericea</i> <i>Salix sitchensis</i> <i>Physocarpus capitatus</i> <i>Lonicera involucrata</i>	LS, C, BR LS, C, BR C, BR C, BR	2,500 sq. ft. (entire WL)	100 if LS, 40 if C 75 if LS, 30 if C 3 10
	Red-osier dogwood Small-fruited bulrush Wool grass Sawbeak sedge Hedge nettle Water parsley Skunk cabbage	<i>Cornus sericea</i> <i>Scirpus microcarpus</i> <i>Scirpus cyperinus</i> <i>Carex stipata</i> <i>Stachys cooleyae</i> <i>Oenanthe sarmentosa</i> <i>Lysichiton americanum</i>	LS, C, BR P, PL P, PL P, PL P, S P P	1,000 sq. ft. of shrub around edges of WL, 600 sq. ft. of herbaceous in center of WL	100 if LS, 40 if C 100 25 50 40 40 10
WL 3	Red-osier dogwood Salmonberry	<i>Cornus sericea</i> <i>Rubus spectabilis</i>	LS, C, BR LS, C, BR	1,200 sq. ft. along WL edges	100 if LS, 50 if C 100 is LS, 30 if C
WL 3 Buffer	Salmonberry Thimbleberry Devil's club	<i>Rubus spectabilis</i> <i>Rubus parviflorus</i> <i>Oplopanax horridus</i>	LS, C, BR C, BR C	About 4,000 sq. ft. along west buffer	150 if LS, 70 if C 40 20
WL 4	Sitka willow Red-osier dogwood Nootka rose Ninebark Western crabapple	<i>Salix sitchensis</i> <i>Cornus sericea</i> <i>Rosa nutkana</i> <i>Physocarpus capitatus</i> <i>Malus fusca</i>	LS, C, BR LS, C, BR C, BR C, BR C	7,200 sq. ft. in western half of WL	100 if LS, 40 if C 200 if LS, 75 if C 60 10 5 (at least 10' oc)
WL 5	Red-osier dogwood Sitka willow Black twinberry Salmonberry Coast black currant Small-fruited bulrush Wool grass Water parsley Monkeyflower Skunk cabbage Sawbeak sedge Daggerleaf rush Yellow touch-me-not Marsh speedwell	<i>Cornus sericea</i> <i>Salix sitchensis</i> <i>Lonicera involucrata</i> <i>Rubus spectabilis</i> <i>Ribes divaricatum</i> <i>Scirpus microcarpus</i> <i>Scirpus cyperinus</i> <i>Oenanthe sarmentosa</i> <i>Mimulus guttatus</i> <i>Lysichiton americanum</i> <i>Carex stipata</i> <i>Juncus ensifolius</i> <i>Impatiens noli-tangere</i> <i>Veronica scutellata</i>	LS, C, BR LS, C, BR C, BR LS, C, BR C, BR P, PL, S P, S P, S P, S P, S P, S P, S P, S P, S P, S P, S P	2,000 sq. ft. of shrub along east and west edges of WL, 3,000 sq. ft. of herbaceous in central portions of WL	100 if LS, 40 if C 60 if LS, 30 if C 20 70 if LS, 40 if C 20 100 25 50 25 20 20 75 50 30 25
WL 6	Saw-beaked sedge Skunk cabbage Water parsley Lady fern Wool grass Yellow touch-me-not	<i>Carex stipata</i> <i>Lysichiton americanum</i> <i>Oenanthe sarmentosa</i> <i>Athyrium filix-femina</i> <i>Scirpus cyperinus</i> <i>Impatiens noli-tangere</i>	P, PL, S P, S P, S P, S P, S P, S	800 sq. ft.	30 5 30 20 10 15
WL 6 Buffer	Snowberry Wood rose Thimbleberry Pacific ninebark Red-osier dogwood	<i>Symphoricarpos albus</i> <i>Rosa gymnocarpa</i> <i>Rubus parviflorus</i> <i>Physocarpus capitatus</i> <i>Cornus sericea</i>	C, BR C, BR C, BR C, BR LS, C, BR	2,500 sq. ft.	50 50 30 10 50 if LS, 30 if C
WL 7	Red-osier dogwood Sitka willow	<i>Cornus sericea</i> <i>Salix sitchensis</i>	LS, C, BR LS, C, BR	About 5,000 sq. ft. of shrub, where	150 if LS, 100 if C 100 if LS, 60 if C

Table 6-3. Recommended Plantings for Wetlands

Wetland No.	Recommended Species for Planting		Available Forms of Plant	Approx. Planting Area	Recommended Approx. Number of Plants
	Common Name	Scientific Name			
	Pacific ninebark	<i>Physocarpus capitatus</i>	C, BR	blackberry is currently, and 3,000 sq. ft. of herbaceous	20
	Skunk cabbage	<i>Lysichiton americanum</i>	C, BR		20
	Small-fruited bulrush	<i>Scirpus microcarpus</i>	P, S		40
	Wool grass	<i>Scirpus cyperinus</i>	P, PL, S		20
	Lady fern	<i>Athyrium filix-femina</i>	P, S		40
	Sawbeak sedge	<i>Carex stipata</i>	P, S		40
	Hedge nettle	<i>Stachys cooleyae</i>	P, PL, S		30
	Tall mannagrass	<i>Glyceria elata</i>	P, S		30
WL 7 Buffer	Thimbleberry	<i>Rubus parviflorus</i>	C, BR	7,000 sq. ft. to west of WL	150
	Snowberry	<i>Symphoricarpos albus</i>	C, BR		200 if LS, 100 if C
	Wood rose	<i>Rosa gymnocarpa</i>	C, BR		100
WL 8	Red-osier dogwood	<i>Cornus sericea</i>	LS, C, BR	800 sq. ft. of shrub along east edge of WL, 500 sq. ft. of herbaceous near stream bank	75 if LS, 30 if C
	Salmonberry	<i>Rubus spectabilis</i>	LS, C, BR		50 if LS, 25 if C
	Skunk cabbage	<i>Lysichiton americanum</i>	P, S		10
	Tall mannagrass	<i>Glyceria elata</i>	P, S		20
	Small-fruited bulrush	<i>Scirpus microcarpus</i>	P, PL, S		40
	Sawbeak sedge	<i>Carex stipata</i>	P, PL, S		25
	Water parsley	<i>Oenanthe sarmentosa</i>	P, S		40
Monkeyflower	<i>Mimulus guttatus</i>	P, S	20		
WL 8 Buffer	Salmonberry	<i>Rubus spectabilis</i>	LS, C, BR	1,600 sq. ft. along east buffer	100 if LS, 40 if C
	Thimbleberry	<i>Rubus parviflorus</i>	C, BR		30
WL 9	Red-osier dogwood	<i>Cornus sericea</i>	LS, C, BR	800 sq. ft.	30 if LS, 10 if C
	Salmonberry	<i>Rubus spectabilis</i>	LS, C, BR		25 if LS, 15 if C
	Pacific ninebark	<i>Physocarpus capitatus</i>	C, BR		2
	Black twinberry	<i>Lonicera involucrata</i>	C, BR		4
WL 10	Red-osier dogwood	<i>Cornus sericea</i>	LS, C, BR	9,500 sq. ft.	150 if LS, 75 if C
	Salmonberry	<i>Rubus spectabilis</i>	LS, C, BR		150 if LS, 100 if C
	Pacific ninebark	<i>Physocarpus capitatus</i>	C, BR		25
	Black twinberry	<i>Lonicera involucrata</i>	C, BR		25
WL 11	Red-osier dogwood	<i>Cornus sericea</i>	LS, C, BR	3,600 sq. ft.	75 if LS, 30 if C
	Sitka willow	<i>Salix sitchensis</i>	LS, C, BR		40 if LS, 10 if C
	Black twinberry	<i>Lonicera involucrata</i>	C, BR		15
	Skunk cabbage	<i>Lysichiton americanum</i>	P, S		30
	Small-fruited bulrush	<i>Scirpus microcarpus</i>	P, PL, S		40
	Water parsley	<i>Oenanthe sarmentosa</i>	P, S		30

Plant Form Codes: BR = bareroot, C = container, LS = live stake, P = 4" or 1 gal. pot, PL = plug, S = seed

7.0 EDGE PLAN

7.1 Existing Conditions

The appearance and features of the boundaries of Frink Park define how the neighborhood perceives and uses the Park. As such, a variety of issues related to the “edges” of the Park have been identified during the planning process. Issues having to do with vegetation include: unkempt appearance of the grassy edges (along 31st in particular), dense shrubby vegetation at edges that prevents people from looking into the Park, and colonization of the Park by invasive species from neighboring private properties and vice versa. All of these problems result in a park that often appears uncared for, unsafe, and unused, which can encourage vandalism, undesirable uses, and disrespect for public greenspace while discouraging park use for recreation and enjoyment. Dumping of garbage along park edges is a common occurrence in Frink Park that further lessens the positive image of the Park.

In many locations, the actual park boundary is difficult to discern. The interface between private and public space is often blurred, and it can be hard to tell where the Park begins and ends. This is an important distinction especially with regard to park access via public rights-of-way. The numerous pedestrian access points around the Park’s perimeter, particularly street-ends, are both a positive and a negative attribute to adjacent property owners. They provide access to the Park close to home, yet they also are accessible to the general public, and could invite usage that disrupts neighborhood privacy. The numerous access points provide the neighborhood with a variety of ways to easily reach the Park on foot from home, but knowing where those access points are is necessary to be able to use them. Balancing the access needs of the neighbors living beyond the immediate park edges with the privacy needs of those directly adjacent to the Park is important to the surrounding neighborhood.

7.2 Goals

The vision for the park edges is to make the Park more accessible, visible and inviting to the community by establishing a maintenance program and schedule for the edge vegetation that results in a naturalistic yet cared for and recognizable park boundary; designating park entrances in a way that demarcates access points to the Park but minimizes undesirable impacts to adjacent property owners and Park users; and preventing dumping of garbage and yard waste.

Design solutions for the edges of the Park should meet the following goals:

1. Better maintain and define vegetated park edge along public corridors.
2. Identify park boundary using vegetation, vegetation management techniques, and/or signage as appropriate.
3. Increase use of the Park by those neighbors who currently feel the Park is uninviting and unsafe due to its outward appearance.
4. Increase stewardship of the Park.
5. Reduce incidences of dumping in the Park by eliminating unpaved vehicle pullouts along the road shoulder.
6. Educate local residents about invasive species issues and gardening adjacent to a natural area.

7.3 Vegetation Management Standards and Practices for Park Edge

A significant portion of the Park edge adjoins public land in the form of streets, rights-of-way, and other parkland. These areas are the most visible edges in the Park, and should be managed with a consistent strategy so that they are discernible to the public, and so that it is clear that the greenspace within is cared for. The Park's entire western edge along 31st, the southern edge along King St., and its interior edges along Lake Washington Boulevard and S. Frink Place should be managed to exhibit a transition between the hardscape elements of street and sidewalk to the forested parkland. Perhaps a mowed grass edge along the street or sidewalk, adjacent to lower-growing native shrubby vegetation that does not require frequent maintenance, could then fade into taller understory shrubs and canopy trees. This would give users a sense of the transition from groomed edge to wilder park interior, and would also minimize maintenance requirements along the outermost edge, in addition to putting the highest maintenance areas in the most accessible location (close to the road). The Olmsted Brothers original concept for the road edges is very similar to this and can be found on page 3-7.

Action 1: FFP meet with DPR and SEATRAN (Seattle Transportation) staff to determine maintenance responsibilities and objectives. Determine maintenance schedule and protocols.

7.4 Design Guidelines for Designation of Park Entrances

Both major and minor park entrances would benefit from some low-key identification markers as well as vegetation management to designate them as park access points. Judicious pruning and brushing back of vegetation at minor park entrances would assist users in discerning them and draw pedestrians into the Park rather than discourage them. Vegetation management of park edges as described in Section 7.3 would help identify the Park to users in vehicles as well as on foot entering via major entrances. Signs and identification markers for park edges are discussed below. Because detailed planning for entrance markers and signs was not done for the concept plan, a phased approach should be adopted for designating park entrances along edges in conjunction with the overall sign plan for the Park outlined in sections 8.6 and 9. Specifics of the recommended phasing for the entire sign plan can be found in section 9.3.

Issues that have been discussed during the planning process and should be considered as further planning for park entrance designation occurs include:

- 1) consistency of marker or sign style and design with historic legacy of the Park
- 2) compatibility of marker or sign style and design with others in Olmsted park and boulevard system
- 3) discussion and collaboration with DPR regarding use of DPR sign standards
- 4) appropriate number of signs to designate park entrances and edges
- 5) preservation of significant view corridors (Lake Washington Blvd., Yesler bridge to lakeshore) without obstruction by signs

Because the resolution of these issues, as well as final decisions about location and style of markers, was beyond the scope of this plan and will require further public input, the following recommendations are meant to only provide a preliminary framework that can be modified as needed.

Major entrances

Major entrances into Frink Park are generally regarded as the main vehicular access points, as

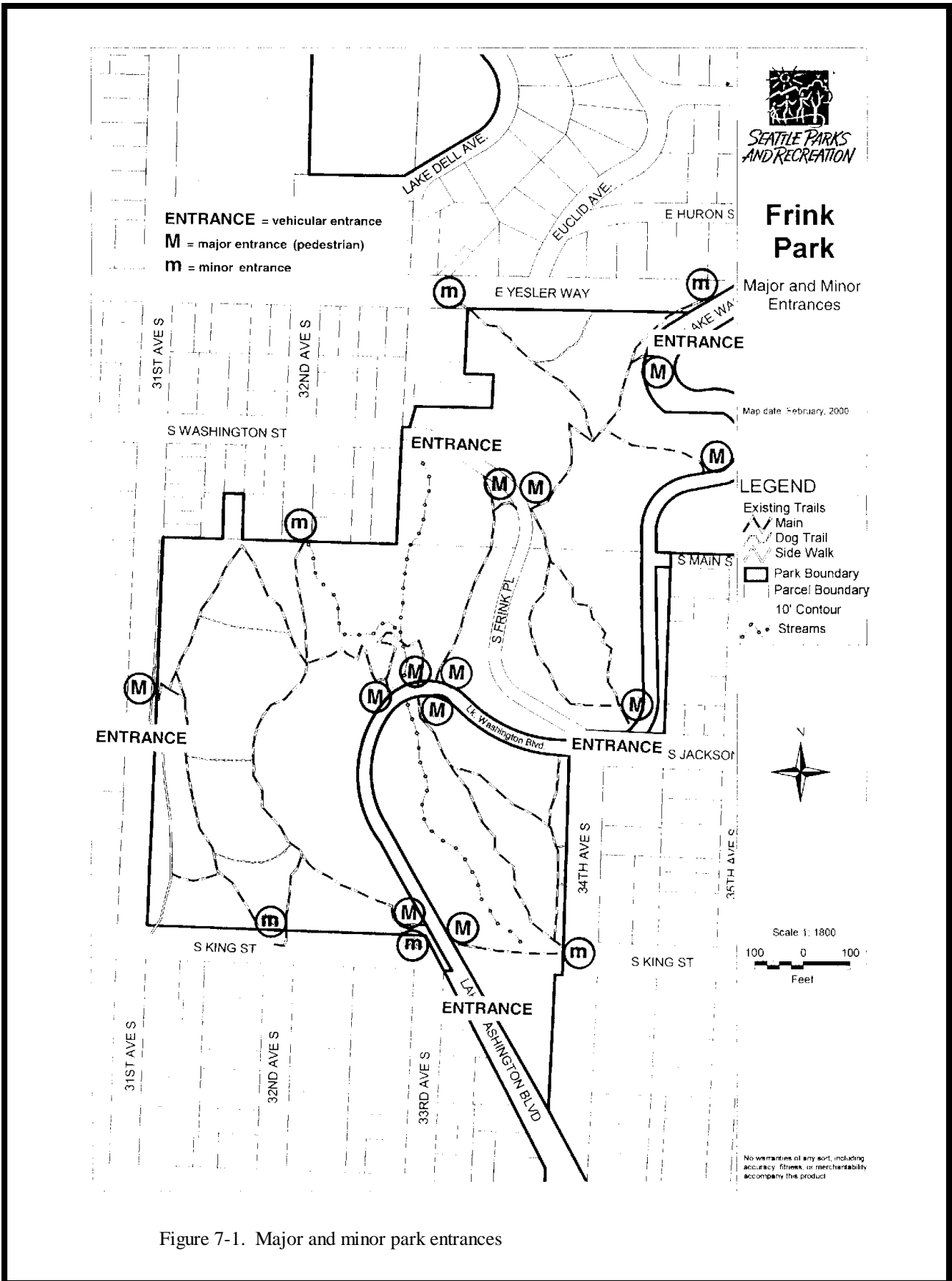


Figure 7-1. Major and minor park entrances

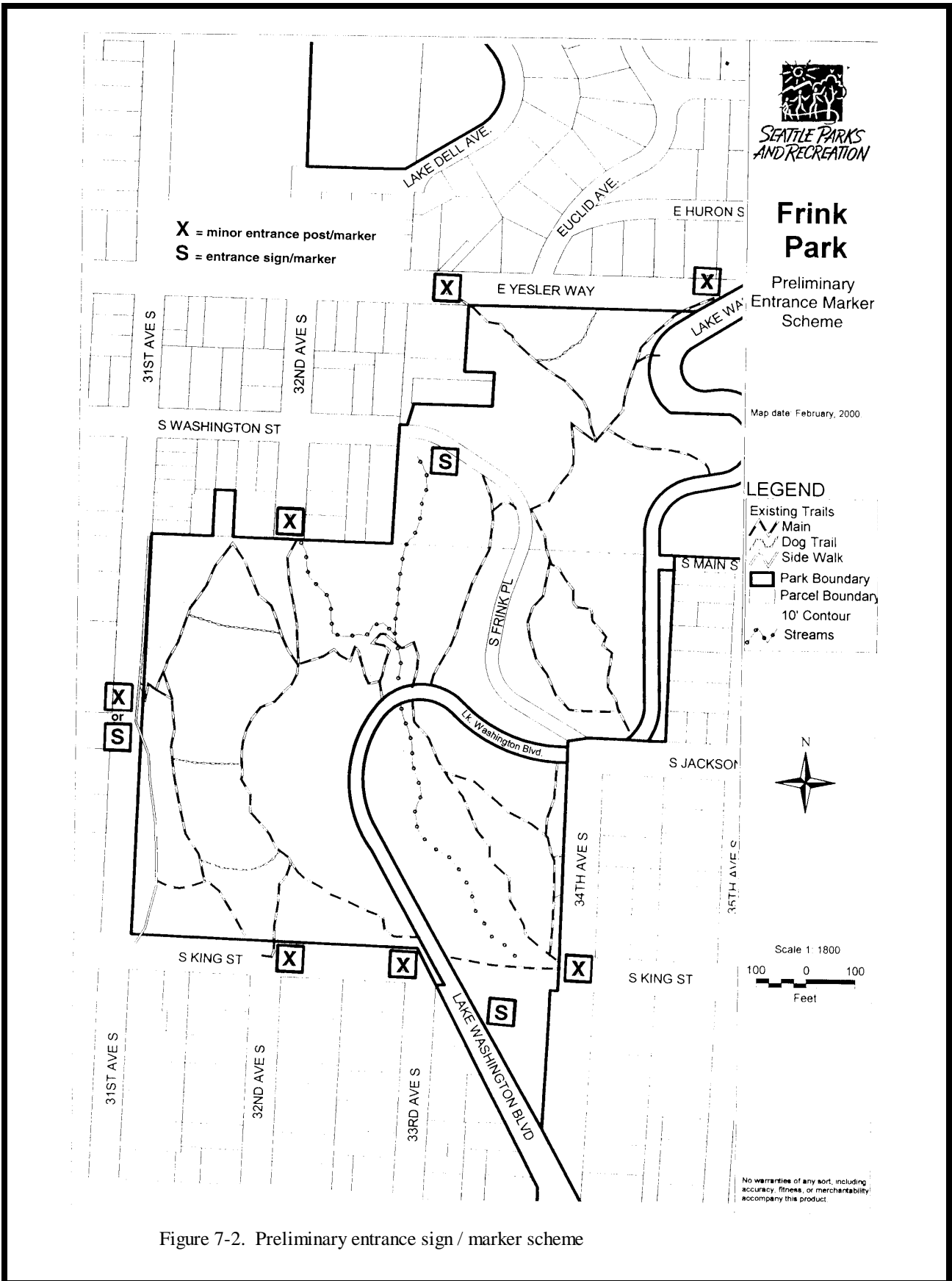


Figure 7-2. Preliminary entrance sign / marker scheme

well as those trail access points that are most visible and accessible along main roads (Figure 7-1). The five main vehicle entrances identified here are 31st and Jackson, Lake Washington Boulevard at the north and south ends of the Park, and S. Frink Place and Jackson at the west and east edges of the Park respectively.

Major trail access points are much more difficult to define because there is a profusion of widely dispersed entrances around the entire edge of the Park; most trails do not originate at a particular formalized parking lot/park entrance/trailhead. Major pedestrian entrances are defined here as those that are along major travel corridors in the Park and are the most highly visible to the public. The intersection of 31st and Jackson is considered a major entrance for vehicles and pedestrians alike, because the Park is highly visible to a motorist cresting the ridge driving east on Jackson St., as well as an obvious greensward for those driving along 31st. This was historically proposed to be a major pedestrian access to the Park, and it is also the only trail access for those living at the highest elevation end of the Park. Other major pedestrian entrances are those that are located along Lake Washington Boulevard and S. Frink Place. As identified in Figure 7-1, major entrances total 12.

Given the numerous major entrances, it would be undesirable, impractical, and probably unnecessary to designate or sign all or even a majority of them particularly since many of the entrances are clustered where trails converge, as in along the boulevard at the waterfall area. Therefore, locating markers or signs on the most traveled routes that are most visible, and offer an opportunity to identify the Park without intruding on the experience of the Park is recommended (Figure 7-2). Identifying Frink Park with an entrance marker at the west end of S. Frink Place and at the south end of the Park on Lake Washington Boulevard would allow most people traveling through the Park by bike or car to know they have entered the Park. With clear identification of the Park along the vehicular thoroughfares, demarcating all twelve trail entrances (marked with **M** on Figure 7-1) along these routes would not be necessary.

A simple but solid park identification marker made of natural materials, that identifies Frink Park, fits the historic context of the naturalistic park, and also connects it to the rest of the Olmsted park and boulevard system is suggested for designation of Park entrances. Entrance marker styles that have been discussed include the stone gateposts at the Arboretum and at Interlaken Boulevard as well as more contemporary markers using cast concrete like those at Mt. Baker beach (Figure 7-3). Regardless of the design style chosen, entrance markers should either replace or incorporate the standard DPR “rainbow signs” currently in place at 31st and Jackson, and on Lake Washington Boulevard at the south end of the Park.

Action 2: FFP continue public discussion and meet with DPR and FSOP to discuss marker or sign options for major entrances as part of Phase II of the sign plan. Prioritize locations. Determine design detail for marker(s) as well as precise location(s). Get cost estimate for work (design and construction) and secure funding for project.

31st and Jackson Entrance

Placement of an entrance marker at 31st and Jackson is only recommended if numerous infrastructure elements (Figure 7-4) already present at the intersection area are rearranged to reduce the visual clutter and create a more functional space. Because 31st and Jackson is



Figure 7-3. Entrance markers at other Olmsted Parks in Seattle – from left to right, Interlaken Boulevard, Washington Park Arboretum, Mount Baker Park.



Figure 7-4. Entrance to Frink Park at 31st and Jackson St.

considered an important entry to the Park, it is recommended that further investigation be done as to the feasibility of doing a re-design there including replacement of the metal guardrail with a steel-reinforced wood barrier or stonework (see Goldmark Overlook at Madrona Way S. and Lake Washington Boulevard for an example). This entry would designate the Park to passers-by and create a better trailhead/entryway at that location to improve the link between the upper ridge and the Leschi lakeshore. Discussion of a major re-design at 31st and Jackson thus far has included the following considerations:

- 1) traffic and pedestrian safety at intersection
- 2) relocation of power pole to allow universal access along sidewalk
- 3) connection between trail entrance and street-scape “entrance”
- 4) visual reference between Frink Park and other Olmsted parks
- 5) difficulty of getting re-design approved based on aesthetic considerations only

Action 3: FFP work with FSOP, DPR, and SEATRAN to determine feasibility of and process for replacing metal guardrail at 31st and Jackson as part of a re-design of the park entry there. Determine design options, go through required public process, get cost estimate for work and secure funding for project if feasible.

Minor Entrances

Minor park entrances are defined here as pedestrian access points into the Park that are not located along major travel corridors and are not highly visible to the public. Five out of the six minor entrances are located at street-ends very close to residential dwellings (Figure 7-1). As such, the desire to designate a park entrance should be balanced with the need to minimize intrusion on neighbors. Minor entrances are primarily for neighbors themselves to use and are not intended to attract traffic from more general visitors to the Park. Minor park entrances are pedestrian entrances and should be designated at a pedestrian scale. A simple marker on a low wood or concrete post, with a graphic symbol that represents the Park (a cloverleaf in the same vein as the bridge on the Boulevard, for example), and the name of the Park, would be adequate to help define the public/private land edge without offending adjoining property owners or attracting traffic. In most cases it would probably be more practical to locate the marker at the trailhead rather than the property boundary itself. Further discussion as to the prioritization of marking the trail entry or the actual property boundary is suggested. Some sketches of the general style of marker that might be used for minor park entrances are shown in Figure 7-5.

Action 4: FFP continue public discussion and meet with DPR and FSOP to discuss sign options for minor entrances as part of a later unprioritized phase of the sign plan. Determine design detail for sign symbol and post or other mounting system. Get cost estimate for work (design, fabrication, and installation) and secure funding for project.

7.5 Dumping

Dumping of yard waste and garbage in the Park is a common problem, especially along roadsides through the Park (Figure 7-6). Dumping often occurs at the north end of S. Frink Place particularly on the north side of the road, at the waterfall area along Lake Washington Boulevard, and along the east side of Lake Washington Boulevard at the road pullouts located in the south half of the Park. Drive-through dumping is hard to prevent, but ensuring that traffic cannot easily stop by the side of the road would help alleviate the problem. Blocking off the

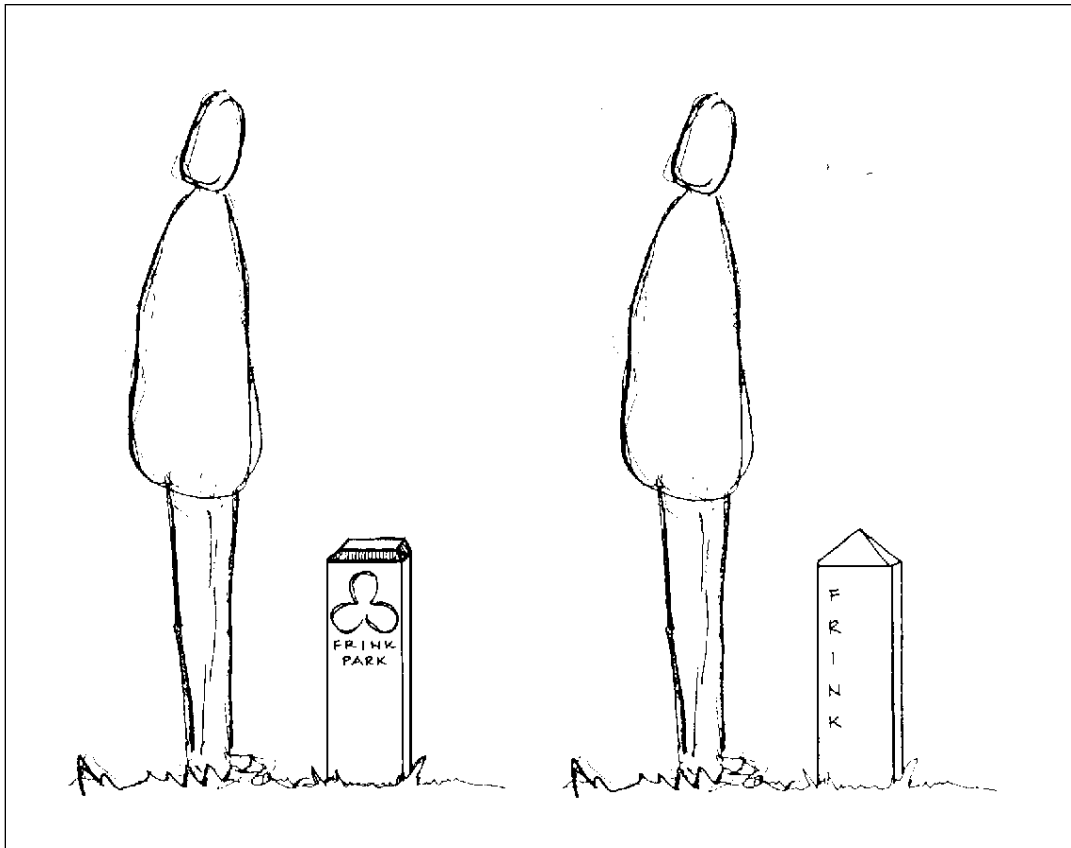


Figure 7-5. Example sketches of minor Park entrance markers that could be constructed from wood or concrete.

road shoulder at the waterfall area, which is a muddy eyesore anyway, and blocking the unpaved road pullouts along the Boulevard would probably reduce the dumping by not providing places to pull off the road. Dumping should be reported to Seattle Public Utilities Solid Waste Services Graffiti/Litter/Illegal Dumping Hotline at 206-684-PKUP. Reporting dumping incidents promptly and keeping favorite dumping areas cleaned up should help discourage this practice. Dumping of yard waste from residential properties can be addressed by a neighborhood education program that is discussed in Section 7.6.

Action 5: FFP meet with DPR to discuss the option of blocking and re-vegetating the unpaved road pullouts along Lake Washington Boulevard. Blocking the pullouts could be as simple as installing a log barrier as currently exists along portions of the Boulevard. This should be coordinated with efforts to create a Boulevard-side trail and could be part of an effort to create a consistent road edge treatment of bollards, log barriers, and/or curbing throughout the Park and even the network of parks along the boulevard system.



Figure 7-6. Typical roadside dumping in Frink Park along Lake Washington Boulevard.

7.6 Recommendations for Encouraging Compatible Neighboring Landscaping

Residents owning properties directly adjoining the Park can play an important role in its maintenance and in controlling invasive species, which have historically been key problems negatively affecting forest health in the Park. Many residents have no idea that species such as ivy and laurel are not native and are detrimental to the health and diversity of native plant communities. Invasive species are, by definition, species that easily spread into disturbed areas, often by creeping rhizomes. They are also spread by birds and animals, and by seeds carried on the wind. Even neighbors who are near the Park but not directly adjacent to it may have invasive species in their yards that could create a problem for the Park. Rather than just telling neighbors what species not to plant in areas near the Park, it is more helpful to provide them with a list of species that they can plant safely. There may be edge areas of the Park that can be used as demonstration areas to show groupings of plants appropriate to residential gardens. A neighborhood education program is crucial in improving and maintaining optimal forest health. Information provided to neighbors should include:

- explanation of the detrimental effects of dumping yard waste in the Park;
- explanation of the value of downed (fallen) wood in the Park;
- an illustrated list of invasive plant species, including those that neighbors should uproot in the Park if they see them, and those that can easily spread from a neighbor's property into the Park;
- a list of desirable plant species (native and non-native non-invasive) that are also good for wildlife; and

- tips for neighbors to help maintain trails in their particular corner of the Park.

Action 6: FFP work with DPR to develop a kit of materials to be distributed to all Park neighbors once the concept plan is in place and the vegetation restoration is underway. This kit should include the features described above.

7.7 View Corridor Issues

The establishment of view corridors or restoration of previously existing view corridors from points above the Park through to the lake and/or mountains by removing vegetation in the Park for that purpose will not be a consideration in this plan. Residents have always had, and will continue to have, the option of making an individual request to DPR for the cutting and maintenance of trees on DPR property near their home. In many cases DPR has complied with such requests, however Park neighbors should realize that DPR's primary concern is the health of the forest.

7.8 Right-of-Way Issues

Some Park boundaries are separated from private residences by rights-of-way that are undeveloped (in a wild state) or underdeveloped (narrow driveways maintained by adjacent property owners). These rights-of-way fall under the jurisdiction of SEATRAN and are public rights-of-way, though they are not parklands. As these right-of-ways are not under DPR jurisdiction, DPR has no plans to install permanent features such as trails, benches, or parking lots in these areas, nor are there any plans for the vacation of any of these rights-of-way. Rights-of-way cannot be unilaterally vacated by DPR for park use, nor can DPR develop half of a right-of-way since the remaining corridor may not be wide enough for future street development. The concept plan does not include any features that would encroach on these public rights-of-way. Particular concerns raised by residents include:

- Some properties are landlocked and currently accessed only by easements over other private properties. Owners would like to preserve the long-term option for access that the right-of-way provides.
- Property owners with driveway access along undeveloped rights-of-way want to preserve the long-term option to have the right-of-way developed into a proper street in the future.
- For properties with access through underdeveloped rights-of-way, turn-around space is often limited and extensive vehicular use by Park-goers could block resident access and emergency vehicle access.

7.9 Boulevard Trail

Section 5 of the concept plan describes a proposed Boulevard Trail paralleling Lake Washington Boulevard along the east side of the road to accommodate safer pedestrian use of this Park thoroughfare. The Boulevard Trail as proposed would be on DPR and or/SEATRAN's property along its entire alignment and should not have any negative effects on private property owners. Pedestrian use currently occurs along the entire route of this proposed trail from the south end of

the Park to the tennis courts and parking lot in Leschi Park along the muddy and uneven road shoulder of the boulevard. A more detailed description of the proposed trail appears in Section 5 of this plan. This trail existed earlier in the Park's history as described and shown in Section 3.

As plans for the Boulevard Trail develop, close attention should be paid to the entire Park edge along Lake Washington Boulevard with regard to design details. Frink Park should be consistent with other Boulevard parks, such as the Arboretum, Interlaken, and Colman Park, as far as curb, bollard, and guardrail details.

8.0 EDUCATION/PUBLIC OUTREACH PLAN

8.1 Existing Program - Friends of Frink Park and Existing Work Parties

Friends of Frink Park (FFP) currently does not have formal regularly scheduled meetings, but as the group has solidified and identified goals throughout this planning process, committee chairs continue to meet with increasing regularity as the planning phase evolved into implementation of the Concept Plan. FFP also continues to conduct monthly work parties throughout the year on the third Saturday of each month. Work parties are coordinated with the Department of Parks and Recreation (DPR) Trails Coordinator, DPR Urban Forester, and/or TREEmendous Seattle, depending on the nature of the work to be performed. Currently, FFP does not have a formal education or outreach program in place; although, that is expected to change as plan elements including Education/Public Outreach are implemented. The group's major outreach effort at this time is to provide guided walking tours within the Park. FFP is also pursuing coordination with local schools to integrate learning and stewardship opportunities at Frink Park with classroom activities.

8.2 Goals

The success of a volunteer organization lies largely in its ability to engage its volunteers in worthwhile activities that provide gratification for individual participants. Therefore the goals of FFP with regard to stewardship should focus not only on how volunteer participants can contribute to improving and taking care of the Park, but also on what benefits that participation can give to those who offer their time and energy.

Thus far FFP has concentrated their efforts on monthly work party walking tours and generating this concept plan that will guide their work in the Park and assist them in getting outside funding for Park projects. Setting goals for the future, including broadening the volunteer base, increasing educational opportunities for Park users grant writing and assessing progress in implementing the plan should be discussed at upcoming FFP meetings. Discussion of the future organization of FFP should also occur, including an assessment of how the Education/Public Outreach Plan might best be implemented. An efficient and streamlined group structure is the key to inspiring participation, enthusiasm, and clarity of purpose, all of which will help to produce tangible results in the Park leadership and stewardship issues are further discussed in section 10.2.

8.3 School Outreach Program

FFP could involve students at local schools in discovering the stewardship and educational potential of Frink and Upper Leschi Parks. The following local schools could be approached to assess the level of interest among teachers and students in developing long-term programs for learning and stewardship by students at the Park: Leschi Elementary School, Madrona Elementary School, Washington Middle School, Garfield High School, Franklin High School, Bush School. Preliminary contacts have already been made with interested teachers at Leschi Elementary School, Washington Middle School, and Garfield High School. FFP could do a brief presentation at staff meetings for each school that shows an interest. Parent steering committees,

parent volunteers, and parent-teacher groups might also be good sources for organization and program planning. Programs that would interface with the opportunities at Frink Park and are already in place at some schools include Earth Service Corps at the high school level, and service learning programs at various grade levels.

Supervised groups of students could take part in a series of regular FFP work parties where learning is integrated with the work experience through the participation of naturalists, ecologists, or historians. Ideally, the school or individual teacher would choose to involve their students over a period of time, perhaps even “adopting” a specific area of the Park to learn about, work in, and observe over the course of a school year or more. Student involvement could take many forms and would largely be determined by the imagination and interest of not only the students but the teachers. Some teachers might only be interested in a one-time field trip in the Park, whereas others may choose to use the Park as a focal point for teaching a unit on biology, creative writing, or history. Notices of all work parties or tours could be distributed to the local schools, so that teachers and parents can become acquainted with the educational and service work possibilities provided by Frink Park.

8.4 Park Stewardship Program

Successful stewardship of Frink Park means an attitude brought to practice at a community-wide level. The attitudes and investment of the occasional Park user are just as important as those of the person who participates in all the work parties. Support and caring for the Park are valuable at all levels of involvement. The effectiveness of the stewardship program can be gauged by how the Park is used and regarded.

Possible elements of a stewardship program:

Component 1 - Regular work parties

Currently, a three-to-four hour work party on the third Saturday of every month reflects the reasonable limit for accomplishing efficient work and drawing sufficient volunteers.

Component 2 - Ongoing recruitment of volunteers

Volunteers can be added by getting the word out about how and why the community is working together to improve and maintain the Park, using such methods as word-of-mouth, telephone trees, articles in local newsletters, the web site, walking tours, and posting information in kiosks in the Park. Results of the written survey conducted during the Concept Plan development process included responses from 24 people who were interested in volunteering their time. Some respondents offered specific skills or interests, while others did not state preferences.

Component 3 - Volunteer coordinator

A volunteer coordinator's responsibilities might include: notifying the community of Park news and events using the methods listed above; planning the work to be done at work parties with the help of FFP committee chairs; coordinating and providing liaison with other volunteer groups (see #4 below); and making sure that adequate supervision and leadership is provided at the work parties. The position of volunteer coordinator could be shared by several people or could be rotated on an annual or biannual basis, so that the institutional memory of the position does not rest with one person alone, and so that any one person is not shouldering this responsibility by themselves.

Component 4 - Outreach to other volunteer groups

There has been increasing participation in stewardship by many organizations, such as corporations, schools, youth organizations, and church groups, often spurred by the efforts of TREEmendous Seattle, AmeriCorps and City Year, and the Volunteer Coordinators of DPR. Fostering long-term relationships with any of these groups could result in a regular and known source of additional labor in the Park.

FFP should be in communication with the Friends of Seattle's Olmsted Parks regarding efforts to get the Olmsted Park system in Seattle on the National Historic Register, and for information and assistance regarding the historical and cultural aspects of Frink Park.

Component 5 - Recognition of accomplishment

Part of providing leadership is making sure that progress and accomplishments are recorded and that participants are thanked. Participant lists can be displayed on kiosks and can be printed in community newsletters or read at community meetings. Other possibilities are sending thank you cards, making phone calls of thanks, token gifts, and having special volunteer recognition events.

Component 6 - Stewardship education for Park users

The extent of active stewardship is enhanced by broadening the understanding of Park users of the health and nature of the ecosystem. Information in kiosks and sensitively located interpretive signs can help provide this information. Especially useful is explanation of special projects, such as creek renovation or restoration of priority areas. Articles in the local newspaper, walking tours, and special programs about the ecology and geologic history of the area should likewise be used to expand appreciation of the Park and its unique characteristics.

Component 7 - Education for participants in work parties

Another important way of fostering stewardship is through education. Participation in caring for the Park can be encouraged by offering the expertise of wildlife biologists, botanists, ecologists, and cultural historians to get people excited about the resources that the Park offers. To foster an atmosphere of inclusion, educational opportunities should not be reserved for those that already know about the Park, and volunteer their time, although there could be some special events for those who are actively working in and for the Park. The following is a list of organizations that could contribute expertise, in addition to the resources available in the local community.

Seattle DPR: has naturalists on staff at Carkeek Park, Discovery Park, and Camp Long that could be guest presenters or walking tour guides. Contact: Carkeek at 206-684-0877, Discovery Park at 206-386-4236, Camp Long at 206-684-7434. Also contact Patricia Young, Adopt-a-Park Coordinator, Central Division of DPR for help in scheduling Park naturalists for walking tours of Frink Park.

Audubon Society: has knowledgeable staff and citizen members who could be approached to give walking tours or presentations about birds and other wildlife. Contact local chapter of Audubon Society 206-523-4483.

University of Washington: graduate students in Zoology, Forestry, and Urban Horticulture might be approached to share their knowledge on any number of topics

Washington Native Plant Society: has members who could be approached through the monthly newsletter, also has a Native Plant Stewardship Program which requires program participants to give back a number of volunteer hours to the community that form an annually renewed pool of available knowledgeable program graduates. Contact: Native Plant Stewardship Program Coordinator at the Washington Native Plant Society 206-760-8022.

WSU Cooperative Extension King County: has a Land and Water Stewardship Program that also trains volunteers and requires them to give back volunteer/outreach hours to residents of King County. Contact Marilyn Freeman (Coordinator) at 206-296-3986.

King County Wetland Plant Cooperative: staff does some community outreach and education to teach people about seed collection and propagation of wetland plants. Also has program that allows volunteer groups to trade work at the nursery for wetland plants. Contact: King Conservation District at 206-764-3410.

King County Native Plant Salvage Program: staff does limited community outreach and education to teach people about native plant propagation. Contact: Greg Rabourn at 296-1923.

Component 8 - Individually-maintained areas

Allow volunteers to adopt specific sectors of the Park. Individuals or families can adopt sections of the Park, likely the closest areas to their homes, for on-going maintenance. There are many people who already police or weed parts of the Park on a frequent basis. Credit should be obtained for their hours of work. Also, community work parties could periodically concentrate on individually-maintained areas to complement and provide a boost to these efforts.

Component 9 - Newsletter and website

Publish a regular newsletter, either as an insert to the Leschi News or as a stand-alone bulletin. A newsletter could be used to notify the community of ongoing work projects, to solicit input as plan elements are implemented, and as an educational forum. The website, which is already up and running, should be updated regularly to encourage its use.

Component 10 – Grant applications and fundraising

Determine appropriate funding sources (see Section 10) and a work plan for the Park based on prioritization in the Concept Plan. Develop strategy and/or schedule for completing and submitting grant applications. Keep track of volunteer hours for matching funds.

8.5 Options Considered But Not Developed

Creation of a native plant arboretum in Frink Park

This proposal suggests expansion of the reforestation of Frink Park to include a “teaching arboretum” that would be a collection of all plant species native to Puget Lowland forests. The plants would not necessarily be labeled, but would be inventoried as specimens and inspected annually. This arboretum would be a resource for local schools and universities, and could be used for research. This proposal has not been further developed due to apparent lack of broad support throughout the public planning process, and low prioritization. However, this project could be undertaken by a small group of dedicated individuals without undermining any of the expressed goals in the Forest Plan. The public support for such a project should be determined before taking action.

8.6 Recommendations for Interpretive Signs

Any interpretive signs installed in the Park should be sensitively placed so as not to detract from the natural and historic character of an area. While Park users have expressed interest in learning more about the Park's features, particularly its history, they are generally opposed to the placement of interpretive signs within the Park's inner core. However, it is also generally agreed that in most cases it is desirable to locate an interpretive sign near the element that is being interpreted. The kiosks (Figure 8-1) at 31st and Jackson St., and at the Frink Pl.-Lake Washington Boulevard intersection would be excellent places to post interpretive signs that have time-sensitive information. Using the kiosks for "rotating" signs would be a good way to impart information that would be new and different over a period of time. This would also be a good way to address the placement of signs in a phased approach by initially placing any interpretive materials in the existing kiosks to gauge public opinion on content. More permanent all weather interpretive signs (Figure 8-2) are only recommended as part of a later as yet prioritized phase of the sign plan if the sign content and design are well-thought out and done by an interpretive sign specialist that does high quality work. If more permanent or static interpretive signs are desired, any of the following locations are suggested as the least intrusive (Figure 8-3). All of the locations described below were chosen with the following criteria in mind:

1. site has existing substantial and visible human impact or structures
2. site is on an edge, not within wild Park interior
3. site has or will have interpretive feature
4. site and its viewsheds will not be compromised by addition of sign

These criteria and thus possible sign locations may be modified as further more conclusive public discussion occurs. Refer to Section 9 for information on the comprehensive sign plan that includes interpretive signs.



Figure 8-1. Seattle DPR kiosk installed at 31st and Jackson and near the caretaker's cottage

Caretaker's Cottage Area

This site has a lot of visible human impact that would probably not be compromised aesthetically by the placement of an interpretive sign. A sign here could focus on plant community restoration efforts and the goals for this area focused on the dominant forest type (Bigleaf Maple-Pacific Madrone and how it will change over time.) A sign describing the Park's history might include an overview of the Olmsted Park and Boulevard System in Seattle, of which Frink is a part, and highlight the old tramways that existed at Jackson and Yesler. Alternatively, a sign could focus on earlier human history in pre-contact times and ethnobotany.



Figure 8-2. Example of a pedestal-mounted interpretive sign

Yesler right-of-way atop the old trolley bridge / Leschi Park

This site also has a lot of visible human impact that would not be compromised significantly by the placement of an interpretive sign. The Yesler tramway was located here, and is a great interpretive element to take advantage of, as well as Leschi Park and the lakeshore. There are numerous good historical photographs of the old tramway and forest, the pleasure park and zoo at Leschi Park, and the lakefront. Care should be taken not to obscure views to the lakeshore. Sign could be placed on north-facing wall of bridge or in the tennis court area of Leschi Park.

Forest location where restoration efforts are focused and visible

A visual explanation of the managed changes in an urban forest over time would be appropriate in Forest Zone 2, which is the most prevalent forest type in the Park. The best location for such a sign would be either just inside the 31st and Jackson entrance, or at the wooded edge of the meadow in the southwest corner of the Park at 31st and King so that readers of the sign would

actually be standing under forest canopy, or somewhere deeper in the interior at a specific reforestation site. A sign highlighting the aquatic resources in the park could be located at one of the stream or wetland restoration sites, but any of these locations would be well within the Park's interior and are not recommended at this time due to the need for further public discussion on this topic.

Specific text for an interpretive sign depends on the audience, which should be the subject of careful consideration when determining whether or not interpretive signs are desired, and then deciding what their content should be.

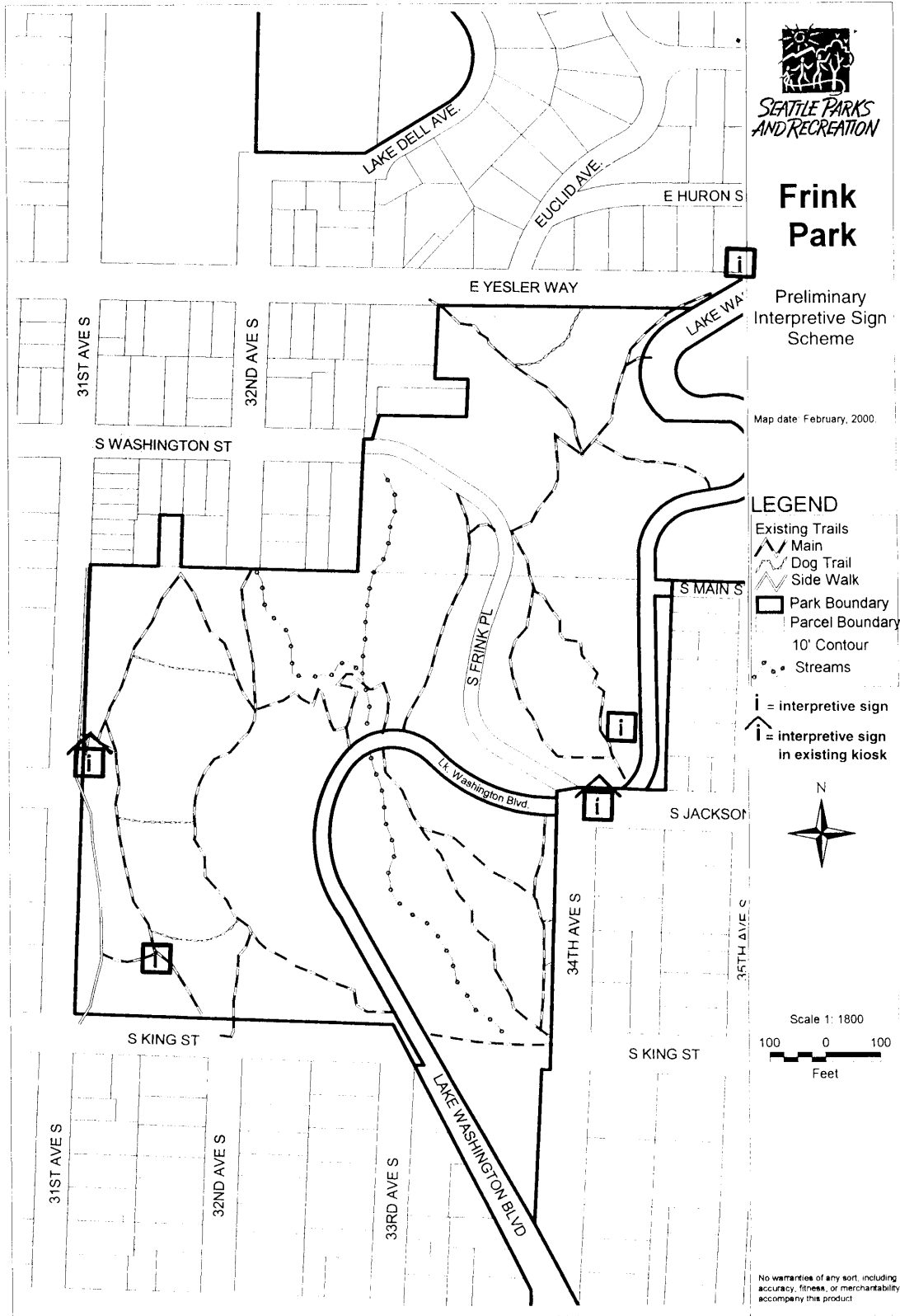


Figure 8-3. Preliminary interpretive sign scheme

9.0 SIGN PLAN

9.1 Existing Signs, Park Entrances, and Trail Intersections

Signs in the Park are currently limited to the following: Seattle Department of Parks and Recreation (DPR) standard Park “rainbow signs” at 31st and Jackson and on the east side of Lake Washington Boulevard at the south end of the Park. Both of these signs identify the Park by name. There are also two Seattle DPR kiosks that were installed as part of the concept planning process at 31st and Jackson, and at the intersection of S. Frink Place and Lake Washington Boulevard near the caretaker’s cottage area. There are no interpretive signs in the Park.

Vehicles driving through the Park enter via Lake Washington Boulevard at the north and south ends of the Park, as well as via S. Frink Place at the northwest and east sides of the Park. Although 31st does not bisect the Park, this heavily traveled street forms its western boundary, and the Park is highly visible, if not recognizable as a park, from a car driving along 31st.

Pedestrians enter the Park in a myriad of places. Established trail access points exist at 18 locations as follows listed roughly from north to south and shown in Figure 9-1: E. Yesler Way street-end, E. Yesler right-of-way at old trolley bridge, Lake Washington Boulevard west of Leschi Park tennis courts, Lake Washington Boulevard north of S. Leschi Pl., both sides of Frink Pl. in Upper Leschi Park, S. 32nd St. street-end south of Washington St., four trail entrances on Lake Washington Boulevard at the Frink Creek bridge and waterfall area, the intersection of Lake Washington Boulevard and S. Frink Place, 31st and Jackson, 32nd and King St., south end of the Park on both sides of Lake Washington Boulevard, 33rd St. street-end at King St., and King St. street-end at 34th. A number of other informal neighborhood entrances exist as well. None of the established trail access points are marked or signed in any way to indicate a trail or park, except 31st and Jackson (DPR “rainbow sign”, and kiosk), and the intersection of Lake Washington Boulevard and S. Frink Place (kiosk).

The trail system in Frink and Upper Leschi Parks is not intuitive to the first-time user. The steep slopes and fairly dense vegetation, as well as the division of the Park into three distinct areas due to bisecting roads, can make it difficult to visualize where a particular trail may be leading. Currently there are no trail directional signs or maps anywhere in the Park. There are a number of trail intersections within the Park interior that, if signed appropriately, could lead the Park user along a continuous loop trail or to a particular destination such as the lakeshore, instead of taking someone out to the Park edge or street prematurely.

9.2 Goals

The lack of signs in the Park contributes to some of the Park’s anonymity, an ambiguous ill-defined Park boundary, and a trail network that is only comprehensible to those who already frequent the Park. Without entrance signs and other visual cues that differentiate park property from private land it is difficult for passersby to know they are in a public space – comments at public meetings have included statements that even some people living in the Park’s locale have always thought it was private land. Outside the immediate Leschi-Madrona neighborhood, Frink Park is not well known. Of the numerous street access trail entrances to the Park, only the one at 31st and Jackson is indicated by the presence of a park sign. A perceived lack of safety by some

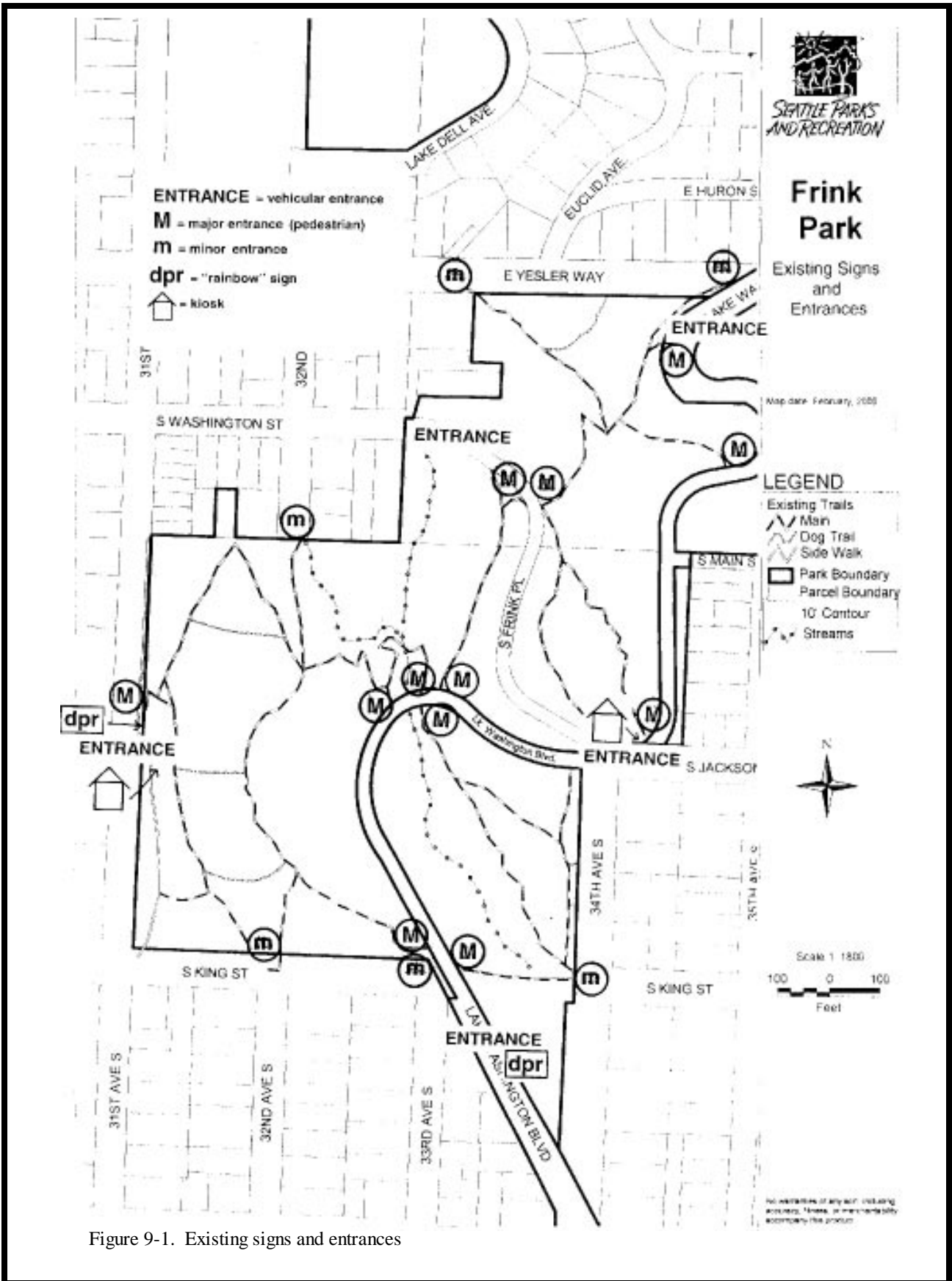


Figure 9-1. Existing signs and entrances

users and potential users might be addressed by the addition of signs and/or markers to improve the Park's familiarity and increase the human presence in the Park. The lack of interpretive signs in a park that has significant ecological, cultural, and historical features can be viewed as a lost opportunity to educate park users and enhance their enjoyment and understanding of place.

At the same time, public comment on numerous occasions has made it clear that the unobtrusive and hidden nature of the Park is also one of its greatest assets. There is some feeling that "publicizing" the Park by installing signs will rob it of its peace and quiet as well as decrease its visual aesthetic, and that disrupting the intimacy of the forest surroundings with trail signs and/or interpretive signs will diminish some of the Park's most valuable assets. There is also concern that installing interpretive signs at some of the more significant Park features will destroy the character inherent in that particular place. In addition, there is a desire that the placement of signs at street-end access points be sensitive to neighboring residents' concerns about privacy and parking at those locations.

The goal of the sign plan is a combination of park entrance markers, trail signs, and interpretive elements that provides a balance between the issues discussed above by improving the coherence of the Park's landscape without detracting from the experience of the Park that is most valued by its users. Any signs installed in Frink Park should fit with the character of a "natural" park and the historic rustic character of an Olmsted park, as well as reflect a consistent theme and style within the Park, and ideally with similar parks in Seattle's Olmsted system.

9.3 Sign Plan Phasing

Specific details of a comprehensive sign plan are beyond the scope of this concept plan, nor was adequate consensus reached during the planning process to determine the particulars of sign and marker locations, sign and marker styles, and how the process of prioritizing implementation of a sign plan should proceed. There was general agreement with the broad goal of the sign plan as stated above in Section 9.2, but the means to achieving that goal have yet to be decided. In light of this, a phased approach to further planning and implementation is being recommended. Obviously this approach can be modified and expanded, as well as minimized, depending on the outcome of further planning efforts and public discussion amongst the users of Frink Park.

Phases are listed, briefly described below, and shown in Figure 9-2 as a possible scheme:

Phase I

Trail Maps in Kiosks

Better way-finding and an introduction to the Park's trail system can be easily provided by creating trail map signs that can be laminated and posted in the existing kiosks. These maps could be a preliminary prototype for a trail map sign that could be produced in a different medium (e.g. etched metal or laminate) to be used as a weatherproof trail map sign posted in other locations in the Park if desired. Feedback from the public on the preliminary paper signs can guide the fine-tuning of the final design for permanent signs. If additional permanent trail map signs are not desired, the laminated paper signs in the kiosks would provide park users with a guide to the trail network in the Park at low-cost, that is easily replaceable, can be easily updated if computer generated, and would not result in any additional signs as the kiosks are already in place. At this stage in the planning process there

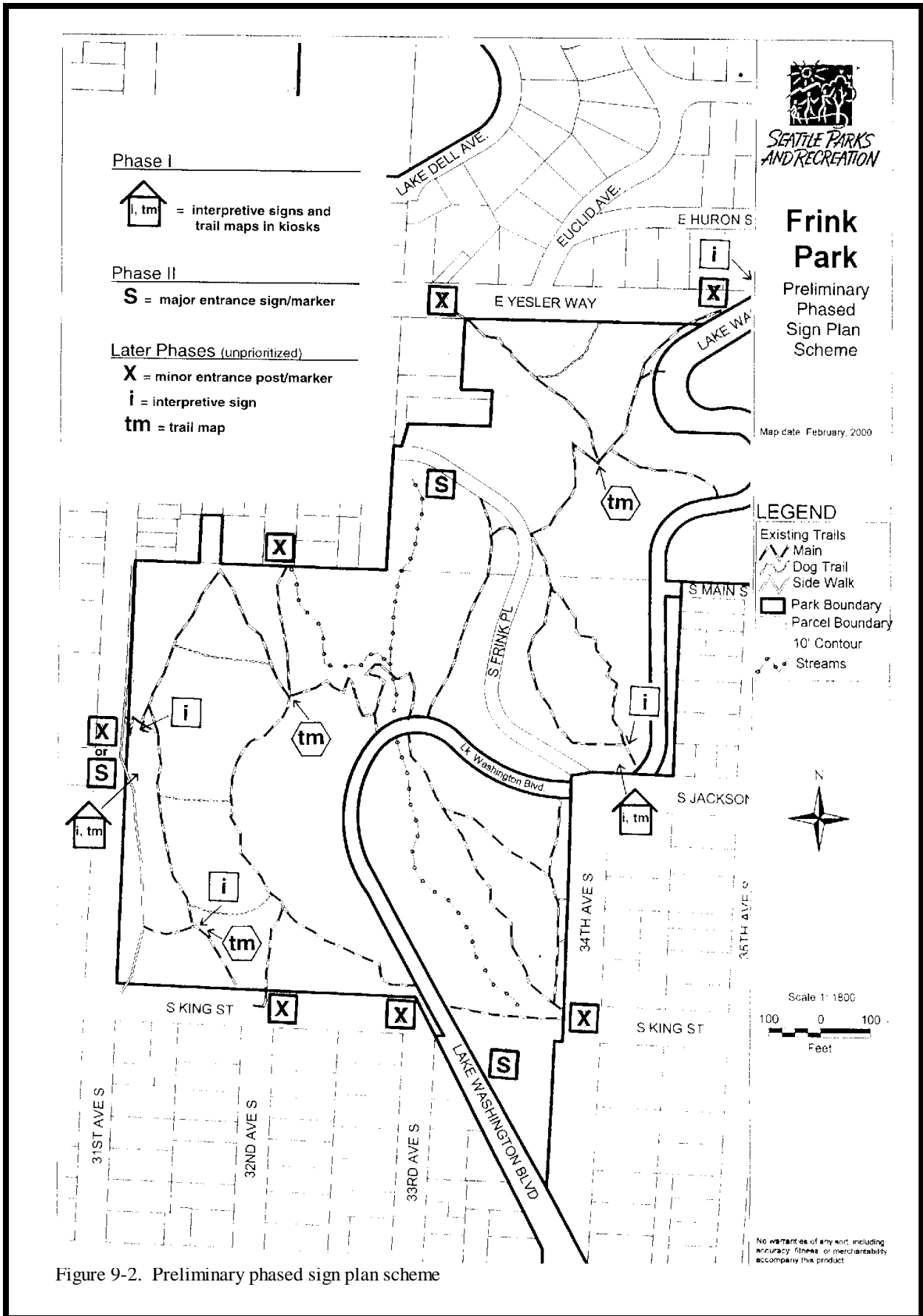


Figure 9-2. Preliminary phased sign plan scheme

seems to be general agreement that providing a trail map for the park is desirable. However, the specific issues having to do with sign style and location(s) should be further discussed before final decisions are made. Some recommendations that might be useful are provided in Section 9.5. Until these issues are resolved, installation of laminated paper trail maps in the existing kiosks is recommended at this time.

Interpretive and Educational Materials in Kiosks

Interpretation of the Park's distinctive features and history can be provided by posting information in the existing kiosks. As with the trail map signs described under Phase I, these paper signs could be used to gauge what the level of interest is in creating permanent interpretive signs in the Park, and to assess what Park users are most interested in learning about, where permanent signs should be located, and what the signs might look like by posting different options on paper in the kiosks. If permanent signs are not desired, the kiosks can be used for rotating displays of time sensitive information (e.g. seasonal) that might be created in part by students participating in the school outreach program described in Section 8. Thus far, there seems to be general agreement that some interpretation of Park elements is desirable. However, discussions and public feedback about interpretive signs in the Park have not been conclusive with regard to whether or not signs should be permanent or in the kiosks, where they should be located if not just in the kiosks, what they should look like, and what fabrication material should be used. These variables are further discussed and some recommendations are made in Sections 9.4, 9.5, and 9.7. Until these issues are resolved, posting of interpretative information in the existing kiosks is recommended at this time.

Phase II

Major Entrance Markers

Some improved designation of the major Park entrances has been identified as a desirable goal during the planning process. Specific conclusions as to which entrances are considered "major" and should be marked in some way (both vehicular and pedestrian), and what kind of markers should be used have not been reached by the design team. However, a description of some suggested design guidelines for the designation of major Park entrances as defined in this plan is provided in Sections 7.4 and 9.6 as a set of preliminary recommendations. Determining which entrances should be prioritized for designation by establishing a set of criteria with which to evaluate all possible entrances is recommended. Once this has been done, the specifics of marker design can be determined, again by establishing a set of criteria to be met by the design that is ultimately chosen.

Components of Later Phases Yet to be Prioritized

Minor Entrance Markers

Some improved designation of the minor Park entrances has been identified as a desirable goal during the planning process, but has not yet been prioritized within the sign plan. Specific conclusions as to which entrances are considered "minor" and should be marked in some way, and what kind of markers should be used have not been reached by the design team. However, a description of some suggested design guidelines for the designation of

minor Park entrances as defined in this plan is provided in Sections 7.4 and 9.6 as a set of preliminary recommendations. Determining which entrances should be prioritized for designation by establishing a set of criteria with which to evaluate all possible entrances is recommended. Once this has been done, the specifics of marker design can be determined, again by establishing a set of criteria to be met by the design that is ultimately chosen.

Interior Way-finding/Directional Trail Markers

Discussion and feedback during the planning process having to do with how to provide way-finding or directional trail markers within the Park interior was inconclusive, and providing such markers has not yet been prioritized within the sign plan. The specifics of marker location and design were not determined, but if way-finding markers are to be included in the Park, there was a general preference for some kind of directional post or marker at some of the trail junctions and/or entrances to guide users. A more detailed description of some of the more prevalent ideas that were discussed can be found in Section 9.5. Obviously, further planning should not be limited to the ideas outlined.

Permanent Interpretive Signs

If decisions made in Phase I determine that permanent interpretive signs are desirable, sign locations and sign style/design will also need to be determined. Sections 9.4 and 9.7 include information on different styles and materials to consider, as well as some preliminary recommendations as far as sign placement and locations.

Permanent Trail Map Signs

If decisions made in Phase I determine that permanent trail map signs are desirable, sign locations and sign style/design will also need to be determined. Sections 9.4 and 9.5 include information on different styles and materials to consider, as well as some preliminary recommendations as far as sign placement and locations.

9.4 Sign Styles and Costs

There are numerous methods and materials to use for signs. The choice that is made depends on many variables, not the least of which is cost. The main consideration is what the signs are to be used for - directional, interpretive, regulatory. Other major factors include: vandalism, weather exposure, initial design/manufacture and subsequent maintenance and replacement budget, color vs. black and white, use of photographs/line drawings/text. Below is a brief comparison of some of the available materials typically used for signs. Excellent online sources of information about signs are: the website of the National Association of Interpretation www.interpnet.com/greenpages/signage.htm, and the National Park Service's Wayside Exhibit Homepage www.nps.gov/waysite. Sign cost is one of the hardest things to pin down until there is actually a design for a particular sign in hand to show a manufacturer. Costs are mostly shown as a relative comparison between different kinds of signs. For several of the materials an actual cost is shown for a specific sign that was sent out to several manufacturers for cost comparison.

WOOD

Best Uses:

Where rustic or natural appearance is important. Local examples of wood signs are everywhere. Combinations of wood posts and attached plaques in particular are used in places like REI downtown to identify plants in the constructed native plant landscape, at Mercer Slough Park in Bellevue for directional signs, and at any USFS or NPS campground or trailhead (Figure 9-3).

Options:

Sandblasted, carved, routed, painted



Figure 9-3. Examples of wood signs

Advantages:

- Natural, blends in with landscape
- Three-dimensional, can be shaped, carved
- Unique, each sign is different
- Weathers and ages for a rustic look

Disadvantages:

- Expensive to customize
- Copies require same effort and cost each time
- Easily vandalized and carved, hard or impossible to clean or repair
- Detailed graphics are more expensive and less durable

Cost:

Depends on degree of detail and complexity (carving vs. lettering only) but can range from relatively low cost to fairly expensive for a custom carved sign. Since wood signs are easily damaged, replacement costs will probably be ongoing and regular.

EMBEDDED FIBERGLASS**Best Uses:**

Where detailed graphics are desired, such as interpretive signs and exhibits. Where numerous copies of the same sign are desired, such as trail directional or rule signs. Can be made using screen-printing or digital imaging process. A local example of this type of sign can be seen at Golden Gardens Park that has three or four interpretive signs made of this material.

Advantages:

Durability, resistant to rain and graffiti, fairly resistant to impact
Duplication, copies easily made
Graphic detail is very high
Color range is very high
Photographs can be used with high resolution by scanning into computer

Disadvantages:

Color is subject to fading and yellowing over time due to UV
Requires framing and backing
Easily scratched with sharp object
If screen-printed, text and content changes are difficult to make

Cost:

Relatively cost-effective. For a 24" x 36" interpretive sign we received a bid of \$260 for the sign itself. This does not include the metal or wood frame that the sign would need, and the support structure needed if the sign is to be freestanding (e.g. pedestal mounted). It also does not include the cost of a proof (usually \$50-75 extra).

HIGH PRESSURE LAMINATE/PHENOLIC RESIN (DIGITAL IMAGING)**Best Uses:**

Where detailed graphics are desired, such as interpretive signs and exhibits. Where numerous copies of the same sign are desired, such as trail directional or rule signs. A local example of this material can be seen in a series of 5 interpretive signs at Meadowbrook Pond just east of Nathan Hale High School in north Seattle (Figure 9-4).

Advantages:

Durability, resistant to rain, UV, and graffiti, fairly resistant to impact
Duplication, copies easily made because sign is stored on a disk and created digitally
Graphic detail is very high
Color range is very high
Photographs can be used with high resolution by scanning into computer
Torsionally stiff and edge-finished, needs no frame
Versatile, can be cut, drilled, shaped to any dimension or shape
Resistant to solvents (lacquer thinner, citrus-solv, paint thinner) if needed to remove graffiti

Text and content changes easy to make if digital imaging is used

Disadvantages:

Easily scratched with sharp object, but resin is color saturated so image doesn't disappear
New technology so longevity not well-known or documented

Cost:

Relatively cost-effective. For a 24" x 36" (1/2" thick) interpretive sign we received bids ranging from \$458-602 for the sign itself, including threaded inserts and security screws to affix the panel to a pedestal stand. Proofs are an additional \$50-65. This does not include the cost of constructing/installing support posts and a backing plate or a pre-made pedestal to attach the sign to the posts.



Figure 9-4. High pressure laminate digitally imaged sign at Meadowbrook Pond

PORCELAIN ENAMEL

Best Uses:

Where colorful and detailed graphics are desired. Local examples of porcelain enamel signs include the main Woodland Park Zoo panel just inside the south entrance gate before you pay and go through the turnstile, the large trail and interpretive sign at Twin Falls State Park just east of North Bend, the Olmsted legacy signs at the water tower in Volunteer Park, and the signs at the Bell St. Pier 66 downtown (Figure 9-5). Fireform Inc., which has a local office, is a manufacturer with the following website (www.fireform.com).

Advantages:

Ability to reproduce high resolution photographs and fine detailed line art
Vivid colors that do not fade
Low maintenance and forever longevity if sign is not chipped by impact damage
Impervious/resistant to UV, rain, and all other natural elements
Resistant to solvents (lacquer thinner, citrus solv, paint thinner) if needed to remove graffiti

Disadvantages:

More expensive than other materials
Requires framing or backing
Sign integrity destroyed if chipped or cracked (by impact)

Cost:

Specific costs are not available, but a porcelain enamel sign is substantially more expensive than a fiberglass or laminate sign.



Figure 9-5. Porcelain enamel sign at the Woodland park Zoo, Seattle.

METAL**Best Uses:**

Where small trail markers (etched metal), permanent memorial plaques (cast metal), or directional/map signs (painted metal) are desired. Local examples of etched and anodized metal plaques/signs include art pieces at the following bus stops: West Emerson and 21st St. just west of Fisherman's Terminal, the south side of West Government Way and 33rd. Ave W. a few

blocks east of the east entrance to Discovery Park, and West McGraw and 34th St. in Magnolia, plant i.d. plaques at REI downtown, and art pieces at Meadowbrook Pond (Figure 9-6).

Advantages:

- Does not require framing or backing
- Durable, resistant to weather, and most vandalism (stainless steel especially)
- Easy to make numerous copies for replacement (small directional trail plaques, for example)
- Clean uncluttered look

Disadvantages:

- Some metals are subject to rusting
- Some metals are easy to scratch
- Can be costly depending on size and complexity
- Some finishes can produce glare in the sun

Cost:

A sample cost of a directional trail sign is as follows: 4" x 4" stainless steel plates with recessed text (e.g. Lake Washington Boulevard) and a directional arrow painted black would cost approximately \$20-25 each. This type of metal plaque comes with 4 attached studs to affix the plate to a wood post. This includes graphics charges if the contractor does the text layout and creates the computer files. Costs are lowered a bit if they receive camera ready Mac files of each plaque layout. Costs go up 5% for each additional color desired. These plaques are something that might be attached to wooden bollard-type posts at trail junctions within the Park's interior (Figure 9-7). High quality tight-knot cedar posts currently run something like \$2.25/lineal foot for 4" x 4" and \$6.00/lineal foot for 6" x 6". A five-foot post (2' aboveground and 3' below) would cost \$11.25-30.00 depending on the width dimension preferred. Thus a single post with one metal plaque might range from \$30-\$55. A contractor would do any custom chamfering and routing of the posts (this labor charge is not included in the estimate). Sign installation on site can easily be done using volunteer labor.



Figure 9-6. Etched metal sign in Magnolia neighborhood

CONCRETE OR STONE

Best Uses:

Where rustic or natural appearance is desired, such as for entrance posts or portals. Can be etched or sandblasted with symbol or inscription, fitted with inscribed metal plaque, or combined with wood. Local examples are abundant and include the stone columns at the entrance to Interlaken Boulevard, south entrance to the Arboretum along Lake Washington Boulevard near the stone cottage, cast concrete gate posts at Mt. Baker Beach, and the etched boulder at the foot of the water tower in Volunteer Park (Figure 9-8).

Advantages:

- Natural appearance, especially stone
- Fits with the character of the Park (natural and historic)
- Weathers and ages (moss, lichen etc.)
- Long-lasting, fairly damage and vandal-resistant
- Can design and build to customize in almost any way

Disadvantages:

- Expensive, especially stone
- Stonework probably must be done on-site
- Requires reasonable proximity to vehicle access for ease of installation

Cost:

Depends on degree of detail and complexity as well as materials. Stone entrance posts at Interlaken Boulevard and the Arboretum cost approximately \$6,000 each (in the late 1980's when they were installed). The boulders at Volunteer Park were approximately \$500 each.

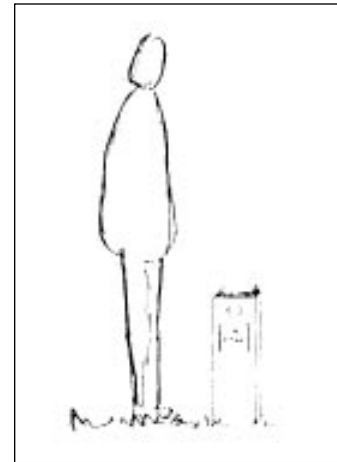


Figure 9-7. Wood bollard sign



Figure 9-8. Entrance markers at Mt. Baker Beach (left) and Volunteer Park (right)

9.5 Trail Sign Placement and Material Recommendations

Trail signs (maps or directional posts) in the Park should direct and orient people without taking away from their experience and discovery of the place. They should be numerous enough and

located where people will see them if they need guidance (usually occasional or first-time users), but not ubiquitous and in places where they will detract from the Park experience. A clutter of signs scattered throughout the Park is undesirable and will be far less effective than a few tasteful and well-placed signs in key locations where most people using the Park will pass by at least one sign. All recommendations that follow are preliminary and offered as a starting place for further discussion and more defined decisions.

If additional trail maps besides those posted in the two kiosks are desired, three more maps might be considered in the following locations in the Park as part of a later as yet unprioritized phase (Figure 9-2): **park exterior** – in the meadow area at 32nd and King; **park interior** – at the 4-way trail junction south of 32nd, and at the trail junction in central Upper Leschi Park. These signs might be made out of high-pressure laminate/phenolic resin or etched metal (Figure 9-9). The two park interior signs might be pedestal mounted, mounted as a small plaque atop an angled cedar post or incorporated into a wood bench by installing the sign as an inset on the seat or seatback (Figure 9-10). These trail map locations are suggested if there are to be no other way-finding structures. If directional posts were desired, they would likely take the place of the maps at the two park interior locations, as well as be installed at other locations as desired.

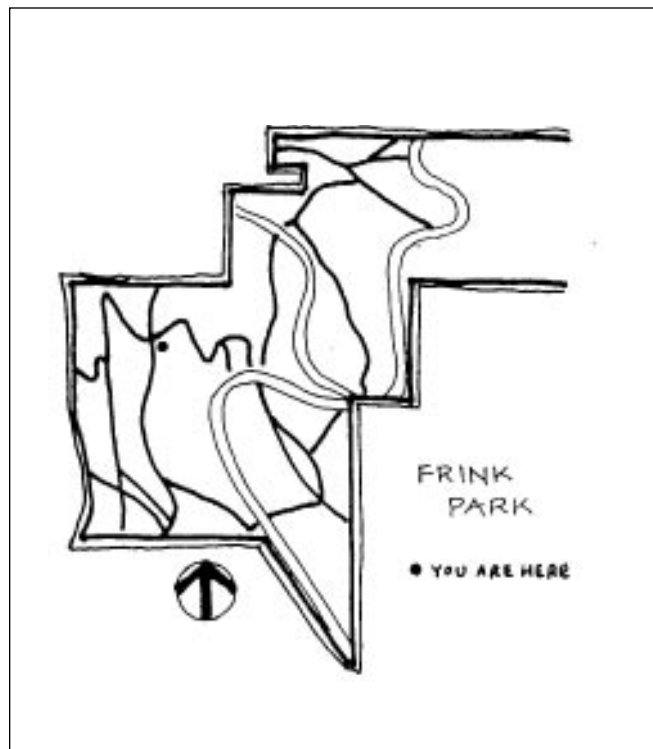


Figure 9-9. Sketch of trail map for a trail map sign

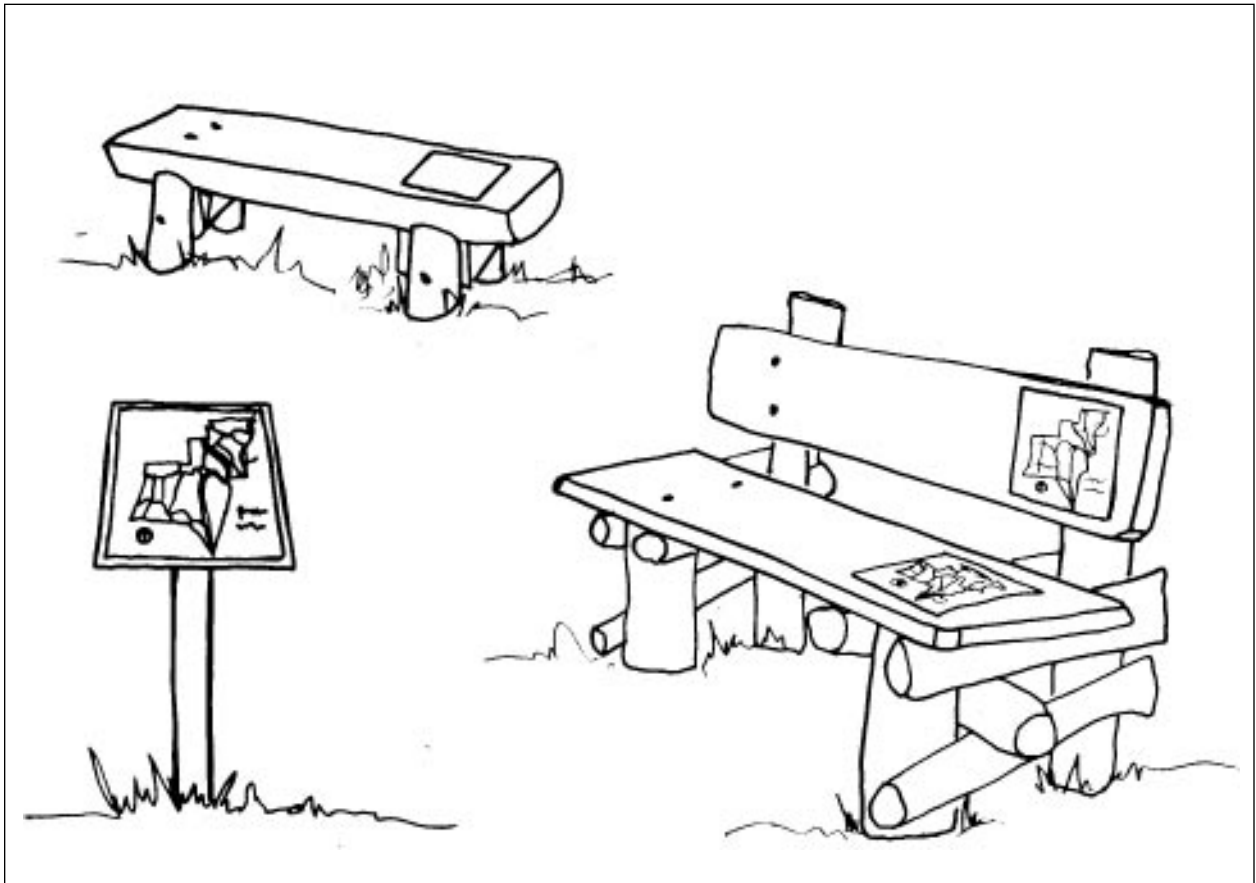


Figure 9-10. Example sketch of a pedestal mounted trail map and some bench styles that could incorporate a map inset on the seat or seatback.

If directional posts within the Park are desired they should be located at key intersections or in places that are important in terms of reaching a specific destination, e.g. the lake, or 31st Ave. If the Loop Trail were developed, perhaps it would be desirable to direct users around the loop. Because the goals of providing directional posts have not been determined, no specific post locations or designs are being suggested in this plan. General design ideas suggest a chamfered or angle-cut wood post (6”x 6” or larger) with an attached etched metal plate or routed text. See Figures 7-5, 9-3, 9-6, and 9-7 for examples of posts and etched metal plates that might be similar to something used for directional way-finding posts.

9.6 Entrance Marker Placement and Material Recommendations

There are eighteen pedestrian entrances onto established trails in the Park, as well as five main vehicle entrances or contact points. Complete descriptions and discussion of these entrances can be found in Section 7 – Edge Plan. All recommendations that follow are preliminary and offered as a starting place for further discussion and more defined decisions.

Pedestrian entrances

If designation of pedestrian entrances is desired, the following seven pedestrian entrances are recommended for posting listed roughly north to south and are shown in Figure 9-2: Yesler Way right-of-way at the old trolley bridge, Yesler street-end in northwest corner of Upper Leschi

Park, 32nd Ave. street-end, 31st and Jackson at trail entrance, 32nd and King St., 33rd street-end at King St. right-of-way, and King St. street-end at 34th right-of-way.

A simple marker on a low (approx. 24"-30" tall) 6"x6" chamfered or angle-cut wood post, with a graphic symbol that represents the Park (a cloverleaf in the same vein as the bridge on the Boulevard, for example) and the name of the Park would be adequate to identify a park entrance without creating visual clutter or excessively publicizing a low-key entrance. Concrete posts with a sandblasted and stained symbol might be another alternative. Posts might serve to identify the park boundary in certain locations, where the difference between parkland and non-parkland is unclear. These markers would also be fairly low-cost, easy to install and/or replace with volunteer labor, and fit the aesthetic of the Park. Posts should be set back slightly from the actual park edge interior to the park, and should not be taller than approximately waist height. Entrances that are designated already in an earlier phase of the sign plan (e.g. 31st and Jackson) may not require additional markers.

Vehicle entrances

Two locations, and a possible third, are recommended for installation of entrance markers (Figure 9-2). Focusing on the most traveled routes that are most visible, and offer an opportunity to identify the Park without intruding on the experience of the Park is recommended. Thus, identifying Frink Park with an entrance marker at the west end of S. Frink Place and at the south end of the Park on Lake Washington Boulevard will allow most users passing through the Park to see them. Although the northern entrance to the Park on Lake Washington Boulevard is also a logical place to locate an entrance sign, identifying the Park by name is more difficult because at that location one is actually entering Leschi Park. Also of note is that S. Frink Place doesn't actually enter Frink Park from the north until it crosses the former S. Main right-of-way, and until that point the street passes through Upper Leschi Park.

Placement of another sign at 31st and Jackson is only recommended if numerous infrastructure elements already present at the intersection area are rearranged to reduce the visual clutter and create a more functional space. If an entrance marker is placed at 31st and Jackson, it could be used to designate the trail entrance at that location (in this case, the symbolic post marker suggested at this pedestrian entrance would not be necessary), as well as providing Park identification for passing vehicles. See Section 7.4 for further discussion of the 31st and Jackson St. entrance.

A simple but solid Park identification marker made of natural materials, that identifies Frink Park and also visually connects it to other Olmsted Parks and the Boulevard system by a consistent design theme is suggested. Examples of entrance markers that fit those criteria are the stone portals in the Arboretum and at Interlaken Boulevard shown in Figure 9-8. Whatever the design of the entrance marker, they should replace or incorporate the standard DPR "rainbow signs" currently in place at 31st and Jackson and on Lake Washington Boulevard at the south end of the Park.

9.7 Interpretive Sign Placement and Material Recommendations

Any interpretive signs installed in Frink Park should be sensitively placed so as not to detract from the natural or historic character of the Park. While Park users have expressed interest in

learning more about the Park's features, particularly its history, they seem to be generally opposed to the placement of interpretive signs within the Park's inner core. However, it is also generally agreed that in most cases it is desirable to locate an interpretive sign near the element that is being interpreted. If interpretive signs are desired, with careful consideration it would be possible to place signs near the interpreted elements without compromising the "wildness" of the inner Park or the historic integrity of the Park as a whole, by locating signs just inside Park edges, and in places that already exhibit human uses and structures without detracting from historic vistas. All recommendations that follow are preliminary and offered as a starting place for further discussion and more defined decisions

The kiosks at 31st and Jackson St., and at the Frink Pl.-Lake Washington Boulevard intersection would be excellent places to post interpretive signs that have time-sensitive information. Using the kiosks for "rotating" signs would be a good way to impart information that would be new and different over a period of time, and to make use of a sign structure and that is already in place and being used. More permanent all weather interpretive signs are only recommended after further public discussion and if the sign content and design are well-thought out and done by an interpretive sign specialist that does high quality work. Interpretive signs that are posted in kiosks can be laminated paper. Digitally imaged high-pressure laminate/phenolic resin signs are recommended for more permanent all-weather signs.

If more permanent or static interpretive signs are desired, any of the following locations are suggested (Figure 9-2):

Caretaker's Cottage Area

This site has a lot of visible human impact that would probably not be compromised aesthetically by the placement of an interpretive sign focusing on one of numerous appropriate topics. A sign here could focus on plant community restoration efforts and goals in this area centered around the dominant forest type in this location (Bigleaf Maple-Pacific Madrone) and how it will change over time. A sign describing the Park's history might include an overview of the Olmsted park and boulevard system in Seattle of which Frink Park is a part, and highlight the old tramways that existed at Jackson and Yesler; or a sign could focus on earlier human history in pre-contact times and ethnobotany.

Yesler right-of-way at the old trolley bridge

This site also has a lot of visible human impact that would not be compromised significantly by the placement of an interpretive sign. The Yesler tramway was located here, and is a great interpretive element to take advantage of, as well as Leschi Park and the lakeshore. There are numerous good historical photographs of the old tramway and forest, the pleasure park and zoo at Leschi Park, and the lakefront. Any sign placed in this area should not compromise views of or from the bridge. Alternatively, an interpretive sign about this area could be located in Leschi Park near the tennis courts.

Forest location where restoration efforts are focused and visible

A visual explanation of the managed changes in an urban forest over time would be appropriate in Forest Zone 2, which is the most prevalent forest type in the Park. The best location for such a sign that would still be at the outer edge of the Park would be either just inside the 31st and Jackson entrance, or at the edge of the meadow area at the southwest corner of the Park at 31st and King St. so that readers of the sign would actually be standing under forest canopy.

Alternatively, if exterior location is not a priority, a location somewhere deeper in the interior of the Park at a specific reforestation site could be chosen.

10.0 IMPLEMENTATION OF CONCEPT PLAN

This section summarizes the projects that are proposed in this Concept Plan, and addresses various practical components of implementing the plan. Included are the role of leadership organizations such as Friends of Frink Park, and possible sources for labor and funding.

10.1 Summary of Proposed Actions and Prioritization

Over 75 specific projects or recommendations are included in the various sections of this plan. These are summarized in Table 10-1, by section, with the prioritization designation assigned to each action or project.

Table 10-1. Summary of Proposed Actions/Projects and Assigned Priority

Action/ Project	Priority	Related Projects
Forest Management Plan		
Zone 6	Highest	Crosswalks, NT1
Zone 5	Highest	Stream Areas A, B, C, D, E; Wetlands 7 & 8; Crosswalks, Focus Areas 2 & 3; NT1, NT4, ST1, ST4, TC6, WC7
Zone 7	High	Focus Area 5, ST5
Zone 3	High	TC2, TC5
Zone 2a	Moderate	Stream Area F; Wetlands 1-6, 11; Crosswalks; Focus Area 1; NT5, TC1, TC2, TC5, TR3, WC1, WC2, WC4
Zone 2b	Moderate	Wetland 10; Crosswalks; Focus Area 5; NT2, NT3, TC3, TC4, TR2, TR1, TR4, TR5
Zone 8	Moderate	None
Zone 1	Low	Focus Area 5, TR6
Zone 4	Low	Focus Area 4, NT1, ST2, ST3, TR2, WC3
Trails Plan		
Crosswalks	Highest	Zones 2a, 2b, 5, 6
ST1	Highest	Zone 5
ST4	Highest	Zone 5
TR1	Highest	Zone 2b
WC3	Highest	Zone 4; Focus Area 4
TR2	Highest	Zone 4; Focus Area 4; ST2, ST3, WC3
Focus Area 2	High	Zone 5; NT4, ST4, TC6, WC7
Focus Area 4	High	Zone 4; ST2, ST3, TR2, WC3
ST2	High	Zone 4; Focus Area 4
TC6	High	Zone 5; Focus Area 2; NT4, ST4, WC7
WC4	High	Zone 2a; Focus Area 1; NT5; Wetlands 5 & 6
WC7	High	Zone 5; Focus Area 2; NT4, ST4, TC6
FOCUS AREA 1	High	Zone 2a; NT5, WC4, Wetlands 5 & 6
TR7	High	Zone 2a; WC1
FOCUS AREA 5	Moderate	Zones 1, 2b, 7; Crosswalks; ST5, TR6
FOCUS AREA 3	Moderate	Zone 5; ST1; Wetland 7
ST5	Moderate	Zone 7; Focus Area 5; Crosswalks
TC1	Moderate	Zone 2a
TC2	Moderate	Zone 2a
TC3	Moderate	Zone 2b

Table 10-1. Summary of Proposed Actions/Projects and Assigned Priority

Action/ Project	Priority	Related Projects
TC4	Moderate	Zone 2b, Wetland 10
TC5	Moderate	Zones 2a, 3, 4
TR3	Moderate	Zone 2a
TR4	Moderate	Zone 2b
TR5	Moderate	Zone 2b; Crosswalks
TR6	Moderate	Zone 2b; Focus Area 5
WC1	Moderate	Zone 2a; Wetland 1
WC2	Moderate	Zone 2a; Wetland 3, 4
WC5	Moderate	Zone 2a; NT1
WC6	Moderate	Zone 2a; Focus Area 1
ST3	Low	Zone 4; Focus Area 4; Crosswalks
NT1	NA	Zones 4, 5, 6; Crosswalks; WC5
NT2	NA	Zone 2b; Focus Area 5; TR6
NT3	NA	Zone 2b; Crosswalks
NT4	NA	Zone 5; Focus Area 2; ST4; TC6; WC7
NT5	NA	Zone 2a; Focus Area 1
Aquatic Resources Plan		
Wetland 5	Highest	Zone 2a; Focus Area 1; WC4
Wetland 6	Highest	Zone 2a; Focus Area 1; WC4
Area B & C – monitoring	High	Zone 5; Wetland 7
Area A	High	Zone 5; Wetland 8; Focus Area 2; NT4; TC6; WC7
Area F	High	Zone 2a; Focus Area 1; WC4
Wetland 4	High	Zone 2a; WC2
Wetland 8	High	Zone 5; Focus Area 2; NT4; WC7
Area D & E	Moderate	Zone 5; Wetland 7; Focus Area 3
Wetland 1	Moderate	Zone 2a; WC1
Wetland 7	Moderate	Zone 5; Stream Areas B, C, D, E
Wetland 3	Moderate	Zone 2a; WC2
Wetland 2	Moderate	Zone 2a
Wetland 10	Moderate	Zone 2b; TC4
Area B & C – installation	Low	Zone 5; Wetland 7
Wetland 9	Low	Zone 2b
Wetland 11	Low	Zone 2b
Edge Plan		
Action 1 – Edge Maintenance	Highest	All Zones
Action 2 – Major Entrance Markers	High	Zones 2a, 2b, 4
Action 3 – 31 st and Jackson	Moderate	Zones 2a, 3; TR3
Action 6 – Neighborhood Packet	Moderate	NA
Action 5 – Pullouts	Moderate	Zones 2a, 2b, 4, 5, 6
Action 4 – Minor Entrance Markers	Undetermined	Zones 2a, 2b, 4, 5, 8; ST2, ST3, TR1, TR4
Education/ Public Outreach Plan		
Component 2 – Volunteer Recruitment	Highest	
Component 10 – Grants/Fundraising	Highest	
Component 1 – Work Parties	High	
Component 3 – Volunteer Coordinator	High	
Component 6 – Steward Education	High	
Component 4 – Volunteer Outreach	Moderate	
Component 5 – Volunteer Recognition	Moderate	
Component 7 – Work Party Education	Moderate	
Component 8 – Adopt-a-Sector	Moderate	
Component 9 – Newsletter/Website	Moderate	

Table 10-1. Summary of Proposed Actions/Projects and Assigned Priority

Action/ Project	Priority	Related Projects
Establish School Outreach Program	Moderate	
Sign Plan		
Phase I: Trail Map Signs in Kiosks	Highest	
Phase I: Interpretive and Educational Materials in Kiosks	Highest	
Phase II: Major Entrance Markers	High	
Phase ??: Minor Entrance Markers	Undetermined	
Phase ??: Interior Way-finding/Directional Trail Markers	Undetermined	
Phase ??: Permanent Interpretive Signs	Undetermined	
Phase ??: Permanent Trail Map Signs	Undetermined	

10.2 Leadership/ Stewardship Issues

Realization of many of the projects or actions proposed in this plan will only come through a committed, coordinated effort on the part of neighborhood volunteers. It is clear that the Seattle Department of Parks and Recreation does not currently have, nor will it ever allocate sufficient funding to cover all the elements of this plan. Funding in the form of grants and foundations must be pursued at the neighborhood level, probably by volunteers. Labor for most of these projects will be volunteer-based, depending on neighborhood residents and City-wide groups such as Tremendous Seattle.

It is therefore very important for those who are invested in improving the Park to participate in the process in whatever ways they can. Citizen leadership of the work and planning that has been completed for the Park thus far, has come primarily from residents who live in the neighborhood. The leadership of work parties and the Concept Plan process has fallen on the shoulders of a small handful of people who may or may not want to continue serving in those roles. There is a need for the continual inflow of fresh energy as past leaders tire of working so hard or develop different priorities in their lives. True stewardship of the Park must include, for some at least, being willing to take on leading roles and organize others to participate.

The Future of Friends of Frink Park

Friends of Frink Park, as an organization of the Leschi Community Council, has worked for a number of years to foster interest in Frink and Upper Leschi Parks, from local residents, from organized volunteer groups, from funding sources, and from DPR staff. Results of FFP's efforts are clear – from the new kiosks, to new plantings, to renewed community interest, as evidenced by turnout at public meetings. It is clear that FFP is crucial to the continued maintenance and improvement of the Park. However, the composition, organization, and possibly the legal status of the group are likely to change over time, to evolve and grow as needed to facilitate planned changes for the Park.

FFP is currently an informal working group; changes to its legal status may be necessary, depending on the requirements of potential funding sources. There are advantages to being under the umbrella of the Leschi Community Council – the Council's 501(c)(3) status, its long track

record in successfully completing grants, its elected treasurer, its acceptance in the community, and its monthly newsletter. However, there are organizational alternatives that FFP can explore, such as simple non-profit status, seeking its own official 501(c)(3) status, or becoming a foundation or association. All of these options involve more formalization that might include forming a board, holding elections, holding regular meetings, developing a cleared organizational structure, keeping track of and reporting on financial accounts, and/or following required guidelines for 501(c)(3) status. A situation may also arise where it would become necessary to form an alternative organization, say for a specific funding source or limited purpose. It is certain that members of FFP will face a number of major decisions in the near future, in terms of determining the desired organizational structure and in ensuring the continued existence of the group.

Extent of Future DPR Involvement/ Leadership

Staff of DPR that have been involved in the process of developing the Concept Plan are likely to continue to be involved in making decisions regarding projects and maintenance in Frink and Upper Leschi Parks. Both the current Urban Forester and Trails Coordinator have expressed interest in pursuing some of the projects proposed in the plan, and in trying to allocate some funding for those projects from DPR budgets. However, there are limited resources within DPR and a need for DPR staff to prioritize park projects for the entire City based on levels of use, human health hazard, and other criteria. What DPR funds that do go to the Park are likely to be allocated on a project-specific basis (e.g., a new bridge for a specific stream crossing or a section of the boulevard-side trail), rather than on an ongoing allocation or general projects fund (e.g., \$10,000/year annual fund for trail repair). DPR staff can be expected to advocate for specific-project funding with other City agencies such as SeaTran, but the initial impetus for most projects will likely need to come from FFP. It is expected that much of the funding for the projects in this plan will need to come from sources other than DPR.

Beyond approving the Concept Plan, it can be expected that DPR will be involved in the approval process of all major projects in the Park. Again, the impetus and momentum for gaining DPR approval will likely need to originate with FFP in the form of public or behind-the-scenes lobbying. All environmental permits that might be required for a particular project would need to be originated by DPR as the legal landowner.

10.3 Potential Labor Resources

Potential labor resources for implementing the projects in this Concept Plan have been researched and are listed in Table 10-2. Before implementing any project, it will be necessary to determine a variety of factors in deciding on the labor force, such as the materials and skills needed to do the job. The following list of project factors was prepared to help work party or project organizers prepare.

For each project it will be necessary to know:

- 1) What type of advance notification of work party is required
- 2) Is a walk-through prior to project required to estimate teams, tools, materials
- 3) Will additional funds or grants be required to complete the project
- 4) Number of volunteers required - min/max.

- 5) Tool list to complete project
- 6) Material list to complete project
- 7) Number of crew leaders needed per team
- 8) Expertise needed to complete the project
- 9) Location of the project and kick off site (if different)
- 10) Directions to project by bus, car, bike
- 11) Description of the location, benefits of the project
- 12) Whether notification of DPR in advance of work party is needed for additional support required such as debris pickup or chain saw operation

Prior to the event, organizers should take the following steps:

- 1) Submit notice to potential volunteers at least 2-4 weeks prior - the advance notice required will vary depending on the organization
- 2) Secure tools and materials
- 3) Post signs in park kiosks and put a sandwich board sign near the work area

On the day of the event, organizers should take the following steps:

- 1) Gather refreshments and snacks for volunteers
- 2) Inventory and sign-out all tools
- 3) Review site safety with volunteers
- 4) Have everyone sign in and out so we are credited for the volunteer hours
- 5) Send a copy of the sign-in sheets to DPR

Groups that have provided labor for Frink Park/Upper Leschi Park work parties, or have expressed interest in providing labor include:

Garfield High School

REI

Scouts

Local Businesses: Microsoft, Starbucks

Audubon Society

Sierra Club

Cascade Bicycle Club

School groups

Religious groups

Civic groups (Oddfellows)

Recommended actions for increasing numbers of volunteers:

- 1) FFP volunteers can work in other parks to encourage other park groups to share knowledge and join work parties in Frink Park
 - 2) Establish a phone tree of volunteers rotating this responsibility around FFP
 - 3) Notify volunteers well in advance
 - 4) Place notices on event calendars in local newspapers
 - 5) Place notices in the kiosks around the park and on our website
- Keep work parties fun and well organized and offer new experiences

Table 10-2. Organizations that Provide Volunteer Labor

Organization	Address	Primary Contact
Friends of Frink Park		Jon Jaffe - (206) 322-5854 John Barber - (206) 324-1548
TREEmendous Seattle	Currently operating from the Center for Urban Horticulture http://www.seattletrees.org	Katie Moller - (206) 985-6867
Student Conservation Association (SCA) Youth Corp		Project volunteer coordinator Phone (206) 324-4649
Cascadia Quest	810 18th Avenue E, # B-5 Seattle, Washington, 98122, Tel # (206) 322-9296 casquest@cascadiaquest.org www.cascadiaquest.org	Robin Clark, Peter Bohlen
Seattle Works	2601 Elliot Ave. Seattle, WA 98121	Heidi - 206-324-0808
Tree Stewards	http://www.ci.seattle.wa.us/td/urbfor.asp	Liz Ellis, Tree Stewards Program Coordinator - (206) 684-5008
Volunteers for Outdoor Washington	8511 15 th Ave. NE Seattle, WA 98115	206-517-4469
Washington Trails Association	http://www.wta.org/wta@seanet.com	
DPR – Adopt A Park Program	100 Dexter Ave. Seattle, WA	Teri Arnold - (206)386-1419
DPR – Trails Coordinator	1600 S. Dakota Street Seattle, WA 98108	Chukundi Salisbury – (206) 684-4122
DPR – Central District Parks		Don Varenkamp - (206) 684-4750

10.4 Potential Funding Sources

Tables 10-3 and 10-4 list a variety of potential public and private funding opportunities for FFP to pursue. This is not a comprehensive list, nor does inclusion on this list guarantee that funding may be available for these projects. Each funding opportunity has a different set of requirements as to how the grant application is submitted, what type of matching funds, if any, are required, specific time lines for the project and how the funds will be distributed.

A committee should be formed by FFP whose purpose is to research further funding opportunities and to determine which particular grant opportunities may be available for specific projects detailed in the plan. The task of identifying grant opportunities and pursuing them through to completion will be very time consuming. As such, it is recommended that the committee consist of no less than four individuals, with a variety of skills. Individuals with grant writing experience would be very beneficial.

The scope of grant opportunities is varied. Opportunities that do not require matching funds include one-time neighborhood events such as a park kickoff party, trees available for planting, wetland restoration projects, projects for community and/or educational benefits, and others. Opportunities that may or may not require matching funds (via volunteer labor, donated items and/or services, and cash donation) include watershed and trail restoration, reforestation, invasive species management, educational projects, tangible neighborhood improvements and more.

This committee would need to work very closely with the Labor committee to make sure that all volunteer labor is properly documented. All current or pledged volunteer labor has a value of \$12.00 per hour, which may be applied to certain grant opportunities. All volunteer hours, whether they are during the planning stages or actual onsite improvements, have value and can count towards matching grant opportunities.

Table 10-3. Potential Public/ Government Funding Sources

AGENCY	NAME OF GRANT	AMOUNT OF GRANT	APPLICATION PROCESS	TIMING	SHORT DESCRIPTION
City of Seattle Department of Neighborhoods 700 3rd Avenue, Suite 400 Seattle, WA 98104206-684-0464 www.ci.seattle.wa.us/don	Neighborhood Matching Fund: Small and Simple Projects	\$10,000 or less	6 page application available from Department of Neighborhoods	Grants awarded 6 times per year - in 1999 as follows: Jan 19, March 15, May 17, July 19, Sept 20, Nov 15	Projects must take less than 6 months to complete, must demonstrate a 50% to 100% match. Projects include neighborhood planning, physical and non-physical improvements; public school partnerships and one-time events.
City of Seattle Department of Neighborhoods 700 3rd Avenue, Suite 400 Seattle, WA 98104 206-684-0464 www.ci.seattle.wa.us/don	Neighborhood Matching Fund: Semi-Annual Matching Fund	Greater than \$10,000	Letter of Intent followed by Formal Application both available from Department of Neighborhoods	grants awarded twice a year - Letters of Intent submitted in Jan and July with Formal Applications submitted in March and Sept	Projects can take up to 12 months to complete, and must demonstrate 100% match
City of Seattle Department of Neighborhoods 700 3rd Avenue, Suite 400 Seattle, WA 98104 206-684-0464 www.ci.seattle.wa.us/don	Neighborhood Matching Fund: Leadership and Organizational Development Fund	up to \$750	Application form available from Department of Neighborhoods	applications accepted anytime	One-time award to build your neighborhood organization
City of Seattle Department of Neighborhoods 700 3rd Avenue, Suite 400 Seattle, WA 98104206-684-0464 www.ci.seattle.wa.us/don	Neighborhood Matching Fund: Up-Front Awards	up to \$1,000	6 page Small and Simple Funds application available from Department of Neighborhoods	grants awarded 6 times per year - in 1999 as follows: Jan 19, March 15, May 17, July 19, Sept 20, Nov 15	for quantities up to \$1,000 the project may be eligible to receive money up-front without a match. Included one-time neighborhood events – possibly a park kickoff party?
City of Seattle Department of Neighborhoods 700 3rd Avenue, Suite 400 Seattle, WA 98104206-684-0464 www.ci.seattle.wa.us/don	Neighborhood Matching Fund: Tree Fund	10-40 trees for planting projects in neighborhoods or in Parks	one page application available from Department of Neighborhoods	trees awarded twice a year - in 1999 as follows: January 30, August 13	volunteers must attend training session, plant trees and submit final report
City of Seattle Grant Central Station 710 2 nd Avenue, Suite 505 Seattle, WA 98105 206-684-0224 www.ci.seattle.wa.us/util	Grant Central Station Neighborhood Improvement Program	\$5,000 to \$25,000	five page Grant Central Station application available from the City	Application deadlines are Jan 13, March 16, May 18, July 20, Sept 21, and Nov 16	For projects that make tangible improvements in a neighborhood or a program with a direct neighborhood benefit. Priority is given to projects with matching funds.
City of Seattle Grant Central Station 710 2 nd Avenue, Suite 505 Seattle, WA 98105 206-684-0224 www.ci.seattle.wa.us/util	Grant Central Station Water Quality Fund	\$5,000 to \$25,000	five page Grant Central Station application available from the City	The process is open all year or until all funds are distributed for the calendar year. Applications are reviewed on the last Friday of each month.	Bank stabilization, trail rehabilitation, wetland restoration, and water quality education. Priority is given to projects with matching funds
Environmental Protection Agency Region 10 EXA-142 1200 Sixth Avenue Seattle, WA 98101 www.epa.gov/enviroed/grants	Environmental Education Grants and Five-Star Restoration Challenge Grants	Under \$5,000 are encouraged but this is not a maximum	Complete application including project narrative and budget request.	February 1	Variety of environmental educational projects. The 5 star program supports community based wetland restoration projects which build partnerships and foster local stewardship.

Table 10-3. Potential Public/ Government Funding Sources

AGENCY	NAME OF GRANT	AMOUNT OF GRANT	APPLICATION PROCESS	TIMING	SHORT DESCRIPTION
King County Department of Natural Resources: Water and Land Resources Division/700 Fifth Avenue, Suite 2200/Seattle, WA 98104/296-8494 (Doma Seligman)/http://splash.metrokc.gov/wlr/pi/g rams.htm	King County Water and Land Resources: Watershed Action Grants Program	Up to \$5,000	grant application available from King County DNR	applications due December 15	Funds for projects that encourage watershed protection or enhancement of surface water or wastewater resources and that involve the community. Projects have included leading nature walks, adopt a stream/wetland, planting stream banks, erosion control, etc.
King County Department of Natural Resources: King County Wastewater Treatment Division 700 Fifth Avenue, Suite 2200 Seattle, WA 98104 296-8265 (Ken Pritchard) http://splash.metrokc.gov/wlr/waterres/wsf/wslinfo.htm	King County Wastewater Treatment Division: King County WaterWorks Grants	up to \$50,000	grant application available from King County DNR	several funding cycles each year	Funds for projects that protect or improve watersheds, rivers, lakes, wetlands, tidelands and offer opportunities for stewardship.
King Conservation District 425-226-4867					Need to check into this further. Bradner Park received a \$35,000 grant from them. Their phone number is incorrect.
King County Department of Natural Resources: Water and Land Resources Division/700 Fifth Avenue, Suite 2200/Seattle, WA 98104/296-7266 (Kate Stenberg) http://splash.metrokc.gov/wlr/lands/urhides.c.htm	Urban Reforestation and Habitat Restoration Grants	Typically \$2,000 to \$10,000	grant application available from King County DNR	applications are due October 15 th	Projects must be a reforestation or restoration project with on-the-ground benefits and must provide for public access. Priority to increase the diversity of urban forest stands, or improve wildlife habitats. Projects should have educational benefits, have long term impacts and should use native species. Projects must be completed in 3 years. Projects must have a 50% match.
National Fish & Wildlife in conjunction with the EPA See EPA Listing Above 1-800-852-7832	Restoration Grants	\$5,000 to \$20,000	Call for information	February	Community based wetland restoration involving a variety of partnerships such as community, city, state, youth groups, private entities, etc.
National Fish and Wildlife Foundation www.nfwf.org/guidelines.htm		Up to \$5,000			Support to organizations involved in invasive exotic species management including plants and animals that can and/or could have negative consequences.
Native Plant Salvage Program (206) 296-1923		No funds available – reduced cost or free plants			
Puget Sound Urban Resources Partnership/University of Washington Seattle, WA 98195-5740 543-7303 psurp@juno.com	Puget Sound Urban Resources Partnerships Grants	not specified	not specified	not specified	funds for urban natural resources projects and education

Table 10-3. Potential Public/ Government Funding Sources

AGENCY	NAME OF GRANT	AMOUNT OF GRANT	APPLICATION PROCESS	TIMING	SHORT DESCRIPTION
Seattle Public Utilities 710 2 nd Avenue Suite 660 Seattle, WA 98104-1709 (206)386-9746 (Anthony Matlock) or (206) 233-5006 (Sylvia VonAutlock) www.ci.seattle.wa.us/utrl	STEPS Stewardship Through Environmental Partnership Assistance	Up to \$5,000	Application available from Seattle Public Utilities	Applications are accepted on an ongoing basis.	Water quality education or restoration projects (Anthony Matlock) Creek Restoration projects which may be implemented by City crews (Sylvia VonAutlock)
Washington State Department of Natural Resources Stewardship Incentive Program 28329 SE 448th St. Enumclaw, WA 98022-0068 1-800-527-3305		not specified	Application available from DNR	not specified	funding for projects including forest, soil and water, riparian/wetland enhancement, wildlife habitat

Table 10-4. Potential Private Funding Sources*

SOURCE	TYPE OF ORG.	AMOUNT OF GRANT	APPLICATION PROCESS	TIMING	SHORT DESCRIPTION
Brainerd Foundation 1601 Second Ave, Suite 610 Seattle, WA 98101-1541 (206)448-7222 www.Brainerd.org	Primarily for larger scale regional issues. We probably do not meet their criteria	\$10,000 - \$20,000			Funding for designated program areas including Endangered Ecosystems, Hardrock Mining and Pulp Production problems. They also assist grantees with resources to increase their impact such as electronic equipment and outreach tools.
Bullitt Foundation 1212 Minor Avenue Seattle, WA 98101 (206)343-0807 Emory Bundy www.bullitt.org	Forest & Land Ecosystems; Rivers, Wetlands & Estuaries; Public Outreach, Education & Capacity Building	not specified	Application available from Bullitt Foundation. Proposals are reviewed three times a year.	Proposals must be received by April 1, August 1 or December 1	Focus on educating the broader public about protecting & restoring the environment. Strong focus on stewardship & education. Protection and restoration of wetlands and riparian areas.
The Compton Foundation 545 Middlefield Road, Suite 178 Menlo Park, CA 94025 (415)328-0101		not specified	Call or write to obtain application		Public education grants with a focus on watershed protection and long term habitat and ecosystem preservation and restoration.
Give to the Earth Foundation 4000 Pheasant Ridge Drive Minneapolis, MN 55449 (800)933-9628 (Ellen Liberatori)		Typical size is \$2,500	Call to obtain guidelines		The foundation supports a variety of small environmental projects. Applicants must have minimal administrative overhead and results must be tangible.
National Tree Trust 1120 G Street NW Suite 770 Washington, DC 20005 1-800-846-8733 #819		not specified	Call for application		Donation of one year old trees to be planted by volunteer labor on public land.
Northwest Fund for the Environment 701 Fifth Avenue, Suite 3210 Seattle, WA 98104 206-386-7220 (Gayle Rothrock) www.wolfenet.com/~nwfund		not specified	Call or e-mail nwfund@wolfenet.com for application and guidelines.	Application due February 23 or August 18.	Supports stewardship programs, action plans, protection of wildlife habitats, water quality, shoreline and wetland environments.
Philips Petroleum Environ. Partnership Awards 16 D1 Phillips Building Bartlesville, OK 74004 (918)661-5139 (Patricia Marshall)		\$500 to \$5,000	Call		Grants to community organizations doing environmental projects such as stream restorations. Priority is to educational projects working with schools. Matching funds required.
The Seattle Foundation 425 Pike Street Suite 501 Seattle, WA 98101-2234 (206) 622-2294 seattlefoundation.org	Not Specified	not specified Matching funds not required but are preferred	Information is available on their website or call for application guidelines	Application and documentation due the 1 st day of February, May, August or November	Grants awarded for projects that increase the quality of life for Seattle residents. Projects include those with environmental and public/society benefits.
Washington Foundation for the Environment P. O. Box 2123 Seattle, WA 98111		not specified	Send letter of inquiry		Grants for small but well focused local environmental projects. Also sponsorship of environmental education.

*Private foundations generally have a more in-depth application process, and are not as targeted as some of the public grants are towards funding projects such as Frink Park.

Appendix B

Identification of Canopy Openings

Identifying canopy openings will be an easy task, initially. Openings in the crown can be found simply by walking the trails and forest of the Park and looking for gaps in the overhead canopy that have the following characteristics:

1. The opening is wider than the width of the closest overstory trees canopy.
Measure this by estimating one edge of closest tree's canopy, then walk to the opposite edge of the canopy of the closest tree.
Measure from inside edge of canopy to opposite edge of canopy inside the opening at the widest portion along an east-west line.
2. The distance from the center of the gap to any canopy tree trunk is at a minimum 40 feet.
Measure from the center of the gap to the trunk of the closest tree.
Measure the distance from the trunk of the tree to the edge of the canopy of the tree.
3. The opening is not facing north on a north slope. The closer the gap faces the south the better.

Once you have identified a gap, use a compass to determine which way is south. Stand in the center of the opening, look directly south, and answer the following questions:

When you look at the top of tallest tree on the south edge of the opening, is your head or eye:

1. Level with the ground?
2. Looking down?
3. Hurting the back of your neck?

What type of vegetation is in the opening?

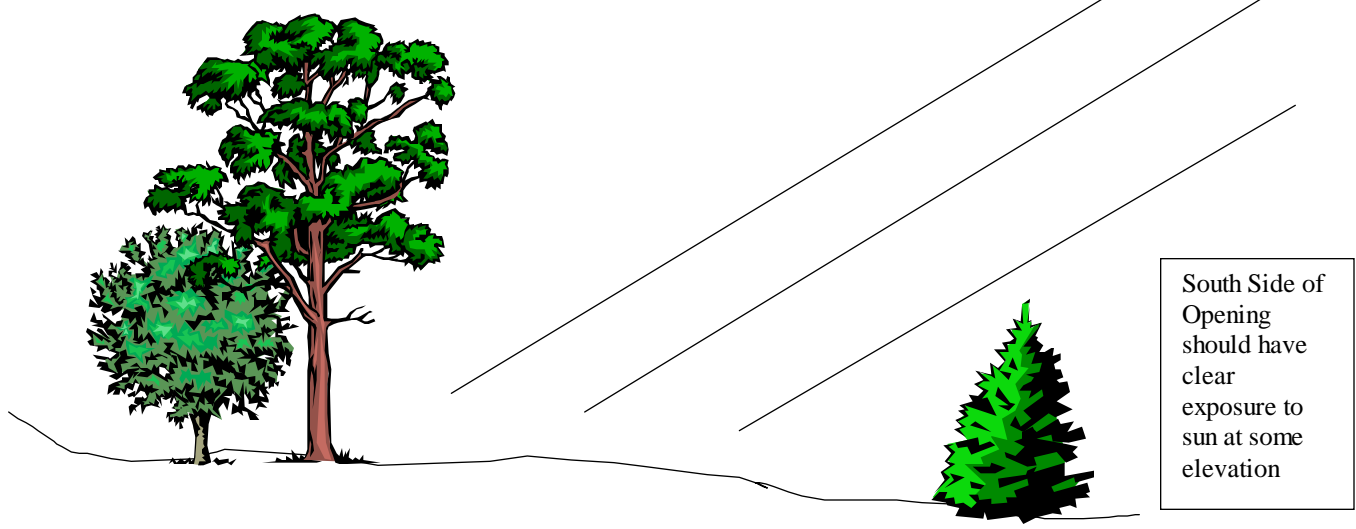
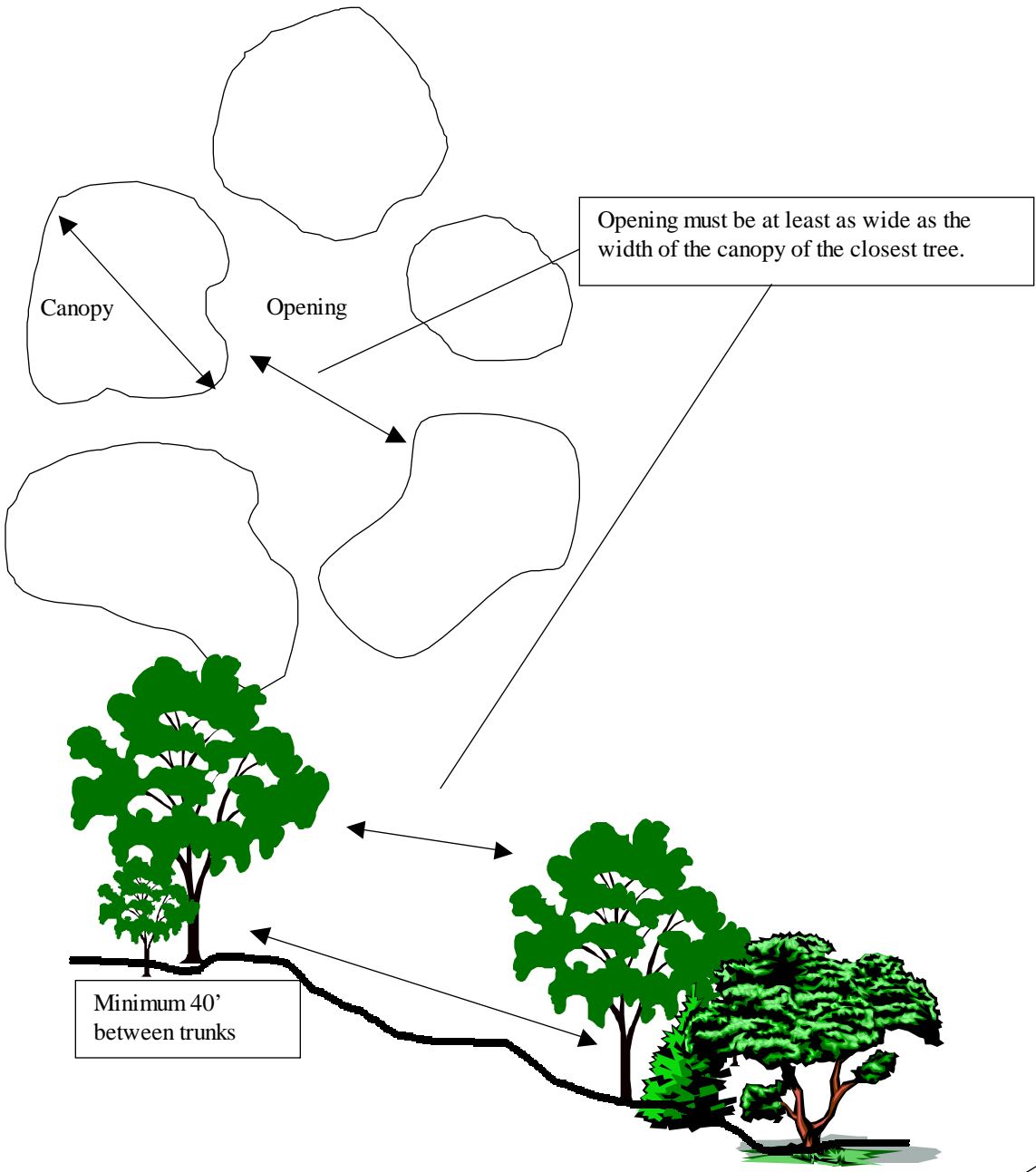
1. Invasive
2. Low ground cover
3. Saplings of tree species.

What are the species of surrounding trees?

Alder, Maple, Douglas Fir, Cedar, Maple, Maple, Maple

To the best of your ability, estimate the location of the opening on an aerial photo or site map.

See diagram below for guidance.



CAPILLARY BED CONSTRUCTION

Measuring and Marking Lumber:

8 of the 16' boards will be measured and marked into 8' lengths
4 of the 16' boards will be measured and marked into 4' lengths

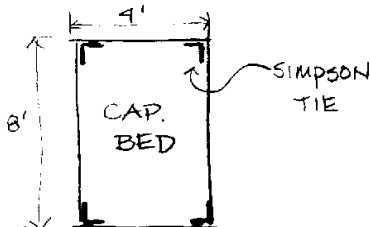
Cut List:

We have: 12 2"x12"x16' pressure treated boards
For 8 capillary beds we need: 16 2"x12"x8' boards
16 2"x12"x4' boards

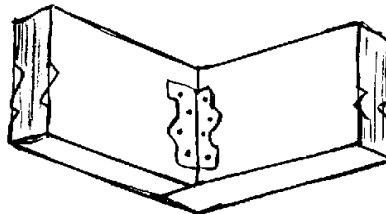
Use ear and eye protection, gloves and a dust mask when cutting pressure treated lumber.

Assembly:

Simpson ties are the metal 90° angle braces that will support the otherwise fairly weak joint where the 4' boards will be attached to the 8' boards. One Simpson tie will go on each of the 4 inside corners of each bed. Use joist hanger nails to fasten the Simpson ties. Each Simpson tie should be centered (approx.) before nailing in place.

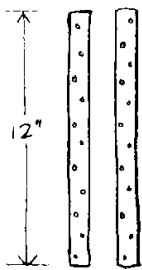


PLAN VIEW

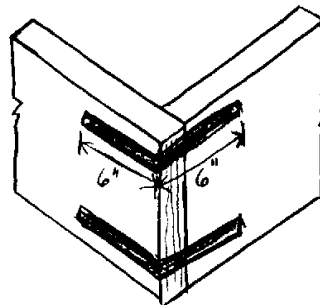


INSIDE CORNER WITH CENTERED SIMPSON TIE

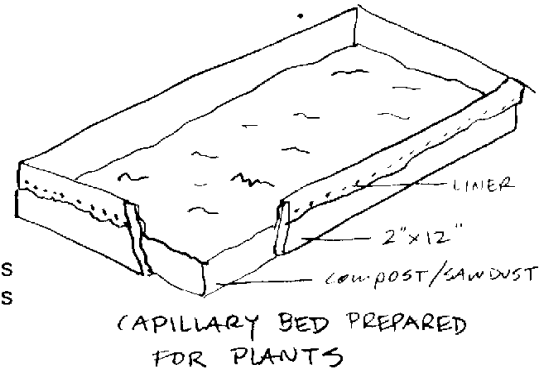
Coils of metal strapping will further reinforce the four corner joints of each bed. Cut **eight 12" straps** for each bed. **Two** of these will be nailed on the **outside** of each of the four corners of each bed as shown below.



TWO STRAPS FOR EACH CORNER



OUTSIDE CORNER WITH METAL STRAPS



Site Preparation:

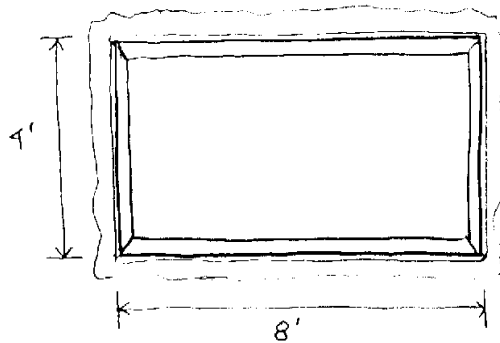
Capillary beds require level ground with room to walk around them and a substrate free of sharp sticks or other objects that could puncture the plastic. Capillary beds are located where the plants that will eventually be housed in them receive only dappled sunlight - preferably a site with east-northeast exposure, and some shade-providing canopy. Beds should also be located where they are easy to access from propagation facilities and can be watered easily.

Beds should also be placed so that carts can be moved up and down the aisles (approx. 4'?).

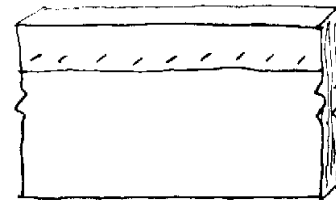
Lining the beds with plastic:

Once you have decided on the appropriate location for the beds and prepared the site, put the lumber frames in place, and use a builders level to make sure they are relatively level both across the width and down the length of the bed. This is an important step because if the beds are way out of level, water will collect at the lowest point instead of evenly distributing itself.

Roll out the plastic within the lumber frame so that the plastic lines the bed all the way into the corners, up the sides and overlapping the top edges of the 2"x12"s by 4-6". Fold the edge of the plastic under one or two times so that you are stapling through at least two layers of plastic. Staple the plastic every few inches all the way around the perimeter of the bed.



CAPILLARY BED WITH PLASTIC
LINER LAID OUT IN
PLAN VIEW



SIDE VIEW OF CAPILLARY
BED EDGE WITH PLASTIC
STAPLED ON OUTSIDE