Sand Point Magnuson Park

Drainage, Wetland/Habitat Complex and Sports Fields/Courts Project

Final Environmental Impact Statement

Volume I:
EIS Main Text
and Appendix A,
Project Plans and Sketches

Seattle Department of Parks & Recreation

July 2002

Sand Point Magnuson Park

Drainage, Wetland/Habitat Complex and Sports Fields/Courts Project

Final Environmental Impact Statement

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FACT SHEET

Name of Proposal

Sand Point Magnuson Park Drainage, Wetland/Habitat Complex and Sports Fields/Courts Project.

Proponent

City of Seattle, Department of Parks and Recreation

Location

The proposed project would be located in Sand Point Magnuson Park, which lies generally north of NE 65th Street and east of Sand Point Way NE in the northeastern area of Seattle. The specific development activities for the project would occur within what is identified in the Sand Point Physical Development Management Plan (PDMP) as the Magnuson Park Open Space/Recreation Expansion Area. The sports fields and courts would be developed in the central and south-central areas of Sand Point Magnuson Park. The proposed wetland/habitat complex is in the southeastern quadrant of the park.

Proposed Action

The *Proposed Action* is a decision to undertake development of new sports fields and courts, a wetland/habitat complex and integrated site drainage facilities at Sand Point Magnuson Park (SPMP) in the City of Seattle. The proposed action would be taken pursuant to the general direction provided by the Seattle Department of Parks and Recreation Comprehensive Plan and the Sand Point Physical Development Management Plan (PDMP). City Council Resolutions 30063 (adopted in November 1999) and 30293 (April 2001) provide specific guidance on concept design for sports fields and courts, wetland/habitat components and drainage for Sand Point Magnuson Park.

To implement the project, the Department of Parks and Recreation proposes to undertake the following specific actions:

- remove existing buildings and paving in the area of the former Navy Commissary facilities, adjacent to NE 65th Street near the southern edge of the park, as necessary to accommodate the development of sports facilities, drainage features and upland and wetland habitats
- reconfigure the existing southern entrance corridor to Sand Point Magnuson Park by widening the roadway, providing separate bicycle and pedestrian pathways, and installing new landscaping
- maintain some areas of viable existing wetland and woodland habitat in the eastern/southeastern portions of the park, while creating additional wetland and upland habitats in a complex mosaic
- develop a new trail system to provide foot and visual access to suitable areas of the wetland and habitat complex (leaving sensitive

parts of the habitat generally inaccessible), with rest areas and signage as appropriate

- redevelop an existing mowed grass sports meadow to accommodate up to 4 soccer fields, as well as community functions and unstructured recreation, during daylight hours (i.e., without lights)
- construct new facilities to provide 11 athletic fields with all-weather, synthetic surfaces and lights, to accommodate soccer (5 fields), baseball/adult slow-pitch softball (2 fields), youth baseball/fast-pitch softball (3 fields), and rugby (1 field)
- construct a new 1.5-mile cross-country running trail that, in conjunction with existing trails and new pedestrian ways, could accommodate 3- to 4-mile cross-country events
- construct a dual-purpose parking lot/paved area for in-line skate hockey
- construct 2 "walk-on" basketball courts and 3 sand volleyball courts
- construct three new service/support complexes to house restrooms, a concession stand, maintenance facilities, storage, mechanical services and program space
- install subsurface drainage facilities from the athletic fields and develop drainage corridors to provide surface conveyance of storm water from the west, north and east perimeters of the project site. Stormwater would be routed through bioswales and vegetated water quality treatment wetlands prior to passing into habitat wetlands.
- create a new open-water embayment to enhance near-shore fish habitat along Lake Washington for endangered Puget Sound chinook salmon and other aquatic species
- provide appropriate infrastructure to facilitate a passive interpretive and educational program for the wetland/habitat complex
- construct environmental education structures and viewing platforms on the perimeter of the wetland/habitat complex
- integrate new water supply, irrigation, electric power and lighting utility structures into the existing Park utility systems, and relocate some existing utility lines

A variety of specific permits and approvals would be needed to implement the proposed action. All facilities or resources developed through the proposed project would be operated and maintained by the Department of Parks and Recreation. Park-sponsored leagues, various league organizations and user groups and the general public would use the athletic facilities. The habitat areas within the Park would be open and accessible to the public. In addition, more formal arrangements with education groups would be formulated to coordinate the use of the habitat area for formal education for K-12 and university level students and the general public. Stewardship and long-term maintenance of some aspects of the habitat restoration would be coordinated between Parks and interested citizen and community groups. The Parks Department

would enter into agreements with organizations as appropriate for use of the facilities and habitat resources.

Lead Agency

City of Seattle, Department of Parks and Recreation (DPR)

Responsible Official

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Required Approvals

Preliminary investigation indicates that the following permits and/ or approvals could be required for the *Proposed Action*. Additional permits/approvals may be identified during the review process.

Agencies with Jurisdiction

- ***United States***
  Army Corps of Engineers
  Clean Water Act, Section 404
  Rivers and Harbors Act, Section 10

- ***State of Washington***
  Department of Fish and Wildlife
  Hydraulic Project Approval

  Department of Ecology
  Construction Stormwater National Pollutant Discharge Elimination System (NPDES) permit

- ***City of Seattle***
  Seattle City Council
  Resolution approving project
  Council Land Use Action for height standards

Department of Design, Construction & Land Use
Master Use Permit, including:

- Grading Permits
- Demolition Permits
- Building Permits
- Mechanical Permits
- Electrical Permits
- Occupancy Permits
- Shoreline Substantial Development Permit
- Comprehensive Drainage Control Plan approvals
- Large-Parcel Drainage Control Plans with Construction Best Management Practices, Erosion and Sediment Control Plan Approvals

Seattle Design Commission
Recommendation for approval of the project design

Transportation Department (SEATRAN)
Recommendation for approval concerning the reconfiguration of the NE 65th Street entrance to Sand Point/Magnuson Park
Street Use Permits (temporary, construction-related)

Authors and Principal Contributors to this EIS

The Sand Point Magnuson Park Drainage, Wetland/Habitat Complex and Sports Fields/Courts Project Final EIS has been prepared under the direction of the Seattle Department of Parks and Recreation. The following consulting firms provided research and analysis:

- **Huckell/Weinman Associates, Inc.** -- lead EIS consultant; environmental analysis – *Energy and Natural Resources, Noise, Land and Shoreline Use*, *Aesthetics, Recreation, Historic and Cultural Preservation, Public Services and Utilities*
- **The Transpo Group Inc.** – *Transportation, Circulation and Parking*;
- **MFG, Inc.** - *Noise*
- **The Berger Partnership, P.S.** – design team lead consultant; project management; project description
- **RoseWater Engineering, Inc.** – civil engineering; *Earth, Water*
- **Sheldon Associates** – wetland/habitat design; *Plants and Wetlands, Animals and Fish*
- **Sparling Engineering** – lighting design; *Light and Glare*

Location of Background Data

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Kirkland, WA 98033
(425) 828-4463

Date of Issuance of this Final EIS

July 12, 2002

Date of Final Action

Seattle City Council approval of the final action is anticipated to occur in winter 2002-2003, following consideration of the Final EIS.

Availability/Cost of this Final EIS

Copies of this Final EIS have been distributed to agencies, organizations and individuals noted on the Distribution List (*Chapter 7 in* this document).

Copies of this Final EIS are available for review at the Seattle Department of Parks and Recreation, Sand Point Magnuson Park, 7400 Sand Point Way NE. Copies may also be reviewed at the Seattle Public Library Downtown Branch (1000 Fourth Ave) and at the Northeast, University and Lake City Branches of the Seattle Public Library.

Additional copies of this Final EIS may be purchased at the Seattle Department of Parks and Recreation, Sand Point Magnuson Park, 7400 Sand Point Way NE at a cost of $15 per copy.

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1. SUMMARY

1.1 INTRODUCTION

The City of Seattle, Department of Parks and Recreation (DPR) is proposing to redevelop a portion of the former Puget Sound Naval Station, Seattle through the development of athletic fields and courts, wetland and upland habitat, and an integrated drainage system within a large area of Sand Point Magnuson Park (SPMP), which is located in the northeastern portion of Seattle, Washington (see **Figure 1.1-1**). Sand Point Magnuson Park (including all of the project site for the proposed action) is located within the former boundaries of the Puget Sound Naval Station, Seattle, a major military installation operated by the U.S. Navy. A large portion of the former naval station, which primarily included the land used for a military airfield, was transferred to the City for park use in 1970. The Navy transferred another parcel including administrative, residential and operations buildings to the City in 1997, following extensive study of the appropriate reuse of that parcel.

Sand Point Magnuson Park currently includes a total area of 352 acres, including 30 acres within the property boundary administered by other entities (see **Figure 1.1-2**). The geographic scope of the proposed action includes approximately 153 acres, or about 43 percent of the total park area, generally located within the southern and eastern sectors of park. Existing uses within the project site include two areas with multiple grass-surfaced athletic fields, six tennis courts, two picnic areas, park roadways and trails, parking lots, some remaining naval station buildings and related facilities, and extensive, unmanaged open space areas. Some of these uses would be redeveloped or reconfigured in their present locations, while others would be replaced under the proposal. Park uses within the original Sand Point Magnuson Park property and adjacent to the project site, including a boat launch, a beach area and an off-leash dog exercise area, would remain in their current (or currently proposed) configuration and would not be modified as part of the proposed action. Similarly, the scope of the proposed action does not extend into the area of former Navy buildings along the western edge of the Sand Point site, which are being redeveloped for a variety of community, recreational and residential uses.

The Department of Parks and Recreation (DPR), as the lead agency under the State Environmental Policy Act (SEPA), has determined that the proposed project may have a significant adverse effect on the environment. Therefore, an environmental impact statement (EIS) is required under RCW 43.21C.030(2)(c). DPR has prepared this Final EIS pursuant to the SEPA rules (WAC Chapter 197-11) and the applicable provisions of the Seattle Municipal Code (SMC). The Draft EIS was circulated in January 2002 for review by agencies and the public. DPR considered all formal review comments on the Draft EIS and incorporated responses to those comments in this Final EIS.

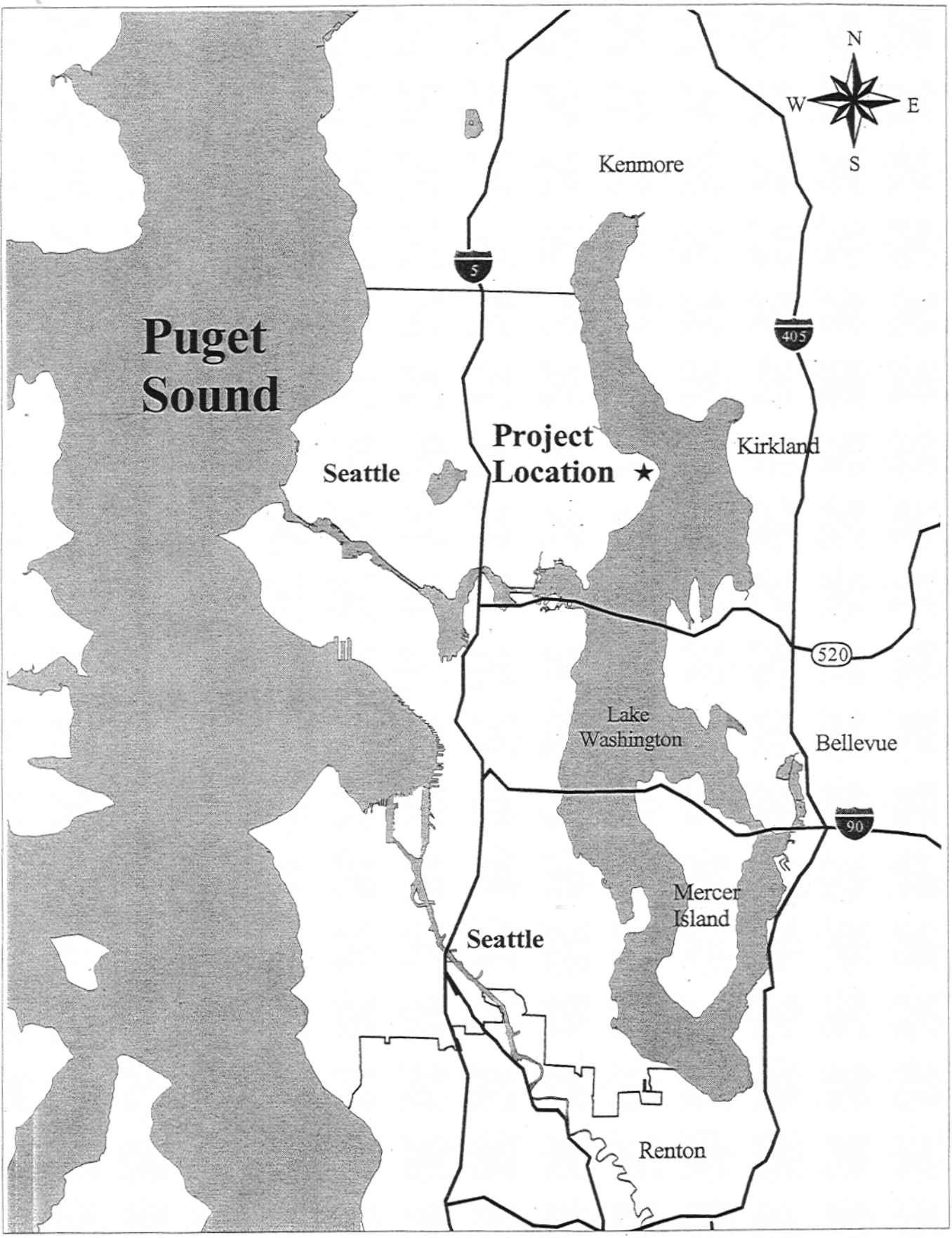


Figure 1.1-1
Location Map

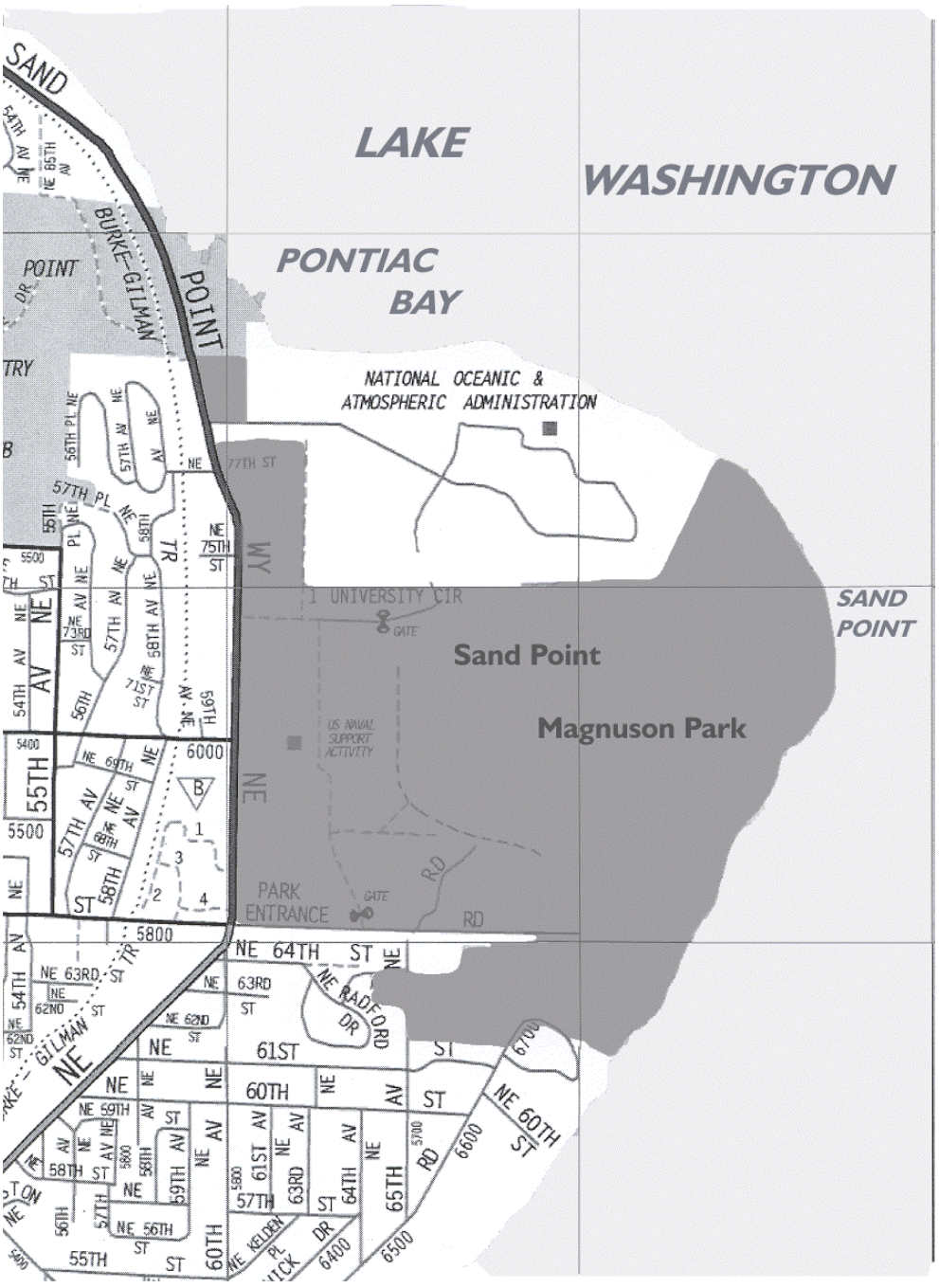


Figure 1.1-2
Project Vicinity Map

1.2 PURPOSE AND USE OF THIS EIS

The purpose of this EIS is to inform the Mayor of Seattle and the Seattle City Council about significant adverse and positive impacts that are likely to occur if the proposed Sand Point Magnuson Park Drainage, Wetland/Habitat Complex and Sports Fields/Courts Project is approved by the City Council and implemented by DPR. The EIS does not purport to identify all conceivable environmental impacts that might result from the proposed action, and it specifically omits discussion of potential impacts that were determined through the scoping process as unlikely to be significant (per SMC 25.05.448). The EIS focuses attention on the potentially significant impact topics, based on the nature of the project components and the key issues identified through the scoping process.

The EIS describes the affected environment for each pertinent element of the environment, assesses the significance of likely impacts for that element, discusses possible mitigation measures that could avoid or reduce the expected impacts, and identifies significant adverse environmental impacts that could not be avoided. SEPA and the SMC do not require the City to mitigate each adverse environmental impact identified, nor do they require the City to deny the proposed action if there would be impacts that could not be mitigated. The purpose of the EIS is simply to portray for the City Council the possible effects (beneficial as well as adverse) of the proposal and alternative courses of action, so that the Council can make a reasoned assessment of the impacts and an informed choice among alternatives. The Council will then weigh the information presented in the EIS, along with information on social, economic and other pertinent considerations, in determining whether to proceed with the proposal (SMC 25.05.448).

This EIS for the Sand Point Magnuson Park Drainage, Wetland/Habitat Complex and Sports Fields/Courts Project documents a discrete portion of a phased environmental review process for DPR planning and project-level activities at the Sand Point site. To a degree, this EIS tiers on the Sand Point Reuse Project Final EIS, which the City released in October 1996. The Reuse Project EIS (City of Seattle, 1996) addressed both project-specific and "non-project" or programmatic actions proposed for the western 151-acre parcel of the Sand Point site that was transferred to the City in 1997. Phased environmental review of a sequence of actions spanning project planning and implementation is intended to allow lead agencies and decision makers to focus on issues that are ready for consideration and decision at the appropriate time, and to exclude from consideration issues already decided or not yet ready for decision. The Reuse Project EIS included varying levels of detail for the many project and non-project actions addressed in the document, depending on the nature and proposed implementation timing for the respective actions. The City's intent with the 1996 EIS was to provide legally sufficient review for all of the subject non-project actions (e.g., adoption of defined Sand Point amendments to the Seattle Comprehensive Plan and approval of the Physical Development Management Plan for Sand Point), and for the project actions expected to be ready for permitting within the ensuing 2 years. The 1996 EIS provided environmental review for the programmatic guidance established in the reuse plan to develop sports fields and restore wetlands in what the plan designated as the Magnuson Park Open Space/Recreation Expansion Area. The current EIS provides project-level detail and environmental review specifically for the Drainage, Wetland/Habitat Complex and Sports Fields/Courts Project, which is possible and appropriate now that DPR has developed a specific design for the project.

Conversely, DPR has not attempted in this EIS to document project-level review of other proposed DPR actions for other locations on the Sand Point site. Some of the project-specific actions addressed in the

Reuse Project EIS have already been implemented following their review in the 1996 EIS and need not be reevaluated in the current EIS. Other actions that are currently pending for the Sand Point site are independent of the drainage, wetland/habitat and sports fields project, based on location, funding and/or sponsorship considerations, and are or will be undergoing independent environmental review. Please refer to Section 2.6 for additional discussion of the status of other Sand Point projects.

1.3 OBJECTIVES FOR THE PROPOSAL

The development of Sand Point Magnuson Park has been an ongoing community discussion for decades, since before the final closing of the Navy airfield in 1970. A consistent theme in the various plans developed for the peninsula was the creation of a City park. Plans for the park developed for the City in the 1970s (Jones and Jones, 1975), the 1980s (Worthy and Associates, 1988) and the 1990s (by Haag and Associates, EDAW, Inc. and Jones and Jones) each include the development of sports fields, sports courts, wetlands and habitat areas. The City Council has affirmed its goals for the development of the park over the years through a variety of actions.

The City Council has approved the Seattle Parks and Recreation Plan 2000 (Seattle Department of Parks and Recreation, 2000), the Joint Athletic Fields Development Program (Seattle Department of Parks and Recreation, 1997a), the Sand Point Physical Development Management Plan (City of Seattle, 1997b) and the Sand Point Magnuson Park Concept Design (1999) as amended (2001). The combination of these documents provides the statement of objectives for the proposal.

The focus of this proposed project was included as part of the programmatic Environmental Impact Statement completed in 1996 for the Sand Point Reuse Plan (City of Seattle, 1996). Based on that environmental review, the City Council approved Resolution 29249 approving the Sand Point Physical Development Management Plan (PDMP). The PDMP identified the Magnuson Park Open Space/Recreation Expansion Area.

Much of the south end of the naval station property was identified as being added to Sand Point Magnuson Park. Park improvements identified for this area included creating an improved park entrance at the intersection of NE 65th Street and Sand Point Way NE and providing additional sports fields and open space. The principal considerations defined in the Physical Development Management Plan for the development of this area are:

- Expand recreational opportunities
- Enhance open space and natural areas
- Demonstrate environmental sensitivity
- Improve accessibility
- Reuse historic resources

The 1997 Physical Development Management Plan states that:

> *A large area at the south end of the Navy Base, immediately adjacent to the existing Magnuson Park can be readily added to the park. This area includes land in the existing entrance corridor to the Park from the intersection of NE 65th and Sand Point Way NE, the Navy's Commissary and Exchange area, the existing sports fields, and the recreation*

center in Building 47. Use of much of this area has been contemplated since the original "Sand Point Park" plan for Magnuson Park was prepared in 1975. The Commissary area and removal of the buildings in that area will allow for a better roadway and separate bicycle/pedestrian access to the park, as well as allow the restoration of the former "Mud Lake" wetlands that existed until the Navy airfield was built in the 1930s. Acquisition and reuse of Building 345 in this area will also allow for a park maintenance facility to be developed consistent with the original park plan and as recommended in the Department of Parks and Recreation's 1993 COMPLAN.

Park Entrance/Circulation

At present, the entrance to Magnuson Park is via a narrow, half-mile long corridor through the southern part of the Navy property. There is some tree planting alongside the road only in the westerly end of the corridor, there is none in the easterly end along the edge of the Navy commissary facilities. There is also no sidewalk covering the full length of the entryway.

Widening of the roadway, separate bicycle and pedestrian pathways alongside the roadway (with some greater degree of horizontal separation from the roadway where desirable to follow the contours of the steep hillside into the park), and appropriate tree plantings and other landscaping improvements are proposed, consistent with the character of Magnuson Park.

Building 15 may be demolished to make way for open space improvements pending the resolution of its status as a historic structure. Existing fencing in the access corridor would be removed and new fencing installed only where necessary to separate park areas from adjacent uses. Additional pedestrian connections from Sand Point Way NE to Magnuson Park would encourage foot traffic and help integrate the Park with nearby neighborhoods.

Open Space and Wetlands

Removal of the former Commissary area facilities will allow for the restoration of the former wetlands, called Mud Lake, that existed there prior to the establishment of the Naval Base. Following the removal of structures and pavement, extensive grading and planting would be undertaken to create a complex ecosystem of wet meadows, scrub thickets, emergent vegetation and open water similar to that which previously existed. Runoff flows from the Navy Base to the west are routed to Lake Washington via a storm drain system, but could be intercepted and discharged into the wetlands system. The new wetlands would greatly improve Magnuson Park's value as a wildlife habitat area. These wetlands, coupled with perimeter pedestrian pathways and several well-placed viewpoints, will also increase the utility of the site for environmental education and recreational pursuits such as bird watching.

The only building in the commissary area proposed for retention is Building 345, a one-story utilitarian structure built in 1976 for use as a service station. With minimal remodeling the structure can serve as a park maintenance facility that would include office, lunchroom and changing room spaces as well as storage for tractors and other maintenance equipment. An adjacent service yard would be well-screened and appropriately landscaped to fit the park setting. Buildings 193, 228, 244, 301, 308, 340, 341, 342, and 344 would be demolished and

surrounding pavements removed to create the wetlands and open space noted above. Existing fencing may be removed in order to integrate this area with the remainder of Magnuson Park.

Sports Fields and Playgrounds

The existing sports field area includes two softball diamonds, an open field sport area for soccer and related sports, and nearby picnic and playground areas. Initially these facilities would be added to Magnuson Park in their present form, with little modification or repair. Outfield fences on one or both of the softball fields may be relocated to allow for their use for baseball. Areas adjacent to Building 244, a small storage structure that would be removed, could be improved to serve as additional sports field space, most likely for softball. Eventually, however, further improvements would be needed to meet the burgeoning demand for sports field facilities. A "cloverleaf" of four softball diamonds is recommended to be developed near the western edge of the Park.

Additional soccer fields may also be developed between the former Navy sports fields and the existing sports meadow at Magnuson Park.

Other development recommended in the sports field vicinity to blend the existing Magnuson Park with lands proposed for acquisition from the Navy includes a large unstructured open space, additional park restroom facilities, and a substantial play area for young children. Reuse of the existing roadway is proposed to provide access from the main park roadway to the new parking and related facilities. Fencing that separates the Navy sports fields from the existing park would be removed.

Following the adoption of the 1997 Physical Development Management Plan, refinement of the plans for the Park continued. In 1999 the City Council approved Resolution 30063 providing additional guidance on the design for Sand Point Magnuson Park. With the adoption of Resolution 30063, the Council approved the Sand Point Magnuson Park Concept Design, which provided updates to the Physical Development Management Plan. In April 2001, the City Council approved Resolution 30293, which amended the Magnuson Park Concept Design and Resolution 30063. Resolution 30293 provided additional guidance from the City Council on the sports fields and courts configuration. The overall objectives for the development of the sports fields and open space wetlands project remained essentially the same through the adoption of those Resolutions.

In addition to the 1997 Physical Development Management Plan and the 1999 Magnuson Park Concept Design, the City Council has also approved a Joint Athletic Fields Development Program (JAFDP). The JAFDP provides programmatic guidance to the Parks Department on the development of athletic facilities citywide. The JAFDP addresses facilities at both Parks Department and Seattle School District properties. That document identifies the development of fields at Sand Point Magnuson Park. The original document approved in 1997 outlined numerous specific fields and amenities to be included at Sand Point Magnuson Park. The draft 2002 JAFDP update (City of Seattle Department of Parks and Recreation, 2002)likewise identifies Sand Point Magnuson Park as a location for development for a number of sports fields and indicates that the Pro Parks Levy would provide funding for the development of several fields at this site.

The Sand Point Magnuson Park Concept Design provides the graphic outline of the project components included in the current proposal. The Concept Design clarifies the project objectives, originally stated as principle consideration in the PDMP, by demonstrating graphically the balance between expanding recreational opportunities, enhancing open space and natural areas, and improving accessibility. The text in Resolution 30063 further clarifies the Council's objectives related to expanding recreational opportunities by stating that 5 baseball/softball fields, 6 tennis courts and 2 soccer fields will be lighted. The Council also stated that 11 fields will have synthetic turf and 4 will have natural grass surfaces. The Council left open the possibility of lighting other fields pending additional public input and review.

1.4 DESCRIPTION OF THE PROPOSAL AND ALTERNATIVES

This EIS focuses on the proposed action, which is for the Department of Parks and Recreation to implement the Sand Point Magnuson Park Drainage, Wetland/Habitat Complex and Sports Fields/Courts Project. The project as proposed is described in detail in **Section 2.2** of the EIS. The EIS also addresses one action alternative to the proposal, referred to as the lesser-capacity alternative, and the no action alternative (see **Section 2.3 and 2.4**, respectively, for complete descriptions). The three alternatives are briefly summarized below.

1.4.1 Proposed Action

The proposal includes development of an integrated sports field and courts complex, a wetland/habitat complex, a drainage system, and a circulation system. The guiding concept for the proposal is to integrate the physical features and functions of all of the project components. Specifically, the proposal includes:

- 11 sports fields that would have all-weather, synthetic surfaces and would be lit;
- a sports meadow for both scheduled and unstructured play activities, accommodating up to 4 additional full-size sports fields, that would have a natural grass surface and not be lit;
- replacement of 6 existing tennis courts, a parking lot and access road with wetland/habitat features (the tennis courts to be replaced in the future with approximately 14 courts as part of an adjacent project)
- an inline-skate hockey surface, 3 basketball courts, 3 sand volleyball courts and an open lawn flex space;
- a wetland/habitat complex of approximately 65 acres, with an open-water lagoon connection to Lake Washington between the existing swim beach and the boat launch;
- a total of approximately 991 parking spaces, including 867 spaces with security lighting;
- three building complexes to house restrooms, concession stands and maintenance and education facilities for the sports field, sports meadow and wetland/habitat areas;
- reconfiguration of NE 65th Street within the park boundary, and two interior park roadways;
- a pedestrian trail system through the sports fields and around the wetland/habitat area, some of which would be designed to support cross-country running competition; and,
- relocation and replacement of existing utilities as necessary.

1.4.2 Lesser-Capacity Alternative

The lesser-capacity alternative that is analyzed in **Chapter 3** of the EIS is similar to the proposed action, particularly with respect to its overall footprint within the park, and also includes a sports field complex, a wetland/habitat complex, integrated drainage, and a circulation system. The lesser-capacity alternative would accommodate a considerably lower volume of sports field use, however, and a somewhat smaller acreage of wetland/habitat complex. The primary differences with respect to the proposed action are that fewer of the sports fields would have all-weather surfaces and lighting, and an existing roadway and parking lot in the interior of the park would not be removed and replaced with wetland area. Specifically, the lesser-capacity alternative includes:

- 3 sports fields (rather than the 11 with the proposal) that would have all-weather, synthetic surfaces and would be lit;
- 7 new sports fields that would have natural-grass surfaces and would not be lit;
- a somewhat smaller sports meadow area that would have natural grass surfaces and would not be lit;
- 6 existing tennis courts southeast of the sports meadow to remain, with approximately 8 new courts to be added as part of an adjacent project
- basketball courts and volleyball courts;
- a wetland and habitat area of approximately 62 acres with an open-water lagoon connection to Lake Washington immediately north of the boat launch;
- reconfiguration of NE 65th Street within the park boundary, and two interior park roadways;
- a total of approximately 393 lit and 672 unlit parking spaces;
- retention of the existing sports meadow parking lot and access road;
- two new buildings (rather than the three with the proposal) to house restrooms, concession stands and maintenance and education facilities for the wetland habitat area and the sports fields;
- a scaled-down pedestrian trail system through the sports fields and around the wetland habitat area; and
- existing utilities would be relocated as necessary.

1.4.3 No Action Alternative

The no action alternative represents the most realistic expectation of future conditions if the proposal for a wetland/habitat complex, drainage system, and sports fields/courts were not implemented by the Department of Parks and Recreation. Given the condition of the existing park facility, a few minimal improvements would be expected to occur without the proposal. These would include major maintenance improvements to the drainage and irrigation system at the existing sports fields in Sand Point Magnuson Park. The former Navy Commissary facility, which includes five buildings at the south end of the project area, would be demolished regardless of the disposition of the proposed action. These buildings present a substantial security issue for the City and would likely be demolished even without the project as proposed. The parking areas at the commissary site would remain paved and open to general parking. The existing sports fields at Sand Point would remain in their current condition. The current undeveloped area east of the Sand Point sports fields and south of the existing tennis courts would remain largely unchanged, although the composition of the vegetation would change over time through natural growth and succession. In addition, implementation of the Vegetation Management Plan for the park would result in removal of non-native invasive species within natural habitat areas and replacement with native

species. Minor improvements would be made to the existing pedestrian circulation system through the maintenance of trails. The existing parking would remain in its current configuration. Existing utilities would remain in place.

1.5 SUMMARY COMPARISON OF ALTERNATIVES

1.5.1 Environmental Impacts

A comparative summary of the expected impacts of the proposed action, the lesser-capacity alternative and the no-action alternative has been prepared to assist decision makers and the public in understanding the environmental choices among the alternatives. This summary is provided in **Table 1.5-1**. Review of the table allows a quick comparison of the impacts of the proposal to those of the other alternatives. The entries in the table are consolidated versions of the impact conclusions documented in **Chapter 3** of the Final EIS for the respective elements of the environment.

1.5.2 Mitigation Measures

Sections 3.1 through **3.13** in **Chapter 3** of the EIS include separate discussions of available mitigation measures following the presentation of the impact analysis for each element of the environment. The treatment of mitigation measures is keyed to the impact results; potential mitigation measures are identified if significant environmental impacts might be expected, but need not be addressed if significant impacts are not identified.

The discussions of mitigation measures distinguish between proposed mitigation and possible mitigation. Proposed measures are those that have been adopted by the project proponent (the Department of Parks and Recreation, in this case) and incorporated into the construction and/or operation plans for the project. Possible or potential measures are those that have been identified through the impact analysis as measures that the proponent could consider to address identified impacts, but has not yet adopted or incorporated into project plans.

The status of proposed and potential mitigation measures, as of the release of the Final EIS, is summarized by element as follows:

- **Earth and Water:** temporary erosion and sediment control measures, as required under the construction stormwater permit, would be applied to limit erosion and associated impacts to water from surface disturbance created by the project. Dust-suppression plans and measures would also be applied, and sampling for potential soil or groundwater contamination would be conducted where applicable.
- **Plants/Wetlands:** the wetland/habitat component of the project is focused on expanding the net wetland acreage and improving wetland function on the project site; some existing wetlands on the site would remain and be enhanced and new wetland areas would be created. In addition to the wetland creation and enhancement measures, runoff to the wetland/habitat complex would be pre-treated to provide a source of clean water to the complex.
- **Wildlife and Fish:** wetland and upland habitat expansion would benefit a variety of wildlife species, as would measures to plant desired vegetation and create structure and diversity on the site. Fencing, signage and other features would be incorporated into the project design to control

human use within the wetland/habitat complex and minimize potential human disturbance impacts.

- **Energy and Natural Resources:** programmable light systems would be used to minimize energy consumption, while similar measures would be used to conserve water used for irrigation of project facilities.
- **Noise:** compliance with the City's noise ordinance, along with ongoing monitoring, would be the primary tool to limit construction noise impacts in surrounding areas. Proposed measures to mitigate operational noise include use of resilient materials on backstops, prohibiting use of loudspeakers and similar noise sources, and monitoring of actual compliance with noise standards. Additional potential measures available for consideration include sports field design changes, such as rotating the orientation of some of the fields, and limiting the hours of field operation.
- **Aesthetics:** application of the Sand Point Magnuson Park design standards would maintain the quality of views of the project site; measures such as treatments of light poles and screening in selected locations could be considered
- **Light and Glare:** the primary mitigation approach is to employ the latest technology to minimize light trespass from the sports field lighting systems, to comply with adopted light trespass standards. Additional potential measures available for consideration include shielding or comparable measures for adjacent on-site residential uses; using higher poles and luminaire mounting heights; coordinating with plans for future development of additional homeless transitional housing; and restricted hours of nighttime operation.
- **Historic and Cultural Preservation:** compliance with required procedures and analyses associated with removal of one historic structure would ensure impacts would be limited.
- **Land Use, Recreation, Transportation and Public Services and Utilities:** no significant impacts were identified for these resources, consequently no mitigation measures were proposed. However, a project-specific construction traffic plan would be developed and implemented to minimize disruption of traffic on neighborhood streets by project construction activities.

1.5.3 Significant Unavoidable Adverse Impacts

For several elements of the environment, the impact analysis indicated that project effects would either be beneficial or, if adverse, would not reach the level of significance. In several other cases the identified impacts were potentially significant, but could be reduced to an insignificant level with the application of standard mitigation measures (such as the City noise control ordinance and the Sand Point Magnuson Park design standards). One unresolved issue associated with the proposed action concerns the potential for significant adverse impacts from sports field lights on the existing homeless transitional housing area between Sand Point Way NE and Sportsfield Drive within Sand Point Magnuson Park, and possibly on some units in the Radford Court apartment complex. These potential impacts appear to be unavoidable with the project as proposed, and evaluation to date has not identified mitigation measures that would necessarily limit these impacts to an insignificant level. The project design does incorporate all technical measures identified in the City's lighting design guidelines, however. Operational measures that would reduce lighting impacts to an insignificant level also appear to be available.

Table 1.5-1
Environmental Impacts of the Alternatives

Proposed Action	Lesser Capacity Alternative	No Action Alternative
EARTH		
Grading and clearing of virtually all of 153-acre project site in four primary construction phases over approximately 10 years. Post-construction conditions would include gradual slopes from west to east, as at present.	Grading and clearing activities similar in type and extent to proposed action; somewhat less extensive grading because sports meadow area would not be expanded, existing tennis courts and sports meadow parking lot retained.	Grading and clearing activities limited to demolition of several existing buildings. Existing paved areas on project site to remain, existing compacted soils conditions to continue.
Limited short-term erosion and sedimentation potential from ground-disturbing activities; impacts kept to insignificant levels through Temporary Erosion and Sedimentation Control (TESC) measures.	Insignificant short-term erosion and sedimentation impacts, similar to proposed action.	Negligible short-term erosion and sedimentation impacts.
No slope stability or geologic hazard impacts.	No slope stability or geologic hazard impacts.	No slope stability or geologic hazard impacts.
WATER		
Sheet, shallow and channel flow characteristics in post-construction drainage patterns. Runoff conveyed to Lake Washington through several surface drainage "chains" integral to the wetland/habitat complex.	Similar post-construction drainage pattern to proposed action, with slightly smaller area developed for natural surface drainage chains.	Continued sheet flow drainage characteristics on highly modified and compacted site. Existing storm drains to Lake Washington deteriorated.
18.6 acres of constructed impervious surfaces (paving, roofs, etc.), a reduction of 7.7 acres from the existing condition. Slower overall rate of runoff discharge, based on smaller areas of constructed hardscape and compacted soils, and extensive sports field area with sand and gravel subgrades for optimum drainage.	20.2 acres of constructed impervious surfaces, a net reduction of 6.1 acres. Slower overall rate of runoff discharge, similar to proposed action.	27.4 acres of constructed impervious surfaces within project limits. Poor permeability from compacted soils in much of remaining area.

Proposed Action	Lesser Capacity Alternative	No Action Alternative
WATER (cont'd)		
Potential localized, short-term sediment discharge from construction ground disturbance; impacts limited through TESC measures required by construction stormwater permit.	Potential limited, short-term construction impacts similar to proposed action, possibly slightly less due to somewhat smaller area of surface disturbance.	Negligible potential short-term, localized sediment discharge associated with demolition of several structures.
Water quality treatment systems (bioswales, filter strips, wetponds, water quality vaults) incorporated to treat runoff from developed areas before discharge to wetland/habitat complex. Treatment facilities designed to state/local performance standards.	Water quality treatment systems and design standards same as for proposed action.	Continued stormwater discharge from project site to Lake Washington without water quality treatment.
Positive water quality impact expected from improved drainage characteristics and addition of water quality treatment facilities.	Positive water quality impact expected, similar to proposed action.	Potential water quality impact, but not measured or detected.
PLANTS/WETLANDS		
Wetland/habitat complex of 65.1 total acres, including 31 wetland acres. Total habitat area increased by net of 11 acres and wetland area increased by a net of 8.5 acres from existing conditions. Substantial increase in wetland function and values.	Wetland/habitat complex of 61.6 total acres, including 32.2 wetland acres. Total habitat area increased by net of 7.5 acres and wetland area increased by a net of 9.7 acres from existing conditions. Substantial increase in wetland function and values.	Effective area of habitat zones approximately 54.1 acres, including about 22.5 acres of wetlands. Existing upland and wetland habitats provide low functions due to variety of limitations.
Loss of small area (9.9 acres) of existing wetland habitat of low functional value in sports field complex portion of the site. Net increase in total wetland and upland habitat area, to replace existing parking lot, tennis courts and roadway. Existing emergent marshes and sedge meadow in interior portion	Loss of small area (4.8 acres) of existing wetland habitat in sports field area and enhancement of existing emergent marshes and sedge meadow in interior portion of site, similar to proposed action. Existing parking lot, tennis courts and roadway in interior portion of site to remain.	Existing wetland habitats would remain but proceed through natural successional stages, with corresponding changes in wetland area and functions over time.

Proposed Action	Lesser Capacity Alternative	No Action Alternative
PLANTS/WETLANDS (cont'd)		
of site retained and enhanced in size and functional value. Extensive areas of upland meadow, savannah, non-native shrub thickets, non-native trees, wet meadows and shrub meadows converted to complex mosaic of ponds, marshy pools, seasonal wetlands and a lagoon on Lake Washington, interspersed with retained and planted native deciduous forest area. No documented rare, threatened or endangered plant species present, none affected. No significant adverse indirect impacts to wetland or upland communities on long-term basis. Water quantity and quality changes likely beneficial for wetlands. Disturbance of plant communities through increased human presence or lighting system use not expected to be significant.	Extensive areas of mixed upland and wetland habitats converted to complex mosaic of ponds, marshy pools, seasonal wetlands and a lagoon on Lake Washington, interspersed with retained and planted native deciduous forest area. No documented rare, threatened or endangered plant species present, none affected. Long-term indirect impact potential similar to proposed action, likewise not significant. Substantial increase in human use, but less than proposed action. No measurable exposure of wetland/habitat complex to artificial lighting.	Current mix of upland and wetland habitats to change through natural succession and implementation of park vegetation management plan; gradual removal of invasive, non-native plant species. No documented rare, threatened or endangered plant species present, none affected. Existing sources of potential indirect effects on plant communities would continue. Gradual increase in human use over time.
ANIMALS AND FISH		
Wildlife		
Conversion, enhancement and expansion of existing and new habitat types to develop wetland/habitat zone of 65.1 acres, with a complex mosaic of wetland and upland habitats providing increased habitat function to a variety of wildlife species. Overall net decrease in upland habitat and net increase in wetland habitat.	Conversion, enhancement and expansion of existing and new habitat types to develop wetland/habitat zone of 61.6 acres (3.5 acres less than proposed action), similar to proposed action. Overall net decrease in upland habitat and increase in wetland habitat.	Area of effective habitat within project site estimated at 54.1 acres as at present, with greater area in paved surfaces than either proposed action or lesser capacity alternative.

Proposed Action	Lesser Capacity Alternative	No Action Alternative
Wildlife (cont'd)		
Displacement of up to 10 acres of existing wetland habitat, predominantly wet meadow and scrub wetland, with sports fields, landscaping, parking lots and trails. Replacement of approximately 12 acres of buildings and paved areas with wetland/habitat area, upland forest buffer or park landscaping.	Displacement of approximately 5 acres of existing wetland habitat, predominantly wet meadow and scrub wetland, with sports field complex facilities. Replacement of approximately 10 acres of buildings and paved areas with wetland/habitat area, upland forest buffer or park landscaping.	Existing park acreage available as wildlife habitat would generally remain, with changed conditions over time through natural succession and implementation of park vegetation management plan.
Overall increase in number and species diversity expected for birds, but changes variable depending on habitat needs. Benefits expected primarily for waterfowl, migrating and wintering shorebirds and marsh birds, and forest-dependent birds; reduced numbers likely for ground-dwelling birds.	Some increase in number and species diversity for birds, similar to proposed action, but lesser overall benefits for birds due to retained interior parking lot and access road.	Removal over time of non-native invasive species, plus maturing of on-site vegetation already present, would be expected to favor species dependent on deciduous forest. Species using existing meadow and wetland habitats would likely decrease in number and diversity.
Mammal diversity expected to increase. Water-oriented species such as beaver, muskrat and otter expected to benefit the most; increase also expected for forest-dependent species (such as squirrels), cavity-nesters and bats. Reduced numbers expected for ground-dwelling mammals such as meadow voles, shrews, mice, rats and rabbits. Increased diversity and abundance of amphibians and reptiles, especially wetland-dwelling species.	Overall benefits for mammals similar to proposed action, but somewhat less due to slightly reduced habitat acreage. Overall benefits for amphibians and reptiles similar to proposed action, but somewhat less due to slightly reduced habitat acreage. Changes to human disturbance patterns similar to proposed action. Comparatively greater human use in the core area of the habitat	Unrestricted human access to virtually all areas of the project site would likely continue as at present, with associated disturbance effects for wildlife using the site.

Proposed Action	Lesser Capacity Alternative	No Action Alternative
Wildlife (cont'd)		
Possible positive and negative effects from changes in human disturbance patterns. Pedestrian circulation system would guide visitors to peripheral areas of wetland/habitat complex, providing greater protection to core area that now has unrestricted human access. Total human use in the habitat complex would increase, due to the attraction of the habitat complex and secondary pedestrian use from other park activities.	complex due to retained interior parking lot and access road. Substantial increase in total use of the habitat complex, but considerably less than for proposed action.	Exterior lighting conditions similar to present, except for removal of lights at demolished buildings; negligible potential for adverse light impacts on wildlife.
Western fringe of wetland/habitat complex exposed to artificial light from the sports fields. Research suggesting adverse effects on wildlife from other types of artificial lighting not directly applicable to sports field lights, so likelihood of adverse impacts cannot be predicted. If light from sports fields did affect wildlife, consideration of context and intensity indicates impacts would be limited to a small portion of the wetland/habitat complex, would affect habitats that do not exist now, and would not likely be significant.	Lighted field configuration would not result in spill light within wetland/habitat complex. Therefore, potential impacts on wildlife, primarily birds and insects, from sports field and parking lot lighting would not be an issue.	Exterior lighting conditions similar to present, except for removal of lights at demolished buildings; negligible potential for adverse light impacts on wildlife.
No adverse effects expected on any listed wildlife species.	No adverse effects expected on any listed wildlife species.	No adverse effects expected on any listed wildlife species.

Proposed Action	Lesser Capacity Alternative	No Action Alternative
Fish		
Potential for minor, localized, short-term water quality effects in fish habitat from ground disturbance during construction; impacts limited through TESC measures required by construction stormwater permit.	Potential for minor, localized, short-term water quality effects in fish habitat from ground disturbance during construction, similar to proposed action.	Negligible potential for minor, localized, short-term water quality effects in fish habitat from ground or shoreline disturbance during demolition or major maintenance activities.
Temporary disturbance and loss of fish habitat along small area of Lake Washington shoreline for construction of proposed lagoon. Timing of construction impact would comply with specified periods for in-water construction.	Temporary disturbance and loss of fish habitat along small area of Lake Washington shoreline for construction of proposed lagoon, same as for proposed action.	Current extent and quality of near-shore fish habitat expected to continue.
Long-term benefit to native fish using Lake Washington system through creation of 4.4-acre lagoon with a convoluted shoreline along the lake, providing increase in valuable near-shore habitat. Lagoon design includes measures to favor native species and discourage use by non-native species.	Long-term benefit to native fish using Lake Washington system through creation of 4.4-acre lagoon and increase in valuable near-shore habitat, same as for proposed action.	
No adverse effects expected on any listed fish species. Potential habitat benefits for Puget Sound chinook salmon, currently listed as a threatened species, primarily through creation of additional rearing habitat available for juvenile chinook.	No adverse effects expected on any listed fish species. Potential habitat benefits for listed Puget Sound chinook salmon.	No adverse effects expected on any listed fish species.

Proposed Action	Lesser Capacity Alternative	No Action Alternative
ENERGY AND NATURAL RESOURCES		
Lighting systems on 11 sports fields would create electric power demand of approximately 775 kW. Fields would typically operate from 600 to 1,000 hours each per year, depending on the type of field, and consume a total of about 645,000 kWh per year.	Lighting systems on 3 sports fields would create electric power demand of approximately 205 kW. Fields would typically operate from 600 to 1,000 hours per year each, depending on the type of field, and consume a total of about 175,000 kWh per year (approximately one-fourth the consumption of the proposed action.	Minimal amounts of electricity would continue to be consumed for building, street and parking lot lighting on the site. Energy use would likely decline following demolition of several buildings on the site.
Lighting systems for parking lots, roadways and building security would create an additional demand of about 83 kW.	Ancillary lighting systems much less extensive than proposed action, would create an additional demand of about 20 to 25 kW.	
Energy consumption for field lighting and other systems would be equivalent to less than 1/100th of 1 percent of typical annual consumption by Seattle City Light customers, and would represent a negligible impact on the utility's service capacity or existing customers.	Energy consumption for field lighting and other systems would represent a negligible impact on Seattle City Light capacity or existing customers.	
Increased on-site water consumption for irrigation of fields, landscaped areas and new plant communities in habitat areas. Irrigation use for expanded, renovated sports meadow area estimated at 1.1 million cubic feet or 25.8 acre-feet per year. Project water requirements would not represent adverse impact on water provider or supply sources.	Larger increase in water consumption, relative to proposed action, to maintain additional natural-turf sports fields. Irrigation use for 10 natural-turf fields likely to be about 3 million cubic feet or 75 acre-feet per year. No adverse impact on water provider or supply sources expected.	Continued small-scale water use for irrigation of fields and landscaping.

Proposed Action	Lesser Capacity Alternative	No Action Alternative
NOISE		
Construction and demolition activities would create temporary, intermittent noise at varying times and intervals during the construction period. While construction would span a period of 10 years or more, heavy equipment activity and noise would be concentrated in periods of about 3 months each during 4 construction phases.	Construction noise sources, duration, control measures and impacts essentially the same as those identified for the proposed action.	Limited, short-term, intermittent noise possible from maintenance, minor construction and demolition activities.
Construction activities subject to noise control provisions of the City's noise ordinance, with limits on hours of noise generation and on noise levels in residential areas, and monitoring for compliance.		Ongoing activities subject to control provisions of City's noise ordinance.
Construction noise likely to be audible at times in adjacent residential areas on the Sand Point campus and the Radford Court complex. Based on expected compliance with noise ordinance, construction noise impacts are not expected to be significant.		
Predicted noise levels from sports field operation would meet Seattle noise limits at all on-site and off-site locations during fall and winter, and would generally be lower than existing sound levels in the project vicinity. Predicted spring/summer field noise would meet daytime noise limits at all measured locations, and would exceed nighttime limits only at SPCHA Building 224.	Sports field noise sources and impacts similar to the proposed action; potential to exceed nighttime limits at Building 224, despite smaller increase in overall park and sports field use, and considerably less extensive field use in evening hours.	Continued use of existing Sand Point Fields and sports meadow fields for programmed and unstructured athletic activities, with associated intermittent minor noise from participants and spectators. Existing noise levels not documented as a frequent source of complaints from neighbors.

Proposed Action	Lesser Capacity Alternative	No Action Alternative
NOISE (cont'd)		
Sports field noise impacts would be insignificant at off-site locations and similar to existing levels at on-site locations. Traffic noise associated with sports field use would not increase predicted on-site noise levels above sports field noise alone. Increased off-site traffic noise associated with sports fields would be barely discernible.	On-site traffic noise levels predicted to be slightly less than for proposed action. No off-site traffic noise impacts expected.	
LAND AND SHORELINE USE		
Land Use Patterns and Housing		
Minor internal shift in allocation of park uses within project site; additional acreage devoted to sports field use, most of remaining area converted from unprogrammed use to wetland/habitat complex. Intensified human use of the project site. No direct impact on land use patterns in the adjacent off-site community. Potential for minor indirect impact if additional retail/service use developed in response to increased park use. No impact on housing supply or patterns.	Internal park land use shifts similar to proposed action, with slightly less area allocated to sports field and wetland/habitat use. No direct impact on land use patterns in the adjacent off-site community. Slightly reduced potential for minor indirect impact from additional retail/service use, relative to proposed action. No impact on housing supply or patterns.	No change in internal park land use allocation expected; sports field and unprogrammed activity areas to continue as at present. No influence on off-site land use patterns. No influence on housing supply or patterns.

Proposed Action	Lesser Capacity Alternative	No Action Alternative
Land Use Plans, Policies and Regulations		
Proposed project consistent with the open space, shoreline and recreation objectives of City's Comprehensive Plan and Parks and Recreation Plan.	Project alternative consistent with the open space, shoreline and recreation objectives of City's Comprehensive Plan and Parks and Recreation Plan.	Future activities consistent with City's Comprehensive Plan and Parks and Recreation Plan, land use and zoning code, Shoreline Overlay District, critical areas regulations, Sand Point Physical Development Management Plan and Sand Point Historic Properties Reuse and Protection Plan.
Proposed project consistent with the City's land use and zoning code, including the Sand Point Overlay District. DPR would need to petition DCLU for waiver on structure height limits to install sports field light poles in the SF-7200 zone.	Project alternative consistent with City's land use and zoning code, would need waiver on structure height limits to install sports field light poles in the SF-7200 zone, same as proposed action.	
Proposed project consistent with permitted land uses and development standards for Shoreline Overlay District; might qualify for exemption from shoreline substantial development permit process for habitat improvement created by lagoon.	Project alternative consistent with Shoreline Overlay District, might qualify for exemption from shoreline substantial development permit process, same as proposed action.	
Proposed project consistent with City environmentally critical areas designations and standards.	Project alternative consistent with City environmentally critical areas designations and standards.	
Proposed project consistent with the Sand Point Physical Development Management Plan and the Sand Point Historic Properties Reuse and Protection Plan.	Project alternative consistent with the Sand Point Physical Development Management Plan and the Sand Point Historic Properties Reuse and Protection Plan.	

Proposed Action	Lesser Capacity Alternative	No Action Alternative
AESTHETICS		
Visual character of built environment within portions of project site and the park would change with intensified sports field development. Changes would be noticeable primarily in the western and southern sectors of the park, adjacent to existing development. Views in shoreline area, particularly those oriented toward Lake Washington and the Cascade Mountains, would generally remain as at present.	Changes in visual character, and locations where changes evident, similar to proposed action. Somewhat less change to appearance of built environment because less extensive lighting in sports field complex.	Visual character of built environment similar to current conditions, except for future removal of prominent structure (Building 193) and associated buildings in southern portion of park. Some change in character of natural environment through maturation and management of existing vegetation.
Minimal impact on daytime views toward the park from designated scenic routes (Sand Point Way NE and NE 65th Street); changed character of park entrance at NE 65th Street.	Impact on daytime views toward park from scenic routes similar to those for proposed action.	
Variable modifications of daytime views to the project site from nearby areas. Landscape modifications would include removal of existing prominent structure (Building 193) and associated facilities, and addition of sports field light poles, playing surfaces, fencing and parking areas. Partial views of new facilities would be possible at some locations on the hills to the west of Sand Point Way and south of the park, depending on site-specific view corridor conditions. Visible elements of the project would not dominate the views from these locations.	Impacts on daytime views from hillside areas west and south of project site similar to proposed action; considerably less evidence of sports field light poles, but similar overall development footprint.	

Proposed Action	Lesser Capacity Alternative	No Action Alternative
AESTHETICS (cont'd)		
View modifications from the proposed action, both positive and negative, could be most apparent during daylight hours from the surface of Lake Washington to the east, although sports field features would be partially screened. Project features might be discernible in distant views from east side of the lake, but changes would not be significant.	Impacts on daytime views from surface and east side of lake Washington similar to proposed action, with somewhat less evidence of sports field light poles.	
LIGHT AND GLARE		
Variable incidence of light trespass (glare, spill light and skyglow), based on specific location, from lighting systems on 11 sports fields; proposed systems incorporate latest technology available to minimize light trespass. Spill light levels would be negligible beyond about 150 feet from fields, and would comply with DPR standards for permissible spill light at nearest residential property line; no adverse spill light impacts for adjacent residential uses. Primary exposure to direct glare from sports field lights would be in transitional housing area of Sand Point campus directly west of Sportsfield Drive, primarily Buildings 224, 26N and 26S. Possible direct glare exposure at some locations in Radford Court complex south of the project site.	Variable incidence of light trespass, based on specific location, from sports field lighting systems; same lighting technology as proposed action, but light systems used on 3 fields rather than 11. Insignificant spill light impacts, similar to proposed action. Distribution of direct glare impacts similar in location to proposed action, but substantially reduced in magnitude and extent due to fewer poles (21 poles, vs. 80), lights and lit fields. Reduced potential for glare impacts at Radford Court, and reduced magnitude in transitional housing area west of Sportsfield Drive.	Variable incidence of light trespass from existing light sources on project site. Most significant light source to be removed with planned demolition of Building 193. No major new sources of exterior lighting expected.

Proposed Action	Lesser Capacity Alternative	No Action Alternative
LIGHT AND GLARE (cont'd)		
Limited off-site direct glare exposure, primarily to people traveling along Sand Point Way NE or some residents in areas west of Sand Point Way. Despite lack of direct glare exposure, reflected light and/or illuminated surfaces would be visible from many locations on View Ridge to the west of the project site.	Limited direct glare exposure to Sand Point Way NE or in residential areas west of Sand Point Way, somewhat less than for proposed action. Reflected light and/or illuminated surfaces visible from locations on View Ridge, similar to proposed action.	
Significant increase in surface luminance within park from light reflecting off more than 30 acres of lighted surface. Surface luminance would be noticeable during hours of field operation to residents of adjacent neighborhoods, even if not exposed to direct glare. Luminance could be evident to viewers up to several miles distant in some locations.	Surface luminance impacts similar to proposed action in type, but considerably reduced in magnitude and extent. Light reflected from approximately 10 acres of lighted surfaces.	
Proposed lighting systems designed to minimize skyglow contribution through predominant use of full-cutoff light fixtures. Unavoidable increase in upward-directed light through reflection from lighted surfaces. While project area is currently subject to skyglow from other urban sources, the project would generate increased skyglow that would be noticeable and could interfere with ability to view the night sky when the lights were in operation.	Skyglow contribution substantially reduced from proposed action, would still be evident locally.	

Proposed Action	Lesser Capacity Alternative	No Action Alternative
RECREATION		
Disruption and temporary displacement of existing recreational activities within project site during construction of proposed project, primarily the sports field component. Some inconvenience to existing users of adjacent areas, such as beach area and boat launch.	Disruption, displacement and inconvenience effects on existing uses from project construction, similar to proposed action.	Minimal disruption, displacement or inconvenience effects on existing uses from construction, demolition or major maintenance activities.
Major expansion of capacity and use levels for wide variety of structured athletic activities at Sand Point Magnuson Park from development of 15 sports fields and sports courts of several types. Based on hours of use, project represents approximately six-fold expansion of capacity for sports field activities. Also increased capacity for informal sports field use.	Major expansion of capacity and use levels for wide variety of structured and informal athletic activities, but to lesser extent than proposed action; up to 14 sports fields, but total hours of use would be considerably less (about half) because only 3 fields lighted, versus 11 for proposed action.	Continued use of Sand Point and sports meadow fields at current capacity levels; field use subject to undesirable surface condition, largely due to poor drainage.
Substantial capacity increase and quality improvement in opportunities for walking/hiking and passive park uses, such as nature appreciation, interpretation and education.	Increased/improved opportunities for walking/hiking and passive uses such as nature appreciation, interpretation and education, similar to proposed action.	Continued use of existing opportunities for walking/hiking, primarily on paved roads and sidewalks or informal social trails; limited opportunities for nature-related activities due to habitat condition and lack of specific facilities.
Modification of existing human use patterns on site; general intensification of use in sports field complex, and redirection and management of human use and access in wetland/habitat portion of site.	Modification of existing human use patterns on site, similar to proposed action.	Continued unstructured human access to virtually all areas of the project site.

Proposed Action	Lesser Capacity Alternative	No Action Alternative
HISTORIC AND CULTURAL PRESERVATION		
Demolition of Building 15 (the former Hobby Shop), a Category II contributing resource to the Sand Point Historic District, to accommodate reconfigured park entrance at NE 65th Street. Demolition to require prior historic review, consultation, permit process and mitigation measures, and would not be expected to affect the overall integrity of the historic district.	Impacts to historic structures, specifically Building 15, the same as for the proposed action.	No construction-related impacts to historic resources anticipated. Low potential for impacts to archaeological resources from demolition of existing non-historic buildings.
Character of views in historic view corridor D would be modified with addition of features of the sports field complex; these would generally replace existing park features, and would not block the eastward view to Lake Washington and the mountains. Proposed action would not affect views within other historic view corridors in the Sand Point Historic District.	Impacts to historic view corridors similar to proposed action; less evidence of sports field features.	
Low potential for discovery of archaeological resources during project construction, due to extensive prior site modification; significant damage to archaeological resources unlikely.	Low potential for discovery of archaeological resources and associated impact during project construction, as for the proposed action.	

Proposed Action	Lesser Capacity Alternative	No Action Alternative
TRANSPORTATION		
Project construction activities would cause varying levels of traffic disruption intermittently during the construction period. Construction traffic impacts to be limited through procedures specified in project construction management plan.	Construction impacts on traffic similar to the proposed action, and possibly somewhat less due to fewer vehicle trips.	Minimal impacts on local traffic from construction activities on the project site. Some potential for impacts associated with demolition of Building 193 and other structures.
Increased traffic to project site, primarily from users of sports fields and including use of wetland/habitat complex. Proposed project facilities estimated to generate 3,280 daily trips (2,260 net new trips) at full operation, with a net increase of 307 trips estimated during the weekday PM peak hour. Project traffic impacts would depend on changes in peak-hour conditions.	Increased traffic to project site, similar to proposed action. Daily trips estimated at 3,000 (1,970 new trips); 307 net new peak hour trips, same as for the proposed action.	Continued current patterns and levels of park user traffic to project site, likely to increase gradually at about the rate of local population growth.
Project trips distributed north and south on Sand Point Way NE and west on multiple streets serving the local area. Project-related increases in traffic volumes would be less than 4 percent at most intersections affected, and no more than 7 percent.	Project trip distribution and intersection volumes the same as for the proposed action.	Traffic from existing sports field/project site use distributed to intersections the same as for the proposed action, with substantially lower volumes.
Intersection levels of service with the project would change from LOS B to LOS C at NE 65th Street/Sand Point Way NE and NE 70th Street/Sand Point Way NE; these changes would not be significant and traffic mitigation would not be required. Level of service would	Insignificant impacts on intersection operations, same as for the proposed action.	Continued insignificant impacts on intersection operations from existing sports field/project site use.

Proposed Action	Lesser Capacity Alternative	No Action Alternative
TRANSPORTATION (cont'd)		
remain unchanged by addition of project-related traffic at other study area intersections.		
Project traffic not expected to add significantly to vehicle queues at NE 65th Street/Sand Point Way or NE 45th Place/Union Bay Place.	Insignificant impacts on vehicle queues at key intersections.	Continued insignificant impacts on vehicle queues at key intersections.
Parking capacity within the project site would be 991 spaces, well in excess of estimated peak demand for project uses of 530 vehicles. Overall capacity in the park reduced to about 2,250 spaces, but overall demand would rarely exceed 1,600 spaces. No adverse parking impacts would occur.	Parking capacity within the project site would be 1,065 spaces, well in excess of estimated peak demand for project uses of 530 vehicles. Overall capacity in the park reduced to about 2,320 spaces, but overall demand would rarely exceed 1,600 spaces. No adverse parking impacts would occur.	Parking capacity unchanged from present level, sufficient to meet overall demand.
No adverse impacts on transit services or facilities. Substantial improvements to non-motorized facilities included in the proposed action.	No adverse impacts on transit services or facilities. Substantial improvements to non-motorized facilities in this alternative.	No impacts on transit services or facilities. No substantial change to existing non-motorized facilities.
With-project traffic volumes would result in volume/capacity ratios less than the level of service standard for applicable screenlines; project would be consistent with transportation concurrency standards.	Project alternative would be consistent with transportation concurrency standards.	Ongoing park operation and maintenance activities consistent with transportation concurrency standards.

Proposed Action	Lesser Capacity Alternative	No Action Alternative
PUBLIC SERVICES AND UTILITIES		
Substantial increase in visitor numbers at the park and the project site, likely with corresponding increases in the frequency of responses for police and emergency medical services. Increased demand not expected to be significant relative to capacity of service providers, or to result in decreased service levels or need for additional emergency service staff and equipment.	Increase in visitor numbers and demand for emergency response, but somewhat less than for the proposed action; impacts to service levels or need for additional resources not expected.	Visitor numbers and service demands likely to increase gradually in conjunction with local population growth.
Proposed action includes necessary utility connections and upgrades for sanitary sewer, water supply and electrical service; new service loads from project facilities would not be large or exceed the capacity of the respective systems.	Project alternative includes necessary utility connections and upgrades for sanitary sewer, water supply and electrical service; new service loads from project facilities would not be large or exceed the capacity of the respective systems.	No additional modifications to on-site water, sanitary sewer and electrical system infrastructure.
Proposed action includes an integrated drainage system for the project site that would manage water quantity through the wetland complex and provide water quality treatment.	Integrated drainage system with water quality treatment would be developed, similar to the proposed action.	Continued existence and partial functioning of deteriorated storm drain system on the project site.

Chapter 2

Alternatives Including the Proposed Action

2. ALTERNATIVES INCLUDING THE PROPOSED ACTION

2.1 INTRODUCTION

2.1.1 History of the Planning Process

The Sand Point Magnuson Park Drainage, Wetland/Habitat Complex and Sports Fields/Courts Project site is located in the northeastern portion of the City of Seattle, Washington, on the site of the former Naval Station Puget Sound, Sand Point. Ownership of the Sand Point Peninsula was transferred from King County to the federal government for development of a naval air station in the early 1920s. The naval air station eventually reached a maximum size of approximately 570 acres (including some property west of Sand Point Way) in the mid-1930s. The site was used as a military facility from 1922 to 1995, with the height of operation occurring in 1945 when Sand Point functioned as a principal air base. Sand Point continued to be active after World War II. However, lobbying to convey surplus land at Sand Point to municipal ownership began in the mid-1950s. In 1970 airfield activity at Sand Point ceased and ownership of a 325-acre portion of the site was transferred from the U.S. Navy to the City of Seattle and the National Oceanic and Atmospheric Administration (NOAA). In 1975 the City-owned portion of the site (213 acres) was dedicated as Sand Point Park (it was rededicated as Magnuson Park in 1977).

On July 1, 1991, the U.S. Base Realignment and Closure Commission recommended closure of the Naval Station Puget Sound, Sand Point. In October of 1991, the federal government made its official announcement to close Sand Point and requested that the City take the lead in developing a local plan for reuse of the remaining 151-acre property. Following a multi-year planning process, the City passed Resolution 28832 in November 1993, establishing the City of Seattle Community Preferred Reuse Plan as the statement of City policy regarding reuse of Sand Point. This Resolution endorses the general objective of the City gaining ownership of the Sand Point site in order to create a multi-purpose regional center at Sand Point that will provide long-term benefit to the community.

The development of Sand Point Magnuson Park has been an ongoing community discussion for decades, since before the final closing of the airfield in 1970. A consistent theme in the various plans developed for the peninsula was creation of a City park. Separate plans for the park prepared for the City in the 1970s, 1980s and 1990s each include the development of sports fields and wetland areas in the park concept. The Seattle City Council has affirmed its goals for the development of the park over the years through a variety of actions. These included approval of: the Seattle Parks and Recreation Plan 2000 (Seattle Department of Parks and Recreation, 2000), the Joint Athletic Fields Development Program (Seattle Department of Parks and Recreation, 1997), the Sand Point Physical Development Management Plan (City of Seattle, 1997), and the 1999 Magnuson Park Concept Design (Seattle Department of Parks and Recreation, 1999) as amended by the City Council in 2001. The combination of these documents provides the statement of objectives for this proposed action.

The City prepared a programmatic environmental impact statement (EIS) for the Sand Point Reuse Project in 1996 (City of Seattle, 1996). Proposed actions addressed in that document included development of athletic fields and wetlands in a portion of the 151-acre property. Based on that environmental review, in 1997 the City Council adopted Resolution 29249 approving the Sand Point Physical Development Management Plan (PDMP). The PDMP identified six activity areas within the Reuse Project boundary, based on the types of activities proposed for the different sectors of the property.

One of the six areas was the Magnuson Park Open Space/Recreation Expansion Area, with planned uses to include additional sports fields and open space. The Open Space/Recreation Expansion Area included approximately 58 acres in the east-central and southeastern portions of the Reuse Project area, and it encompasses the northwestern and southwestern parts of the 153-acre project site. The remainder of the project site (approximately 95 acres) is part of the original Magnuson Park parcel that was transferred to the City in 1970.

Following adoption of the 1997 Physical Development Management Plan, Seattle Department of Parks and Recreation efforts to refine the plans for the Park continued. In November 1999 the City Council adopted Resolution 30063 approving the Magnuson Park Concept Design, which provided updates to the 1997 PDMP. In April 2001, the Council approved Resolution 30293, which amended the Magnuson Park Concept Design and Resolution 30063. Resolution 30293 provided additional guidance from the City Council on the sports fields and courts configuration. The overall objectives for the development of the sports fields and wetland/habitat project remained essentially the same through the adoption of those resolutions.

In addition to the 1997 Physical Development Management Plan and the Magnuson Park Concept Design, the City Council has also approved a Joint Athletic Fields Development Plan (JAFDP). The 1997 JAFDP provides programmatic guidance to the Department of Parks and Recreation on the development of athletic facilities citywide. The JAFDP addresses facilities at both Parks Department and Seattle School District properties, including the development of fields at Sand Point Magnuson Park. The original document approved in 1997 outlined numerous specific fields and amenities desired to be included at Sand Point Magnuson Park. On March 25, 2002 the Seattle Board of Park Commissioners recommended approval of the 2002 Joint Athletic Facilities Development Program, an update to the original 1997 program. The 2002 JAFDP update likewise includes a major expansion of sports field capacity at Sand Point Magnuson Park, along with field improvements at numerous other sites within the city. Pursuant to the recommendation of the Parks Board, the Mayor will review the 2002 JAFDP and submit it to the City Council for formal action.

2.1.2 Existing Site Conditions

The project site is located entirely within the boundaries of Sand Point Magnuson Park, which generally lies north of NE 65th Street, south of NE 85th Street, and east of Sand Point Way NE in the northeastern area of Seattle. The project site and the larger Sand Point Magnuson Park are owned by the City of Seattle. The park is operated by the Sand Point Magnuson Park Division of the Seattle Department of Parks and Recreation. The Sand Point Magnuson Park Division is a distinct management entity charged with the overall operation and long-range development of the Sand Point Magnuson Park facilities. The Sand Point Magnuson Park property includes a total area of 352 acres, including 19 acres administered by the Sand Point Community Housing Association and 11 acres administered by the University of Washington. The project site for the proposed action includes 153 acres located generally within the southern and eastern sectors of the park. This area is located to the east of the main concentration of old Naval Station Puget Sound buildings (see **Figure 2.1-1,** Vicinity Map).

Adjacent to the project site to the north is a narrow corridor of land within Sand Point Magnuson Park and the National Oceanic and Atmospheric Administration (NOAA) Western Administrative Support Center. To the northeast is the Kite Hill area of Sand Point Magnuson Park, and to the east is Lake Washington.

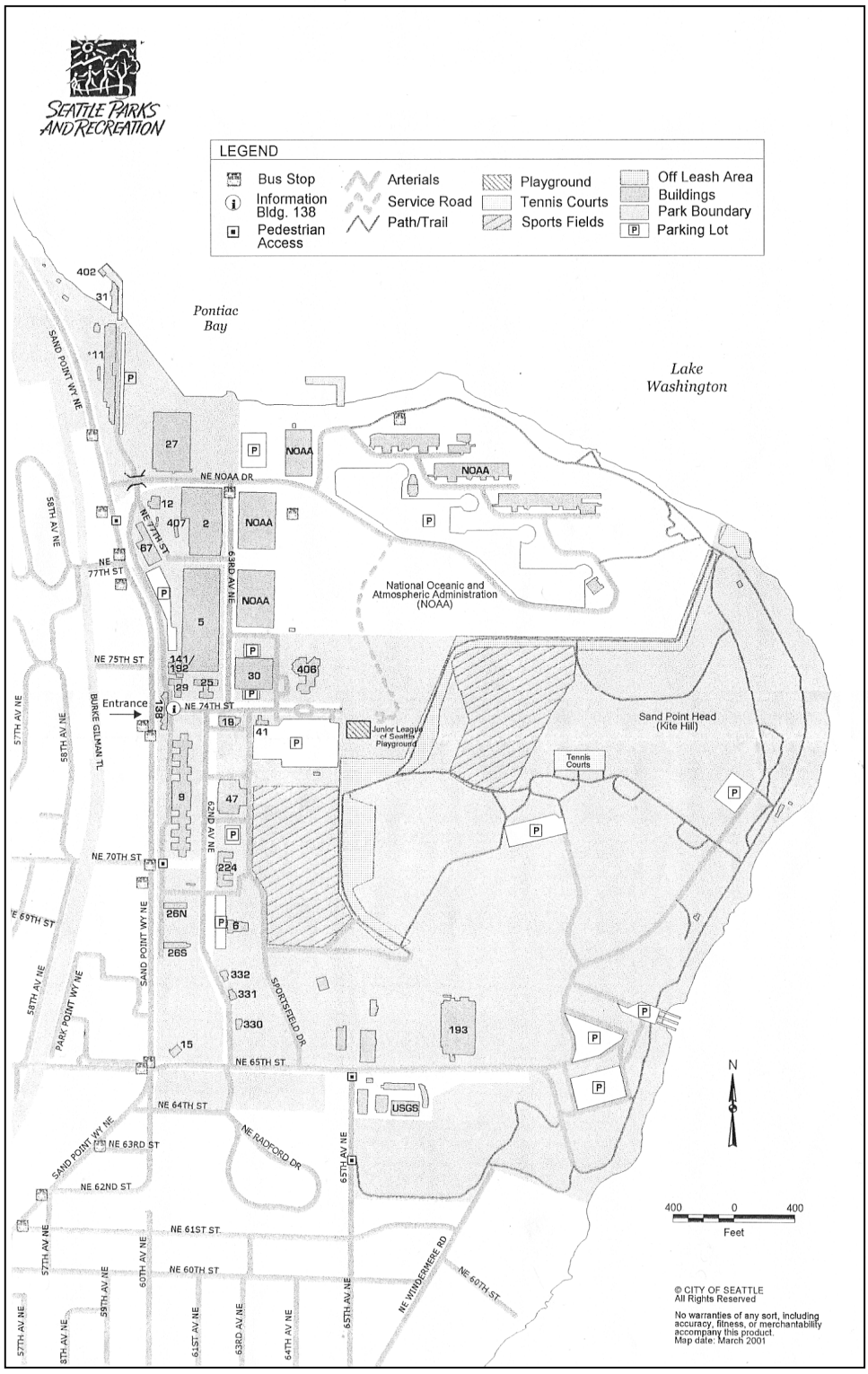


Figure 2.1-1
Sand Point Magnuson Park Site Map

To the south is NE 65th Street, the Radford Court family housing complex operated by the University of Washington, and the Western Fisheries Research Center operated by the U.S. Geological Survey (USGS). Immediately to the west are some of the old naval station buildings. Further west is Sand Point Way NE, a city arterial and the main access to the project site. Across Sand Point Way NE are multifamily residential uses, two neighborhood commercial uses and a medical support office building currently under construction. Beyond the multifamily development lies the Burke-Gilman Trail and single-family residences.

Most of the Sand Point peninsula was filled, graded, and paved as a result of the construction activity that developed the site into a major military airfield. This has resulted in highly compacted soils and a relatively flat site (see **Figure 2.1-2**, Existing Site Conditions). The lack of significant slope across the site promotes winter ponding in minor depressions, and the unplanned establishment of wetland-like conditions in some areas that impound water or sustain saturation long enough. The existing vegetation is a result of historic actions and ongoing maintenance. The interior of the site contains a variety of both upland and wetland habitats. The majority of the interior, more natural portion of the site is technically wetland due to the impermeable nature of the fill soils and the flat gradient of the site. Wet meadows, seasonal marshes, shrub wetlands and forested wetlands are present on site. The upland habitat consists of mowed grasslands, meadow, savannah (an open mix of meadow and tree/shrub thickets) and non-native shrub thickets. Existing upland areas are often dominated by introduced species, such as seeded grasses, Himalayan blackberry and hybridized poplar (see **Section 3.3 Plants/Wetlands** for further information).

Sand Point Magnuson Park currently provides a diverse array of opportunities for structured and unstructured recreation and leisure activities, scheduled and informal sports, nature-oriented activities, and arts, cultural and education functions. Many of the activities use recreational facilities originally developed by the Navy, while others occur on unprogrammed, open park lands. (See **Section 3.10 Recreation** for additional discussion of existing recreational facilities and activities.) Key existing facilities and activity areas within the overall park property include:

- a community campus area with an historic district of more than 20 former naval station structures, generally along the western edge of the park property and housing most of the arts, cultural and education activities;
- two existing sports field areas, one in the western part of the park adjacent to part of the historic district(known as the Sand Point Fields, or just the Sports Fields) , the other a sports meadow area (known as the Magnuson Park Fields or the Sports Meadow) in the central portion of the park;
- a children's play area and a community garden, located generally east of the historic district and between the two sports field areas;
- an off-leash exercise area for dogs located west of the sports meadow, with a narrow extension to the Lake Washington shoreline;
- six unlighted tennis courts, located just east of the sports meadow;
- a shoreline area along Lake Washington that includes a swimming beach, wading pool and picnic shelters;
- a low, open, grassy hill, known as Sand Point Head or Kite Hill, located between the tennis courts and the beach area;
- a boat launch facility on Lake Washington in the southeastern corner of the park;

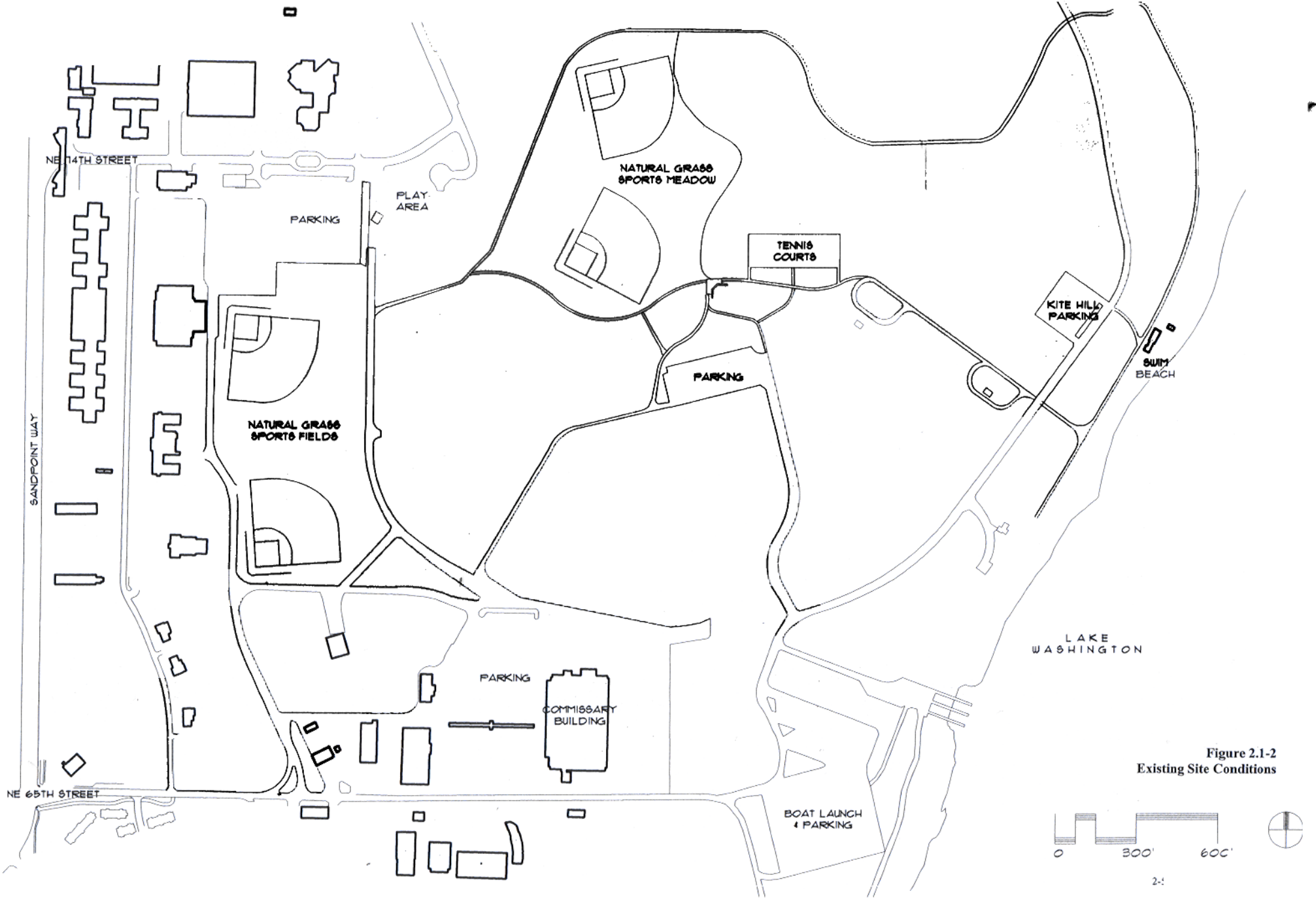


Figure 2.1-2
Existing Site Conditions

- a forested hill and shoreline area known as Promontory Point, located to the southwest of the boat launch and in the south-central area of the peninsula;
- additional picnic shelters and isolated picnic tables; and
- park roadways, parking lots and pathways to support vehicular and pedestrian circulation and parking needs.

The 153-acre project site incorporates portions of many of the park facilities identified above. These include a small portion of the community campus and historic district; the two sports field areas; the tennis courts; the parking lot and access road serving Kite Hill and the beach area; a segment of the shoreline area between the swimming beach and the boat launch; two of the four picnic shelters in the park; and a significant portion of the park's vehicle and pedestrian circulation network, including approximately 1.4 miles of trails and pathways. The Sand Point Fields area has two baseball/softball fields overlapped by four soccer fields. The Sports Meadow has two additional baseball/softball field configurations but generally supports multiple field uses, including soccer and Ultimate Frisbee as well as unstructured or informal uses. Most of the acreage within the project site is currently unprogrammed space, including open vegetated areas and several non-historic buildings that housed the former Navy Commissary and associated functions.

Vehicular access to the project site is presently provided from Sand Point Way NE via NE 65th Street and NE 74th Street. NE 74th Street enters the Sand Point property at the site of the main gate to the former naval station. The street continues to the east for approximately 1/4 mile to a dead end near the Community Activities Center (Building 406). NE 65th Street travels along the southern edge of the project site and continues to the east to provide access to the public boat launch on Lake Washington, located in the southeast corner of Sand Point Magnuson Park. An on-site park roadway (Sportsfield Drive) extends north from NE 65th along the western edge of the existing sports fields, and connects with NE 74th Street. NE 65th Street becomes Beach Drive near the boat launch area, and extends north and northeast along the lake shoreline to a parking lot that serves the park beach area and Kite Hill, passing through the southeastern portion of the project site. A third internal park roadway branches north from Beach Drive into the central portion of the project site, providing access to a parking lot that serves the existing tennis courts and sports meadow area.

Marked and unmarked parking spaces for approximately 1,220 cars are located in four main existing parking lots and along roadways on the project site. A total of approximately 3,000 parking spaces are provided within Sand Point Magnuson Park as a whole (see **Section 3.12 Transportation** and **Appendix D** for further information on the existing parking supply).

Eleven existing buildings or other structures associated with the former naval station are present on the project site (see **Section 3.11 Historic and Cultural Preservation** for additional discussion of existing structures and their significance). The former Navy Commissary and Exchange complex in the southern portion of the project site accounts for five of these buildings and the vast majority of the square footage contained within the 11 existing structures. These five buildings are to be demolished in the future to make space available for other uses, as will two small, vacant outbuildings near the southwestern corner of the site, according to the direction of the Final Sand Point Reuse Plan. The remaining structures include two former munitions bunkers south of Kite Hill that are used by the Department of Parks and Recreation for storage, and two former Navy restroom facilities near the Lake Washington shoreline that have been adapted for park use.

Approximately 26.3 acres, or 17 percent, of the 153-acre project site are currently covered with impervious surfaces, distributed as follows:

Feature	Acres
roadways	4.7
parking lots	17.1
trails/walkways	0.7
buildings/structures	2.8
courts	1.0
Total	26.3

The project site is currently served with the full range of standard utilities, including electricity, natural gas, water, drainage and wastewater, telephone, and cable television. Many of the utility infrastructure systems were constructed at the time the naval station facilities were originally developed and were antiquated or failing at the time of the final Sand Point land transfer (City of Seattle, 1996). Several major utility system improvements were undertaken in the late 1990s to support the needs associated with the Reuse Project.

The zoning classification for the project site is Residential Single Family 7200 (SF 7200), which allows single-family residences, parks and playgrounds (see **Section 3.7 Land and Shoreline Use** for more detailed discussion). A portion of the project site, along the site's western boundary, is in the Sand Point Overlay District. This District establishes specific development standards for the site, emphasizing public use and access to the shoreline. The 200 feet extending inland from the shorelines on site is designated Shoreline Conservancy Management (CM) Environment in the City's Shoreline Master Plan. Recreational uses are generally permitted in the CM environment.

2.2 DESCRIPTION OF THE PROPOSAL

2.2.1 Overview

The site plan for the proposed project is graphically represented in **Figure 2.2-1**. More detailed drawings for the proposed action are provided in **Appendix A**. The proposal generally includes development of a sports field complex, a wetland/habitat complex, a drainage system, and a circulation system. These features would replace the existing resources in the affected section of the park. There are numerous habitat and natural areas located in other portions of the park that are not a part of this proposed project. Those areas would remain and continue to be nurtured and maintained through park management activities. The guiding concept for the proposal is to integrate the physical features and functions of all of the project components. Specifically, the proposal includes:

- 11 sports fields with all-weather surfaces and field lighting systems;
- a sports meadow, accommodating up to 4 additional fields, that would have a natural grass surface but would not be lit nor have permanent sports fixtures;
- removal of 6 existing tennis courts, to be replaced with approximately 14 new courts as part of an adjacent project;
- an inline-skate hockey surface, basketball courts, volleyball courts and an open lawn flex-space;

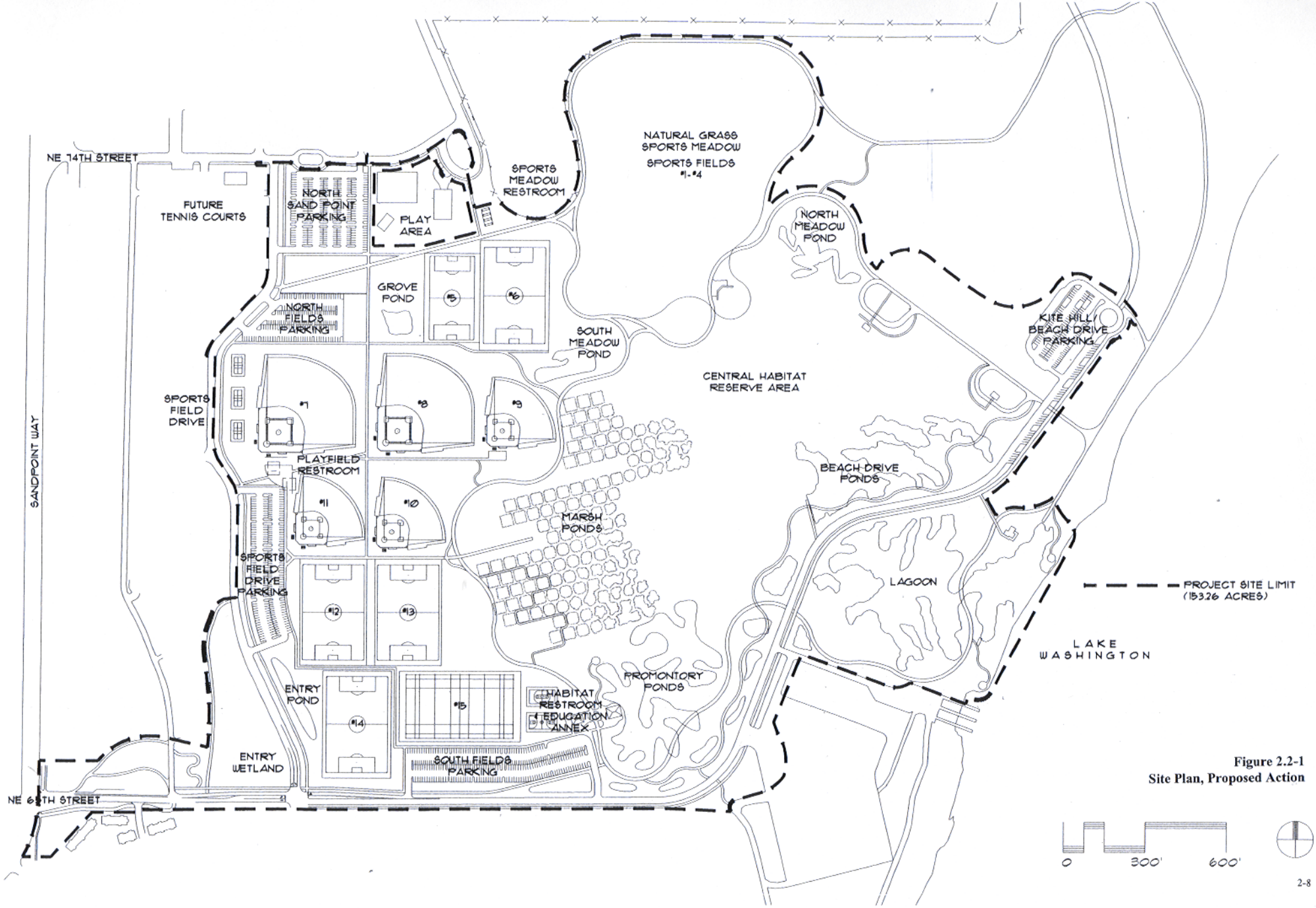


Figure 2.2-1
Site Plan, Proposed Action

- a wetland/habitat complex of approximately 65 acres with an open-water lagoon connection to Lake Washington, with amenities (signage, gathering areas) to support educational programming, located between the existing swim beach and the boat launch;
- a total of approximately 991 parking spaces, including 867 spaces with security lighting;
- three building complexes to house restrooms, concession stands and maintenance facilities for the sports field, sports meadow and habitat areas;
- a covered educational pavilion to support the educational use of the wetland/habitat complex;
- reconfiguration of NE 65th Street within the park boundary and two interior park roadways;
- a pedestrian trail system through the sports fields and around the wetland/habitat complex, with some of the trails designed to encourage walking enthusiasts and to support cross-country running competition; and
- extension, relocation and replacement of existing utilities as necessary.

Table 2.2-1 provides a summary of land uses by acreage for the proposed action. For reference and comparison, corresponding data are included for the existing conditions, and the lesser-capacity alternative (see **Section 2.3**) and the no action alternative (see **Section 2.4**).

The characterization of the surface features of the project site shown in **Table 2.2-1**, as supported by the corresponding sketches in **Appendix A**, is intended to provide a basic quantification of the extent of the primary areas on the site. This is not presented as a rigorous cover-type classification of the site, but represents the approximate extent of specific features rather than precise delineations. Additional explanatory notes are summarized as follows:

- The acreage figures in **Table 2.2-1** for wetland/habitat complex correspond to the shaded areas indicated on the wetland/habitat complex sketches in **Appendix A**. These sketches illustrate the approximate limit of the wetland/habitat complex and reflect an attempt to quantify the primary areas of the complex. The habitat limits and acreage on the no action sketch (and the existing conditions column of the table) reflect an interpretation of the existing wetland and upland areas on the site that are likely to provide the most benefit to wildlife; there currently is no designated or managed habitat area within the project site. The vegetation community type sketches in subsequent **Figure 2.2-2** and in **Appendix A** provide additional detail on the planned cover types within the wetland/habitat complex.
- The park, lawn and planting category in the table, and the corresponding sketches in **Appendix A**, represents a catch-all category that includes all non-programmed lawn and planting areas outside of the wetland/habitat complex. Some of the acreage in this category, particularly in the transition between the sports fields and the primary wetland/habitat area, would probably be similar in appearance and function to cover types within the adjacent wetland/habitat complex.

Table 2.2-1
Project Site Land Use, by Alternative (in Acres)

Use	Proposed Action	Lesser-Capacity Alternative	No Action Alternative	Existing Conditions
Wetland/Habitat Complex	65.1	61.6	54.1	54.1
Park, Lawn & Planting	28.68	35.68	49.56	50.7
Athletic Field Surfaces	37.0	32.1	21.6	21.6
All-Weather Synthetic	22.0	5.9	0.0	0.0
Natural Turf	15.0	26.2	21.6	21.6
Buildings	0.25	0.25	0.04	2.8
New	0.21	0.21	NA	NA
Existing	0.04	0.04	0.04	2.8
Roads	4.6	5.3	4.7	4.7
Courts (impervious)	0.37	1.37	1.0	1.0
Paths	8.6	8.0	1.3	1.3
Soft Paths	3.9	3.7	0.6	0.6
Hard Paths (impervious)	4.7	4.3	0.7[2]	0.7
Parking	8.7	9.0	21.0[2]	17.1
Project Site Total[1]	153.3	153.3	153.3	153.3
(Impervious Surface Total)	(18.62)	(20.22)	(27.44)	(26.3)

[1] The project site total acreage for all four conditions is based on the acreage within the project limits for the proposed action, for ease of comparison among alternatives. The lesser-capacity alterative would actually involve work within a reduced acreage, while the no action and existing conditions cases do not have true project limits.
[2] The former Commissary and adjacent buildings would be demolished in this case, but no other uses have been proposed for these sites. The slabs under these buildings are assumed to remain, and that acreage has been classified as "parking."

Management of site drainage has been a continuing challenge in the development and operation of Sand Point Magnuson Park, particularly in the central, eastern and southeastern sectors of the park that encompass this project. While the proposed wetland/habitat complex and sports fields/courts have their own strong merits, the development needs for these actions also provide the opportunity to address the drainage challenges on the site.

Creation of a demonstration project with a variety of wetland types and enhanced upland habitats would require movement of a large volume of soil (including soil removal in some specific locations) and extensive reorganization of existing site drainage patterns. The results would provide for a collective urban wetland environmental education opportunity, along with enhanced upland habitat areas and organized pedestrian access routes in appropriate areas to provide for greater citizen enjoyment.

The sports facility construction would also require large amounts of subgrade material (soil, sand and gravel) to build the understructure for the 15 proposed athletic fields. Both the artificial-turf and natural-turf fields would require excellent drainage systems to provide the desired function and support the proposed level of use.

Therefore, combining these prime park elements as an integrated project (even in the alternative scenario) in which most (if not all) of the soil graded during project construction remains in use on the site is an attractive solution. Integrating the wetland/habitat, sports fields and drainage aspects of the project would provide a variety of benefits, including reduced needs for trucking material through off-site neighborhoods, and use of land sculpting and vegetation plantings to soften the sports field edge and serve as pedestrian walkways.

2.2.2 Sports Fields

The athletic facilities proposed for this project would make Sand Point Magnuson Park a first-class sports facility for residents of northeastern Seattle, and to some extent the broader city and the surrounding region, for both programmed and unstructured recreational sports activities. The proposed facilities are to be of premier quality for the user, and to accommodate the limited spectator groups typical of recreational sports events. Facility maintenance would be integral with the design to sustain the high standard of quality over the life of the facility.

The sports field component of the project includes a total of 15 athletic fields of various sizes and types, with additional recreation opportunities and facilities integrated into the site design. The distribution of the proposed fields by type of use is as follows:

- 4 fields in a redeveloped natural-turf "sports meadow" area that could be configured in a variety of field orientations for a variety of uses, including both structured and unstructured athletics and community functions;
- 4 full-size soccer fields (which could also accommodate other sports such as ultimate Frisbee and lacrosse;
- 1 Mod (youth) soccer field;
- 2 baseball/adult slow-pitch softball fields (for which the outfield areas could be used for youth soccer practice outside of the baseball season);
- 3 little league baseball/fast-pitch softball fields; and
- 1 rugby field.

The proposal includes synthetic, all-weather surfaces and field lighting for the latter 11 fields on the list, i.e., all fields except for the four "sports meadow" multiuse fields at the north end of the project site. The proposed layout of the fields is largely according to the adopted Magnuson Park Concept Design, with the natural-turf fields located in the general area of the existing sports meadow and the new synthetic-surface fields clustered along the western edge of the project site along Sportsfield Drive. Specific field layout has been adjusted from the master plan in response to additional information on specific site elements. These field locations would combine with the proposed circulation system to better facilitate user access. The clustering of fields along the western and northern sides of the site, which are also the higher-elevation portions of the site, would facilitate site drainage, primarily by surface means, to the proposed wetland/habitat complex. All of the fields, both natural- and synthetic-surfaced, would have permeable surfaces with under-drain systems daylighting into drainage conveyance swales that would ultimately direct water to the wetland/habitat complex.

Facility characteristics and design guidelines for the sports fields component of the proposed action are summarized below by type of facility; additional detailed drawings are included in **Appendix A**.

Natural-Turf Fields

The existing sports meadow (the current Magnuson Park Fields) would be redeveloped and expanded somewhat under the proposed action to improve the drainage and function of this facility. The sports meadow is proposed as a natural-turf area with contiguous grading in a single plane for flexibility of use and layout. While programmed primarily to accommodate regulation-size adult and youth soccer fields, the sports meadow is intended to be a multipurpose area allowing additional activities including ultimate Frisbee, youth soccer practices and community events. The sports meadow has been sized to accommodate four full-size soccer layouts configured in a minimum of three possible orientations. The layout of the sports meadow would allow periodic shifting of field locations to reduce use impacts to the turf and allow recovery of high-activity areas on the field. All goals and other support equipment in the sports meadow would be portable, and the sports meadow would not have permanent field lighting systems.

Design guidelines for the natural turf in the sports meadow include the following:

- All natural-turf field areas would include imported sand materials with a total depth of 12 inches. This includes 6 inches of coarser base sand and 6 inches of root-zone sand. The root zone sand would be a blend of between 85 to 90 percent clean sand and between 10 and 15 percent organic material. The organic component of the root-zone sand would be either processed compost or peat. This blend would provide a balance between effective drainage and efficient use of water and nutrient applications.
- The natural-turf fields would also include automatic irrigation systems with central control. The irrigation systems would be designed to apply water uniformly across the entire field area.
- The natural-turf fields in the sports meadow would be seeded with a blend of perennial rye grass and Kentucky blue grass. This blend has provided the best performance for natural turf athletic fields in the Puget Sound region. The perennial rye grass is shade tolerant and performs well in a climate with limited sunlight and cool temperatures. The Kentucky blue grass provides good wear resistance and recovery during the growing season. The fields in the sports meadow would require up to a 1-year establishment period between seeding and the first scheduled events on the fields.

Synthetic-Turf Fields

The remaining five soccer fields plus the baseball/adult slow-pitch fields, little league/fast-pitch fields and rugby field would all have synthetic surfaces. All of the synthetic-surfaced field areas would drain vertically. Each field would include a subsurface drainage system and a permeable aggregate base. The permeable aggregate base would include 8 inches of a base-course aggregate and 2 inches of a top-course aggregate. Both materials would be comprised of crushed rock with limited amounts of fine particles, to allow for efficient drainage. The top-course material would provide a final leveling course to achieve tight surface tolerances that typically range in deviations less than ¼ inch in 10 feet. Other specifications concerning field surfaces and support facilities that are common to all of the proposed synthetic-surfaced fields include the following:

- The synthetic-turf field areas would include some permanent lines and markings installed with inlayed or tufted-in sections of colored turf. The surfaces would also be compatible with temporary painted lines and markings for alternate uses or special events.
- Proposed fencing is limited to ball control fencing behind soccer goals, and typical safety fencing and backstops for the baseball and little league fields. Additional netting would be used above fencing in critical safety areas adjacent to the backstops. All fencing and backstops would be chain link with black-powder coating. All fencing would have concrete transition/mowing strips.

Additional design guidelines specific to the respective types of fields are summarized below.

Soccer Fields

All soccer fields outside of the sports meadow would have a resilient in-filled synthetic turf surface. The synthetic surface on the soccer fields would extend to the edge of the runout area. Asphalt paving would be provided for user access, maintenance access, and bleacher pads. All full-sized soccer fields would be 345 feet (115 yards) by 225 feet (75 yards) in dimension. The Mod soccer field would be 280 feet (93.3 yards) by 185 feet (61.7 yards). All runout areas would be 10 feet on the sideline and 20 feet on the endline. All goals on these soccer areas would be stationary. Ball control fencing would be constructed behind each permanent soccer goal location, and would be designed in an arcing form reflective of the military hangar architecture that once dominated the field site.

Baseball/Softball Fields

The baseball/adult slow-pitch softball fields would have synthetic-turf infields and outfields. Portable mounds would be used for youth baseball. Ten-foot warning tracks would be provided at all field edges. Left- and right-field distances would be 325 feet from home plate, and center field would be 370 feet. Backstops would be vertical and covered with a resilient material to reduce the sound level from balls striking the backstop. Bullpens and covered dugouts would be included. Asphalt paving would be provided for user access, maintenance access, and pads for modest bleacher structures.

Little league/fast-pitch softball fields would also have synthetic-turf infields and outfields. Portable mounds would be used for little league baseball. Ten-foot warning tracks would be provided at all edges. The outfield fence distance would be 225 feet from home plate. Backstops would be vertical and covered with a resilient material to reduce the sound level from balls striking the backstop. Bullpens and covered dugouts would be included. Asphalt paving would be provided for user access, maintenance access, and bleacher pads.

The baseball and softball infield areas would include sliding pits at home plate, the pitching area, and the bases. The sliding pits would include a stabilized infield mix to reduce migration of the infield material into the adjacent synthetic turf areas and to allow for a useable surface during wet weather conditions. The warning track surfaces would also be permeable, consisting of a red polyurethane and rubber wearing course (newly manufactured and pigmented rubber, known in the industry as EPDM) over layers of black reclaimed rubber (SBR) and pea gravel bound with a polyurethane binder. For ease of construction, this would be installed over the same permeable aggregate layers and the synthetic turf surfacing.

The outfield areas of the baseball/softball fields would be used for youth soccer practices during periods when these fields were not scheduled for baseball or softball use.

Rugby Field

The rugby field (Field 15) would have a synthetic-turf surface extending to the edge of the runout area. Asphalt paving would be provided for user access, maintenance access, and bleacher pads. The rugby field dimensions would be 425 feet by 225 feet. The runout areas would be 10 feet on the sideline and 20 feet on the endline. The goals would be stationary.

Other Field Uses

The design of the synthetic-turf fields is intended to facilitate their use for alternate sports activities or special events, in addition to the programmed uses described previously. Activities other than the designated uses that could be accommodated include ultimate Frisbee, mod soccer (e.g., on full-size fields), soccer practice (e.g., on the baseball/softball fields) and rugby.

2.2.3 Sports Courts and Related Facilities

In addition to the athletic fields, other outdoor recreational sports opportunities included in the proposal are as follows:

- 1 inline-skate hockey facility,
- 1 full-size basketball court,
- 2 half-size basketball courts,
- 3 sand volleyball courts,
- 1 competitive (high school and college-level) cross-country running trail, and
- 1 open lawn flex-space.

Design guidelines for these proposed facilities are summarized below, and are reflected on the drawings included in **Appendix A**.

Existing plans for other locations on the larger Sand Point site include a remodeled community recreation center in Building 47 and a proposed new tennis center, both located near the northwest corner of the project site. While these facilities are not part of the current proposal, planning for the drainage, wetland/habitat and sports field project has considered the coordinated development of the other sports facilities, to promote the creation of a single, first-class athletic facility at Sand Point Magnuson Park.

Sports Courts

Inline-skate hockey would be played on an asphalt-paved surface adjacent to the parking lot to the north of the baseball fields. The inline hockey area would be surrounded by boards with chain link fencing on top to contain the hockey puck.

Basketball facilities are to be located between the rugby field (Field 15) and the wetland/habitat complex restrooms. The basketball courts are to include one full-length court and two back-to-back half courts. These courts are to have asphalt bases with acrylic-painted surfaces and markings.

Three sand volleyball courts are to be located to the west of the baseball fields. The volleyball courts are to be constructed with an 8-inch sand base with underdrainage, filled flush to the surrounding grass areas, and contained with rubberized edging material.

Cross-Country Trail

A 1.5-mile cross-country running course loop would border the east edge of the athletic field complex, encircle the wetland/habitat complex and tie into the existing Lake Washington shoreline walkway. The trail would then follow the north edge of Kite Hill and return along the east edge of the sports meadow. The surfacing for this course would primarily be ¼-inch-minus crushed rock, with some segments of asphalt. The existing topography of Kite Hill and new variable grades would be incorporated into the course to provide challenge and variety to the course. This trail would be used by walking enthusiasts and recreational joggers the majority of the time. Special running events could start or finish in the open lawn flex-space (see discussion below) to be constructed to the south of the North Sand Point parking lot.

An alternate route trail including a connection to the North Sand Point parking lot and along Sportsfield Drive could be constructed as an option for the proposal. If developed, this would add another one-half mile to the course and allow for an expanded course.

Open Lawn Flex-Space

An open lawn flex-space is proposed for a location along the western edge of the athletic facilities area. The flex-space site is located between two of the major parking lots in the athletic complex, where it could serve as a natural arrival and gathering space for those using the athletic facilities. It is intended to allow for programmed activities associated with sporting events, including the start and finish line for the cross-country running venue, as well as a site for sponsors and coordinators of tournaments to set up headquarters stations for specific events. This flex-space is intended to be an attractive lawn area for passive recreation when not being used for programmed activities.

2.2.4 Drainage System

The drainage system for the proposed project is based on the following concepts:

- Because of the relatively flat topography on site, surface drainage is the preferred alternative for the conveyance of stormwater from the finished project.
- Surface conveyance of stormwater by sheet flow and through swales would make site drainage more apparent to site users and provide an educational opportunity to illustrate the drainage interrelationships of the sports facilities to the wetland habitats and Lake Washington.
- Regulation of water quality and quantity requires stormwater directed toward the wetlands to be pre-treated; the upland source of surface water would be critical for maintaining the wetlands on the site.

Following development, approximately 18.6 acres of the project site would be covered in constructed impervious surfaces, including parking lots, roadways, paved paths and buildings. This figure would represent a net reduction in constructed impervious surfaces of 7.7 acres under the proposal from existing conditions. Overall impervious surface area would increase under the proposal, however, because open water is also considered an impervious surface for stormwater modeling purposes. Approximately 11.5 acres of open water would be present on site during the summer (dry) months and approximately 16.5 acres of open water during the winter (wet) months.

The proposed stormwater control system would be designed according to the Washington Department of Ecology (2001) Stormwater Manual for Western Washington and the City of Seattle Stormwater Treatment Technical Requirements Manual. In general, the proposed system would convey stormwater from the northern, eastern and western perimeters of the project site to Lake Washington through five basic drainage "chains" that include several different drainage systems (See **Section 3.2 Water** and **Appendix B** for a more detailed description of the proposed stormwater control facilities). Stormwater detention would not be required because the site drains directly to Lake Washington, a "Receiving Water Body" of the State of Washington. However, post-development peak flows would be reduced from existing conditions because of the proposed improvements, including the large area in athletic fields. Eighteen new ponds would be created as part of the project. Although the ponds would provide additional stormwater storage, they would not be detention ponds and would not be considered stormwater quantity control features.

Site drainage would primarily be accomplished via surface drainage because of the site's flat topography. Constructed stormwater drainage control facilities would be used in selected areas. Stormwater emanating from on-site parking lots would be pre-treated through bioswales or filter strips prior to discharging into wetland ponds. Stormwater emanating from the artificial-turf field surfaces would be treated through the infiltration system engineered as part of the field; no water quality treatment of that water is required prior to its discharge to wetland habitat areas. The five drainage chains would collect and convey stormwater through swales/ditches and/or pipes to the wetlands/ponds. Water from the bioswales would enter a wetland until the water surface elevation in the wetland is equivalent to the outlet elevation. The water would then overtop the pond outlet and continue through the chain to the next wetland. Ponds that are full would function as flow-through facilities, because water entering the pond would displace an equivalent amount of water discharging through the pond outlet. Stormwater coming from the fields and parking lots to the west of the wetland/habitat area would flow through pre-treatment and then through multiple wetland complexes before final discharge into Lake Washington. The water from these upland sources would be a critical component in creating viable hydroperiods for the proposed wetland habitats on the site.

Several different facilities and systems would provide water quality treatment at the site. These systems would include biofiltration swales and filter strips, wetponds, and water quality vaults, which would be located between the stormwater sources and the wetland habitats to assure that only pre-treated water would enter the habitat areas. The natural-turf athletic fields would provide filtration of precipitation through sand/gravel field bases to the subdrainage pipe system. Water quality treatment would not be required for the synthetic turf athletic fields, because the surface material would be inert and would not be fertilized. However, the fields would provide water quality treatment through the same filtration as described for the natural turf fields.

2.2.5 Wetland/Habitat Complex

Needs and Opportunities

The proposed wetland/habitat complex is intended to address the following needs and opportunities:

- To provide a unique urban educational demonstration of how to link necessary urban drainage systems with a variety of wetland/habitat types into an integrated-environmentally sensitive drainage system.
- The overall habitat value of Sand Point Magnuson Park can be improved by developing or enhancing additional habitat to complement existing on-site natural areas such as Promontory Point, the north and west slopes of Kite Hill, the adjacent shoreline area north of the Fin Art display and south of the shore access portion of the off-leash area, and habitat and wetland areas on the National Oceanic and Atmospheric Administration property north of the park.
- Providing for both people and wildlife may require some degree of spatial separation and understanding various types and goals for various wetland/habitat areas. Assessing seasonal use patterns of targeted wildlife users and human users may result in a better understanding of temporal separation and/or areas of overlap inherent at the site.
- Undeveloped shoreline aquatic habitat is scarce and patchy along Lake Washington. Sand Point Magnuson Park provides an opportunity to create needed, high-quality, near-shore habitat while maintaining existing beach areas and associated recreation opportunities.
- The existing habitats on-site are limited in the functions they provide for wildlife due to the young age of most of the vegetation (less than 30 years old); the severely compacted condition of the soils, which limits plant growth and biologic activity; and the lack of structural and species diversity due to the early-successional stage of the vegetation. There is an opportunity to create far greater habitat diversity and allow natural succession to be assisted and directed towards a variety of habitat types that would not naturally form on the severely altered site.
- Existing habitat values are reduced by essentially unrestricted human access to the entire site. Consequently, there is an opportunity to provide increased habitat and wildlife protection by directing human uses to the most appropriate locations, while increasing physical complexity and niches within the habitat zones.
- The existing wetland areas are technically wetland but they provide low functions and values due to the short duration of inundation for most of them, the lack of species diversity or habitat complexity, the lack of adjacent mature upland habitat, and the harsh soil conditions. Proposed habitat improvements would extend duration and depths of inundation, increase soil tilth, and create opportunity for species diversity and complexity.

The wetland/habitat component of the project would feature approximately 65 acres of upland and wetland habitat. **Table 2.2-2** summarizes the proposed distribution of upland and wetland vegetation types for the proposed action and the alternatives. The wetland habitat complex would include approximately 31 acres of wetlands in six different community types, plus 34.1 acres of upland forest (not including approximately 8 acres of upland forest in the "park, lawn and planting" category).

The created and/or enhanced habitat would include a diverse array of wetland and upland systems designed in early successional stages, and anticipating mature system complexity. The types of wetland proposed are driven by their anticipated hydroperiods. Water sources from precipitation, groundwater,

stormwater runoff and overland flow would drive a broad range of hydrogeomorphic wetland types. There would be depressional, flow-through, seasonally-wet marshes, permanent open-water ponds fed by groundwater, saturated marshes that may have no long-term inundation, and a permanent open-water lagoon created as an embayment of Lake Washington. The wetlands and associated uplands are designed to provide habitat for a diversity of wildlife species including fish. In addition, the habitat complex is designed to offer access for formal and informal education and interpretation opportunities. The aquatic habitat component of the project would create new habitat for endangered fish, amphibians, macro-invertebrates, aquatic mammals and other aquatic and terrestrial species.

Table 2.2-2
Vegetation Community Types, by Alternative (in Acres)[1]

Vegetation Community Type	Proposed Action	Lesser-Capacity Alternative	No Action Alternative	Existing Conditions
Upland Forest	42.5	39.2	27.5	27.5
Wetland Subtotal	31.0	32.2	22.5	22.5
Wet Meadow (40-50%)[2]	3.6	5.5	8.4	8.4
PEM-Palustrine Emergent	13.2	13.2	3.1	3.1
PSS-Palustrine Shrub/Scrub	0.0	0.0	2.1	2.1
PFO-Palustrine Forest	1.8	1.8	2.7	2.7
POW/PEM/PAB complex	9.8	9.3	0.0	0.0
PEM/PSS complex	1.3	1.3	6.2	6.2
POW/PEM complex	1.3	1.1	0.0	0.0
Vegetation Community Total	73.5	71.4	50.0	50.0

[1] The vegetation community total includes some upland forest acreage included in the "park, lawn and planting" areas (on **Table 2.2-1**) that would be interspersed with or adjacent to the wetland/habitat complex.
[2] Wet meadow acreages represent estimates of the area within the mosaic of wet meadow and upland habitats that actually exhibits wetland characteristics. Under existing conditions, 40 percent of the total wet meadow acreage is assumed to be wetland. Because the proposed action and lesser-capacity alternative would provide increased water volumes and depth to this area, 50 percent of the wet meadow acreage is assumed to be wetland for these cases.

To improve overall habitat function in the Park, it is proposed to create upland habitat linkages across the site linking remnant upland forest patches in the interior to a forested zone surrounding the proposed lagoon, and linked to the upland forest of Promontory Point to the south. Aquatic habitat and wetland values for wildlife habitat are currently restricted by the amount of viable diverse upland habitat accessible to terrestrial species; it is proposed to create a complex pattern of aquatic and upland habitats across this site, linked to the shoreline of the lake. Upland habitat types would include mixed deciduous/coniferous woodlands, native shrub zones and upland meadows dominated by grasses. In addition, structural complexity would be added to the upland and wetland habitats by placement of brush piles, large woody debris, and snags throughout the site. Upland areas would have to be early successional stages, however, long-term stewardship would allow 'under-planting' of young conifers to facilitate successional stages. The overall goals of the habitat plan are to:

- Increase the diversity of upland and wetland habitats available across the site;
- Connect upland and wetland habitats from a portion of the park shoreline on Lake Washington to the upland forests of Promontory Point and the off-site corridor of the Burke-Gilman Trail;
- Increase habitat function and complexity within the Park for native species of wildlife;
- Provide opportunity for passive recreation, and formal and informal education through a series of primary and secondary trails, while maintaining a 'protected' interior habitat core;
- Increase habitat access and quality for native fish, waterfowl, aquatic mammals and other aquatic species along the shoreline of the Lake;
- Create habitat configurations, hydrologic patterns, and vegetation community types reflective of existing conditions, with anticipation of future successional stages; and
- Anticipate construction opportunities, long-term maintenance responsibilities and stewardship opportunities to provide options for citizen and student involvement in the park and its habitats.

Wetland Hydrology: Site Drainage Patterns

The sources and movement of water across the site are fully described in the Preliminary Storm Drainage Report (Haluschak, 2001) provided in **Appendix B** of this EIS. Proposed drainage patterns are summarized below, because understanding the pattern of water movement across the site is critical to understanding the hydrologic conditions of the proposed wetlands and their functions.

On the west, north and south sides of the project area are proposed ponds whose primary purposes are twofold: to provide water quality improvement for surface waters generated from impervious surfaces or sources of likely high sediment yield, and to collect surface waters from bioswales into concentrated locations before those cleaned waters are allowed to move into the wetland/habitat complex inside the habitat portion of the site. In addition to a water quality and a 'staging' function, these ponds would provide *de facto* wetland habitat functions.

As described in the storm drainage report, there are five drainage 'chains' or sequences envisioned across the site.

1. The first sequence, across the south end of the site, would collect parking lot and road runoff from the southwest corner of the project area into a water quality (WQ) pond. Flows from there would proceed east into a series of WQ treatment ponds that parallel the access road into the site. The treatment ponds are linked by a series of bioswales on the west side of the access road, flowing north. These flows, now cleaned, would seep through a leaky berm under the access road and primary trail into a collection pond southwest of the lagoon (pond #5, Figure DR-5, **Appendix B**). Flows from the collection pond would seep through another leaky berm and then into the lagoon.
2. The second sequence is located immediately north of and parallels the first sequence. Water from the artificial-turf sports fields would be collected and directed into the southern sub-set of flow-through marshes. These marshes are planned as shallow impoundments (12 to 18 inches deep) with broad, unrestricted outlets so that they would fill with precipitation and runoff, then overflow into the next marsh in the series. It is assumed that all the marshes in this flow-through complex would be filled by late fall/early winter in normal rainfall years. Water flowing through the marshy pools would be directed eventually as overland sheet flow into the southern Promontory Point pond (pond #9, Figure DR-5, **Appendix B**), located

immediately north of the access road at the southern edge of the project area. Flows from this pond would overflow through an unrestricted weir towards the north, into the next pond (#10), and from there northward into a pond crossing under the road (pond #11, Figure DR-5, **Appendix B**), which would drain via a leaky berm into the lagoon.

3. The third sequence would collect stormwater from the Sportsfield Drive parking lot, pre-treat it through bioswales, bring in runoff from the artificial-turf softball fields, and discharge it to the central sub-set of the marshy pools. As described in sequence #2, above, these marshy flow-through pools would drain from one to the next, eventually discharging flows through unrestricted outlets to drain to the south into the northern Promontory Point pond (pond #10, Figure DR-5, **Appendix B**). The outlet of the northern Promontory Point pond is described above in sequence 2.
4. The fourth chain or sequence starts in the northwestern corner of the project area, where flows from the parking lots would run through bioswales and be collected in a water quality pond south of the Junior League Playground (pond #12, Figure DR-5, **Appendix B**). Flows from this water quality pond would be directed southeasterly into a pond immediately north of a created berm. Flows would exit this pond via a leaky berm designed beneath the landscape berm, allowing the waters to enter the northern sub-set of the marshy pools. Water would move through these pools as described above. Water leaving the pools would be directed eastward toward the largest open-water pond (pond #17, Figure DR-5, **Appendix B**), immediately west of the access road and northwest of the lagoon. Flows from this large year-round pond would seep through a leaky berm under the access road and into the northern reaches of the lagoon.
5. The fifth sequence is the most northern on the site. Flows from the natural-grass sports meadow fields would be collected in a water quality pond in the north meadow area (pond #14, Figure DR-5, **Appendix B**). Flows from this pond would be directed to the east into an existing wetland complex located at the southern toe of Kite Hill. Flows from this wetland complex would be directed to the east/southeast toward the access road. At the intersection of the access road and the paved Bunker Path, these flows would be redirected towards the south, under the Bunker Path, and into the seasonal pond (pond #16, Figure DR-5, **Appendix B**), north of the permanent open-water pond, west of the access road. Flows from this pond would head south into the permanent pond, and then into the lagoon as described above in sequence 4.

Wetland Habitat Types

The proposed wetland/habitat complex would include a range of wetland types with a variety of water sources, thereby increasing the diversity of seasonal habitat types. The wetlands have been designed to respond to the source and seasonality of available water on site, and to maximize habitat considerations within the landscape context of Sand Point Magnuson Park. Providing a variety of wetland/habitat types is also designed to greatly enhance the educational opportunities of the site. The proposed wetland types are indicated schematically in **Figure 2.2-2**. They are described in more detail below, moving counter-clockwise around the site starting from the west.

Figure 2.2-2
Vegetation Community Types, Proposed Action
11x17

Marshy Pools

The proposed marshy pools form a 5.6-acre series of shallowly-inundated emergent marsh and mudflat habitats that would receive water from the collection ponds and the bioswales to the west. The marshy pools are designed to fill with water entering through leaky berms. The pools (from 12 to 18 inches in depth) would overflow through broad, unrestricted outlets into one or more pools downslope. By late fall or early winter, the entire complex of marshy pools would fill and overflow toward the south and east. In low-precipitation years the ponds would still likely fill (given the large contributing area compared to the small volume of their overall storage capacity), although they might dry out earlier in the spring. The areas between each wetted pool would be planted with native shrubs and trees in order to create a highly complex mosaic of wet herbaceous and upland woody habitat.

The goals and objectives for the marshy pool complex are to:

- create shallowly inundated/saturated depressions that pond to no more than 18 inches in depth;
- create breeding amphibian habitat by creating shallow, stable water levels between mid-winter and late spring;
- create appropriate native shrub and woodland habitat in clusters surrounding the shallow pools to provide the upland forest component required for viable populations of many native amphibian species of the Puget Sound lowlands;
- create extensive 'edge' or ecotone complexity on the site for maximum habitat values for birds, small mammals, and amphibians;
- attempt to create seasonal mud-flat habitat for invertebrates and shorebirds in the upper series of the pools, which would dry up earliest every growing season;
- improve habitat functions provided by existing wet meadow habitat by increasing the diversity of hydrologic regimes, increasing vegetative and structural complexity, and creating inaccessible habitat; and
- provide education opportunities for comparing/contrasting habitat functions and species diversity in multiple wetland types.

Access to the marshy pools would include a secondary trail that crosses through the southwestern corner of the complex, weaving through the complex on top of the upland berms separating the pools of the complex. In addition, one of the elevated berms on site would provide a visual overlook opportunity along the western margin of the marshy pool complex. The primary trail would form the western boundary of the marshy pool complex, providing visual access between the higher-use athletic fields and the more passive habitat zone.

Promontory Point Ponds

These two proposed wetlands, equaling just under 3 acres in size, are located in the southern-most portion of the habitat area, in the vicinity of the existing Commissary (Building 193). Groundwater is at or within 1 foot of the surface in this location during the winter and the water level fluctuates only slightly during the year (AMEC Earth and Environmental, Inc., 2000). In addition to groundwater, the southern pond would receive a consistent input of fresh water from the U.S.G.S. fish research facility (off-site to the south) of 0.9 cfs (cubic feet per second) year-round. The ponds would be excavated to a depth of 6 to 8 feet, with shallow sloping benches around the pond margins. The ponds are situated to protect the

existing black cottonwood stands, which would remain and surround much of the shoreline of the new ponds.

The goals and objectives for the Promontory Point ponds are to:

- create systems that retain an open-water component year-round;
- create a wetland complex with at least three wetland classes (open water, aquatic bed, and emergent) and adjacent upland forest;
- provide waterfowl wintering and spring migration refuge habitat (away from the lake), and possibly brood rearing habitat for some human-tolerant waterfowl species;
- provide invertebrate and shorebird habitat, as the ponds may have early fall mudflat habitat;
- create diverse wetland habitat types adjacent to upland black cottonwood forest and shrub communities for high structural diversity and habitat mosaics for a variety of wildlife species; and
- create a 'launching' place for formal K-12 education access to the habitat site, with easy trail access, strong visual access, and expansive open-water and emergent marsh habitat near the primary trail system.

Waters from the southern pond would flow northeastward into the northern pond through an unrestricted outlet, meaning that no storm-driven water fluctuations would occur. From there, flows would be directed through swales into a pond to the north that extends under the access road. Water from that pond would seep through a leaky berm into the lagoon.

The southern Promontory Point pond would be the primary site for initial contact for education and interpretive tours to the habitat area. A small shelter is proposed overlooking this pond on the west side, with easy access to restrooms immediately to the west. In addition, the primary access trail would surround this wetland on two sides and cross two arms of the wetland, to provide ease of access for education opportunities. The northern Promontory Point pond is designed to be set back into the more protected interior portions of the habitat zone.

Lagoon Area

The proposal to develop a lagoon is derived from the desire to re-create, in some small part, the complex historic habitat elements that were once present along a portion of Lake Washington shoreline. Too many parameters have irrevocably changed to ever attempt to effectively recreate the former Mud Lake on this site. However, with the appropriate design parameters, the proposed lagoon is intended to replicate some of those historic functions, while also providing an excellent opportunity for human interaction with habitat restoration and shoreline habitats. In addition, the lagoon would provide an important visual connection between Lake Washington and the wetland/habitat area inland from the lake.

The lagoon is sited in the proposed location for a variety of reasons. First, this location of the park, in existing conditions, has the least amount of effective shoreline habitat. To the north of the proposed lagoon, it would be more difficult to enhance habitat value in the shoreline area near the heavily-used swim beach and dog off-leash area. To the far south in the park, the beach bank reaches heights of over 6 to 8 feet, making creation of a lagoon in that location more costly and complex. In addition, the far south end of the park is adjacent to residential properties, and there is good upland habitat in that zone that should not be sacrificed for creation of a lagoon. The existing boat launch is located immediately south

of the proposed lagoon site, and it is used predominantly in the summer months, when fish use in the near-shore area is less common. Although the presence of the active boat launch reduces the overall habitat value of this lagoon location, the proposed site remains the best alternative location along the entire park beachfront. In addition, the proposed lagoon location is also roughly the former location of the Mud Lake outlet.

The lagoon is designed with a forebay that is deeper than the interior channel, in order to catch and settle wave-borne sediment particles. The opening into the inner lagoon would be approximately 35 to 40 feet wide, and crossed by a pedestrian bridge located among the only young native conifers present in this area of the shoreline. The pedestrian crossing would allow visual access down into the water, across into the inner lagoon, and out across Lake Washington. It is proposed to surround the lagoon on the south and west sides with a mixed-canopy forest, and to make the southern promontory at the mouth of the lagoon also forested to maximize habitat benefit and shading. The northern arm of the lagoon is designed to have a pedestrian trail and a sweeping view of the lake and Mt. Rainier in the distance.

The lagoon would receive flows from all of the wetland complexes located west of the swim beach access road, and it would be excavated to a depth sufficient to intercept the groundwater year-round. The size of the lagoon has purposefully been kept relatively small to reduce the surface area subject to thermal heating. The lagoon design reflects the goal to keep water temperatures as cool as possible through constant input of groundwater and lake water, and by retaining as much as possible of the existing trees to the south along the convoluted southern shoreline.

The goals and objectives for the lagoon area are to:

- create a strong visual and physical connection between the interior wetland/habitat area with Lake Washington;
- increase shoreline habitat with a high degree of overhanging and emergent vegetation for the benefit of fish;
- provide refuge habitat for rearing chinook salmon within shallow water areas when fish are present (winter to early spring and also spring to mid-summer).
- avoid creating habitat for the predators of salmonid fry (no large boulders or woody debris are proposed within the lagoon);
- provide shoreline substrates (e.g., sands, mud, pea gravel, with no armoring, rip-rap or cobble) and vegetation (e.g., shallow emergent, overhanging woody shrubs and trees) suitable for juvenile fish and other wildlife;
- create browse habitat for aquatic mammals in emergent shelves and along the buffering of the shoreline (i.e., soft-stemmed species for muskrat, woody species for beaver);
- provide pedestrian access across the lagoon opening to facilitate views into the lagoon and across the lake, and assure the pedestrian crossing allows a continuous movement corridor with 'punch-outs' for stationary pedestrians;
- maintain a physical barrier between the lagoon and the other wetland habitats on the site to reduce opportunity for non-native invasive species to move from the lagoon into the interior of the site; and
- allow small watercraft access into the forebay lagoon but preclude watercraft access into the interior of the lagoon to maintain maximum habitat benefit in the more protected interior reaches.

The lagoon would eventually develop a substrate high in organic and fine sediment material, thereby limiting its benefit for some species of fish. However, it would create a permanent open-water shoreline with convoluted margins that would be beneficial to a variety of wildlife species. In particular, it is assumed that dense installations of willow, cottonwood and other browse species would be well used by beaver in the Lake Washington system as a new food source.

All water generated from north or west of the habitat zone would eventually be directed eastward into the lagoon. There are no proposed direct surface water links between the waters of the lagoon and the other wetland habitats to the west of the swim beach access road. This is to preclude easy access for non-native invasive species from the lake up into the newly created habitats. Although species such as bullfrogs and purple loosestrife seem to move about with ease, the design is intended to slow down the colonization of the invasive species. In addition, the leaky berms are intended to preclude the movement of non-native fishes (bass and carp in particular) from the lagoon 'upstream' into the wetland habitats.

Seasonal Wetland Complex

Northwest of the lagoon and across the access road is the location for a complex of wetlands that would be driven by both groundwater and surface runoff. These would be shallow seasonal open-water wetlands, with some aquatic bed habitat and emergent marsh around the margins. The lower pond (furthest south) would be deep enough to tap into groundwater throughout the year. The upper two ponds would not tap into groundwater at all, but would be fed from runoff in their surrounding basins as well as water flowing from the Kite Hill sedge-meadow wetland located northeast of the bunkers.

Because the upper two ponds would be driven by runoff, there is the potential that they might dry out late each summer, although the stormwater modeling for the project does not predict this would occur in normal precipitation years. The wetlands would be inundated by mid-winter, creating shallow standing water (less than 3 feet). Depending upon rainfall, they might dry out by late summer, exposing substrates for migrating shorebirds in the fall. These wetlands are not anticipated to provide the highest-quality amphibian breeding habitat on the site, although they should provide excellent invertebrate and wading bird habitat. It is likely that they would become dominated by emergent vegetation over time, becoming classic 'marshes.'

The existing young black cottonwood stands south and east of the proposed seasonal wetlands would be maintained to provide for edge complexity, upland woodland habitat for the amphibious species, and shading to benefit water temperature. These forest stands would be augmented with native understory and coniferous species to provide complex native forest habitat over time.

The goals and objectives for these wetlands are to:

- create a range of hydroperiods in the complex;
- create shallow vegetated marsh habitat with only seasonal standing water evident;
- provide adjacent forest/woodland habitat to support various life stages of several types of wildlife including birds, amphibians, small mammals, and bats;
- create an expansive view from the swimming beach access road into portions of the interior of the habitat zone; and
- provide trail access to shallow vegetated marsh habitat.

Waters from this wetland complex would flow from the Kite Hill sedge meadow into the upper wetlands, then down one to the next, eventually to drain into the lagoon through a leaky berm created under the swim beach access road.

Kite Hill Sedge Meadow

This wetland complex is present immediately northeast of the paved access path to the two former munitions bunkers, just southwest of the swim beach parking lot. It is a sedge-dominated wetland with some spirea present. The wetland was formed because surface runoff from Kite Hill is impounded behind the paved trail. It is proposed that flows from the expanded sports meadow fields to the northwest would be directed into the north meadow water quality pond, and from there into the sedge meadow. Existing flows exit the wetland through in a shallow ditch leading towards the Lake, and empty into the lake via a buried culvert. It is proposed to block the flows from exiting to the Lake, and instead direct the flows to the southwest, under the paved bunker path to drain into the seasonal wetland complex, and from there into the lagoon as described above.

The results would be to increase inundation depths and duration in the existing sedge/spirea wetland, thereby benefiting the sedge vegetation. A small berm would be required along the north edge of the paved access trail to the bunkers, to preclude overtopping and flooding of the trial. The enhanced wetland would provide increased habitat function for invertebrates and amphibians.

The goals and objectives for the sedge meadow area are to:

- increase the duration and depths of inundation in the wetland;
- direct water from the wetland into additional wetland complexes on the site prior to discharging to Lake Washington; and
- expand the area of wetland and change the vegetation dominance to predominantly sedges

Interior Existing Emergent Marshes

In the interior portions of the habitat area is an area of approximately 9 acres that would not be regraded as part of the proposed action. In existing conditions, the area is a mixed habitat of emergent wetlands (with seasonal inundation), wet meadow (with winter saturation), upland meadow and native shrub/tree thickets. In existing conditions, this area receives water primarily from precipitation and via a shallow swale that crosses the site from the north, then drains towards the southeast. In the proposed conditions the area would receive sheet-flow runoff from the marshy pool complex to the west and from the area to the north through a leaky berm. It is expected that wetland characteristics would develop over a larger area based on the increase in volumes of water introduced to it. In addition, this interior area contains the existing small, closed-depression emergent wetlands scattered across the area, including the wetland currently known as "Frog Pond." Care has been taken in the design of the marshy pool complexes to minimize alterations to the estimated contributing basins to the key existing wetlands, to assure that they would not be subjected to significant changes in their hydroperiods.

It is assumed that future conditions would result in more extensive wet meadows and marshes throughout this area, with vegetation shifting towards more wet-tolerant species such as Baltic rush and sedges

instead of wet meadow grasses. In addition, it would be expected that wet-tolerant native species of willows and black cottonwood would establish over time and expand from existing thickets.

The goals for this area are to:

- increase the duration of inundation and saturation to facilitate the establishment of wet-tolerant native vegetation;
- reduce the presence of non-native invasive plant species (graminoids, herbs and woody species); and
- increase habitat values by increasing inundation and changing flooding regimes, reducing the presence of invasive species, increasing plant diversity and vegetative complexity.

2.2.6 Site Vehicular Access and Parking

The proposal includes site access, circulation and parking improvements to support all components of the proposed design. Roadways and parking lots are identified on **Figure 2.2-1**, introduced previously. Additional detail is reflected in the drawings included in **Appendix A**.

Under the proposal, primary vehicular access to the project site would be provided from NE 65th Street. This entrance would be modified and NE 65th Street would be reconfigured as an entry boulevard. The typical profile of the boulevard would consist of, from south to north, a 10- to 12-foot wide paved bikeway, a 5- to 8-foot wide planting buffer, a roadway with two 12-foot-wide lanes, a 20-foot wide planting buffer, a 9-foot-wide primary pedestrian way with a soft edge (see **Section 2.2.7** for additional discussion), and additional planting buffer and drainage swale area.

Secondary vehicular access to the project site would continue to be provided from NE 74th Street, which would connect directly with the reconfigured parking lot in the northwest corner of the project site. The proposed action does not include modifications to NE 74th Street.

On-site roadways would remain along the western edge of the sports fields (Sportsfield Drive), as well as near the Lake Washington shoreline (Beach Drive). These connector roadways would be reconfigured to improve circulation and to accommodate proposed parking and wetland improvements. The reconfigured Sportsfield Drive would run west of the sports field complex and serve as a primary north-south circulation route connecting NE 65th Street with NE 74th Street, providing access to the three major sports field parking lots as well as an alternate access to the historic district. The typical profile for this road would include, from west to east, two 12-foot wide travel lanes, a 20-foot wide planting buffer, a 9-foot-wide primary pedestrian way with a soft edge (see **Section 2.2.7** for additional discussion), and additional planting buffer and drainage swale area. The similarly reconfigured roadway to the shoreline would continue to provide access to the public boat launch, located in the southeast corner of Sand Point Magnuson Park, and to the swimming beach on the eastern shoreline of the park.

The proposed action would provide parking for approximately 991 cars within the limits of the project site. There would be a net loss in available parking spaces under the proposal, primarily because some roadways that now provide road-shoulder parking would be removed or reconfigured. New or modified parking lots included in the proposal would provide sufficient parking for sports field users, and the park as a whole would continue to have ample parking. Proposed parking would be distributed in five primary

areas on the project site (see **Figure 2.2-1**). (In addition, existing parking lots elsewhere within the park but outside the project site would remain.) The future parking capacity within the project site would be distributed as follows:

Parking Area	No. of Spaces
1 – North Sand Point	235
2 – North Fields	158
3 – Sportsfield Drive	209
4 – South Fields	265
5 – Kite Hill/Beach Drive	124
Total, Project Site	991

The North Sand Point parking area is the location of an existing parking lot, just south of the Community Activity Center (Building 406). The existing lot would be reconfigured and resurfaced under the proposed action. The North Fields, Sportsfield Drive and South Fields facilities all represent new parking areas. The 124 spaces at Kite Hill/Beach Drive represent expansion of the existing lot and creation of 34 angled parking spaces along the east side of Beach Drive. The existing space for parking along both shoulders of Beach Drive would be eliminated through reconfiguration of the roadway.

Portions of the new and reconfigured parking areas would be surfaced with asphalt paving. Lower-use portions of the parking areas would be surfaced with reinforced grass paving, to reduce heat gain and runoff generated by impervious surfaces. Reinforced grass paving would be used in the parking lot sectors located furthest from programmed activities, so these spaces would only be used under peak parking conditions. Landscaping in parking lot islands and border areas would provide shading for a minimum of 30 percent of the surface area, to limit heat gain. Wherever possible, stormwater would drain from the parking areas by sheet flow across asphalt-paved surfaces into reinforced grass paving areas and to an adjacent drainage swale. The proposed plan includes minimal use of piping and catch basins for parking lot drainage. The proposal includes security lighting for the four parking lots adjacent to the sports fields; the Kite Hill/Beach Drive parking area would not be lit (see **Section 2.2.9** for lighting details).

Two vehicle access gates would be installed at points on NE 65th Street to control traffic flow to the sports fields as well as to other areas served by Beach Drive. One gate would be located at the intersection of NE 65th Street and Sportsfield Drive, and would allow park staff to secure the South Fields parking and Beach Drive after field activities were completed for the evening. The second gate would be located just beyond the east entry to the South Fields parking lot, allowing Beach Drive to be secured while the sports fields and adjacent parking lots remained in use and accessible.

2.2.7 Pedestrian Circulation/Trail System

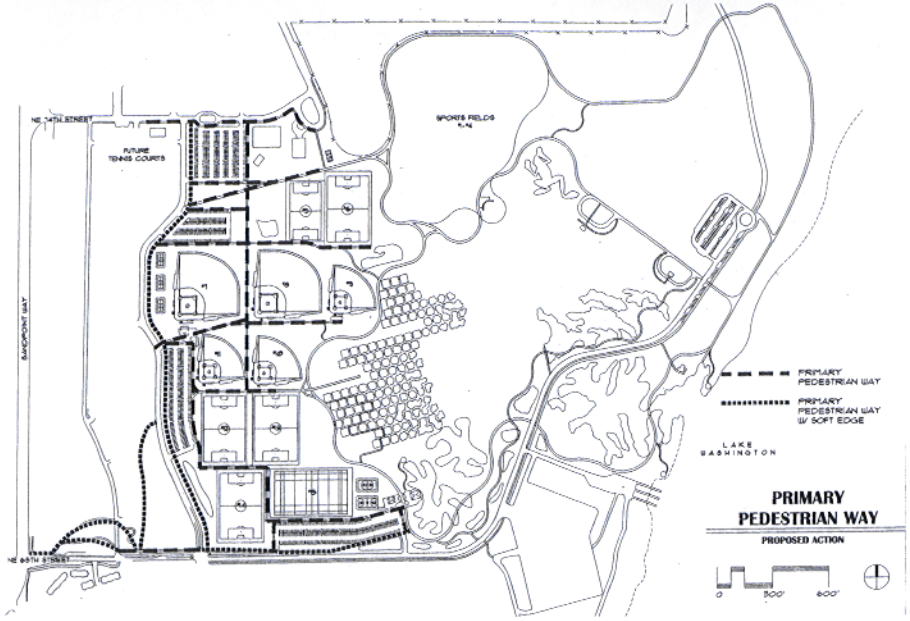
The proposed project includes a system of several types of pedestrian pathways and trails for various uses, specifically:

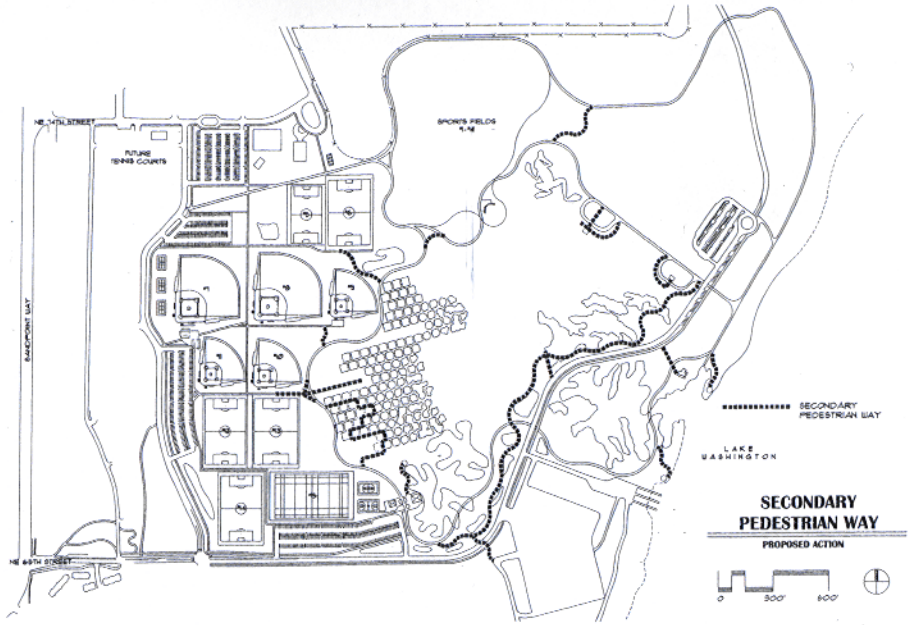
- primary pedestrian ways,
- secondary pedestrian ways,

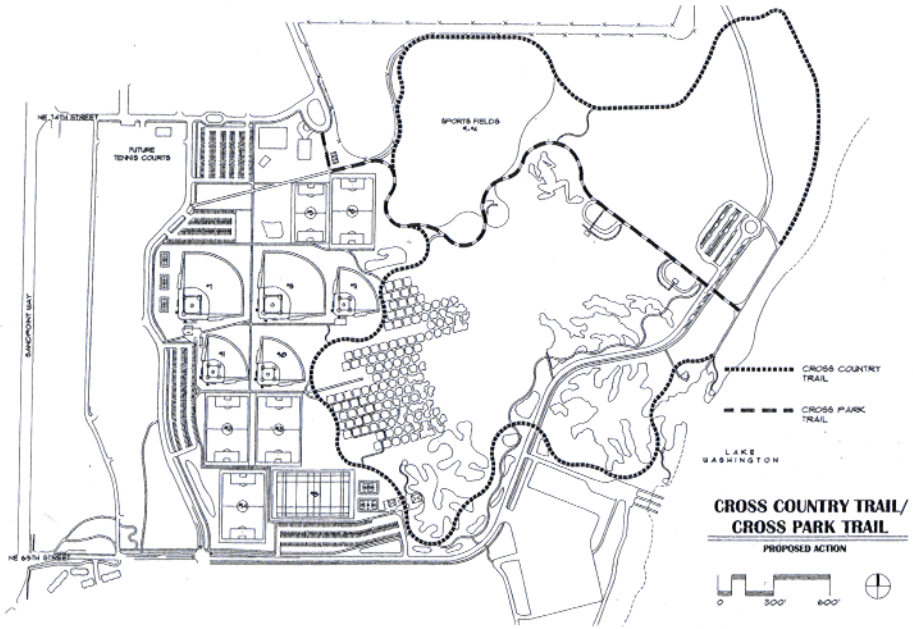
- a cross-park trail,
- a cross-country running trail, and
- a bikeway.

The five types of trails would include a total of approximately 39,000 lineal feet (7.4 miles) of surfaced trails. **Figure 2.2-3** shows the layout of the proposed trail system (see **Appendix A** for additional detail) while cross-sections of the various trail types are provided in **Figure 2.2-4**. The key components of the trail system are described below.

- Primary Pedestrian Way – As the name indicates, these are intended to be the primary circulation routes for pedestrians within the completed project site. They would serve the heaviest traffic areas and would employ two possible profiles. The first profile is an entirely paved path (usually asphalt, though concrete would be used in selected locations) ranging in width from 6 to 9 feet. These paths would be located in the areas of highest activity, specifically among the sports fields and parking areas. The second profile is a primary path with a soft edge. These primary paths would consist of 6 feet of paved area, with an adjacent 3-foot wide shoulder of "soft" crushed-rock surface for running and walking. These paths would be located along the NE 65th Street entry boulevard and around the western periphery of the project site, where running activity is most likely to occur. The primary pedestrian way connecting the NE 65th Street entry to the sports fields would meet the accessibility standards of the Americans with Disabilities Act (ADA).
- Secondary Pedestrian Way – These are smaller-scale pedestrian trails, averaging 6 feet in width, making connections between other circulation elements and within portions of the wetland/habitat complex. Secondary pedestrian ways would typically be "soft" crushed-rock paths, while elevated wooden walkways would be used within the more sensitive areas. Secondary pedestrian ways within the wetland/habitat complex would be designed and managed exclusively for pedestrian use, with bicycles prohibited.
- Cross-country Trail – This trail would provide a 1.5-mile cross-country running course that circumnavigates the wetland/habitat complex. The trail would be 12 feet in width and surfaced with crushed rock. Where the cross-country trail runs adjacent to existing paved pedestrian areas, such as along the lakeside promenade and a segment of the cross-park trail, it would consist of a 6-foot wide crushed-rock path. The cross-country trail would be available for walking, jogging and service vehicle access when not in use for scheduled events. It would form a perimeter loop from which smaller paths originate to access portions of the habitat complex. The loop is also proposed as a bypass to intercept pedestrian traffic and discourage "cut-through" pedestrian traffic in the habitat complex.
- Cross Park Trail – The cross park trail would be a 9-foot wide paved path providing a direct connection from the more-developed western portion of Sand Point Magnuson Park to the lake shore and swim beach. The route for this trail generally follows the route of the existing cross-park trail, which would be reconstructed or reused as necessary. Providing a clear and logical circulation route between these elements would allow excess parking demand at the Kite Hill/Beach Drive parking lot to be diverted to the North Sand Point Fields parking lot during times of peak swim beach usage.







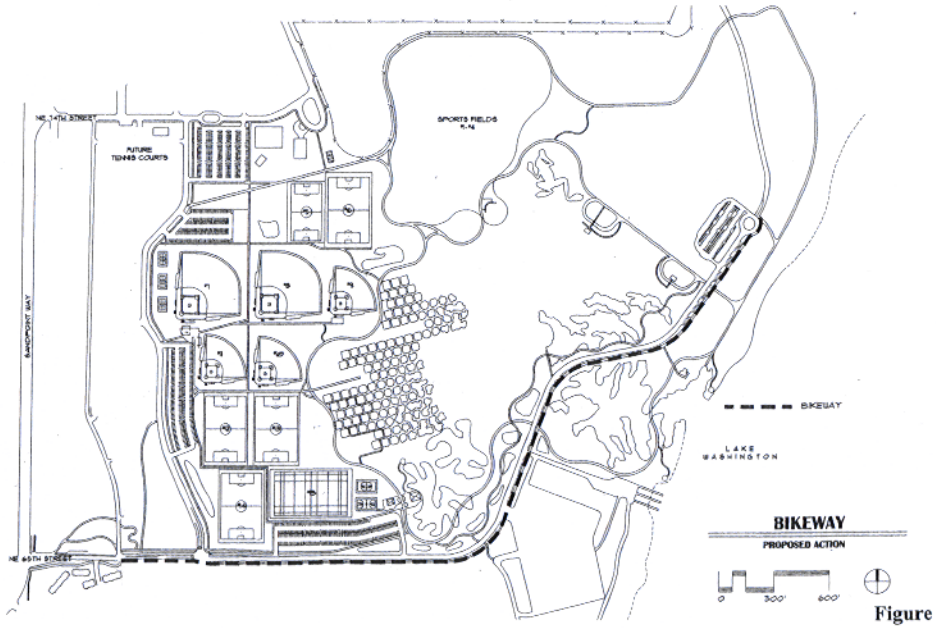
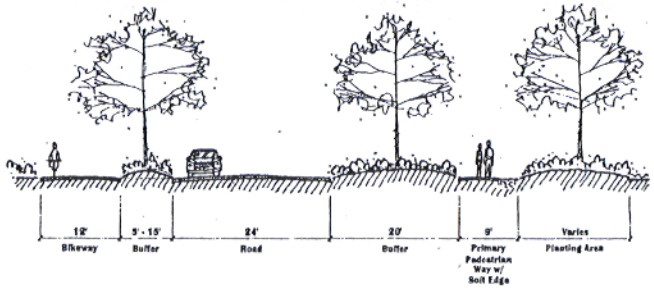
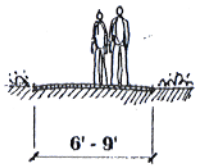


Figure 2.2-3
Pedestrian Circulation Plan, Proposed Action

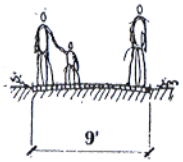


Entry Boulevard - NE 65th Street



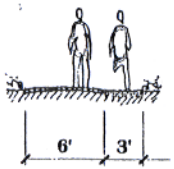
Primary Pedestrian Way

Walking, Service, Jogging
Asphalt



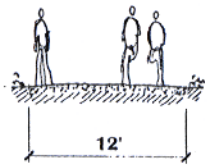
Cross Park Trail

Walking, Service, Jogging, Bicycles
Asphalt



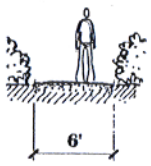
Primary Pedestrian Way w/ Soft Edge

Walking, Jogging
Asphalt w/ Crushed Rock Edge



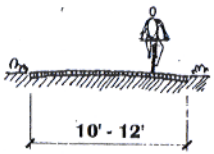
Cross Country Trail

Jogging, Walking, Service, Bicycles
Crushed Rock



Secondary Pedestrian Way

Walking, Wetland Access
Crushed Rock



Bikeway

Bicycles
Asphalt

Figure 2.2-4
Cross-sections of Access/Circulation Routes

SAND POINT MAGNUSON PARK
SEATTLE, WASHINGTON

DRAINAGE, WETLAND/ HABITAT COMPLEX, AND SPORTS FIELD/ COURTS PROJECT

SAND POINT MAGNUSON PARK

SEATTLE PARKS AND RECREATION

THE BERGER PARTNERSHIP, P.S.

Sheldon & Associates, Inc.

SCHEMATIC DESIGN

DRAWN BY MAS, KJ, GM, JB
CHECKED BY JG, LF

REVISIONS

DATE 12/20/01
PROJECT NO. 20013465

- Bikeway – A paved bike trail ranging in width from 10 to 12 feet would be constructed adjacent to NE 65th Street/Beach Drive, to provide improved bike access from the NE 65th Street park entry to the swim beach.

2.2.8 Service and Maintenance Facilities

Proposed New Buildings

As part of the proposed project, three new service and support complexes would be constructed to serve park users and complement the enhanced park uses. One or two buildings in each location would be constructed to serve the sports field area, sports meadow area, and habitat area. Each building complex would consist of men's and women's restroom facilities, an electrical supply room, and janitorial/mechanical space. In addition to these basic services, individual buildings would contain other uses that respond to the needs for their specific location. The architectural character of each building complex would relate to its location with respect to adjacent uses and specific programming issues, while maintaining some prototypical elements that allow for efficient construction and maintenance. In addition to the proposed new buildings, some existing structures on the project site would remain and continue to be used.

Sports Field Area

Two buildings would be constructed at the west-central edge of the project site, just north of the Sportsfield Drive parking lot, to serve the playfield area (see **Figure 2.2-1**). These buildings would be located near the middle of the field area, immediately adjacent to Fields 7 and 11 (baseball and little league fields). The buildings' design would incorporate baseball park features, including exposed metal trusses and large overhanging metal roofs. Brick veneer would also be used as a reference to the existing historic district to the west.

The easternmost field-area building would house a restroom. It would also offer an enlarged janitorial/mechanical room and an additional auxiliary restroom that could be used to double either the men's or the women's restroom capacity during large tournaments. The westernmost of the two buildings would include an electrical room, an equipment storage room to serve field maintenance crews, and a concession space and prep kitchen. Each building would be approximately 25 feet by 40 feet in size.

Sports Meadow/Children's Playground Area

One new building would be constructed in the northwestern portion of the project site, to serve the sports meadow area (see **Figure 2.2-1**). This building would be located along the cross-park trail, near the turn-around/drop off area east of the existing children's playground, and would also serve playground users. The building would be approximately 30 feet by 60 feet in size and contain a janitorial mechanical room, electrical room, restroom, concession cart storage, and associated covered area and counter area. The building's form and character would relate to the former aviation use of the site, with metal roofing and siding and exposed steel supports.

Wetland/Habitat Area

Two buildings would be constructed on an upland location in the south-central portion of the project site, primarily to serve the wetland/habitat complex (see **Figure 2.2-1**). The buildings' design would emphasize natural colors, forms and materials in response to its setting. In addition to restroom, electrical supply and janitorial uses, the westernmost of the two buildings would contain a covered area for congregating. This building would be approximately 25 feet by 45 feet in size. The easternmost building would serve as an annex to support education programs. This building would contain a covered space, lunch area, kitchenette, and tool/equipment and storage room. This building would be approximately 35 feet by 55 feet in size.

Existing Buildings

In addition to the three restroom/service structures included in the proposed action, four existing structures within the project limits for the proposed action would remain on the site and would be incorporated into the future programmed uses. These structures and their uses are summarized as follows:

- The existing restroom facility to the southeast of the sports meadow would remain as is and would primarily serve users of the sports meadow fields and visitors to the wetland/habitat complex. The restroom is a concrete structure excavated into the bank of an existing low mound.
- An existing restroom building near the Lake Washington shoreline, located between the boat launch and the main beach area, is to remain and would be integrated into the plans for the wetland/habitat complex. The site of this building is very close to the proposed lagoon off of the lake, making this an ideal location to complement interpretive and educational activities oriented to the wetland/habitat complex. The restroom building has underused space that could function as an educational annex, in support of programs operated out of the wetland/habitat area service facility.
- Two existing earth-covered bunkers (Munitions Bunkers 1 and 2; see **Section 3.11 Historic and Cultural Preservation** for additional discussion) are to remain in their present location adjacent to the cross-park trail, just south of Kite Hill. The proposed action includes no modifications to the bunkers themselves. Because the earthen mounds created around the bunkers provide elevated vantage points on a relatively flat site, however, an open-air viewing platform would be constructed on the top of each mound. One platform would be oriented toward views of the interior of the wetland/habitat complex, and the other would be oriented toward Lake Washington.

2.2.9 Lighting Systems

Lighting of the 11 synthetic-surfaced sports fields, the parking lots and roadways, and certain pedestrian ways would be provided under the proposal. **Figure 2.2-5** illustrates the areas within the project site that would be covered by the lighting systems for both the proposed action and the lesser-capacity alternative. The lighting systems for the fields, parking lots and roadways would supply the minimum amount of light necessary to meet safety standards for those use areas.

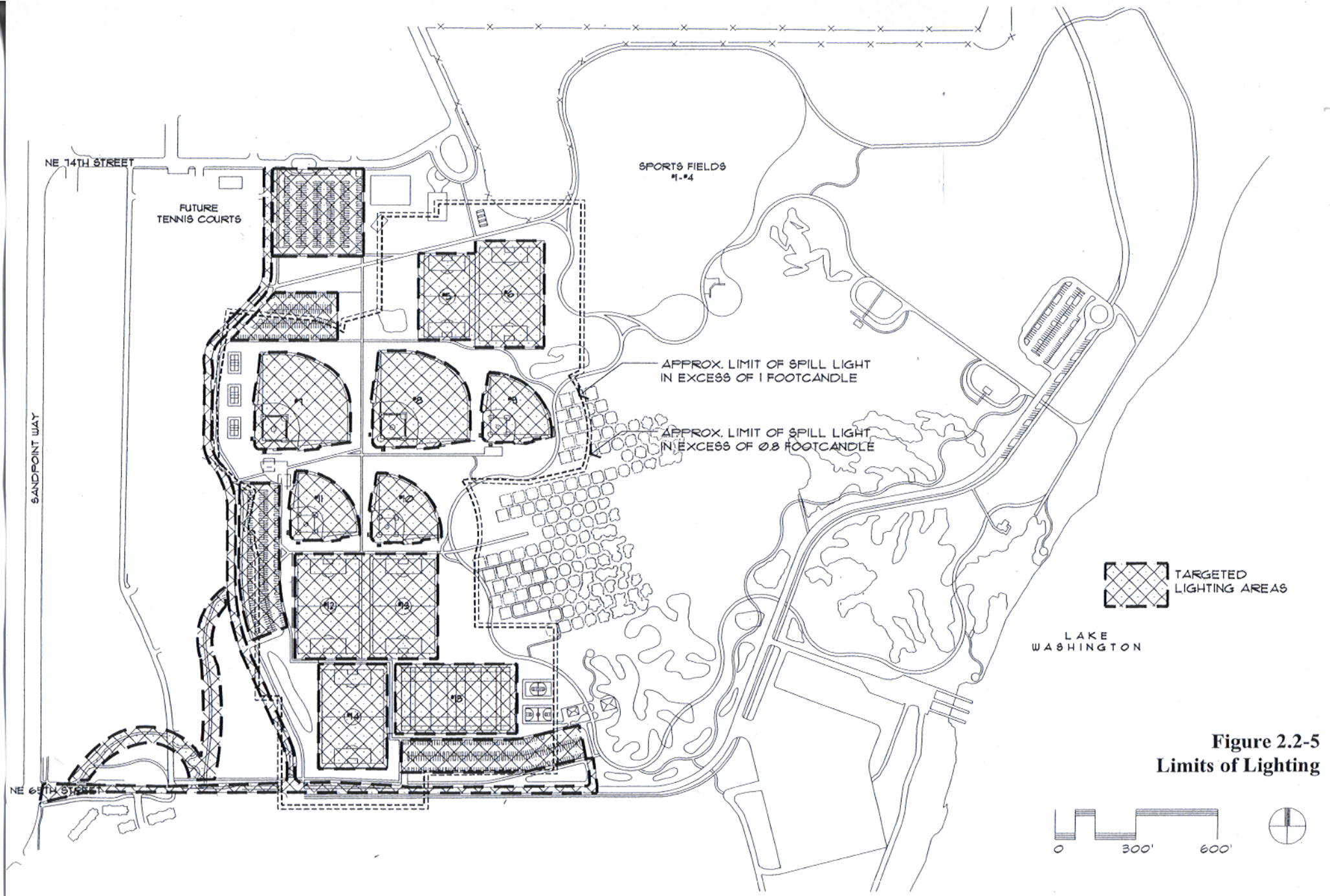


Figure 2.2-5
Limits of Lighting

Sports Fields

The sports field lighting would be designed to a Class IV lighting level, as prescribed by the Illuminating Engineering Society of North America (IESNA) standard RP-6. Class IV is the lowest of the four light levels described in RP-6. The design level would provide an average light level at the playing field surface of 20 to 30 foot-candles, depending upon the specific requirements for each field. (A foot-candle is defined as a lighting level of 1 lumen distributed uniformly over an area of 1 square foot.) The characteristics of the lighting systems for the fields are summarized in **Table 2.2-3.**

The sports field lighting systems would consist of 1,000-watt floodlight luminaires (bulbs and fixtures) mounted to poles surrounding the fields. The poles would typically be 75 feet high, although some 65-foot and 85-foot poles would be used on the five baseball fields. The number of light poles per field would range from 6 to 10, based on the size and configuration of the field. All together, 80 light poles would be installed to serve the 11 synthetic-surfaced sports fields. Each light pole would support a light fixture array of 6 to 15 individual luminaires. Overall, the proposed field lighting design would involve a total of 640 luminaires.

Table 2.2-3
Sports Field Lighting Summary, Proposed Action

Lighting Characteristics	Fields 5 & 6 (Soccer)	Fields 7 & 8 (Baseball)	Fields 9, 10 & 11 (Baseball)	Fields 12 & 13 (Soccer)	Field 14 (Soccer)	Field 15 (Rugby)
Design Level	25 foot-candles average maintained	30 foot-candles average maintained (infield), 20 foot-candles average maintained (outfield)	30 foot-candles average maintained (infield), 20 foot-cantles average maintained (outfield)	25 foot-candles average maintained	25 foot-candles average maintained	25 foot-candles average maintained
Luminaire Type	Full Cutoff	Shielded Conventional	Full Cutoff	Full Cutoff	Full Cutoff	Full Cutoff
Number of Luminaires	104	152	120	120	64	80
Pole Height	75 feet above grade	75 & 85 feet above grade	65 & 75 feet above grade	75 feet above grade	75 feet above grade	75 feet above grade
Number of Poles	14	16	18	14	8	10

Source: Sparling, Inc., 2001

The pole heights selected allow use of the latest technology in shielding for athletic field lighting. The pole heights allow for the use of full-cutoff luminaires, which do not emit any direct light above the plane of the luminaires, on most of the fields. This reduces the amount of spill light delivered beyond the athletic fields and into the atmosphere. The selected pole heights also allow the use of steeper aiming

angles for the shielded conventional floodlights on the larger baseball fields. The steeper angles provide for more effective use of the luminaire shielding, which reduces the amount of glare as well as spill light. The lighting systems would incorporate full-cutoff, forward throw floodlights at all lit fields, except at the two larger baseball fields (Fields 7 and 8). The two baseball fields would use shielded floodlights. The lighting system for these fields would incorporate the latest available technology in reflector and shielding design in order to reduce the amount of light spillage and glare.

The lighting systems would be operated by an automatic programmable lighting control system. The lights for each field would be operated separately so that they could be turned off when the field is not in use. The system has the capability to be operated from a remote location.

Egress lighting would also be provided at the sports fields. This lighting system would supply a low lighting level to allow for egress from the fields after the field lighting has been turned off. The security lighting would consist of full cutoff luminaires mounted near the top of each sports field pole (to avoid the need to install additional poles specifically for the egress lights). The egress lights would be turned off shortly after the completion of scheduled field use each evening.

Consistent with standard policy and past practice at existing City athletic fields with lights, DPR has assumed for this analysis that the lighted fields at Sand Point would generally be scheduled for field use until 11 p.m. Therefore, field lights could be turned on as early as approximately 4 p.m. during the shortest days of the winter, and as late as approximately 8:30 p.m. during the longest days of the summer. Periods of light system use are expected to range from approximately 2.5 to 7 hours per day, depending on the season and the sky conditions on any given day. The actual hours of sports field light operation would be determined through the recommendation on this proposal forwarded to the Mayor by the DPR Superintendent, and/or the action taken on that recommendation by the Mayor and the City Council. The DPR Superintendent recently determined that light systems at four City sports fields (Ballard, Bitter Lake, Loyal Heights, and Miller) would be turned off at 10 p.m. to minimize neighborhood impacts. In those instances, the basis for the decision was that residential areas were immediately adjacent to the sports fields on two sides of the facility.

The light system for each field would be operated independently, so the number of light systems in use at a given time would correspond to the number of fields in use. Additional discussion of hours of operation for the sports field lights is provided in **Sections 2.2.14** and **3.9.5**.

Parking Lot and Roadway Lighting

Parking lot lighting would be provided at the four parking lots serving the sports fields; the Kite Hill/Beach Drive parking area would not be lit. Roadway lighting would be provided along Sportsfield Drive. The lighting in the parking lot and roadway areas would provide a minimum of 0.6 foot-candles on pavement per the IESNA RP-20 and RP-8 standards, respectively. These lighting systems would consist of single full-cutoff luminaires mounted on 40-foot poles. Based on the size of the areas to be lit, parking lot and roadway lighting systems would require 37 poles and 36 poles, respectively.

Pedestrian Pathway Lighting

Lighting would be provided along the ADA-accessible primary pedestrian pathway connecting Sand Point Way at 65th Street and the Sportsfield Drive parking lot (adjacent to Fields 11 and 12). This lighting

system would provide the minimum amount of light necessary to provide good visibility and meet safety standards for pedestrian use. The design lighting level would be 1.0 foot-candles horizontal average on pavement and 0.6 foot-candles vertical 5 feet above the path. The pathway lights would consist of single full-cutoff luminaires on 20-foot poles. This system would consist of 17 light poles.

2.2.10 Other Utilities

Water supply for building services and fire protection would be provided by extending services from the existing water line network/grid on the site. Water would be provided with new service connections for the five new buildings and field irrigation systems. Existing water lines that are located where new wetland/habitat complex and sports facilities are to be located would either be removed or relocated.

Sanitary sewer service for the five new buildings would be provided by extending service laterals from existing sewer lines to the buildings. There is an existing sanitary sewer system and force main (with lift station) that services the existing restroom facilities south of the sports meadow and near the beach area. The sanitary sewer system east and upstream of the lift station is located where the Beach Drive Pond would be located. A portion of this sewer system would be relocated and the lift station would be reconstructed as part of this project.

There are existing electrical and storm drainage lines and facilities located throughout the site that are no longer in operation. Many of these facilities have open vaults or spaces, without lids, which are potential hazards to people and animals in the area. These facilities would be removed, if located within the limits of project work, as part of this project.

2.2.11 Construction Actions

In general, construction activities for the proposed action would include clearing, site preparation, grading, installation of drainage and utility systems, construction of playing field bases and surfaces, construction of buildings and ancillary structures, and landscape planting. In certain locations, demolition of existing buildings would be required for site preparation.

In order to implement the proposal, the following existing buildings and associated paving would need to be removed: Navy Commissary (Building 193), Hobby Shop (Building 15), Building 308, Building 304, service bay (Building 345) and the (unnumbered) building west of the service bay. In total, approximately 7.7 acres of existing impervious surface area would be removed and approximately 18.6 acres of impervious surfaces would remain or be introduced.

The project site would be graded to generally drain from the western site boundary eastward toward Lake Washington (drawings DR-7 through DR-13 in **Appendix B** provide detailed information related to project grading plans). Grading would occur over the majority of the site in order to construct the sports fields and the wetlands/ponds. Constructing the wetlands/ponds would create approximately 400,000 cubic yards of excavated cut material and constructing the fields would require 370,000 cubic yards of fill. Approximately 60,000 cubic yards of base sand and/or gravel would need to be imported for construction of the sports fields. There would be an excess of approximately 30,000 cubic yards of excavated soil under the current grading plan. It is expected that this excess material would be reused in fine grading to support landscaping on the project site.

Plans for grading activity on the site have been developed with the objective of balancing the cutting and filling of appropriate subgrades within the project site, to eliminate the need to import material to the site or export material from the site. However, as noted above, construction of selected components of the proposed design would require importation of necessary construction materials. These imported materials include sand and crushed-rock base for the athletic fields as well as topsoils or topsoil amendments for the wetland/habitat complex. When construction needs require the importation of significant volumes of these materials, DPR would direct the construction contractor to transport these materials to the project site by barge, to reduce both the potential impacts of truck traffic on the adjacent neighborhoods and the cost to the project. (Based on existing knowledge of physical and regulatory conditions, DPR assumes that it would be feasible to import fill material by barge.)

New plantings would be introduced and existing planting retained consistent with the goals and objectives established in the Sand Point Magnuson Park Vegetation Management Plan (Seattle Department of Parks and Recreation, 2001). New plantings would be established on site in the wetland/habitat area and sports field area, around the parking lots, and along internal roadways. The proposed plantings for the wetland/habitat area would emphasize native species; where feasible and appropriate, existing non-native species in this area would be removed. As possible, existing native vegetation would be salvaged from the site prior to the onset of construction for reuse on site. In the sports field area the proposed plantings of trees, shrubs and groundcover would consist of primarily native species. Canopy trees planted in parking areas and along vehicular access routes could include non-native species due to the limited number of native canopy trees that can provide the required shading. These trees would be limited to deciduous non-invasive species compatible with the character and appearance of the native species.

2.2.12 Construction Phasing

The Department of Parks and Recreation does not expect or intend to undertake all of the construction activities needed to implement the proposed action throughout the project site during a single defined construction period. Instead, the project plan involves constructing the drainage system, wetland/habitat area and sports fields and courts in a series of work phases. The intent of a phased-construction plan is to develop the most efficient sequence of development activities for the project. The sequence of construction phasing for the overall project and the entire site is based on the following criteria: location of specific activities on the site, construction access, constructability, priority for use of the finished facility, construction interdependence, and funding availability. It is intended that proposed Phases 1 and 2 would be constructed using funds already budgeted for Sand Point Magnuson Park improvements. The timing and specific scope of subsequent phases will be determined by funding not yet budgeted, and as such, it is more difficult to predict the extent of activity or time of implementation for these phases. In general, the phasing proposed in this plan is intended to identify the construction sequence for large-scale construction activities on the site, while allowing the flexibility to shift the phasing of smaller park elements in response to funding conditions.

The proposed phasing also reflects the complexities of construction planning for the proposed habitat complex/wetland area. The wetland/habitat complex will ultimately form a living ecosystem in which one element is dependent upon the existence and health of the other elements. Therefore, it will be necessary to provide interim erosion control and drainage facilities during initial construction activities to

ensure that later phases of construction activity do not compromise the health of portions of the habitat complex/wetland area already complete.

Based on the phasing criteria identified above, the proposed plan is for construction to occur in five major phases that could span 10 years or more. Under the proposed phasing plan, construction of the first phase could begin in 2003 and the last phase would begin in 2012. The broad outline of each planned phase is described below. **Figure 2.2-6** is a graphic depicting the proposed phasing of construction activity relative to the geographic areas of the project site.

Phase 1

Phase 1 of the project would include renovation of the sports meadow as a logical first priority. The proposed sports meadow is a multi-use facility that would support scheduled athletic and non-athletic events, and would also be available for informal, unstructured use. It is isolated from most of the other components (existing and proposed) of the park, and construction here would not interfere with other existing park uses. Renovation of the sports meadow area would not be dependent on soil to be excavated in the construction of the wetland/habitat complex. Existing soil and rubble stockpiles on the Sand Point site (created in decommissioning of the former naval station facilities) could be used to supply material needed to form the sub-base required for the new natural-turf fields. The existing athletic fields along Sportsfield Drive would be kept in use while the sports meadow is renovated. Upon completion of Phase 1 construction, athletic activity would be redirected to the sports meadow while other existing fields were disturbed in subsequent phases. Drainage from the renovated sports meadow fields would be temporarily integrated into existing park drainage routes.

Specific timing for each construction phase is uncertain. The proposed plan is to begin construction of Phase 1 in the spring of 2003, with completion in 2004.

Phase 2

Phase 2 is the first of two "mass grading" mobilizations that would excavate the proposed wetland/habitat complex and provide subgrades for the proposed synthetic-surfaced athletic fields. This phase would include construction of parking and road improvements, athletic fields, structures, and the Promontory Ponds and southern Marsh Ponds portions of the new wetland/habitat complex.

Excavation for the Promontory Ponds would provide fill for the subgrades for Field #7 (baseball/adult softball), Field #11 (Little League/women's fastpitch softball), Field #14 (soccer), and Field #15 (rugby), which would be completed in this phase, as well as for the northern portion of the new Sportsfield Drive parking and the South Fields parking adjacent to NE 65th Street. Other athletic facilities that would be completed in this phase include the sand volleyball courts and the basketball courts. Selected service/support buildings would be provided at this time, including completion of the restroom and partial construction of the education annex at the wetland/habitat complex. Construction of the sports field service/support building would be completed in this phase if funding allowed. Subgrades for additional athletic fields would be prepared to the extent that this phase of habitat complex grading would allow, but the remaining fields themselves would be developed in later phases.

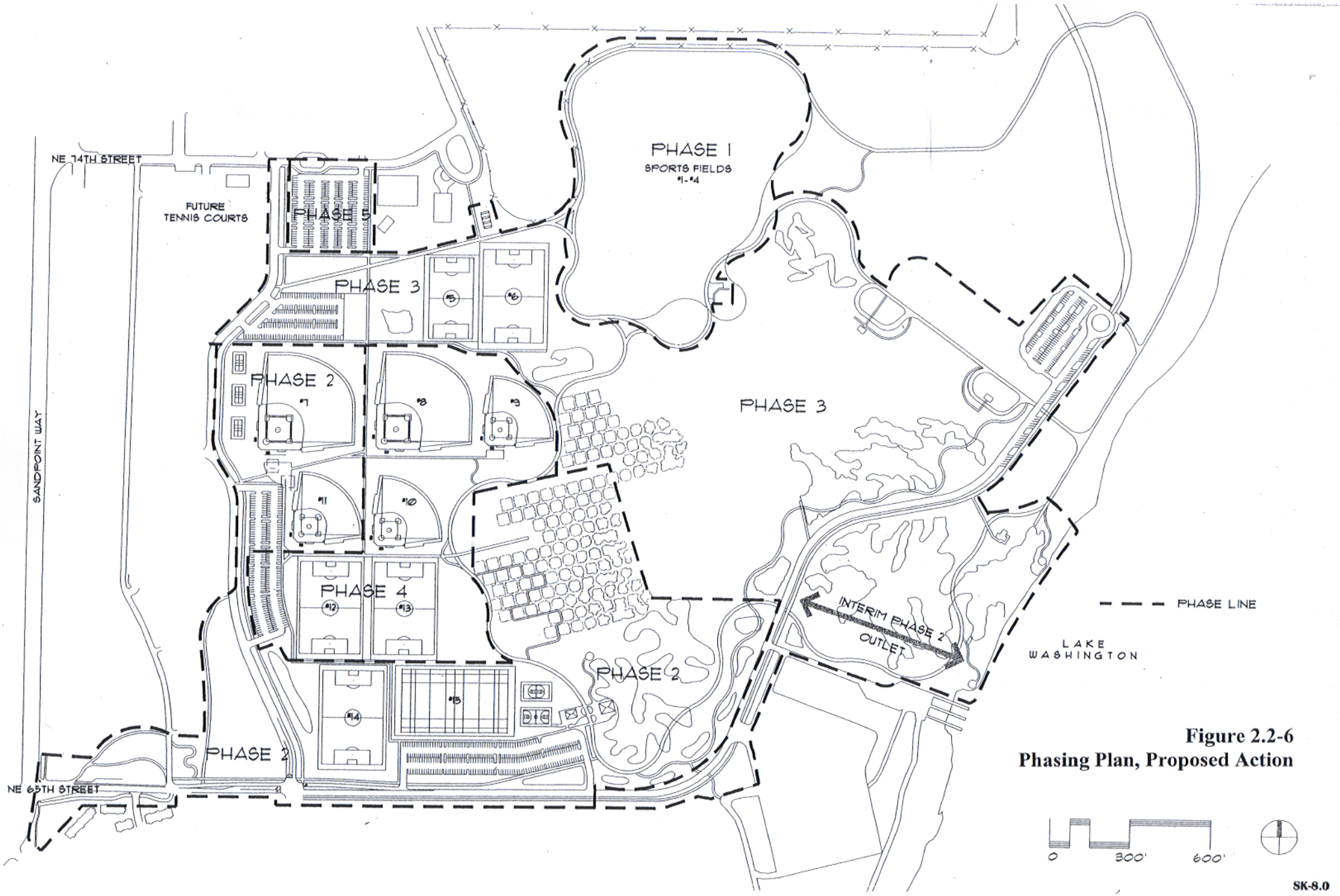


Figure 2.2-6
Phasing Plan, Proposed Action

Temporary erosion control and detention facilities would be installed in these subgrade areas to ensure that only clean water entered completed portions of the wetland/habitat complex. Improvements to the NE 65th Street entry would be completed in this phase, as well as street improvements along NE 65th to the eastern edge of the South Fields parking lot, including a redesigned intersection with Sportsfield Drive. As part of these road improvements, the proposed bio-swales/water quality features adjacent to NE 65th Street and Beach Drive would be completed to provide "clean" water to the wetland/habitat complex. An interim surface connection to Lake Washington would be completed to convey water from the southern Marsh Ponds, the Promontory Ponds and the NE 65th Street water quality ponds to the lake.

The phasing plan is to begin construction of Phase 2 activities in 2004 or 2005.

Phase 3

Phase 3 is the second and final of the two "mass grading" mobilizations. This phase would see construction of the northern and eastern portions of the wetland/habitat complex completed, including the northern Marsh Ponds, North Meadow Pond, the Beach Drive Ponds, and the Lake Washington lagoon. The existing tennis courts and adjacent parking lot would be removed in Phase 3. Material excavated through the completion of wetland/habitat complex sub-grading would be used to complete the sub-grade preparation for the remaining sports fields. Phase 3 would include completion of Field 5 (youth soccer), Field 6 (soccer), the North Fields Parking and the Sports Meadow/Kids Area restroom. The street improvements to NE 65th Street would be completed, in conjunction with the realignment of Beach Drive, and the swim beach parking lot would be expanded. Again, temporary erosion control and detention facilities would be installed in the areas that would be subgraded but not yet fully constructed, to ensure that only clean water entered completed portions of the wetland /habitat complex.

Construction in Phase 3 is expected to begin during 2007.

Phase 4

Construction of the remainder of the athletic fields would occur during Phase 4. This would include Field 8 (baseball/adult softball), Fields 9 and 10 (Little League/women's fast-pitch softball), and Fields 12 and 13 (soccer). The remaining portion of the Sportsfield Drive parking lot would also be completed during this phase.

Construction in Phase 4 is expected to begin during 2010.

Phase 5

The largest single component of planned Phase 5 construction is the completion of the North Sand Point parking lot. In general, Phase 5 is a catchall phase that would provide completion of project facilities and amenities including additional landscaping, site furnishings, artwork, graphics and interpretive information, and building improvements to the existing service/support building near the proposed lagoon off Lake Washington.

Construction in Phase 5 is expected to begin during 2012.

2.2.13 Planting Plans

Planting associated with the proposed project would be predominately native vegetation. Native plant species are preferred because they can more readily adapt to typical conditions found on the site, and provide better habitat for wildlife attracted to the wetland/habitat complex. Plantings would include named varieties of native species from Washington, Oregon, British Columbia, and Northern California that are hardy in the local Sand Point environment.

Some non-native canopy trees would be used in limited locations, including the 65th Street corridor, along Sportsfield Drive, adjacent to some of the athletic fields, and in parking lots. Use of some non-native tree species in these areas would form a transition from the built environment to the natural environment, and offer subtle diversity in terms of form, texture, and color. These trees would be limited to deciduous non-invasive species that are compatible in character and appearance with native species and would not compromise the acres of new native planting and native habitat associated with the development of the wetland/habitat complex. All coniferous trees, shrubs and groundcovers used would be native species. New plantings would be selected to both reflect the existing vegetation communities and increase their species diversity.

This approach is consistent with previous planning documents and reports prepared for Sand Point Magnuson Park. All have supported the use of native plants, while it appears that no documents have proposed the exclusive use of native plants.

Existing Site Vegetation

The existing vegetation in the locations of the proposed sports field and wetland/habitat complexes is determined by the site's history as an air station and the Seattle Parks Department's ongoing maintenance to accommodate active and passive recreation activities. The area contains both upland and wetland habitats as described below. Where possible, existing site vegetation is to be retained, including native tree and shrub stands in the interior portions of the wetland/habitat complex.

Existing upland habitats found within the site include mowed grasslands; unmowed or infrequently mowed meadows; savannahs, or open expanses of unmowed grasslands with native or non-native trees and shrubs scattered across them (the most common existing upland habitat type); non-native shrub thickets; and deciduous woodlands with mixed closed or near-closed canopies. Existing upland habitats are often dominated by non-native species such as seeded grasses, blackberries and hybridized poplars.

The majority of the areas within the existing wet meadows and closed depressions on the site are typically dominated by various willows mixed with herbaceous species such as rushes, grasses and spiraea. The following wetland vegetation communities currently exist on the site: wet meadows, dominated by wetland species such as rushes and grasses; seasonal marshes characterized by long-term shallow standing water (most areas less than 8" deep) with rushes and sedges often ringed with sapling willows, black cottonwood and spiraea; shrub wetlands dominated by willow and spiraea thickets; and forested wetlands consisting of black cottonwood stands with little or no understory.

Proposed Planting and Design Principles

Wetland/Habitat Complex

An important goal in planting new native vegetation throughout the wetland/habitat complex is to increase diversity within upland and wetland habitats across the site. A first vital step would be the removal of existing non-native vegetation that can frequently take over native species and decrease diversity. Following excavation of several acres of proposed wetlands areas and the lagoon, a variety of native trees and shrubs would be planted to support new upland habitats and create diverse seasonal and year-round wetland habitats. These trees and shrubs would be chosen to reflect and enhance existing vegetation, respond to hydrologic conditions, and create new environments. New vegetation communities would in turn create habitat throughout the area for native wildlife species, thereby increasing wildlife diversity.

New vegetation communities throughout the wetland/habitat complex would not only create habitat diversity but are a component of the design intention to seamlessly integrate natural and urban forms into the landscape. Some planting patterns are designed to evoke the Park's prior history by emphasizing the grid of the former airstrip that ran through the wetland/habitat complex. New plantings would serve to connect the more urban areas to the west (Historic District, buildings, parking lots and sports fields) with the more natural areas of the wetland/habitat complex. Fingers of native vegetation would drift into the sports field areas, while marsh ponds and vegetation would dissolve from a pattern of geometric squares into loose organic shapes. Additional plantings of mixed forest canopy are proposed around the wetland and lagoon complexes to form a forested link between the shoreline at the lagoon and the upland forests of Promontory Point, located west of the boat launch area.

Existing native tree and shrub stands in the interior portions of the wetland/habitat complex would be preserved and expanded for increased habitat diversity, structural complexity, and summer shading of open waters. As possible, existing native vegetation designated for removal would be salvaged from the site prior to the onset of construction. These natives would be managed in a nursery for reuse in the planting phase.

Sports Fields Complex

The proposed plantings of trees, shrubs and groundcovers within the sports field complex would consist of primarily native species. The parking lot trees identified on the proposed plans may include non-native species, due to the limited number of native canopy trees that can provide the functions required. Canopy trees are required to have a minimum branch height of 6 feet at installation to ensure viability until fully established, and ultimately provide large canopy coverage. These trees would be limited to deciduous non-invasive species compatible in character and in appearance with native species. These deciduous canopy trees would serve an important role in providing solar shading of paved surfaces to reduce heat islands.

Lawn areas would be provided among the fields and paralleling key circulation routes to allow activities of sports enthusiasts and fans to “spill” out of the immediate fields areas. These lawn areas would be interlaced with areas of upland planting extending into the fields area from the wetland/habitat complex. All proposed shrub and groundcover plantings would be native, consistent with the goals and objectives addressed in the planting overview.

2.2.14 Operations and Maintenance

All facilities or resources developed through the proposed project would be operated and maintained by the Department of Parks and Recreation. Park-sponsored leagues, various league organizations and user groups and the general public would use the athletic facilities. The wetland/habitat complex within the park would be open and accessible to the public. In addition, more formal arrangements with education groups would be formulated to coordinate the use of the wetland/habitat complex for formal education for K-12 and university-level students. Stewardship and long-term maintenance of some aspects of the habitat restoration would be coordinated between Parks and interested citizen and community groups. The Parks Department would enter into agreements with various organizations, as appropriate, for use of the facilities and habitat resources.

General Park maintenance would include the mowing of lawn and meadow areas, at a frequency ranging from weekly to monthly based on location in the park and intensity of use, to be largely determined as a park operations decision. Maintenance of planting areas would include weed control, particularly of invasive vegetation in the native plantings that would dominate the site; mulching new plantings; replacing dead plant material; and managing the irrigation system. Paths would be maintained and cleaned to provide appropriate quality of surface to meet the programmed uses. Lighting in fields, parking lots and streets would require regularly scheduled re-lamping to assure adequate lighting levels are maintained. General maintenance would also include the repair of damaged property.

Maintenance needs for the natural-turf and synthetic-surfaced sports fields are summarized as follows:

- Maintenance of the natural-turf sports meadow would include managing the irrigation system, mowing fields at least once per week, and, if the mower did not collect the clippings, using a sweeper and/or vacuum to pick up clippings. The fields should be aerified a minimum of two times per year, preferably during restoration before application of amendments and seed, and again in the fall. The fields should be thatched a minimum of two times per year; this can best be accomplished during dry times of the year, summer and early fall. Fertilization for the field area should consist of applying a range of 6 to 8 pounds of available nitrogen per 1,000 square feet per season. It is suggested that a fertilizer supplying three (3) parts nitrogen, one (1) part phosphorus and two (2) parts potassium be used to make a complete fertilization. Formulas bearing this ratio of plant nutrients N_g, P and K are 15-5-10, 12-4-8, 10-2-4, 9-3-6, etc. It is best to apply about 1 to 1-1/2 pounds of available nitrogen per 1,000 square feet per application, repeating to achieve total amounts. Recommended months for fertilization are March, May, June, July, August and September, with November optional. It is recommended to apply 5 pounds of elemental sulphur per 1,000 square feet per year. This can be incorporated in combination of sulphur and sulphate fertilizer. For pH control, approximately 50 pounds per 1,000 square feet of dolomite limestone should be applied per year. This should be applied with one-half of the quantity in each of two applications, one in the fall and the other in the spring of the year. Problems such as weeds, insects and diseases would require attention when they occur. Sand Point Magnuson Park has been managed for many years as an herbicide- and pesticide-free park. Park maintenance staff have supported this commitment with respect to the proposed project, so use of such chemicals is not incorporated into future management plans. If an infestation created a need for chemical controls in the future, a broad-spectrum herbicide (that is, one containing such ingredients as

MCPP, Banvel-D and 2-4-DAMINE) is generally the best for weed control. Many different companies have formulations of materials with these ingredients.

- Maintenance of synthetic-turf fields would primarily involve cleaning. The fields would be cleaned every 1 to 4 weeks, using a sweeper to remove leaves, needles, and other debris, and a blower to remove larger leaves as required. Chewing gum residue would need to be frozen and chipped off of turf fibers as required. Sunflower seeds and other small debris that gets into the infill would need to be vacuumed. Every 2 to 4 months, as required, field surfaces would be brushed to bring up matted fibers, redistribute infill material and reduce infill compaction.

The primary maintenance tasks for the wetland/habitat complex would be removing invasive vegetation, mulching new plantings, replacing dead plant material, managing the temporary irrigation system, management of vegetated fences, elimination of undefined trails, and path maintenance. There would be an intensive level of maintenance during the first 5 to 10 years after construction. The maintenance requirements would significantly decrease after 10 years. The irrigation system would be abandoned after 3 years. Park staff and volunteers would perform the maintenance. Volunteers would primarily focus on invasive vegetation removal.

Access for maintenance equipment would be via the cross-country trail. The lack of plant density during the initial 5 to 10 years would allow full maintenance access throughout the non-fenced areas. Path maintenance would primarily be to supplement the surface material, addressing any drainage or settling conditions.

Ongoing maintenance activities for all natural areas in the park, including wetland habitats, removal of invasive thickets and upland forest regeneration, would follow the detailed guidelines and schedules outlined in the Sand Point Magnuson Park Vegetation Management Plan (VMP) (Seattle Department of Parks and Recreation, 2001b). The VMP outlines specific procedures for removal of invasive trees and shrubs, mowing frequency of meadow and turf/grass areas, monitoring for diseased or hazardous trees, and removal of invasive species from wetland and upland forest habitat areas. The VMP also specifies that any work within wetland habitats in the park be conducted to aid in species selection, monitoring frequency and performance criteria, all to be established on a project/site-specific basis.

With the level of investment in Sand Point Magnuson Park facilities and resources represented by the proposed project, annual costs for operations and maintenance would be considerably higher than the costs presently incurred for the existing uses within the project site. To accommodate the needs for ongoing operations and maintenance, DPR would set aside a portion of the funds allocated to these park improvements to support recurring annual costs.

One of the key operational issues associated with the proposed action concerns the hours of use for the lighting systems serving the 11 synthetic-surfaced athletic fields. Past practice at existing City athletic fields with lights has generally been to schedule field use until 11 p.m. DPR has assumed for this analysis that the lighted fields at Sand Point would follow the same operational pattern. (As noted in **Section 2.2.9**, however, the DPR Superintendent recently decided to limit sports field light operation to 10 p.m. at four City facilities and could recommend a similar operating schedule for the proposed action, as could the Mayor or the City Council.) Therefore, field lights could be turned on as early as approximately 4 p.m. during the shortest days of the winter, and as late as approximately 8:30 p.m. during the longest days

of the summer. Periods of light system use are expected to range from approximately 2.5 to 7 hours per day, depending on the season and the sky conditions on any given day.

The light system for each field would be operated independently, so the number of light systems in use at a given time would correspond to the number of fields in use. Hours of operation for the security, parking lot and roadway lighting systems would be similar, although these lights would remain illuminated for a short period following completion of the last scheduled games to allow safe egress from the sports field area.

2.3 LESSER-CAPACITY ALTERNATIVE

As required by SEPA, an alternative to the proposed action (other than no action) has been considered in this EIS in order to assess a range of possible environmental impacts. SEPA defines a reasonable alternative as an action that could feasibly attain or approximate a proposal's objectives, but at a lower environmental cost or decreased level of environmental degradation (WAC 197-11-440 [5]). An alternative development plan for the project site, which is termed the lesser-capacity alternative, is being analyzed in this EIS. This alternative has been defined to include actions that might reasonably attain or approach the objectives the City Council has identified for this project, but at a potentially lesser environmental impact.

A number of Draft EIS reviewers were critical of the configuration of the lesser-capacity alternative evaluated in the Draft EIS, which included 7 sports fields that would have lighting and artificial surfaces (compared to 11 such fields in the proposed action). Many of the review comments in this category maintained that the lesser-capacity alternative included too many lighted, artificially-surfaced fields and would therefore result in associated environmental impacts of nearly the same magnitude as the proposed action. In response to these Draft EIS review comments, the Department of Parks and Recreation has revised the composition of the lesser-capacity alternative for the Final EIS. The lesser-capacity alternative now includes only 3 fields that would have synthetic surfaces and would be lit, along with 7 nearby fields (plus a sports meadow area) that would have natural turf and would not be lit.

While this configuration for the lesser-capacity alternative has a similar footprint to the proposed action and includes nearly the same number of fields, it represents a significant reduction in sports field capacity because the larger number of unlit fields would support a smaller aggregate number of scheduled field hours. Overall, the lesser-capacity alternative would provide approximately half as much sports field capacity as the proposed action. In their evaluation of the proposal and alternatives, the decision makers will need to consider whether this alternative would satisfactorily address the proposal's objective for increased sports field capacity.

The lesser-capacity alternative that is analyzed in Chapter 3 of the Final EIS is graphically represented in **Figure 2.3-1**. As with the proposal, this alternative includes a sports field complex, a wetland/habitat complex, integrated drainage and a circulation system. Specifically, the lesser-capacity alternative includes:

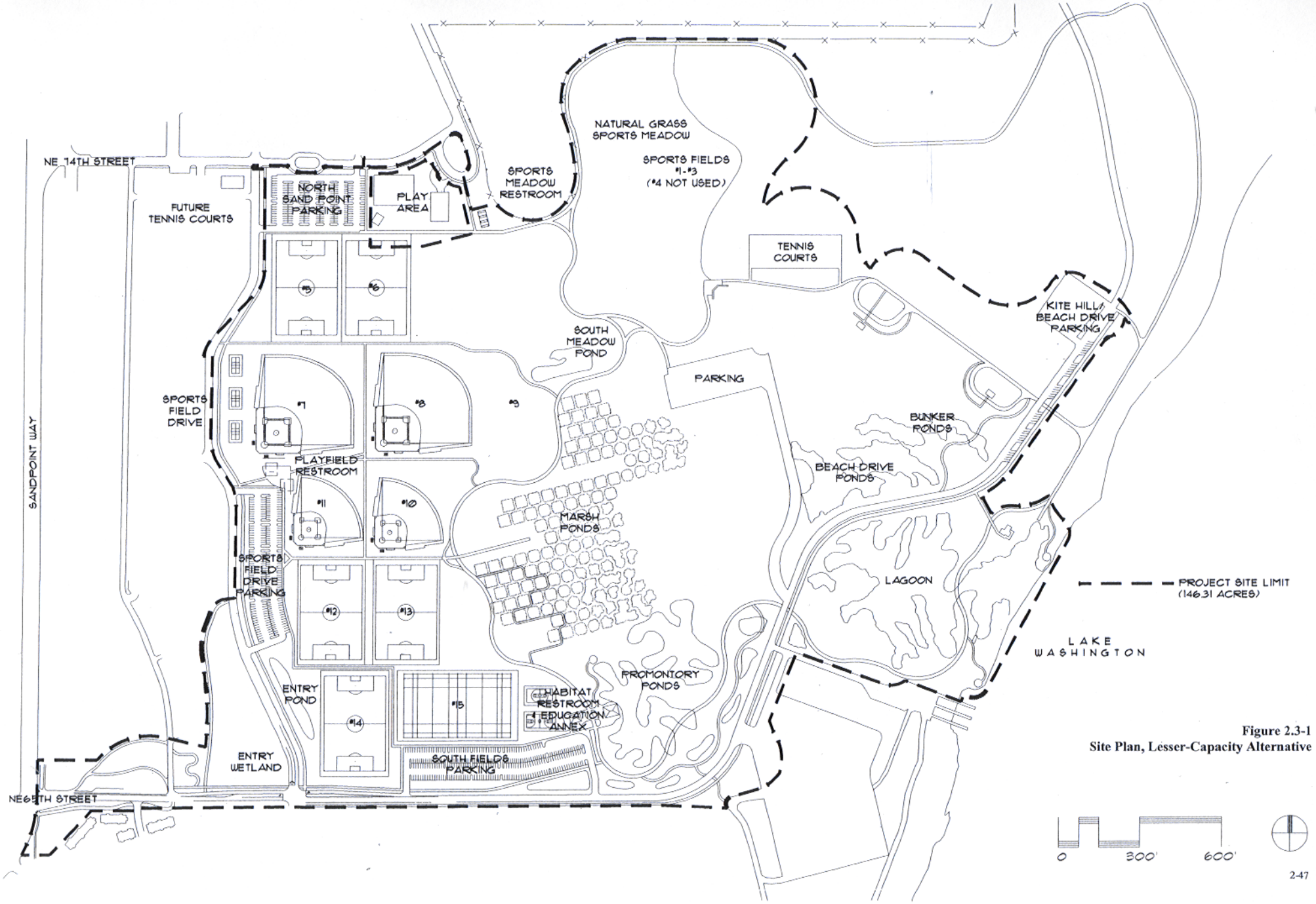


Figure 2.3-1
Site Plan, Lesser-Capacity Alternative

- 3 sports fields (rather than the 11 with the proposal) that would have all-weather, synthetic surfaces and would be lit;
- 7 new sports fields that would have natural-grass surfaces and would not be lit;
- a somewhat smaller sports meadow area, accommodating up to 3 soccer fields, that would have a natural grass surface and would not be lit;
- 6 existing tennis courts to remain, with approximately 8 new courts to be constructed as part of an adjacent project;
- basketball and volleyball courts;
- a wetland/habitat area of approximately 61 acres with an open-water lagoon connection to Lake Washington immediately north of the boat launch;
- a total of approximately 393 lit and 672unlit parking spaces;
- retention of the existing sports meadow parking lot and access road;
- two new buildings (rather than the three with the proposal) to house restrooms, concession stands and maintenance facilities for the wetland/habitat complex and the sports fields;
- a scaled-down pedestrian trail system through the sports fields and around the wetland habitat area; and
- existing utilities would be extended and/or relocated as necessary.

The individual components of the lesser-capacity alternative are summarized in **Sections 2.3.1** through **2.3.7**. These discussions are abbreviated relative to the corresponding portions of **Section 2.2** because, in general, the respective components of the lesser-capacity alternative and the proposed action are quite similar. The following narrative focuses on the differences between the two alternatives, rather than repeating facility descriptions that would be the same for each alternative.

2.3.1 Sports Fields and Courts

The athletic field component of the lesser-capacity alternative differs from the proposed action primarily with respect to the distribution of athletic fields by surface type and lighting. The lesser-capacity design calls for 2 to 3 natural-turf fields incorporated into the multipurpose sports meadow (compared to 4 with the proposed action), which is reduced in size to approximately its existing areal extent. (The actual field count in the sports meadow would be determined by the changing field layout intended to "rotate" the fields).

The proposed action includes 11 remaining fields (excluding the sports meadow area) along the western side of the project site. In comparison, the lesser-capacity alternative retains 10 of the fields included in the proposed action, with some shifting in general locations, dimensions and proposed uses. For the lesser-capacity alternative site plan, Fields 5 and 6 (youth and adult soccer) are shifted to the west, in place of the North Fields parking lot, and allowing a northwestern extension of the wetland/habitat complex. In addition, the lesser-capacity alternative eliminates one of the Little League/adult softball fields (Field 9) included in the proposed action, and includes a vegetated buffer area in the vacated space.

The primary difference in this case, however, is that 7 of the 10 fields in the sports field complex would have natural turf and would NOT be lit for night play. Compared to the proposed action, the number of synthetic, all-weather-surface fields is reduced to 3, including 1 full-size soccer field, 1 baseball/adult slow-pitch softball field, and 1 Little League/fast-pitch softball field. As with the proposed action, only

the synthetic-surfaced fields would be lighted for night play. Therefore, the lesser-capacity alternative would result in 3 sports field lighting systems, rather than 11 in the case of the proposed action.

The one full-size basketball court, two half-size basketball courts, three sand volleyball courts and the cross country course remain as parts of the sports facility component of the lesser-capacity alternative. However, this alternative does not include the inline-hockey facility and the open lawn flex-space identified in the proposed action.

2.3.2 Drainage System

In general, the drainage system described for the proposed action (see **Section 2.2.4**) would also be incorporated into the lesser-capacity alternative. Surface drainage by sheet flow and through swales would still be the primary means of conveying stormwater from the finished project, and drainage flows would be directed through the wetland/habitat area as a critical water source for a variety of wetland types. The stormwater control system for the lesser-capacity alternative would likewise be designed according to the Washington Department of Ecology (2001) Stormwater Manual for Western Washington, and would convey stormwater from the northern, eastern and western perimeters of the project site through a series of drainage chains toward Lake Washington. The same types of facilities and systems would be used to provide water quality treatment for stormwater, including biofiltration swales and filter strips, wetponds and water quality vaults.

The primary difference related to drainage for the lesser-capacity alternative is that there would be 1.4 acre less wetland area (primarily of the marshy pool and open-water habitat types, as described in **Section 2.2.5**) and a larger area of retained impervious surface within the wetland/habitat complex, because the existing interior roadway and parking lot near the center of the project site would not be removed under this alternative. As a result, the volume of stormwater flowing through the project site would be slightly greater than estimated for the proposed action. In addition, the lesser-capacity alternative includes 10 natural-turf athletic fields and 3 synthetic-surfaced fields, compared to 4 natural-turf and 11 synthetic-turf fields under the proposed action. Additional water quality treatment measures would be needed for the additional natural-turf fields to account for the larger area subject to fertilization. These water treatment facilities are included in the plan to ensure water entering the wetland/habitat complex from the natural-turf fields would be "clean" before entering the wetland areas (drainage from the synthetic-turf fields in the proposed action would already be considered "clean").

2.3.3 Wetland/Habitat Complex

The design elements of the wetland/habitat component for the lesser-capacity alternative are essentially the same as the proposed action. The existing interior access road, tennis courts and parking lot would remain, however, thereby affecting drainage patterns and hydrology in a portion of the park. A larger area of the existing wet meadow would also remain, as a result of eliminating Field 9 from the proposal. A The lagoon, the Promontory Ponds, the marshy pools and the seasonal wetland complex northwest of the lagoon remain consistent between the proposed action and the lesser-capacity alternative. Those features are described above in **Section 2.2.5.** The water quality pond located in the north meadow would not be created (because the sports meadow fields would not be expanded), therefore, there would be less water directed into the sedge wetland northeast of the bunkers and, ultimately, less water flowing southward into the seasonal marsh complex northwest of the lagoon. The seasonal marsh complex would

have a different hydrologic pattern, with less winter volume input resulting in earlier drawing down in the early summer and greater water fluctuations in entire complex over a water year. There would be a net increase of 1.9 acres of the interior emergent marsh/wet meadow habitat zone relative to the proposed action and a reduction of 0.7 acres of open-water/emergent marsh wetland complex. Overall, the lesser-capacity alternative would result in 32.2 acres of wetland, or 1.2 acres more than the proposed action. Leaving the interior access road, tennis courts and parking lot in place would require the site drainage to be designed so that sheet flow across the site would have to be more directed. Assuring that sheet flow did not collect on the west side of the interior access road might require that road to be reworked in places, to create leaky berms or some other method for assuring that surface water could pass through readily in appropriate locations. Redirecting surface flows might influence the extent of this interior marsh habitat type in future conditions.

2.3.4 Access, Parking and Circulation

The lesser-capacity alternative would maintain similar vehicular access and circulation system as described in **Section 2.2.6** for the proposed action. The primary vehicular access point would also be a reconfigured NE 65th Street, and the NE 74th Street entrance would remain unchanged. Sportsfield Drive and Beach Drive would be reconfigured as discussed previously. The difference in vehicle circulation routes between the alternatives involves the interior roadway that currently extends north from Beach Drive to serve the central parking lot south of the sports meadow and tennis courts. This roadway would be removed with the proposed action, but would remain under the lesser-capacity alternative.

Several of the parking components described in **Section 2.2.6** for the proposed action would be changed for the lesser-capacity alternative. In summary, they are as follows:

- the North Sand Point parking lot capacity would be reduced from 235 (proposed) to 184 spaces;
- the proposed 158-space North Fields lot would not be constructed;
- the Sportsfield Drive and South Fields parking lots would be developed, as for the proposed action, providing 474 combined spaces;
- the existing 73-space parking lot at the end of Beach Drive would remain, but Beach Drive itself would be reconfigured to include 34 angled parking spaces (compared to approximately 170 spaces at present); and
- the 300 spaces in the interior parking lot and along the roadway to this lot would remain, whereas they would be eliminated under the proposed action.

Overall, the lesser-capacity alternative would provide a total of 1,065 parking spaces within the project site at the completion of project construction. This is actually a net increase in parking supply compared to the proposed action, primarily as a result of the retained interior parking lot and access roadway.

Because the lesser-capacity alternative would result in fewer athletic fields with lights for night play, there would be less demand for parking during evening hours. Consequently, the 184-space North Sand Point parking lot and the 209-space Sportsfield Drive parking lot are the only parking areas that would have security lighting under the lesser-capacity alternative. This compares to four lighted parking lots under the proposed action.

The pedestrian circulation/trail system for the lesser-capacity alternative would be similar to that described in **Section 2.2.7** for the proposed action, but would have somewhat less total trail distance (6.9 miles, compared to 7.4 miles for the proposed action).

2.3.5 Facilities and Utilities

The lesser-capacity alternative includes two service/support building complexes that would also be developed under the proposed action; a new building to serve the sports meadow area would not be constructed. The locations and descriptions of these facilities would be as described previously in **Section 2.2.8**.

The lesser-capacity alternative includes lighting systems for 3 athletic fields, rather than 11 fields as for the proposed action. The characteristics of these sports field lighting systems would be as described in **Section 2.2.9**. The fields that would have lighting systems under this alternative include Field 7 (baseball/adult slow-pitch softball), Field 11 (little league/fast-pitch softball) and Field 12 (soccer). As indicated in **Table 2.2-3**, these 3 fields would require 21 light poles supporting 176 total luminaires. As noted above, only the northern and Sportsfield Drive parking lots would have security lighting under the lesser-capacity alternative.

The lesser-capacity alternative would require similar utility system modifications as the proposed action. The primary difference between the alternatives would be the need for less extensive electrical system modifications for the lesser-capacity alternative.

2.3.6 Construction Actions and Phasing

Construction actions for the lesser-capacity alternative would be similar to those described in **Sections 2.11** and **2.12** for the proposed action. Demolition activities would be less extensive for the lesser-capacity alternative, because the interior parking lot, tennis courts and roadway would not be removed. Similarly, that portion of the project site would not be graded and revegetated to develop restored wetland/habitat areas.

The phasing plan for the lesser-capacity alternative would parallel the plan for the proposed action. Construction activity would occur in five phases, distributed geographically about the project site as indicated previously in **Figure 2.2-5**. The level and extent of activity in several of the phases would be somewhat less than under the proposed action, as a result of proposed features that are not included in the lesser-capacity alternative. Because this alternative would involve a lower overall project cost, it might be possible to accomplish all of the project construction activity in somewhat less time.

2.3.7 Operations and Maintenance

The operations and maintenance program described in **Section 2.2.13** for the proposed action would likewise apply in general to the lesser-capacity alternative. The Department of Parks and Recreation would operate and maintain all of the facilities and resources developed through the lesser-capacity alternative, and would coordinate with various community groups on programmed use of both the sports fields and the wetland/habitat complex. Annual costs for operation and maintenance would be higher

than at present, although these costs would be somewhat lower for the lesser-capacity alternative compared to the proposed action.

There would be some minor differences in maintenance activities between the alternatives, such as a greater need for fertilizing and related natural-turf care under the lesser-capacity alternative. While fewer fields would be lit compared to the proposed action, the typical hours of operation for the sports field lighting systems would likely be the same as for the proposed action.

2.4 NO ACTION ALTERNATIVE

The no action alternative represents the most realistic expectation of future conditions on the project site if the proposal for the wetland/habitat complex, drainage system, and sports fields/courts were not implemented by the Department of Parks and Recreation. With the minor exceptions noted below, the existing conditions map presented as **Figure 2.1-2** is reflective of the no action alternative. More specific graphics applicable to this alternative are included in **Appendix A**.

Given the condition of the existing park facility, a few minimal improvements would be expected to occur within the project site absent the proposal. These would include major maintenance improvements to the drainage and irrigation system at the existing sports meadow in Magnuson Park. The former Navy Commissary facility, which includes five buildings at the south end of the project area, would be demolished regardless of the disposition of the proposed action. These buildings present a substantial security issue for the City. The parking areas at the commissary site would remain paved and open to general parking. The existing sports fields at Sand Point and the sports meadow would remain in their current condition. The currently undeveloped area east of the Sand Point sports fields and south of the existing tennis courts would remain unchanged. Minor improvements would be made to the existing pedestrian circulation system through the maintenance of trails. The existing parking would remain in its current configuration. Existing utilities would remain in place.

A decision not to implement the proposed action for drainage, sports fields and wetland/habitat development on the project site would have no effect on current, pending and planned projects for other locations at Sand Point Magnuson Park. **Section 2.6** provides a discussion of other projects outside the site for the proposed action but within the park that will be implemented under the direction of the Sand Point Reuse Plan.

In the no action alternative, the existing upland and wetland habitats that are present on the site would continue to go through natural successional patterns over time. If it is assumed that the hydrologic patterns would stay consistent (i.e., there would be no significant change in the volume or timing of water entering the site in a 'normal' rainfall year), then the existing vegetation communities would be expected to mature and become more complex with native species over time.

It is assumed that the amount and duration of shallow winter inundation and extremely poor soil conditions in existing conditions limit the establishment of diverse plant communities within the majority of the project site. It should be expected that woody shrubs and saplings would slowly establish in the existing grasslands as soils increase in their organic content. If left unchecked, Lombardy and white poplar might continue to colonize the grassy portions of the site, extending outwards from their existing points of establishment. In addition, native black cottonwood and red alder may continue to expand their

presence within the dry grasslands and also along the margins of the shallow seasonal marshes. As trees and shrubs become established, they change the growth conditions of the site by creating cooler, moister habitats. Over time, the mulch formed from their leaf drop increases soil humus content and water retention capabilities, resulting, in the long term, in soil development more appropriate for a broader range of native deciduous and coniferous trees.

It should be expected that, within 25 to 50 years, the majority of the open space portions of the site would be dominated by woody saplings and young and middle-aged trees, essentially forming a nearly closed canopy over large portions of the site. This in turn would shift the wildlife use to species more adapted to forest stands and closed-canopy habitats rather than open grasslands and savannah type habitats.

If the volume and timing of water entering the site did not change, there could be a change in the vegetation community types of wetlands found on the site, but one would not anticipate an outright loss of wetland habitat area. A loss of seasonal marsh habitat might be anticipated over time as the herbaceous species were replaced by woody shrubs and saplings. This would likely result in increased shade, cooler temperatures and reduced aquatic habitat elements because of an increase in evapo-transipiration.

Maturation of the native and non-native woody species present along the shore in the project area would likely continue. Additional native and non-native species such as black cottonwood, willow, Scot's broom and blackberry would be expected to establish over time. Existing trees (black cottonwood and native and non-native willows) would mature and perhaps topple, thereby providing the opportunity for increased structural complexity along the shoreline (dependent upon Parks policies for leaving woody debris in the waters edge near public beaches and boat launching sites).

Overall, the no action alternative would likely result in the establishment of a mixed (deciduous and coniferous) woodland and shrub community over the majority of the open space areas of the site. The adoption of the Sand Point Magnuson Park Vegetation Management Plan (VMP, December 13, 2001) would mean that invasive species present within the natural habitats on site would be managed for removal over time, based on budget and staff availability. Removal and control of invasive species, based on the directives of the VMP, would result in replacing them with native trees and shrubs adapted to the conditions within each project-specific area of the Park.

2.5 ALTERNATIVES NOT CONSIDERED IN DETAIL

One of the requirements of SEPA is that reasonable alternatives be analyzed that could feasibly attain the project objectives. The purpose is to limit the number of alternatives subjected to full environmental review. The lesser-capacity alternative analyzed in this EIS provides a reasonable alternative. The analysis of the lesser-capacity alternative's environmental impacts will provide decision-makers with useful information about the project proposal itself.

Several alternatives were considered initially but have been excluded from detailed development and analysis in this EIS, as discussed below. These include: expanded sports field capacity; expanded wetland/habitat area; use of natural surfaces and lighting; and alternative sites.

2.5.1 Expanded Sports Field Capacity

Numerous sports field advocates have suggested that a much higher number of sports fields should be developed at Sand Point Magnuson Park. Plans for the park have been developed showing more sports fields over a larger portion of the site, diminishing the area available for a wetland/habitat complex. This alternative is not evaluated in detail in the EIS because it does not demonstrate a balance between the uses envisioned for the project, and therefore would not meet the objectives identified for the project. In 1999, the City Council was offered the opportunity to approve a concept design that included more sports fields but rejected it, indicating the Council's commitment to a balanced development. The lesser-capacity alternative includes some analysis of a less intensely developed wetland and habitat area.

2.5.2 Expanded Wetland/Habitat Area

While not as developed as proposals for more sports fields, there have also been designs with fewer sports fields and more wetland and habitat area. This alternative is not evaluated in detail for the same reason that the expanded sports field alternative is not included. It does not reflect the City Council's objective for balance among the uses and would not reflect a sufficient expansion of recreational opportunities. The lesser-capacity alternative includes some analysis of a less intensely-used sports field complex.

2.5.3 Natural Surfaces and Lighting

Consideration was given to evaluating an alternative that includes no lighting or synthetic surfaces on the sports fields. Discussion of the environmental impacts anticipated without lit and synthetic-surfaced sports fields is presented in the analysis of the no action alternative in **Chapter 3** of this EIS. An alternative that would highlight these parameters is not evaluated in detail because it does not meet the City Council's determination that lights and synthetic surfaces are needed to provide sufficient capacity in response to demand for expanded recreational opportunities. The Council's preference to use synthetic turf on some sports fields was based in part on the desire to limit the total number of fields needed, because the synthetic surfaces can accommodate higher levels of use.

2.5.4 Alternative Site(s)

A number of Draft EIS reviewers criticized the document for not including an evaluation of an off-site alternative to the proposed action. An off-site alternative/alternative site(s) concept was in fact evaluated in the Draft EIS, but it was not considered in detail. For the Final EIS the off-site alternative/alternative site(s) remains a concept that is not considered in detail, for a variety of valid reasons.

Reasonable alternatives to a proposed action must support the proponent's objectives for the action. The proposed project is focused on the development of Sand Point Magnuson Park. The Sand Point Reuse Plan and the Concept Design for Magnuson Park were prepared to guide the development of the former military facility into a multi-use regional park. Locating the proposed wetland/habitat and athletic field facilities in other locations would not attain that goal. Because an off-site alternative would not fulfill the documented objectives of the Department of Parks and Recreation and the Seattle City Council for Sand Point Magnuson Park, an alternative site would not constitute a reasonable alternative under SEPA.

As indicated in **Section 2.1.1**, the Joint Athletic Fields Development Plan (JAFDP) provides programmatic guidance to the Department of Parks and Recreation on the development of athletic fields citywide. Various sites were considered for needed athletic facilities in the development of the JAFDP. The 1997 JAFDP identifies the preferred locations for a large number of these facilities, which include lighted, synthetic-turf fields at Sand Point Magnuson Park as well as sites at four Seattle School District properties (Denny/Sealth, Addams/Hay, Rainier Beach and Ingraham), as relatively near-term development objectives. The 2002 update to the JAFDP (Seattle Department of Parks and Recreation, 2002) identifies a total of 17 locations city-wide for which new synthetic-turf sports fields (or conversion of existing natural-turf fields to synthetic surfaces) with lighting systems are proposed. The JAFDP proposals also include many other locations at which existing sports field lighting systems would be replaced with improved systems.

For an alternative course of action to be a reasonable alternative, it must be able to feasibly attain or approximate a proposal's objectives while resulting in lower environmental costs or impacts. The Department of Parks and Recreation is not aware of any alternative site in Seattle that is comparable to the proposed project site in the ability to accommodate a large number of new sports fields, and therefore in the ability to support a comparable increase in field use capacity. In addition to being a large site, the proposed site at Sand Point Magnuson Park is a level area that has been previously disturbed by construction and demolition activities; development of a sports field complex in this location would therefore be relatively easy in physical terms, and would likely result in significantly lower impacts from clearing and construction than would occur at plausible alternative sites. Based on the locations identified for sports field improvements in the JAFDP, it is also likely that any alternative site that could be considered for development of multiple lighted sports fields would likewise be adjacent to residential areas. Therefore, it is not reasonable to expect that the lighting impacts on nearby neighborhoods that were objectionable to many of the Draft EIS reviewers could be avoided by developing the proposed sports fields at an alternative site; those impacts could be shifted to different neighborhoods, but neighborhood lighting impacts of a similar magnitude would still occur.

A final consideration relevant to an off-site alternative is the concept that another site in the city could *substitute for* Sand Point Magnuson Park as a location for a complex of lighted sports fields, i.e., that lighting impacts could feasibly be transferred from the Sand Point area to some other portion of the city. As indicated previously, virtually any Parks Department or Seattle School District property that might otherwise be a plausible alternative site is already identified in the JAFDP as a proposed site for development of lighted sports fields. Full or even partial implementation of the JAFDP would result in both a significant expansion of capacity to support team sports activities in Seattle and the development or redevelopment of lighted sports fields in virtually every neighborhood or sector of the city. Therefore, the availability of *substitute* sites for Sand Point Magnuson Park is very limited, at best.

Based on the considerations discussed above, there is not likely to be an alternative site that could feasibly attain or approximate the Parks Department's objectives for the proposed action and do so at a lower environmental cost. Therefore, an off-sitealternative does not warrant detailed consideration in this EIS for the athletic facilities currently proposed at Sand Point Magnuson Park.

2.6 RELATION TO OTHER REVIEW AND DECISION PROCESSES

There are several pending or proposed projects at Sand Point Magnuson Park that are proximate to the project site and relevant to the proposed action. Descriptions of these areas/projects are provided below, including, as appropriate, a discussion of the status of the environmental review and decision-making for each project. These projects are considered, as appropriate, in the evaluations of cumulative impacts presented for the respective resources in **Chapter 3** of the EIS.

2.6.1 North Shore Recreation Area

The North Shore Recreation Area is an approximately 27-acre area located in the northwestern portion of Sand Point Magnuson Park. During the winter of 2000-2001 a preferred plan was generated to redevelop the North Shore Recreation Area as a non-motorized boating center. The resulting preferred plan provides for 3 docks and 3 ramps, a beach in front of the existing bulkhead, floats off the existing pier, a trail connecting this area to Sand Point Way NE, re-vegetation of portions of the waterfront, on-land boat storage, parking, a waterfront trail, a picnic area with shelter, and a waterfront promenade. Part of Building 31 and the boathouse would be removed. SEPA review on this proposal has been completed and a Joint Aquatic Resources Permit Application (JARPA) has been prepared. Because most of the proposed work would be within 200 feet of Lake Washington, numerous local, state and federal permits will be required for construction. Phased construction on the proposed improvements may start in 2003.

2.6.2 Community Garden

The Magnuson Community Garden is planned for a 4-acre area located to the east of the Community Activity Center (Building 406) in the north-central portion of Sand Point Magnuson Park. The community garden would be an organic garden intended to foster environmental stewardship, horticultural education, rejuvenation and recreation. Funding for the project was received in the spring of 2000. The Magnuson Community Garden Coalition has worked over the past 18 months to develop a concept design for the community garden, and is now working to raise additional funds for its construction. The Department of Parks and Recreation will complete the design and construction documents for the garden based on the community developed concept plan. The Sand Point P-patches were relocated from their current location at NE 70th and Sand Point Way NE in fall 2001 and will become a component of the Community Garden. DPR completed a SEPA checklist and Determination of Non-Significance (DNS) for this action in late summer 2001.

The Community Garden, or some other appropriate site within Sand Point Magnuson Park, could be used as the location of a native plant nursery to support the long-term restoration plans for the park. Under the stewardship of citizen groups, a native plant nursery would provide opportunity for long-term involvement for all age levels in the stewardship actions in the park. It would also provide affordable plant material in the quantities necessary for the phased approach to habitat creation and enhancement on the site.

2.6.3 Off-Leash Area

The Off-Leash Area is an approximately 9-acre area located in the central portion of Sand Point Magnuson Park and extending via trails to the Lake Washington shoreline. Improvements to this area have been initiated, including fencing and gates, an improved trail, parking, picnic shelters and a water source. The Department of Parks and Recreation is completing the design as well as applications to the Army Corps of Engineers for the second phase of work, which includes shoreline renovations and lighting. DPR completed a SEPA checklist and DNS for the upland portion of the Off-Leash Area in summer 2001. The Department completed the SEPA review for the trail lighting and improvements to the shoreline portion of the project in early2002. A JARPA is currently in preparation. After permits are issued by the Corps, Sand Point Magnuson Park staff will continue and complete the second-phase improvements.

2.6.4 Promontory Point

Promontory Point is an approximately 15-acre area located in the southeastern portion of Sand Point Magnuson Park that was the site of the former gravel pit, outdoor storage area and firing range. The Magnuson Environmental Stewardship Alliance has received funding to begin the rehabilitation of Promontory Point. To date, volunteers and the Sand Point Magnuson Park Division of DPR have removed several old buildings, planted over 3,000 plants, refurbished several trail sections, installed new signs, built a covered shelter, and led the design and planting of a butterfly garden. The stewardship of this area will continue.

2.6.5 Community Campus Uses

The Community Campus area encompasses approximately 33 acres in the western portion of Sand Point Magnuson Park. The majority of the former Naval Station Puget Sound, Sand Point buildings are located in this area. There are several other projects that are at various stages of planning and implementation in this area. Recent activity on the larger of these projects is described below.

- Building 18 (former fire station and house) – To be redeveloped for non-residential artist studios and special projects. The Sand Point Arts and Cultural Exchange is currently developing its organizational infrastructure and planning for a capital campaign to raise funds for building renovations.
- Building 406 (former brig) – Was designated to become a Community Activity Center in the Magnuson Park Concept Plan (1999). Funding has been obtained for renovations to the building so that it can better function as an activity center.
- Building 25 (former administration building) – Northwest Montessori School elementary and middle school students will likely move in between 2002 and 2003.
- Building 29 (former hospital dispensary) – The University of Washington School of Public Health administrative offices and classrooms will likely move in between 2002 and 2003.
- Building 47 (former recreation center) – To be remodeled to become the Community Recreation Center. Some funding has been obtained; however, adequate funding has not been obtained to renovate the pool, showers and locker rooms. Construction work on the remodel is expected to begin in 2002.

2.6.6 Tennis Center

Through its long-term planning processes, the Department of Parks and Recreation has identified the need for a tennis center in the northern portion of Seattle. The *Seattle Parks and Recreation Plan 2000* specifically identifies development of an indoor tennis facility at Sand Point and replacement of the existing outdoor tennis courts at Magnuson Park, both per the direction of the 1999 Magnuson Park Concept Design, as items in the 6-year action plan for 2000-2006 (Seattle Department of Parks and Recreation, 2001). The proposed location for a tennis center, which would include 8 outdoor and 6 indoor tennis courts, is just to the north of Building 47 (the future Community Recreation Center). Specific plans for funding, constructing and operating this facility have not yet been developed.

2.6.7 Boat Launch

Plans are being developed to complete major maintenance improvements to the motorized boat launch on Lake Washington in the southeastern sector of Sand Point Magnuson Park. These improvements include ADA-related modifications to the surfaces of the existing launching piers to make them level surfaces. This would include replacement of the deck surface with a more habitat-friendly grated surface near the shore. Possible in-water improvements include renovation and extension (or possible replacement) of the ramp surface. A seasonal temporary pier extension is also under consideration. These improvements are in concept development stages, and specific plans and schedules are not yet available.

2.6.8 Transitional Homeless Housing Phase 2

The Sand Point Community Housing Association (SPCHA) has developed 97 units of transitional homeless housing in existing buildings consistent with the Sand Point Reuse Plan. The Sand Point Reuse Plan allows for an additional 103 units to be developed. The SPCHA anticipates hiring an architectural firm and beginning design and fundraising for the second phase of the housing in the fall of 2002. Two of the locations where new housing construction is anticipated are across 65th Street and across Sportsfield Drive from the proposed athletic fields complex. In 1996 general schematic drawings were prepared to verify that the number of anticipated units could be developed at each location. No further design has been developed for this residential development. The SPCHA anticipates beginning a design process in late 2002 and anticipates construction in 2003/2004.

Chapter 3

Affected Environment, Environmental Impacts, and Mitigation Measures

3. AFFECTED ENVIRONMENT, ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

This chapter of the EIS describes baseline conditions for the respective elements of the environment, documents the expected environmental impacts of the proposed action and the alternatives, and identifies mitigation measures pertinent to those impacts. The intent is to focus specifically on the environmental conditions that would likely be subject to significant change from development of the project. Consistent with guidance provided by SEPA rules, insignificant impacts and elements of the environment that would not be affected significantly are discussed briefly or not at all. Based on the results of scoping for this EIS, this chapter is organized into 13 sections addressing the following elements of the environment:

- Earth
- Water
- Plants/Wetlands
- Animals and Fish
- Energy and Natural Resources
- Noise
- Land and Shoreline Use (including Housing)
- Aesthetics
- Light and Glare
- Recreation
- Historic and Cultural Preservation
- Transportation
- Public Services and Utilities

Each section includes a similar subheading structure. The affected environment is addressed first in each section, in a level of detail sufficient to allow an overall understanding of the baseline conditions. For most elements the geographic focus of this discussion is the 153 acres of Sand Point Magnuson Park that comprise the project site, although information on conditions elsewhere within the park and in the surrounding community is provided when that context is pertinent to the impact analysis. Subsequent material presents the expected environmental consequences of the proposed action, given the baseline conditions for each element and the project characteristics described in detail in **Section 2.2**. Impacts are then provided for the lesser-capacity alternative and the no-action alternative. Because the lesser-capacity alternative involves similar actions within the same project site, impacts for this alternative are presented in comparison to those for the proposed action. Consequences under the no-action alternative consist of the existing conditions on the site projected into the future, as they might likely be shaped by expected park management.

In each section, material on the impacts of the alternatives is followed by discussions of cumulative impacts, mitigation measures, and significant adverse unavoidable impacts. Assessment of potential cumulative impacts for each element requires that the expected effects of the proposed project be considered within the context of other past, present and reasonably foreseeable actions affecting the resource. The mitigation discussions specifically distinguish between those measures to avoid or reduce expected impacts that are proposed, i.e., that are incorporated into the plans for the proposed action, and other, possible measures that have not been adopted as part of the project.

3.1 EARTH

Most of the material presented in this section is based on geotechnical information contained in a report on a recent independent hydrogeologic investigation (AMEC Earth and Environmental, 2000) and the project drainage report prepared by Rosewater Engineering in December 2001. The full drainage report is contained in **Appendix B** of this Final EIS.

3.1.1 Affected Environment

3.1.1.1 Geology/Topography

Sand Point Magnuson Park, which includes the 153-acre project site, occupies most of the Sand Point peninsula that extends into Lake Washington. The site is within the physiographic province known as the Puget Lowland, a system of partially drowned stream valleys interspersed among hummocky plains comprised of glacial till and gravels (Jackson and Kimerling, 1993). The surface character of the Puget Lowland, including north-south trending features such as View Ridge and the basin of Lake Washington, shows the effects of erosion by Pleistocene glaciers.

In the early 1900s, prior to its purchase by King County and subsequent transfer to the United States Navy, the Sand Point peninsula was occupied by farms. The original topography included primarily undulating forested land, with low knolls reaching up to about 50 feet above the elevation of the lake, and some lower-lying marsh lands in some locations (Jones and Jones, 1975). The topography of the peninsula changed considerably in 1916 when the Lake Washington Ship Canal opened and the water level of the lake dropped by 8 to 9 feet. King County began construction and operation of a small local airport in 1921, then transferred the property to the U.S. Navy in 1926, after which the Navy began construction of a runway and support facilities for a Naval Reserve air station. The air station received its greatest amount of development activity between 1932 and 1942, resulting in most of the site being leveled, filled and paved to support military activities. In the early 1970s, the landscape was changed again when the Navy transferred a portion of the site to the National Oceanic and Atmospheric Administration (NOAA) for administrative use, and another portion to the City of Seattle for park use. This required demolition of the runway and related paved areas. Materials from the demolition were deposited at Sand Point Head to create a low hill that is now named Kite Hill.

Existing topographic conditions on the project site are indicated in **Figure 2.1-2**, which was introduced previously. As a result of the natural topography and past grading activities, the project site generally drains gradually from west to east toward Lake Washington. Surface elevations range from approximately 80 to 90 feet at the southwest corner of the project site, near the NE 65th Street entrance to the park, to 20 to 22 feet (depending on the season of the year) at the shoreline along Lake Washington. Adjacent to the project site on the south, the hillside area of Promontory Point within Sand Point Magnuson Park reaches elevations above 100 feet. The off-site terrain rises considerably to the west of Sand Point Way, reaching an elevation of nearly 400 feet at the top of View Ridge.

The project site is relatively flat with average slopes of less than 1 percent. Existing soils are primarily fill that was imported and compacted for construction of the former airfield. As a result, the existing ground is very hard and compacted. Stormwater runoff tends to perch and to move slowly across pervious surfaces, creating isolated wetland conditions in local depressions that exist in several locations.

3.1.1.2 Soils/Erosion

Geologic maps of the Seattle area identify the surficial soils of the project site as "modified" (AMEC Earth & Environmental, Inc., 2000). Geologic units to the west, northwest, and southwest of the former Navy base are mapped as Quaternary Vashon till, lacustrine deposits (Lawton Clay or equivalent) and alluvial silts and clays. The published geologic maps do not describe what type of soils existed on the project site prior to modification by development. However, the area is known to be underlain by glacial till that ranges from a gravely sandy silt to a silty sand, with varied quantities of scattered cobbles and boulders (City of Seattle, 1996). The original surficial geology can be roughly characterized by examination of the fill soils and any remaining native soils, since the historical information states that hills in the area were leveled and low areas were filled with hill scrapings.

On-site reconnaissance confirmed that a considerable amount of fill material was placed over peat deposits in the western portion of the project site. Borings taken by AMEC (2000) encountered areas of fill at depths between 4 and 11 feet throughout the project site. Borings in and around the general area of the former Mud Lake (located in the southeast portion of the site) encountered 5 to 11 feet of fill. One boring, drilled in the central area of the former Mud Lake location, encountered 25 feet of fill. The fill is generally composed of interlayered, loose to medium-dense, silty sand and medium-stiff, sandy silt with minor amounts of organic debris and gravel. Beneath the fill, about half of the borings encountered soft to medium-stiff peat (see **Appendix B** for detailed information on the borings). One boring (B-4) encountered peat at a depth of approximately 5 feet (AMEC Earth & Environmental, Inc., 2000). Most of the peat soils documented through the borings began at a depth of 9 to 10 feet. Peat soils were not encountered over much of the project site.

Beneath the fill and/or peat deposits, borings generally encountered interlayered, medium-dense, silty sands and sandy silts. The explorations near Lake Washington revealed fill soils overlying beach-like deposits of sand with minor amounts of gravel. Hard silts were encountered at depth in a few locations (AMEC Earth & Environmental, Inc., 2000).

The site soils have a high content of fine-grained material. As a result, they are susceptible to erosion when disturbed. However, the site is very flat, which reduces the potential for transporting eroded materials in the event of disturbance.

3.1.1.3 Slope Stability/Geologic Hazards

There are no recorded slides or indications of unstable soils on the project site (City of Seattle, 1996). There are no steep slopes on the project site or in the immediate vicinity. Therefore, slope stability concerns in the affected area of the Sand Point peninsula are minimal.

Previous studies of the Sand Point site identified some areas of soil contamination by hazardous materials. These areas were excavated and the contaminated materials were removed (City of Seattle, 1996). Recent soil and groundwater testing on the project site indicated there would be a low likelihood of encountering petroleum-impacted soils in excavation on the site, and that on-site metals concentrations would not likely pose an acute or chronic problem to freshwater biota (AMEC Earth & Environmental, Inc., 2000).

3.1.2 Environmental Impacts of the Proposed Action

3.1.2.1 Geology/Topography

Development of the proposed action would result in phased clearing and grading of virtually all of the 153-acre project site for the construction of sports fields, sports courts, drainage features, wetlands, roads and utilities. It is anticipated that construction of the proposed action would be accomplished in phases over approximately a 10-year period. By the completion of the construction period the existing topography of the site would be re-contoured again, but these topographic changes would not be significant. The post-project site would be graded to gradually drain from the western and northern edges of the site toward Lake Washington, as at present, and the site would remain relatively flat with gentle slopes.

Most of the grading would be required to construct the athletic fields and the wetlands/ponds, and grading quantities would be balanced within the site as much as possible. Constructing the wetlands/ponds would create roughly 400,000 cubic yards of excavated cut material and constructing the fields would require roughly 370,000 cubic yards of fill material. Based on the results of the soil borings documented by AMEC Environmental (2000), the majority of the soils excavated on the site would be suitable as fill material for the sports fields. As a result, approximately 30,000 cubic yards of excess soil would be generated by the on-site grading activity. Final grading plans would be adjusted as necessary to accommodate this excess material on the project site, to avoid the need to haul soil off-site. Should soils unacceptable for sports field subgrade be encountered, they would be used as fill in areas with less stringent compaction and settlement requirements or would be removed from the site. Construction of the athletic fields would require importing roughly 60,000 cubic yards of base sand and/or gravel material that is not available on the site.

3.1.2.2 Soils/Erosion

Some limited short-term erosion and sedimentation impacts might occur to Lake Washington and existing wetlands during construction, as a result of soil disturbance for on-site clearing and grading. While this activity would occur in phases over an extended period of construction, it is anticipated that the potential for erosion and sedimentation impacts would be minimal. This conclusion is based in part on the flatness of the site and the lack of steep slopes that would represent greater potential for erosion. With the proposed phasing of construction activities, only a portion of the site would be exposed and subject to erosion at any given time. In addition, only one of the five construction phases includes grading work along the Lake Washington shoreline and specified seasonal work period limitations would apply to work in and near water or wetland areas, so construction timing would help to limit the potential for erosion and sedimentation impacts.

Finally, the construction stormwater permit that would be required for the project would specify implementation of Temporary Erosion and Sediment Control (TESC) measures to protect disturbed areas, control and direct stormwater runoff from and through construction zones, and provide water quality treatment for runoff from the site. TESC measures would likely include use of filter fencing, straw-bale barriers, gravel filter berms, temporary sediment ponds, sediment traps, stabilized construction entrances, rock check dams, interceptor ditches, inlet protection, and mulching and matting of exposed soil. Best Management Practices (BMPs) associated with the TESC plans would be consistent with the *City of*

Seattle, Construction Stormwater Control Technical Requirements Manual, July 2000. Compliance with the manual's requirements would be sufficient to minimize the erosion and sedimentation impacts of the proposed action.

3.1.2.3 Slope Stability/Geologic Hazards

No impacts to slope stability would be expected as a result of the project construction, because there are no recorded slides or other indications of unstable soils on the project site. There are no steep slopes on the project site or in the immediate site vicinity that could become destabilized by construction disturbance for the project. Grading to create the desired surface drainage patterns would create isolated raised berms that would have side slopes of a 3:1 ratio (horizontal to vertical); slopes of this degree have no known stability concerns. The proposed action also includes an access path from Sand Point Way NE along NE 65th Street that would meander down a sloped area of the Sand Point Magnuson Park property. Again, the slopes involved are moderate and no significant stability issues apply to this feature.

As indicated in Section 3.1.1.3, recent testing on the project site indicated a low likelihood of encountering contaminated soils during construction. Soil and groundwater sampling for potential contamination would need to be conducted during construction for the project, and remedial plans would need to be prepared if actionable levels of contaminants were encountered. The potential for this to occur would primarily be limited to the area near the former Commissary building.

3.1.3 Impacts of the Alternatives

3.1.3.1 Lesser-Capacity Alternative

Under the lesser-capacity alternative the project site would still be graded to drain generally from the western and northern edges of the site toward Lake Washington, with resulting insignificant changes to the existing topography. Under this alternative the amount of grading and excavation necessary to construct the sports fields, infrastructure, utility upgrades, sports courts, roadway improvements, wetlands and pedestrian access would be similar to, but slightly less than, the proposed action. The central interior access road, parking lot and tennis courts would remain under the lesser-capacity alternative, so this area of the project site (approximately 5 acres) would not be disturbed and re-graded. In addition, the area occupied by Field 6 in the proposed action would not be disturbed for sports field construction, as the two northerly soccer fields would be shifted to the west and a parking lot eliminated in the lesser-capacity alternative.

As under the proposed action, some limited short-term erosion and sedimentation impacts might occur during construction for the lesser-capacity alternative. However, the site is flat and the implementation of Temporary Erosion and Sediment Control (TESC) measures using the appropriate Best Management Practices would mitigate for such impacts. No impacts to slope stability would be expected. The potential for encountering geologic hazards, specifically contaminated soils, would be the same as for the proposed action.

3.1.3.2 No Action Alternative

A few minimal improvements to the project site would occur under this alternative. Maintenance improvements and demolition of existing structures associated with this alternative would require a minimal amount of surface disturbance and grading. Temporary Erosion and Sediment Control measures would be implemented as necessary for demolition and maintenance activities. Overall, new impacts to earth resources from surface disturbance and landscape modification would be negligible under this alternative. However, the existing conditions of highly modified surficial geology and low soil permeability would persist over most of the site. Soil and groundwater sampling for potential contamination would need to be conducted during demolition of the former Commissary building, and remedial plans would need to be prepared if actionable levels of contaminants were encountered.

3.1.4 Cumulative Impacts

Construction of the Navy buildings, roadways, utilities and runways significantly changed the surficial geology and topography of the Sand Point peninsula, including the project site. Geologic maps indicate the site soils as being "modified." The proposed action and alternatives would further modify the project site to a certain degree. Adverse earth-related impacts associated with the proposed action and alternatives would be minimal, however. Subgrade fill material needed for the athletic fields, with respect to cut and fill quantities, would require importing 60,000 cubic yards of field base materials/soil. In addition, existing concrete and asphalt pavement would be crushed and reused as fill on the site. These actions would not substantially change the topographic character of the site, but they would maximize the beneficial use of excavated material and would improve the hydrologic functioning of the site. Based on the required application of TESC measures during construction and the lack of slope stability hazards associated with the project, erosion and sedimentation impacts from project construction activity should be insignificant. Similarly, other pending and planned projects at Sand Point Magnuson Park and one known off-site project in the local area would not result in extensive areas of ground disturbance and associated erosion and sedimentation impacts. Therefore, cumulative impacts to earth resources from the proposed action or the lesser-capacity alternative are not anticipated.

3.1.5 Mitigation Measures

Construction activities for the proposed action would incorporate the following mitigation measures to limit impacts to earth resources:

- Temporary Erosion and Sediment Control (TESC) measures would be implemented per the City of Seattle *Construction Stormwater Control Technical Requirements Manual*.
- Clearing, grading and excavation activities would be minimized during extreme wet weather conditions to reduce erosion potential.
- All soils would be stabilized, including stockpiles that are temporarily exposed for more than 2 days during wet weather conditions.
- Construction vehicle access from local streets to the project site would be limited to one route, to limit surface disturbance from vehicle operation.
- A single construction entrance to the project site would be established to limit the tracking of sediments onto public roadways.

- A dust suppression plan to control dust generated on and off the site during construction would be implemented.
- Dust-control measures would be applied at construction sites, including sprinkling water on exposed soils during the drier times of the year and placing temporary ground covers on long-term material stockpiles.
- Dust-control measures applied to trucks and other construction equipment would include use of a wheel washer, to reduce soil tracked onto public roads, and application of policies requiring adequate freeboard and covering of loads for excavation/fill materials.On-site erosion would be controlled by stabilizing exposed soils using temporary seeding, mulching, matting or clear plastic covering.
- During construction, exposed soils would be sprayed with water to reduce surface and air movement of dust.
- Check dams, filter fencing, sediment ponds and traps and interceptor ditches would be used to prevent sediment from entering all storm drains, including ditches, which receive runoff from disturbed areas.
- Temporary on-site conveyance channels would be designed, constructed and stabilized to prevent erosion from the expected velocity of a 2-year, 24-hour design storm for the developed condition.
- Soil and groundwater sampling for potential contamination would need to be conducted during construction for the project, and remedial plans would need to be prepared if actionable levels of contaminants were encountered.

3.1.6 Significant Unavoidable Adverse Impacts

Clearing and grading activities for the project would expose soils, which could be temporarily subject to water or wind erosion within the area of localized disturbance. With the implementation of temporary erosion and sediment control measures, unavoidable soil erosion impacts on the project site are expected to be insignificant.

3.2 WATER

This section discusses water-related issues associated with the proposed action. It is based primarily on the Preliminary Storm Drainage Report prepared by Rosewater Engineering, Inc., in December 2001, which is included as **Appendix B,** and on the Final EIS for the Sand Point Reuse Project (City of Seattle, 1996). **Appendix B** lists a slightly smaller project area (144 acres) for the proposed action, due primarily to the late addition to scope of the enlarged NE 65th Street corridor and the engagement of the existing entry wetland. These areas added to the drainage consultant's scope were included and calculated as part of the drainage report, but are identified as "offsite basins" contributing to the site, and represent no change to the assessments and conclusions of the drainage report. Quantities reported in **Section 3.2** reflect the enlarged 153-acre area of the proposed action.

3.2.1 Affected Environment

3.2.1.1 Hydrology/Runoff Patterns

The project site is located within the Cedar/Sammamish water resource inventory area of Washington state, specifically within the Lake Washington drainage basin. There are no perennial streams on the project site or within Sand Point Magnuson Park, and Lake Washington is the only perennial open water body within or adjacent to the project site. Historical construction activities associated with naval station development included routing small streams through culverts and filling wetland areas. Stormwater runoff on the project site currently drains, primarily by sheet flow, toward the lake. An unknown portion of the runoff is collected by an existing storm drain system and conveyed toward the lake. A prominent ditch located in the southeasterly portion of the project site collects some of the sheet flow runoff from the project area and conveys it directly, untreated to Lake Washington.

Groundwater under the project site generally moves by sheet flow east toward Lake Washington from a recharge area in the uplands west of the site. The water table lies about 10.5 feet below ground surface. Groundwater in the lower-lying areas of the site flows under artesian conditions. The water moves up through discontinuous areas of the glacial till unit to enter Lake Washington. Surface water filtering through the fill material seasonally becomes trapped on top of the till unit in low areas.

The average ground slope for the project site is roughly 0.7 percent. Of the 153.3 acres of project area, roughly 26.3 acres are impervious surfaces and 127 acres are meadow, landscaping (including scrub-shrub and trees), or fields. The impervious area includes vehicular pavement (parking lots and roadways), paved paths, gravel, paved tennis courts, and isolated buildings. The remaining (pervious) area of the site (meadow, landscaping, and fields) is often saturated in wet weather because the site is relatively flat and the ground is compacted from prior construction and demolition activities. As a result, perched slow moving stormwater runoff saturates the pervious surface on the site. Isolated wetlands and local depressions also exist in several locations.

The existing storm drainage systems on the Sand Point site have deteriorated over time and in several areas appear to no longer be functioning as designed or constructed. The storm drains convey both on- and off-site stormwater runoff through the project site. Storm drains vary in size from 4-inch pipe for subdrainage systems to 30-inch pipe for major site trunk lines. A number of existing storm drain interceptor lines cross through portions of the 153-acre project site, as do two storm drain trunk lines (see Figure DR-6 in **Appendix B**). Stormwater from the Sand Point site discharges to Lake Washington at

approximately seven locations along the shoreline of the peninsula. Most of these locations are elsewhere on the peninsula, such as at Pontiac Bay near the northwestern corner of the park, although three drain lines appear to discharge to the lake near the beach area within the general limits of the project site. The existing sports fields were constructed with subdrainage systems that now appear to be inoperable, because the fields are saturated much of the time.

3.2.1.2 Water Quantity

There appear to be no existing stormwater quantity control facilities on site. Stormwater appears to drain directly to Lake Washington without detention, except for the flows that are retained naturally in the wetlands and local depressions. Two specific off-site areas contribute stormwater runoff to the Sand Point Magnuson Park drainage, sports fields/courts and wetland/habitat project site. One is located at NE 65th Street, at the southwest corner of the project, and extends south off the park site and includes roughly 26 acres. This area contributes runoff in a ditch/pipe system in an easterly direction along the southerly edge of NE 65th Street until the flow reaches the project site. The off-site runoff crosses NE 65th Street at this point and enters the storm drain system(s) on the project site.

The other contributing area, roughly 2.4 acres, is within the Sand Point Magnuson Park property, but west of the project site. This area contributes runoff to a trunk storm drain that extends east, across the project site, directly to Lake Washington near the easterly boat launch area.

There is an additional source of off-site water supply to the project site. The USGS fisheries research property south of NE 65th Street supplies "clean" water to the project site on a continuous basis. As part of the fish research operation, the USGS pumps water from Lake Washington to the facility, circulates the water through on-site systems, and then releases water at 0.9 cubic feet per second (cfs) to the project site through a discharge pipe. The 0.9 cfs discharge rate represents a monthly runoff volume of 53.5 acre feet. This water supply is continuous and is expected to be maintained as long as the USGS facility is in operation.

Stormwater runoff volumes for the site were calculated using the King County Wetpool Facilities Design Method, based on actual precipitation data recorded for the site by the Western Regional Climate Center (2001) administered by NOAA. Annual precipitation for the site averages approximately 35 inches. Monthly rainfall peaks in January, with average precipitation 0f 5.4 inches for the month. Existing monthly runoff volumes calculated for the project site, including the USGS water supply, vary from roughly 55.7 acre-feet per month in summer (August) to roughly 88.4 acre-feet per month in winter (November). Excluding the USGS water supply, the monthly runoff volumes are 2.2 acre-feet in August and 34.9 acre-feet in November.

3.2.1.3 Water Quality

Because there are no perennial streams or open water bodies on the project site or elsewhere in Sand Point Magnuson Park, water quality data specific to the project site are limited. DPR Sand Point Magnuson Park Division staff have not observed evidence of poor water quality at the site and have not been notified by other parties of any suspected water quality problems. Water quality samples were taken in areas around the Off-Leash Area of the park (to the north of the project site) and in selected puddles adjacent to the project site in the winter of 2000. Elevated levels of bacteria were found in these samples when they were analyzed in a laboratory. The analysis determined the bacteria were related to the animal and bird

population residing in the park, and therefore were expected natural occurrences in small. isolated puddles in the park.

There appear to be no existing, constructed water quality treatment facilities for stormwater on the site; runoff that is collected by the existing storm drain system appears to be conveyed to Lake Washington without treatment. Some degree of natural treatment occurs as a result of sheet flows passing over existing pervious surfaces and from settlement that occurs in the existing wetlands or local depressions.

The waters of Lake Washington are categorized by regulation as Class AA under the State water quality standards (WAC 173-201A-120). The lake was listed in 1998 by the Washington Department of Ecology (WDOE, 2000) under Section 303(d) of the Clean Water Act as having impaired water quality, because of levels of fecal coliform bacteria measured at several locations.

3.2.2 Environmental Impacts of the Proposed Action

3.2.2.1 Hydrology/Runoff Patterns

Post-construction drainage systems and features for the proposed action are shown on Figure DR-7 in **Appendix B.** Runoff flows from and through the site would include sheet flow, shallow flow and channel flow characteristics. The site stormwater runoff would be conveyed to Lake Washington through drainage "chains" that include several different drainage systems. These systems include vertically draining fields with subdrainage systems, swales and ditches, pipes and culverts, and wetlands and ponds.

Some of the existing pavement on the 153.3-acre project site would be removed as part of the project. The post-developed project site would include roughly 18.6 acres of impervious surface constructed hardscape, i.e., parking lot, roadway and pathway pavements and buildings. This represents a net reduction of 7.7 acres from the existing condition.

Total impervious surface area would increase under the proposed action, because open water is also considered an impervious surface for hydrologic modeling purposes. The post-developed project site would include roughly 11.5 acres of open water during the summer (dry) months and 16.5 acres of open water including the lagoon during the winter (wet) months. Although the total impervious surface area would increase significantly, with the open water surface included, there are no "downstream" constraints or potential streambank erosion concerns related to the additional impervious surface area.

3.2.2.2 Water Quantity

Stormwater quantity control is not required for the proposed action because the site drains directly to Lake Washington, a "receiving water body" of the State of Washington. However, post-development peak flows would be reduced from the existing conditions because of the hydrologic characteristics of the proposed action. The stormwater peak flow reduction with the project would be due primarily to the large area of athletic fields. The fields would drain vertically, and ultimately horizontally, through sand and gravel field subgrade sections. This would result in a slower rate of runoff discharge, compared to impervious surfaces or compacted soils.

Although the proposed action includes construction of multiple wetland ponds, these ponds would not provide stormwater quantity control and are not considered detention ponds. The ponds would typically

be full in the winter and would not have additional storage capacity available during winter precipitation events. The main reason for this is that the ponds are intended to be wetlands that would have minimal surface water elevation fluctuations during the winter (wet) months. Therefore, the ponds are designed as flow-through facilities, with water coming into the ponds equal to the flow out of the ponds, during the winter months to maintain constant water surface elevations.

3.2.2.3 Water Quality

Construction of the proposed action would create the potential for temporary water quality impacts to surface water, because the surface of much of the project site would be disturbed by project clearing and grading activities. Areas of disturbed soil would be exposed to precipitation, and sediment and other constituents could be transported from the site in stormwater runoff. Levels of suspended solids and turbidity in surface water draining from the project site could be temporarily elevated as a result.

The construction contractor would need to obtain a construction stormwater permit from Ecology under the National Pollutant Discharge Elimination System (NPDES). The construction stormwater permit would require the use of temporary erosion and sediment control (TESC) measures to protect disturbed areas, control and direct stormwater runoff from and through construction zones, and provide water quality treatment for runoff from the site. TESC measures would include ground stabilization, interceptor swales, sediment ponds and traps, fabric filter fencing and other applicable measures identified in the City of Seattle's *Construction Stormwater Control Technical Requirements Manual.* TESC treatment options are illustrated in Figures DR-15 through DR-17 in **Appendix B.** With the required use of TESC measures, the discharge of pollutants to surface water during construction would be limited and potential water quality impacts would be insignificant.

The proposed action would include several different systems and facilities to provide long-term water quality treatment for the completed project. These systems include biofiltration swales, filter strips, wetponds, and water quality vaults (with and without specific targeted treatment for specific targeted pollutants). Inclusion of different types of treatment facilities in the plan will provide an opportunity to compare performance of treatment facilities, shortly after installation and construction and after years of maintenance.

The natural-turf athletic fields would provide filtration of rainfall that lands on the field and flows through the sand/gravel field bases, similar to a sand filter. Stormwater would drain vertically through the field top- and base-course layers and would migrate to the subdrainage pipe system. The sub-base material under these fields would provide filtration treatment of chemical constituents in the drainage water, which would include fertilizers and other chemicals applied to the natural-turf fields during normal maintenance. Test data indicate that the quality of water draining from the natural-turf sports fields would meet U.S. EPA guidelines for drinking water quality. Although the synthetic-turf athletic fields would also provide water quality treatment through the same filtration process, water quality treatment would not be required for those surfaces because the field materials are inert and would not be fertilized. However, these field drainage systems would provide treatment for pollutants from the air that are attached to precipitation.

The existing storm drainage systems on the site are deteriorated and in some cases inoperable. It is assumed that the existing storm drain systems would either be abandoned or removed during construction of the proposed action. The proposed storm drainage facilities would greatly improve the conveyance and treatment of stormwater leaving the project area.

An important component of the proposed action is the system of wetlands on the site (see **Section 2.2.5** for a complete description of the proposed wetland types). The types of ponds would range from "paddies," an area of concentrated shallow localized depressions (generally in the western part of the site) that would fill up during early winter months and operate as flow-through ponds during the remainder of the winter, to continuous all-season ponds that would contain water throughout the year. The ponds designed for water quality treatment are ponds that would receive "untreated" or "partially treated" runoff from impervious surfaces. Stormwater runoff from impervious paved surfaces would receive water quality treatment before leaving the site and entering Lake Washington. The proposed water quality measures include biofiltration swales/ditches, filter strips, wetponds, and water quality vaults. These facilities would be designed consistent with the applicable standards established by Ecology, King County and the City of Seattle, which are based on attaining a specified water quality treatment level for a given type of treatment facility (typically removal of from 50 to 80 percent of a particular type of pollutant from the runoff stream through the facility). Based on the number and design of water quality facilities included in the project design, it is anticipated that the required water quality treatment goals would be met. Consequently, a positive water quality impact on the area is expected as a result of the proposed action, because runoff from the site is currently untreated.

3.2.3 Impacts of the Alternatives

3.2.3.1 Lesser-Capacity Alternative

Limited potential for short-term erosion and sedimentation impacts to water quality might occur during construction of the lesser-capacity alternative, as described in **Section 3.2.2.3** for the proposed action. The potential for these construction effects would be slightly reduced, because 5 to 10 acres in the interior of the site would not be disturbed for construction under this alternative.

Under the lesser-capacity alternative, stormwater runoff would also be conveyed to Lake Washington through drainage "chains" that include several different drainage systems. Although the lesser-capacity alternative incorporates considerable differences in athletic field surfaces and minor differences in the extent of wetland area, it still would result in an integrated drainage system on the site and an improvement over existing drainage conditions. Impacts to runoff patterns and stormwater quantity control would be similar to those described for the proposed action. The overall stormwater peak flows would be reduced, compared to existing conditions, due to improved subdrainage systems beneath the sports fields.

No significant short- or long-term impacts on water quality are expected. The extent of natural-turf sports fields would be 26.2 acres in this case, compared to 15 acres for the proposed action and 21.6 acres under existing conditions. While these fields would receive periodic applications of fertilizers and other chemicals for field maintenance, test data indicate the stormwater draining from the fields would meet water quality guidelines because of the filtration provided by the sub-base materials. Installing new stormwater quality treatment facilities, when none presently exist, would result in an additional level of water quality improvement.

3.2.3.2 No Action Alternative

Normal maintenance activities and demolition of a few existing structures on the project site are associated with this alternative. These activities involve minimal potential for significant water quality impacts. Over the long term, stormwater from the project site and adjacent contributing areas would continue to drain into Lake Washington with no water quality treatment.

3.2.4 Cumulative Impacts

Construction of the proposed action would not be likely to result in significant cumulative water quality impacts. Based on the analysis presented in **Section 3.2.2**, any adverse water quality impacts from the project itself would be short-term and would likely be insignificant. Other pending and planned projects at Sand Point Magnuson Park would be located elsewhere on the property, would not involve extensive areas of ground disturbance, and would be subject to the same types of control measures. Construction of a new medical support office on the west side of Sand Point Way has disturbed a small surface area, and will be nearly completed when the proposed action would begin construction.

Stormwater drainage from the project site would not likely have the potential for cumulative long-term adverse water quantity or quality impacts. The project site does not drain to downstream conveyance systems but directly to Lake Washington. Stormwater runoff from impervious surfaces in the project area would be collected and treated prior to release through the wetland complex to Lake Washington. The net result would likely represent a water quality improvement for the area, because stormwater runoff draining from and through the project site currently receives no water quality treatment. In addition, the project would create up to 16.5 acres of open water surface area in the winter months, a significant increase from existing conditions. These two features of the completed project would offset some of the adverse impacts (e.g., increased runoff from impervious surfaces, and loss of open surface water bodies) resulting from development on the Sand Point peninsula and in the surrounding area that have accumulated over time.

3.2.5 Mitigation Measures

Temporary erosion and sediment control (TESC) measures would be incorporated into project construction activities, per the City of Seattle (2000a) *Construction Stormwater Control Technical Requirements Manual*, to mitigate potential short-term impacts to water quality during the construction phase of the project. These measures were described previously in **Section 3.1.5**.

A variety of water quality treatment facilities or features are incorporated into the project design to supply clean surface water drainage to the wetland/habitat complex, as described in **Section 2.2.4**. These features include bioswales, filtration strips, water quality ponds and water quality vaults. The locations of these facilities are indicated in Figure DR-7 in **Appendix B**. Potential water quality monitoring stations are also identified on this figure, as monitoring of water quality throughout the construction period and during long-term operation would be a key component of the project.

Operation and maintenance plans and manuals for the drainage system, sports fields and the wetland/habitat complex would be developed at some time in the future, probably in conjunction with further design development and production of Construction documents for each of the successive phases,

with the earlier phases setting a precedent for operation and maintenance of later phases These plans and manuals would address applicable and available measures to promote water quality, water conservation waste reduction and water reuse in the operation and maintenance of project resources.

3.2.6 Significant Unavoidable Adverse Impacts

Clearing and grading activities for the proposed action could produce short-term increases in suspended solids and turbidity levels which could result in temporary water quality impacts. However, the use of required Temporary Erosion and Sediment Control measures would limit such impacts in duration, intensity and extent, and they are not expected to be significant. Any long-term effects of the project on water quantity and quality would likely be positive.

3.3 PLANTS/WETLANDS

3.3.1 Affected Environment

A variety of vegetative communities and habitat types are present on the project site. The existing vegetation conditions in the interior portions of the site are limited by soil conditions and water patterns, as described below.

3.3.1.1 Soils

The existing soils within the interior portions of the project site are not parent material but are modified materials resulting from grading, filling, construction and demolition activities occurring on the Sand Point peninsula since the early 1900s. Field investigations for wetlands work determined that existing soils, in all portions of the project site examined, were comprised of fill material. Anecdotal information from Sand Point Magnuson Park staff indicates that the former bluff at Sand Point Head and the northern portions of Promontory Point were cut and graded to provide the fill material used to eliminate Mud Lake and the wetlands, fill lake bays and expand the shoreline of the original peninsula. Field sampling has shown soils to be variable, but consistently concretious in nature (i.e., so hard as to be impermeable in many instances, even with mechanical post-hole diggers). Soil types encountered in sampling include cobble, gravely sands, sandy gravelly cobble, and gravelly silts. Almost all soils on the site have a very low permeability (as evidenced by extensive surface ponding and no infiltration below the top 4 inches, even after heavy storm events). Most soils currently reflect hydric conditions of low chroma and the presence of redoximorphic features (mottles) within the top 10 inches.

3.3.1.2 Hydrology

The hydrology of the site is driven by precipitation. Flat gradients, shallow ditches with little gradient, and impermeable soils create the opportunity for precipitation to stand within shallow depressions and pond for the duration of the winter. Because of the lack of significant soil infiltration, shallow depressions of a few inches to 18 inches in depth are typically filled with the first fall storms and remain full through early to mid-spring.

Ditches that were created after the removal of the airfields in the 1970s are present across the interior of the site. These ditches convey stormwater flows from the interior of the site to Lake Washington via a series of culverts under the road system of the park. After mid-spring, the ditches typically remain dry until the fall rains return.

Groundwater studies conducted in 1999 documented groundwater conditions across the site (AMEC Earth & Environmental, Inc., 2000). The groundwater level varies seasonally, although it is also strongly influenced by infiltration and hydraulic head from the hills of View Ridge, to the west. Some groundwater wells installed by the Navy have experienced artesian water conditions, allowing upwelling of groundwater along the western margins of the existing interior portion of the site. In addition to the artesian influences, the reverse hydrology of Lake Washington (as controlled by the Hiram M. Chittenden Locks) affects the groundwater level immediately within the shoreline zone causing it to be approximately 2 feet higher in summer than winter.

3.3.1.3 Plant Communities

As noted in **Section 2.1**, the land uses on the site since the early 1900s have strongly influenced existing conditions. The existing vegetation communities on site are all early-successional stages of upland and wetland habitats that are less than 30 years old, with the exception of the forests on Promontory Point. Soils are severely compacted and missing major organic components, including detritus. Hydrology is driven by precipitation and winter ponding on the compacted soils. The somewhat extreme soil conditions on site strongly influence the site hydrology and therefore the plant communities present.

Upland Community Types

The following upland vegetation community type descriptions were used in the Sand Point Magnuson Park Vegetation Management Plan (Seattle Department of Parks and Recreation, 2001); they are used here for consistency. (Wetland communities are described subsequently in **Section 3.3.1.4**)

- Mowed grasslands: these are regularly maintained lawns near the swim beach area, surrounding the existing tennis courts, and at the Sand Point and Magnuson Park grass sports fields. They are 100 percent non-native turf/lawn grasses managed for high-use activities.
- Upland meadow: these are unmowed or infrequently mowed grasslands with native and non-native grasses comprising the dominant species. They are present within the interior portions of the habitat area, north of the Fin Art display, and within some portions of the shoreline zone. The grasses in these areas are mowed only in the fall, and they are not always mowed annually.
- Savannah: these are open expanses of meadow with scattered native or non-native trees and shrubs (note that the woody species do not form a closed canopy, but are groves or thickets of vegetation surrounded by unmowed grasslands). Savannah is present within the interior portions of the site, near the base of Kite Hill, and near the boat launch parking lot. Tree species may include Lombardy poplar, black cottonwood, hawthorne and Oregon ash. Shrubs can include Scot's broom, blackberry, spirea, upland willows and madrone.
- Non-native shrub thickets: these areas are comprised of dense stands of Himalayan blackberry or stands of Scot's broom, often in 100-percent homogenous stands. They are scattered throughout the site, with the Scot's broom thickets more common on and near Kite Hill, while blackberry thickets are found throughout the site. In addition, blackberry are found as single plants along forest and woodland margins where it may not be dense enough to qualify as 'thicket.'
- Non-native trees: Lombardy poplar stands may include white poplar and hybridized cross-bred poplars. Lombardy poplar was planted on the site several decades ago in a typical "allee" manner, as a boulevard tree along the former NOAA access road, near the Community Activity Center, and near the existing tennis courts. It is a highly invasive species, colonizing by root clones radiating out from the parent trees.
- Deciduous forest: this is a mixed-canopy forest, dominated by big-leaf maple and red alder. Some planted young conifers may be present but they do not represent a notable habitat feature at this stage. This habitat predominates at Promontory Point. The forest includes invasive non-native species such as English ivy and virgin's bower, which are found in extensive swaths in some places while other portions of the forest are not overwhelmed by these invasive species.

Wetland Community Types

Human activities on the site over the last 30 years have also strongly influenced the extent, species composition and functions of the existing wetlands. Due to the impervious nature of the soils and the relatively flat gradients, the majority of the interior habitat zone of the site is a mosaic of both upland and wetland communities. No wetland delineation was attempted on the interior acreage because of the totally random pattern of wetland and upland habitats. Where wetlands are clearly and discretely present (as in all ditches on the site, some forested stands and most shallow depressions, such as the feature known as Frog Pond), they have been mapped and described. In the majority of the interior of the site, the extent of wetland presence has been estimated based on extensive field work, data plot collection and vegetation community mapping. Informal discussions were held with federal regulatory staff, who concurred with the view that in these conditions the extent of wetland area (as expressed by the percent coverage of wetland within a defined acreage) can be best estimated by linking observed soil conditions with vegetation. When it is appropriate to prepare a permit application for the proposed project, a more detailed wetland assessment will be conducted using a protocol agreed to by the City and federal agency regulatory staff. The EIS analysis employed a conservative approach of identifying 40 percent of the gross area of upland/wetland mosaic as wetland acreage, rather than trying to differentiate wetland from upland areas within this mosaic.

Four existing wetland community types have been identified within the project area and are described below; acreages cited are conservative estimates (i.e., they are likely overstated):

- Wet meadows: there are approximately 8.4 acres of wet meadow habitat on the project site. **Figure 3.3-1** shows the approximate extent of the wet meadow/upland meadow mosaic; based on field observations and aerial photo interpretation, it is assumed that 40 percent of the indicated gross area (about 21.1 acres) is actually wetland. Various moisture-tolerant grasses and Baltic rush dominate the wet meadow community. Small patches of reed canary grass are present. These meadows constitute the largest existing vegetation community type on the project site.
- Emergent marshes: there are approximately 3.1 acres of emergent marsh (shown as PEM – palustrine emergent in **Figure 3.3-1**) on the project site. These areas are generally characterized as having longer-term inundation into the growing season, a higher plant species diversity and more wet-tolerant species than the wet meadows, and generally have 4 to 18 inches of standing water into the spring. Species present include various native sedges, spikerush, native wet grasses and bulrushes. Frog Pond and several small closed depressions south of it are included in this wetland type. In addition, there is marsh habitat just north of NE 65th Street, both east and west of Sportsfield Drive. Some of these marshes are ringed with native shrubs and sapling-stage trees, although they have been mapped as emergent communities because that is the dominant vegetation type present.
- Shrub wetlands: approximately 8.3 acres of willow/spirea shrub wetlands with interspersed emergents (shown as PSS – palustrine shrub/scrub and PEM/PSS in **Figure 3.3-1**) are present on the site. Willows dominate along most of the ditches that traverse the site, with smooth rush, reed canary grass and various other wet grasses present amidst the shrubs. Willows also dominate the "outlet channel" that empties into Lake Washington at a location just north of the boat ramp, with yellow iris and purple loosestrife present in the understory. Near the south toe of Kite Hill is a mixed community of sedges and spirea, with the sedges forming a distinct vegetation type but the spirea dominating the overall coverage (i.e., the sedge stand is too small to map at this scale).

Figure 3.3-1
Existing Vegetation Community Types

- Forested wetlands: there are approximately 2.7 acres of forested wetlands (shown as PFO – palustrine forest in **Figure 3.3-1**) on the project site. These are generally black cottonwood stands with little or no understory present (some may have sparse spike rush). The trees tend to be the same age class and the closed depressions tend to pond water up 6 to 8 inches deep over the winter.

3.3.1.4 Wetland Functions: Existing Conditions

The tool used to estimate wetland functions on-site is the modified Reppart or SAM (Semi-Quantitative Assessment Method) functional assessment (Cooke, 2000). Copies of completed data forms for the existing wetlands on the site are provided in **Appendix C** (Exhibits C1 through C3). As noted above, no formal wetland delineations have been conducted on the site; therefore, acreage estimates for the wetland functional assessment are based on a conservatively estimated 'typical' wetland patch size on site of 1.0 acre for the wet meadow/emergent communities, 2 acres for the shrub communities and 0.25 acres for the forested communities. The size estimates are based on extensive field work that has confirmed the patchy mosaic of habitat types across the site. **Table 3.3-1** summarizes the findings of the functions provided for each wetland vegetation type assessed. The numbered rating for each category has been converted to a high, moderate, or low rating. The scoring breakdown for each category is as follows:

High = 75-100 percent of the maximum possible score
Moderate = 50-74 percent of the maximum score
Low = <50 percent of the maximum score

The maximum score for a function is not split into thirds equally for this breakdown because the minimum score for each variable is 1, rather than 0. If the lowest score (Group 1 on the assessment forms) is awarded for each variable evaluated for a function, that function will score one-third of the maximum points. Under a normal distribution, a function with three variables checked in the Group 1 column of the assessment form and one in the Group 2 column would be incorrectly rated moderate rather than low. Skewing the distribution toward the high end more accurately reflects the overall score for each function. **Table 3.3-1** summarizes the nine functions identified in the Semi-Quantitative Assessment Method, the maximum score possible for each function, and the scores calculated for each wetland.

Based on the SAM functional assessment method, the wetland types on site generally rate low to moderate for all functions. Only the forested wetlands rate higher than the other two vegetation types, and only for the function of flood/stormwater control, as the model assumes forested systems assist in flood control more effectively due to the presence of the trees. For the functional assessment it was assumed that the following parameters applied: wetlands were located in the lower 1/3 of their basins; the buffers around these wetlands were moderately intact; and the wetlands were all strongly linked to upland habitats. The buffer disturbance assumption was based on the lack of woody vegetation communities in most existing buffers.

The wetland types on site rate low for specific habitat functions because of their lack of structural and species diversity, although their link to upland habitats and their connectivity to vegetated buffers cause them to rate moderate (barely) for overall habitat functions and natural biologic support.

Table 3.3-1
Existing Wetland Functions

Wetland Function	Emergent Wetland	Shrub Wetland	Forested Wetland
Flood/Storm Water Control	L	L	M
Base Flow/Ground Water Support	L	L	L
Erosion/Shoreline Protection	NA	NA	NA
Water Quality Improvement	M	M	M
Natural Biological Support	M	M	M
Overall Habitat Functions	M	M	M
Specific Habitat Functions	L	L	L
Cultural/Socioeconomic Functions	L	L	L

3.3.1.5 Threatened, Endangered and Sensitive Plant Species

As documented in a letter (November 26, 2001) from the Washington Department of Natural Resources (WDNR), no documented rare plants or high-quality ecosystems occur in the project vicinity. Documentation by others that a state-listed orchid, western ladies tresses, (*Spiranthes romanzoffiana var. porrifolia*) is to be found on the site (Seattle Urban Nature Mapping Project, 1999/2000) is in error. The orchid species present on the project site is in fact the hooded ladies tresses (*Spiranthes romanzoffiana var.romanzoffiana),* which bears a strong resemblance to the state-listed species. According to staff at the Natural Heritage Program of the WDNR (J. Gamon, personal communication, WDNR Natural Heritage Program, Olympia, Washington, August 1, 2001[DMS1]unication), hooded ladies tresses is a common species most often found on very disturbed sites, whereas western ladies tresses is not found in those conditions. The orchid is found at Sand Point Magnuson Park near the Off-Leash Area in soils that are severely compacted.

3.3.2 Environmental Impacts of the Proposed Action

Implementation of the proposed action would have a variety of effects, both positive and negative, on the existing vegetation communities on the project site. The array of effects includes short-term impacts that would occur during the project construction period and long-term impacts that would occur over time after the project is completed. The short- and long-term impacts could include both direct and indirect effects.

3.3.2.1 Short-Term (Construction) Impacts

Existing vegetation on sizable portions of the project site would be removed during clearing and grading operations in a phased sequence over approximately a 10-year period. This would occur in virtually the entire area to be developed for the sports field complex, as well as in the expansion area for the Kite Hill/Beach drive parking lot, two realigned segments of Beach Drive, the margins of the NE 65th Street right-of-way, and the routes for the various pedestrian pathways included in the proposed action. These features of the proposed action collectively account for approximately 90 acres of future project uses on the site (per **Table 2.2-1**), although not all of this area is currently vegetated. In addition, development of the wetland/habitat complex and site drainage features would require clearing existing vegetation over a substantial additional acreage to allow construction of water quality ponds, bioswales, berms and wetland ponds. Approximately 126 acres of the 153-acre project site are currently vegetated. As a reasonable approximation, it is likely that 50 to 65 percent of the existing vegetation on the project site (roughly 60 to 80 acres) would be cleared at some time during the construction period to allow development of the proposed features. Some minor additional acreage of existing vegetation would remain in place but would be disturbed during construction, primarily through construction vehicle traffic and/or temporary storage of construction materials. Where possible and appropriate, the plan retains the most complex existing wetland habitats and stands of native trees (both wetland and upland habitat) that could best contribute to the function of the wetland/habitat complex.

Because the project would be constructed in phases, vegetation clearing would be confined to a portion of the project site at any given time during the construction period. Because the areas cleared in construction would be resurfaced within a relatively short period of time (by the end of a construction phase), the short-term effects on existing vegetation are of less significance than the longer-term consequences of converting existing vegetation to other uses or cover types (which is discussed in **Section 3.3.2.2**).

3.3.2.2 Long-Term Direct Impacts

The long-term direct impacts of the proposed project on existing vegetation communities are those associated with replacement of current vegetation with alternative uses or cover types. In broad terms, the existing vegetation communities on the site could be:

1. converted to developed park uses such as sports fields, service/maintenance facilities, parking lots, roadways or trails;
2. left generally as is;
3. enhanced to provide increased habitat or recreational value; or
4. converted to another natural cover type that would better attain the project objectives for increased wetland/habitat values.

As indicated previously, approximately 90 acres of the project site would be allocated to developed park uses (sports fields, park lawn and planting, buildings, roads, paths and parking) upon completion of construction. Much of this acreage is already occupied by existing sports fields, paved surfaces and mowed grasslands, while much is also within the unprogrammed open space or "habitat zone" of the park. **Figure 3.3-2** shows the relationship between proposed developed uses of the project site and existing habitat areas.

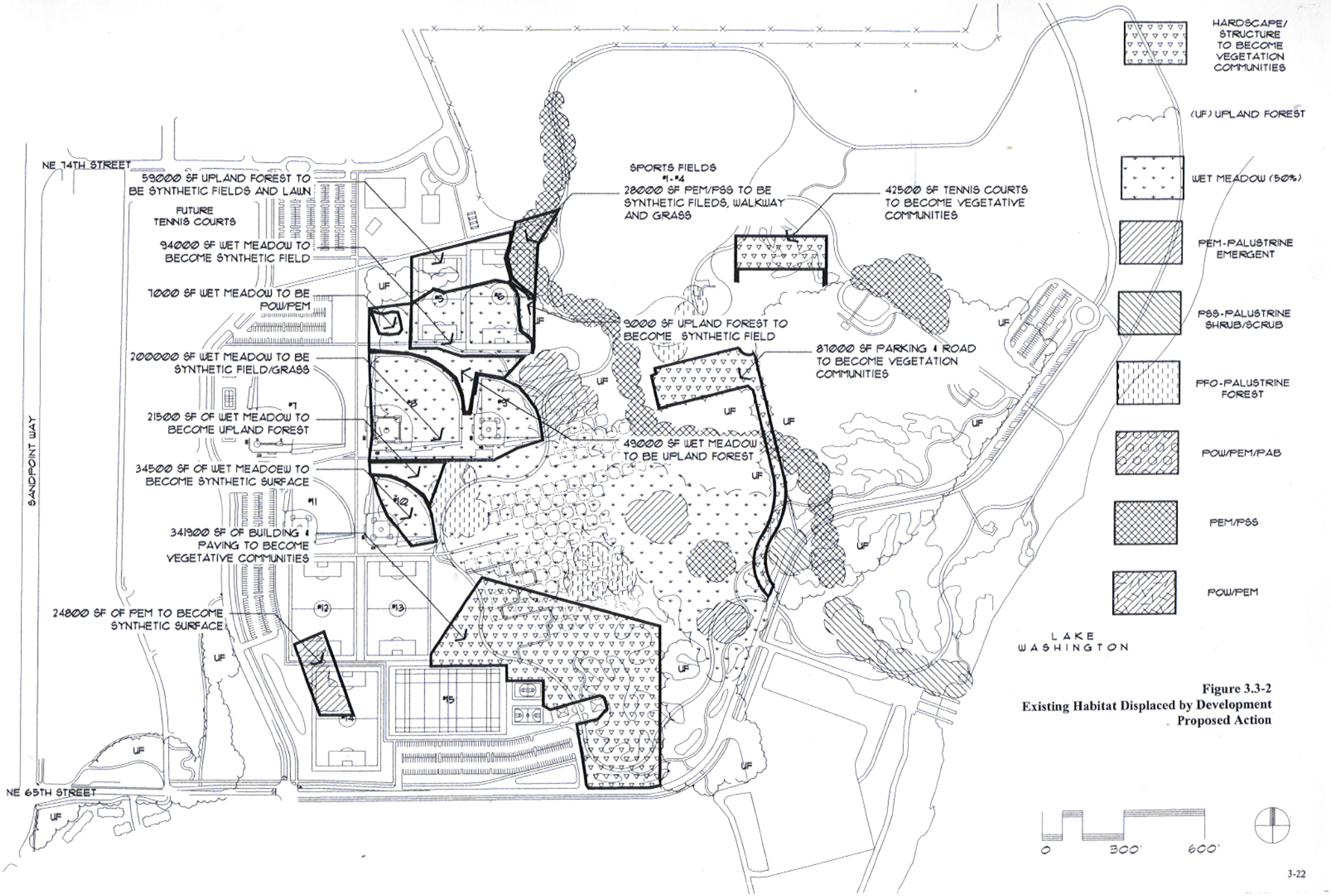


Figure 3.3-2
Existing Habitat Displaced by Development
Proposed Action

In terms of general vegetation changes, the conversions associated with the proposed developed uses can be summarized as follows:

- The area of the proposed sports meadow currently consists primarily of mowed grasslands at the location of the existing Magnuson Park fields. A variety of more-natural upland (primarily) and wetland cover types occur along the margin of the existing sports meadow, which would be expanded for the proposed action.
- Most of the 35 to 40 acres in the western part of the project site that would host the synthetic-turf sports fields and associated facilities is either already in developed use or in previously disturbed areas of low habitat value. The area proposed for development as Fields 7, 11, 12, 13, 14 and 15 is currently occupied by mowed grasslands (the existing Sand Point fields), existing paved areas, existing buildings (the former Navy Commissary complex), and unprogrammed open area between the buildings and the sports fields. Fields 5, 6, 8 and 9 and a portion of Field 10 (the northeastern quadrant of the synthetic-turf field area) extend into the interior area of the project site that currently supports a mixture of more-natural upland and wetland vegetation types, primarily wet meadow.
- Virtually all of the 8.7 acres to be developed for parking use under the proposed action are currently in developed use. The proposed North Sand Point parking lot is the site of an existing parking lot. Existing sports fields or unprogrammed grassland are presently found on the sites proposed for the North Fields and Sportsfield Drive parking lots. The site of the proposed South Fields parking lot currently is occupied by part of the Commissary building, another support building to the west of the Commissary, and part of the large parking lot between the two structures. The proposed Kite Hill/Beach Drive parking lot is the only lot that would displace a measurable area of higher-value habitat. Approximately two-thirds of the site for this facility consists of the existing beach area parking lot, while the proposed expansion area extends into savannah vegetation near the base of Kite Hill.
- Virtually all of the 4.6 acres to be used for roadways under the proposed action are currently in that same use. The primary exceptions to this condition are the two segments of Beach Drive, totaling about 1,200 to 1,500 lineal feet, which would be relocated in conjunction with pond and lagoon development in the wetland/habitat complex.

In summary, the developed park uses included in the proposed action would displace a relatively small amount of existing vegetation that currently functions as habitat. The most noteworthy example of long-term habitat loss would be the displacement of wet meadow and interspersed upland habitat in the northeastern quadrant of the synthetic-turf sports field area. This impact is addressed more specifically below.

Development of the new sports field complex would result in the elimination of approximately 1.5 acre of existing upland and a total of 9.9 acres of existing wetland on the west side of the project site. The affected wetland area includes 9.3 acres (gross area) of wet meadow and 0.6 acres of willow/spirea shrub wetland habitat. Wetland loss would result from the direct placement of fill in existing wet meadows to construct athletic fields and associated facilities, and from 1.6 acres of upland planting. These existing wetlands are dominated by herbaceous vegetation such as smooth rush and Baltic rush, plus patches of native and non-native (blackberry) thicket. Elimination of existing structures and related impervious surface area elsewhere on the project site would allow the creation of over 11 acres of wetland vegetation communities and upland planting.

In addition to conversion of existing vegetation communities associated with construction of the sports fields and other developed park uses, there would be relatively extensive vegetation changes occurring in the wetland/habitat area of the project site. Based on interpretation of the existing wetland and upland communities on the site that are likely to provide substantial habitat value and the size of the proposed wetland/habitat complex, the proposed action would result in a net increase of over 11 acres of functioning wildlife habitat. Total wetland acreage on the project site would increase by 8.5 acres compared to existing conditions. In addition, the habitat values of the wetland and upland communities that would remain or be created on the site would increase as a result of the quality and diversity of the habitat components that would be provided. These changes in wetland values are discussed in **Section 3.3.2.4**, while wildlife habitat values of upland communities are addressed in **Section 3.4.1.2**.

3.3.2.3 Long-Term Indirect Impacts

Water Quantity and Quality

Implementation of the proposed action could indirectly affect post-construction upland and wetland communities in a variety of ways. In the case of wetlands, two of the primary means of potential indirect impacts are through changes in wetland hydrology and water quality. The water quantity and water quality effects of the proposed action are addressed in **Section 3.2.2** of this EIS. Briefly, the hydrologic/water quantity effects of the project would be positive, and the water quality effects are generally expected to be positive or neutral. Providing improved drainage for the project site is one of the key objectives for the proposed action, and is necessary to the success of both the sports field and wetland/habitat components of the project. Moreover, the drainage features of the proposed action have been integrated into the design of the wetland/habitat component, because it is critical that the drainage system provide water to the wetland/habitat complex in suitable quantities at appropriate times. It is also critical that the water supply to the wetlands be of sufficient quality to support the desired biota. In short, the proposed project has been designed to meet the water quantity and quality needs of a functioning wetland system. Therefore, assuming the project functions as planned, the proposed action would have beneficial (rather than adverse) indirect impacts on wetlands.

Research suggests there is an uncertain potential for water quality effects in areas subjected to artificial lighting, due to the behavior of zooplankton (microscopic aquatic animals). Zooplankton have been shown to avoid migrating near the surface of freshwater lakes in urban areas due to sky glow from artificial lighting (Moore, pers.com.). If light sources adversely influence zooplankton that feed on algae, increased algal mass could result, which if significant, could cause lower dissolved oxygen in the water column. Algae blooms and lower dissolved oxygen can have negative repercussions up the food chain for other aquatic invertebrates, fish, and amphibians, as well as wetland plants. However this information is specifically applicable to zooplankton in lakes, not in shallow vegetated wetlands, so it is not possible to conclude that the proposed sports field lights would or would not have adverse affects on zooplankton and the resulting food chain associated with vegetated marshes. Regional experts in the field indicated that studies of zooplankton and algae growth in wetlands would be needed to determine the potential effects of sports field lights on aquatic food chains (Moore, pers.com.). It should be noted, however, that Sand Point Magnuson Park is located within a large metropolitan area and therefore is already subject to skyglow, and it would not be possible to measure the incremental change in skyglow caused by the proposed action (see **Section 3.9.2** for additional discussion).

Human Disturbance Effects

Other common types of indirect impacts of development actions on plant communities generally stem from one or more forms of human disturbance of those communities. Two aspects of the proposed action would provide the potential for human disturbance effects on plant communities: (1) an increase in overall human use of the project site in response to increased capacity and expanded opportunities for park activities and (2) the influence of the lighting systems that would serve 11 of the proposed sports fields.

Increased Human Use

The number of recreational visitors to the project site and the total annual hours of on-site recreational use would increase dramatically with the proposed action, primarily in conjunction with the major capacity expansion represented by the sports field complex. The existing sports fields at Sand Point Magnuson Park were used a total of approximately 3,700 hours during calendar year 2000. The Department of Parks and Recreation does not have specific future projections of field use hours or participant occasions with the proposed fields completed and in operation. The proposed sports fields would provide the capacity to support over 20,000 hours of field use, however, suggesting that future sports field use would likely be several times larger than the current numbers. (See **Section 3.10 Recreation** for additional discussion.)

The large relative increase in sports field capacity and expected use cannot be interpreted to indicate a corresponding level of increase in human disturbance effects on plant communities. The mere presence of large numbers of people in the sports field area would not automatically translate into large numbers of those visitors entering the wetland/habitat complex. Sports field users would be on the project site for a specific purpose (a scheduled game or practice) at a specific location at a scheduled time; their recreational trips to the site would not be characteristic of a family outing to a regional park that would encompass several different activities using multiple park settings. In addition, much of the sports field activity would occur during evening hours when the synthetic-turf fields were lit for night play. The trails through the wetland/habitat complex would not be lit, so there would be minimal byproduct use of the wetland/habitat complex by sports field users during the after-dark component of sports field activity. Overall, sports field users would have a relatively small propensity to visit the wetland/habitat complex in conjunction with visits to the sports field complex.

Aside from increased future use of the project site associated with the sports fields, completion of the proposed project would likely generate increased use specifically oriented to the wetland/habitat complex. This component of the project would represent a large increase in available opportunities for passive-appreciative recreational activities such as wildlife observation, nature interpretation, environmental education, and simply walking or hiking in natural settings. These opportunities would increase the attraction of Sand Point Magnuson Park for a large segment of the recreational public that participates in these activities, and would prompt many people to come to the park specifically to visit the wetland/habitat complex, or to visit the wetland/habitat complex as a secondary activity in conjunction with use of the beach area, boat launch or other resources in the park. A primary objective of the proposed project is to provide a resource base for formal environmental education programs centered on the wetland/habitat complex; implementation of these programs would generate another substantial visitor stream to the wetland/habitat complex. Considering all pertinent aspects of user, trip and resource

characteristics, nature-oriented recreational visitors and environmental education participants would likely account for the predominant share of future users of the wetland/habitat complex.

While there is a high probability that the wetland/habitat complex would receive a substantial volume of public use, it does not necessarily follow that the expected level of use would produce significant indirect impacts on plant communities in the wetland/habitat complex. The simple presence of humans does not automatically translate into adverse consequences for plant communities (note that this observation does not apply uniformly for wildlife species, as discussed in **Section 3.4.1.2**). The primary mechanisms for indirect human disturbance impacts on plant communities are actions such as trampling, littering and accidental (or deliberate) fires. For wetland/habitat complex visitors to create such impacts, they would need to engage in anti-social behavior that would be actively and passively discouraged by project design elements and park management. Trails and viewing sites would provide visitors with ample opportunities to experience the wetland/habitat complex without venturing off-trail into the interior of the complex. Informational handouts and signage would encourage visitors to remain in approved locations, and fencing in strategic locations would block off-trail access to more sensitive habitats. Park management staff, citizen volunteers and organized user groups would, to varying degrees, help to monitor user behavior and reinforce communication about proper use and care of the resource. On balance, there is reason to believe that the vast majority of visitors to the wetland/habitat complex would behave responsibly, and there would not be significant adverse human disturbance impacts on the plant communities in that complex.

Lighting System Use

The proposed action includes the installation of artificial lighting systems at the 11 sports fields with synthetic turf (Fields 5 through 15). Lighting system physical characteristics are described in detail in **Section 2.2.9**, their operation is summarized in **Section 2.2.13**, and most aspects of potential light and glare impacts are addressed in **Section 3.9**. The sports field lights could be used up to about 7 hours per day, and the soccer/rugby field lights are expected to be in use up to approximately 1,000 hours per year. The lighted fields closest to the wetland/habitat complex (Fields 6, 9, 10, 13 and 15) would use full-cutoff technology, which minimizes glare, spill light and sky glow that escapes from the fixtures and the illuminated area. Nevertheless, some unintended illumination would extend beyond the playing field area toward the adjacent wetland/habitat complex. Spill light with an illuminance level of 1 foot-candle would extend for a lateral distance of approximately 135 feet beyond the fencelines of these fields, while the illuminance level would decline to 0.2 foot-candle at a distance of approximately 205 feet beyond the fenceline. (For comparison, the design illuminance levels on the playing field surfaces range from 20 to 30 foot-candles). In most locations, this 205-foot zone would overlap developed features such as the cross-country trail, the habitat area restroom and education annex, the basketball courts and park/lawn planting areas. To the east of Field 9, however, the 0.2-foot-candle level extends into the westernmost tier of the proposed marsh ponds at the edge of the wetland/habitat complex. Consequently, the sports field lighting systems would produce a dim level of artificial light for a few hours at a time on a regular basis in a small band of the proposed wetland area.

A number of review comments on the Draft EIS expressed concern over the effects of the proposed sports field lighting on the wetland/habitat complex, including comments that specifically maintained there could be adverse effects on vegetation in the complex. In response to these comments, the Department of Parks and Recreation directed the EIS preparers to investigate this issue in additional detail. That

investigation identified no published research on the effects of artificial light on wetland vegetation, and the lack of such specific documentation was confirmed by Longcore and Rich (2001).

In general, both artificial and natural light trigger activities such as leaf and stem growth, timing of flowering, fruit development, leaf loss, and other processes in plants (Briggs 2002). Lab experiments showed reductions in germination rates of mountain hemlock seeds when exposed to artificial light at night (Edwards and El-Kassaby 1996). Anecdotal evidence from outdoor situations suggests that plants may respond to all-night artificial light, such as street lamps. For example, deciduous trees situated near streetlights have been reported to retain their leaves over the winter, presumably because the trees perceive a longer day (Briggs 2002). Lengthening days artificially with sports field lights might have the potential to affect plants, although some researchers have concluded that the intensity of most artificial light sources would be too low to affect wild plants (Health Council of the Netherlands 2000). Street lights produce a typical maximum lighting level (on the surface directly below the fixture) of about 5 foot-candles, which is much higher than the spill light that could escape from the sports fields into the western margin of the wetland/habitat complex. Because of differences in mounting heights, lighting intensity levels at various distances and typical hours of operation, it is not possible to extrapolate the research findings based on streetlights to the proposed sports field lights.

Based on the lack of research to the contrary and the limited intensity and extent of artificial illumination away from the proposed sports fields, it is unlikely that the sports field lights would have a perceptible effect on the actual plant communities within the wetland/habitat complex.. Some scoping and Draft EIS review comments for this EIS identified issues relating to the ability of wetland and/or upland areas nearest the sports fields to provide highly functioning wildlife habitat. Because these issues involve the wildlife using these areas rather than the plant communities in the habitat areas, the potential effects of field lighting on wildlife are discussed in **Section 3.4Animals and Fish**.

3.3.2.4 Effects on Wetland Functions

Table 3.3-2 provides a summary of the anticipated wetland functions for the existing conditions on the project site and for the proposed action. To facilitate comparisons among the alternatives, wetland function ratings for the lesser-capacity alternative are also included in the table. As described in **Section 3.1.1.4**, the tool used to estimate wetland functions for the site is the modified Reppart or SAM (Semi-quantitative Assessment Method) functional assessment (Cooke, 2000). Completed data forms are provided in **Appendix C** (see Exhibits C1 through C3 for the existing conditions, and Exhibits C4 through C7 for conditions with the proposed action and lesser-capacity alternative). The wetland functional assessment has been conducted on assumed conditions 30 years in the future (to provide a relative 'equivalency' between the age of existing trees on the site and proposed wooded areas in the future). Typical wetland patch sizes were assumed to be larger in the future for both alternatives, based on proposed increases in available water and proposed site reconfiguration. Therefore, patch sizes were assumed to be 2 acres for the wet meadow/emergent communities, 3 acres for the shrub community, 1 acre for the forested communities, and 2 acres for the open-water/emergent communities. **Table 3.3-2** summarizes the findings of the functions provided for each wetland vegetation type assessed. The numbered rating for each category has been converted to a high, moderate, or low rating.

Table 3.3-2
Anticipated Wetland Functions by Alternative

Wetland Function	Emergent Wetland			Shrub Wetland			Forested Wetland			Open Water Emergent	
	Existing	Proposed	Lesser	Existing	Proposed	Lesser	Existing	Proposed	Lesser	Proposed	Lesser
Flood/Storm Water Control	L (6)	M (8)	M (8)	L (6)	M (8)	M (8)	M (8)	M (10)	M (10)	M (11)	M (11)
Base Flow/Ground Water Support	L (7)	M (10)	M (10)	L (7)	M (8)	M (8)	L (7)	L (7)	L (7)	M (10)	M (10)
Erosion/Shoreline Protection	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Water Quality Improvement	M (9)	M (9)	M (9)	M (9)	M (10)	M (10)	M (9)	M (10)	M (10)	M (8)	M (8)
Natural Biological Support	M (19)	H (30)	H (30)	M (19)	M (26)	M (26)	M (20)	M (26)	M (26)	H (28)	H (28)
Overall Habitat Functions	M (5)	M (6)	M (6)	M (5)	M (6)	M (6)	M (5)	M (6)	M (6)	M (9)	M (9)
Specific Habitat Functions	L (5)	H (14)	H (14)	L (4)	L (6)	L (6)	L (4)	L (7)	L (7)	M (9)	M (9)
Cultural/Socioeconomic Functions	L (10)	M (14)	M (14)	L (10)	M (14)	M (14)	L (10)	M (14)	M (14)	M (14)	M (14)

For the proposed emergent wetlands, including the marshy flow-through pools on the west side of the wetland/habitat complex, it is estimated that natural biologic and specific habitat functions would increase the most under the proposed action or the lesser-capacity alternative. This assumed increase in function is due to the lengthening of the season of inundation, the increase in species diversity (vegetation), and the assumption that much of the emergent habitat would be closely associated with shrub and open-water or aquatic-bed communities in future conditions. Flood storage, water quality improvement and overall habitat functions were not assumed to increase significantly using this assessment method.

For the proposed shrub communities, including the shrubby margins of the marshy pools, the edges of the permanent open-water wetlands and wet shrub thickets in the interior of the habitat zone, the estimated functions did increase as much as is anticipated for the emergent wetlands, although modest increases were predicted in flood control and natural biologic support.

For the proposed forested wetlands, including margins of the marshy pools, edges of the lagoon and open-water wetlands, and in the interior zones of the habitat areas, the greatest functional increase would be in cultural/socioeconomic function, although most functions would see a slight to modest increase (except base flow, which would remain constant). This assumption of function, in future conditions, is somewhat misleading in that it does not reflect what the site could become with the specific intent to create habitat complexity, mixed age-class forest and species diversity. Under the no action alternative, however, similar gains might be realized under the guidance of the Sand Point Vegetation Management Plan.

The open-water/emergent wetland communities, which are characterized by the year-long presence of surface water with aquatic bed, emergent, and fringing shrub/forest habitat, do not currently exist on the site; therefore, all increases in the presence of that community type represent net gains in the functions that community type provides. Of particular note should be the function for natural biological support, which is assumed to be the highest of any community present or anticipated on the site. This community type would be present in the Promontory Point ponds, the lagoon, and the seasonal long-term wetlands northwest of the lagoon.

Using such a function assessment tool is often subjective, as one has to assume future conditions relative to success of design and implementation. The most frequent failing of designed wetland compensations is the lack of water for durations long enough to assure sufficient saturation. Given the existing conditions on the project site and the proposal to create engineered “collection and conveyance” systems for the stormwater emanating from the fields to the west, it can be assumed that adequate hydrology would be provided to these designed wetland habitats to assure the long-duration inundation necessary for creating effective wetland habitat.

In addition, the proposed action would create year-round, open-water habitats with emergent margins, aquatic bed, and fringing forests and shrub communities. Upland forests linking the wetland systems to the Lake Washington shoreline and the forests of Promontory Point would buffer the new open-water habitats. This combination of habitat features would assure the creation of diverse habitat types, linked across the landscape and buffered by upland forests, to fill the life-history needs of a broad range of aquatic and terrestrial species.

The opportunity for public access to wetlands, with passive and formal education opportunities, would be significantly increased with either alternative, as trails, overlooks, and interpretive elements are included

in the project plans. Educational opportunities would still be provided in the no action alternative, although the habitats would be less physically accessible and more at risk from human disturbance.

3.3.3 Impacts of the Alternatives

3.3.3.1 Lesser-Capacity Alternative

The lesser-capacity alternative would have the same types of impacts on plant communities as those described in **Section 3.3.2** for the proposed action. Some of the impacts would likely vary somewhat in intensity and extent based on differences in project plans between the alternatives.

Figure 3.3-3 identifies the existing habitat areas that would be displaced by developed features under the lesser-capacity alternative. The short-term impacts from construction of the lesser-capacity alternative would likely include removal of the existing vegetation on approximately 50 to 65 percent of the project site. The total area of construction activity for the lesser-capacity alternative would be somewhat less than for the proposed action, because the existing tennis courts, parking lot and access road in the interior of the project site would remain, but this area is not currently vegetated. In addition, the area to be occupied by Field 6 in the proposed action would not be disturbed for sports field development under the lesser-capacity alternative, and would remain vegetated. Nevertheless, this shifting of Field 6 (and Field 5) to the west would result in the elimination of 0.4 acres of upland forest and 0.3 (gross area) acres of wet meadow. On a long-term basis, the developed park uses include in the lesser-capacity alternative would likewise displace a relatively small area of existing vegetation that currently functions as habitat. One difference between the two action alternatives concerns the Kite Hill/Beach Drive parking area, which would not be expanded under the lesser-capacity alternative; consequently, a small area of existing savannah at this location would not be displaced.

The lesser-capacity alternative would result in approximately 4.8 acres (gross area)of direct wetland impacts to wet meadow habitats on the west side of the project site, in the area that would be developed for sports fields and upland planting. This is 4.5 acres less area of wet meadow impact than the proposed action, primarily because Field 9 (which would displace wet meadow area in the proposed action) is not included in the lesser-capacity alternative. Elimination of existing structures and related impervious surface area elsewhere on the project site would allow the creation of over 7 acres of wetland vegetation communities and upland planting. Existing wet meadow habitats that would remain under this alternative would be designed to become mixed-canopy wetland forest over time, with black cottonwood, red alder, willow and red cedar canopy.

Even with the loss of wet meadow habitat in the sports field area, the lesser-capacity alternative would result in a net increase of 9.7 acres of wetland habitat compared to the existing condition. This alternative would yield a somewhat larger increase (1.2 acres) in wetland habitat relative to the proposed action. There would be 1.9acre more wet meadow habitat in the interior portions of the wetland/habitat complex, 0.2 acre less area of water quality ponds, and approximately 0.5 acre less area of pond with fringing emergent vegetation. The overall size of the wetland/habitat complex for the lesser-capacity alternative is 61.6 acres. This figure is 3.5 acres less than for the proposed action, but represents an increase of 7.5 acres of functioning habitat compared to the existing condition.

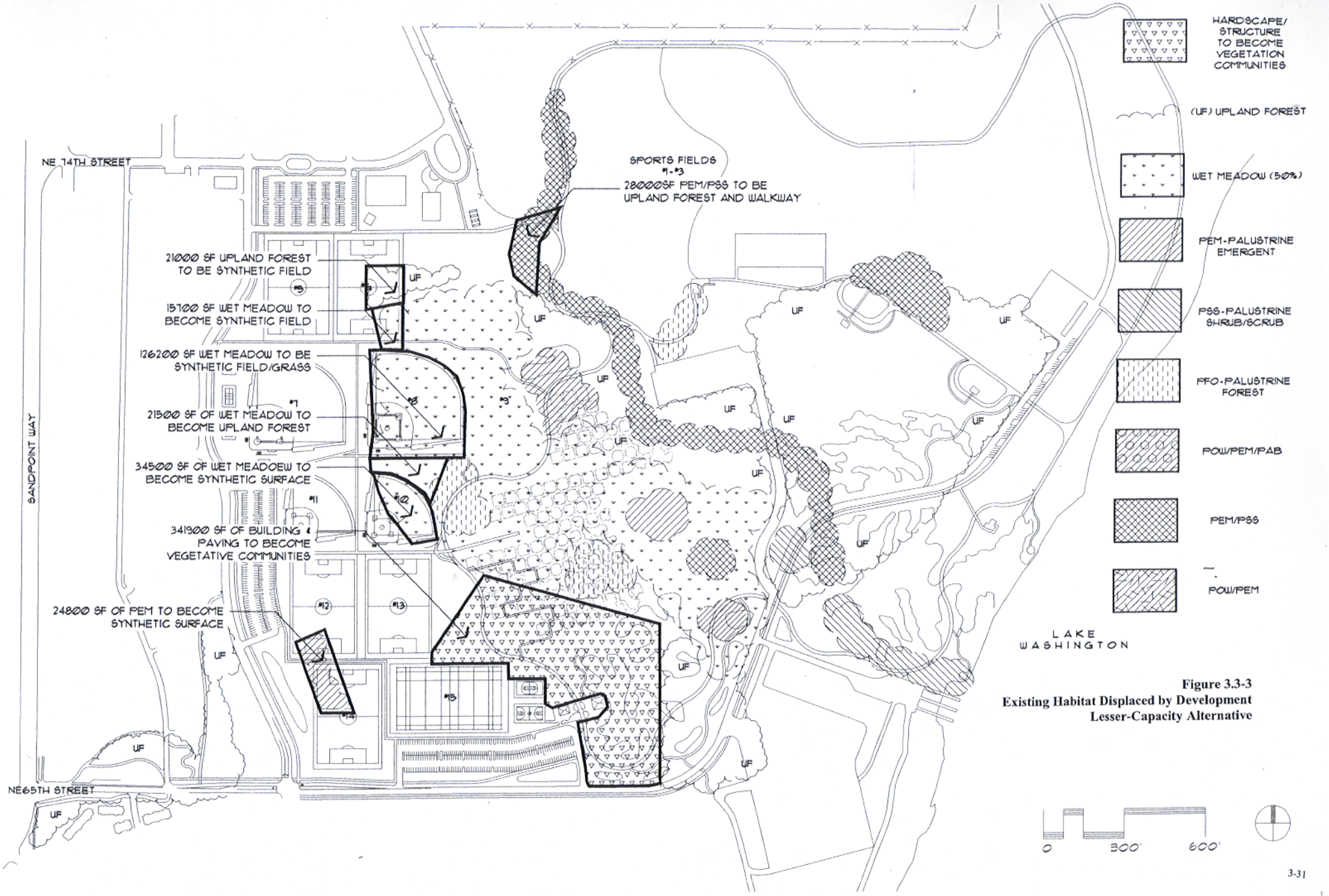


Figure 3.3-3
Existing Habitat Displaced by Development
Lesser-Capacity Alternative

With respect to long-term indirect impacts, the lesser capacity alternative would likely have essentially the same water quantity and water quality characteristics as the proposed action. Because of the integral nature of the site drainage improvements relative to the wetland/habitat complex, the lesser-capacity alternative would have beneficial indirect water-related impacts on wetlands. The lesser-capacity alternative would produce a smaller, but still substantial increase in human use of the site. Because the existing road, parking lot and tennis courts south of the sports meadow would be retained with the lesser-capacity alternative, these features would generate more human activity near the central core of the wetland/habitat complex and might help promote "short cut" circulation patterns by park users. If this occurred, there is some potential for diminished success of sensitive plant communities. As was concluded for the proposed action, however, significant overall adverse indirect effects on plant communities associated with increased human use would not be expected.

The revised configuration of the lesser-capacity alternative includes fewer illuminated sports fields (3, compared to 11 for the proposed action); therefore the potential extent of artificial lighting in the area adjacent to the wetland/habitat complex would be considerably reduced. This alternative no longer includes Field 9, which (under the proposed action) would cast a dim light onto a sliver of the marshy flow-through pool area at the western edge of the habitat complex. In addition, the only lighted fields under the lesser-capacity alternative would be located along the western side of the sports field complex, adjacent to Sportsfield Drive. Consequently, the 0.2-foot-candle limit for these fields would cut across the adjacent unlighted fields and would approach within no more than about 200 feet of the edge of the wetland/habitat complex. Based on the revised lighting characteristics of the lesser-capacity alternative and the previous discussion of potential lighting effects, under this alternative the light from the sports fields would not be likely to have a perceptible effect on the plant communities within the wetland/habitat complex. Potential effects of lights on nocturnal wildlife species and migratory birds that might use these habitats are discussed in **Section 3.4.1 Wildlife**.

The expected effects of the lesser-capacity alternative on wetland functions would be similar to those previously reviewed in **Section 3.3.2.4**. As indicated in **Table 3.3-2**, the same wetland function ratings were assigned to the lesser-capacity alternative and the proposed action. The lesser-capacity design does not include collection and direction of flows from the natural-turf sports meadow fields at the north end of the project site toward the sedge-meadow wetland at the south toe of Kite Hill. In this case there would be no change to the hydrology of that sedge meadow (therefore it would remain a mixed sedge/spirea wetland), and there would be a smaller volume of water flowing into the seasonal marshes just northwest of the lagoon. Less water flowing into those upper marshes would mean that they would be inundated later in the fall and likely begin to drop water elevations earlier in the spring, compared to the proposed action. This would shift the habitat types provided (because of the shift in seasonal hydroperiod), but would not result in the wetland areas being smaller.

3.3.3.2 No Action Alternative

With no action, vegetation communities within the habitat portion of the project site would be expected to mature and develop through expected natural successional stages. With the implementation of the adopted Vegetation Management Plan (VMP) for Sand Point Magnuson Park, the presence and extent of non-native invasive species such as Lombardy poplar, Scot's broom and Himalayan blackberry would be reduced over time within the interior portions of the Park and the project site. Perhaps invasive species

such as English ivy, virgin's bower (clematis), and Japanese knotweed would also be eliminated along the margins and interior portions of the woodland of Promontory Point.

Native black cottonwoods would be expected to slowly expand their presence throughout the interior portions of the habitat areas linking across the site. The extreme soil conditions on the site would make that colonization a slow process. Native shrubs would also likely become established, as the VMP requires replacing the Lombardy and non-native shrub thickets with an equivalent stem density of native trees and shrubs, including conifers. The requirements of the VMP to maintain some portions of the habitat zones as meadow would assure that some aspects of the open savannah vistas of the interior habitat area would be maintained. Plant species recommended for use in the habitat restoration areas are discussed in detail in the Sand Point Magnuson Park Vegetation Management Plan (December, 2001) which was adopted after the Draft EIS was published. A complete list of proposed species and the criteria used to determine siting locations are provided in **Appendix C** of this Final EIS.

The wetland habitats present in the interior portions of the site would also proceed through successional changes under the no action alternative. The existing wetlands on the site already exhibit the expected pattern of vegetation community succession: the long-term inundated marshes all have a margining fringe of native woody shrubs and saplings. Over time, those saplings would increase in size, thereby increasing evapotranspiration and reducing the duration of inundation in the wetland areas. These areas would continue to function as wetlands, due to the underlying topography, although the specific functions that they provide would shift over time.

3.3.4 Cumulative Impacts

Urban and agricultural development around the shores of Lake Washington, in the City of Seattle, and within the surrounding region has created long-term loss of natural vegetation in both upland and wetland areas, representing significant adverse cumulative impacts. Implementation of the proposed action would result in a net increase in the acreage of upland and wetland plant communities with desired natural characteristics on the project site. This increase would run counter to and help (in an admittedly small way) to offset the long-term trend of diminished natural vegetation and wetland acreage in the local area and the surrounding region. At a more localized scale, the proposed project would effectively reverse a substantial portion of the historical loss of wetlands and native vegetation on the Sand Point peninsula. Therefore, with respect to physical changes to functioning plant communities, the proposed action does not have the potential for adverse cumulative impacts.

Development of the sports fields (primarily) and the wetland/habitat complex (to a lesser degree) included in the proposed action would both promote increased public use of the project site and Sand Point Magnuson Park as a whole. The increased opportunities for nature-based recreational and educational activities at the park, and the resultant increase in public awareness of those opportunities, would probably be the most significant source of increased public use in the expanded habitat areas within the park. Other pending and planned actions at Sand Point Magnuson Park (see **Section 2.6** for descriptions) would likewise contribute somewhat to increased overall park visitation. All or most of the use associated with these projects would be directed toward other areas of the park, such as the Off-leash Area and the North Shore Recreation Area, and would contribute little to use of the wetland/habitat complex. In any event, the potential public use of the wetland/habitat complex is not expected to result in

adverse human disturbance impacts to the plant communities in the complex, and would not be likely to create or contribute to such disturbance impacts on a cumulative basis.

3.3.5 Mitigation Measures

The proposed action and the lesser-capacity alternative would result in the direct fill of existing wetlands, and thereby be subject to appropriate City, State and Federal wetland and water quality permit conditions. Given the anticipated volume and footprint of wetland fill, it is likely that the proposed action would trigger the need for an Individual Permit from the Corps of Engineers under the purview of Section 404 of the Clean Water Act, and a Section 401Water Quality permit from Ecology. Triggering a Federal permit would also likely create the need to comply with requirements of the Endangered Species Act, relative to Puget Sound chinook salmon and bull trout.

The regulatory requirements for wetland compensation on the proposed project are unknown in the absence of a project-specific permit application and subsequent discussions with resource and regulatory agencies. The existing wetlands on the project site are providing limited functions (due to their physical isolation from the lake and the lack of long-term inundation and habitat diversity), while the proposed action anticipates increases in wetland acreage, wetland functions, and linear shoreline area and accessible wetland habitats for aquatic species including fish and aquatic mammals. In addition, the proposed action and the lesser-capacity alternative both are designed to allow for substantial opportunity for passive and formal education on site. Given the existing conditions on site, the proposed action and lesser-capacity alternative might actually provide water quality benefits relative to the no action alternative. Regulatory agencies at every level consider all of these intricate variables when determining whether proposed wetland compensation is appropriate for anticipated losses.

The plans for the proposed action incorporate a number of features to mitigate for potential impacts that might otherwise occur. For example, the layout of the proposed sports fields has been configured so that the northern soccer fields (Field 5 and 6) would avoid direct impacts to an upland grove of young madrone trees that are present south of the Junior League Playground. This grove of madrone would not be protected in the revised configuration of the lesser-capacity alternative.

For both the proposed action and the lesser-capacity alternative, the sports fields have been laid out to avoid a 2.7-acre forested wetland present along the west edge of the mid-central portion of the habitat area. Both plans were modified from initial concepts in order to avoid this black cottonwood/Oregon ash wetland community. In addition, both action alternatives have been designed to preserve, as much as possible, the existing native tree and shrub stands throughout the main portion of the habitat area. In addition, for both action alternatives, all of the existing seasonally-inundated wetlands would be preserved, including the estimated extent of their contributing basins.

Compensation for the anticipated loss of 9.9 acres of wet meadow and willow/spirea shrub wetland habitat in the sports field area is proposed as follows:

- enhance wetland functions within the remaining wet meadow by regrading the area (which is estimated to be 40 percent wetlands in existing conditions) to assure a long duration of 12 to 18 inches of water throughout more than 50 to 60 percent of the area. This result would increase wetland functions within that area of the habitat zone, as described further below;

- create nearly 10 acres of permanent open-water/emergent/aquatic-bed wetland habitat that does not exist on the site;
- create an additional 10 acres of emergent marsh, with longer-term inundation than existing conditions;
- increase total wetland acreage for the proposed action by 8.5 acres over existing condition, and by 9.7 acres for the lesser-capacity alternative;
- create upland forest and shrub habitats surrounding the permanent open-water wetlands and the marshy pool complex on the west side of the project site, thereby increasing the survivability and viability of many populations of amphibian species;
- eliminate of over 11 acres of structures and impervious surface in the proposed action, or 7.8 acres in the lesser-capacity alternative, to become upland planting or wetland vegetation community;
- confine trails to the outer portions of the wetland/habitat complex, to avoid locating trails in the core habitat zone;
- use educational signage outlining the value of habitat and discouraging off-trail human activity in the habitat complex;
- pre-treat all surface water moving across the project site and into Lake Washington;
- preclude watercraft access within the interior of the lagoon from the landward or waterward side;
- temporarily or permanently fence certain portions of the wetland/habitat complex, to provide maximum habitat function for more elusive wildlife species;
- maintain on-site forest vegetation communities and link them across the site for increased habitat diversity, structural complexity, and summer shading of all open water zones;
- create linked upland forest/shrub habitat from the shoreline of the lake, into the interior habitat spaces, and southward to the existing forests of Promontory Point to assure linkage for terrestrial species and habitat niches for all life-history needs for a variety of wildlife species;
- install brush piles, downed woody debris, perches and snags throughout the entire habitat zone to provide for nesting, perching, and resting locations that are currently missing from the site;
- increase shallow shoreline by 5,180 linear feet at the Lake Washington Lagoon and 7,600 linear feet at the wetlands, and provide the same increase in vegetated shoreline with overhanging vegetation (which is very limited in existing conditions);
- create of a source of browse for aquatic mammal species along the shoreline and in the interior portions of the habitat zone; and
- create a barrier with no surface water connection between the proposed lagoon and the interior wetland habitats to preclude the easy invasion of mobile invasive species (bass, carp, and bull frogs).

Total wetland acreage on site would be increased by 8.5 acres for the proposed action and by 9.7 acres for the lesser-capacity alternative. In addition, the depth and duration of inundation for the wetlands on site would be increased (except for the existing closed depressions such as Frog Pond) over existing conditions, thereby providing for greater amphibian, invertebrate and wetland plant habitats.

Increases in plant species diversity would result in an increase in nesting and food sources for a variety of wildlife types (see **Section 3.4** below), thereby increasing overall biotic support on the site. In addition, the site drainage is being designed in such a manner that dissolved organics and nutrients would be transported off-site into the lake to the benefit of near-shore aquatic species.

Creation of the lagoon would provide deep-water, aquatic-bed, emergent-marsh and shrub habitat connected directly to the waters of Lake Washington. In addition, the 10,950 linear feet of new shoreline for the lagoon would be designed with a heterogeneous shoreline; parts would be vegetated marsh, parts would have deep margins with overhanging woody riparian vegetation, and parts would have unvegetated sloping gravelly beaches. The diversity of shoreline treatments along the convoluted margins of the lagoon would provide a broad range of niches for aquatic and terrestrial species. The lagoon is designed to have screening from the east, south, and west by forest cover that would eventually include a significant coniferous component to provide critical shading to assure water temperatures do not preclude use by targeted native species of fish.

3.3.6 Significant Unavoidable Adverse Impacts

Implementation of the proposed action would cause the unavoidable loss or conversion of some existing plant communities on the project site. Creation of the sports fields would result in the filling and elimination of 9.3 acres of existing wet meadow wetland habitat in the western portion of the project site. Although this habitat type is limited in the functions that it provides, this condition nevertheless represents a loss of a specific habitat type in that location. Nearly 4.5 acres of upland meadow and wetland meadow mosaic habitat present in the location of the proposed lagoon would be lost through excavation and replacement with lagoon habitat. Some stands of upland black cottonwood would be affected by relocating a section of Beach Drive, and by grading to create the lagoon. Over 4 acres of upland meadow, thickets of non-native and native saplings and shrubs would be lost from the interior of the existing habitat zone to create permanent open-water wetland mosaics along the proposed access road in both the proposed action and lesser-capacity alternative. Approximately 5 acres of wet meadow/upland meadow mosaic would be converted to marshy pool habitat on the western margins of the project area. While site-specific losses of existing habitat would occur with the project, the net effect of the project would be to increase the area of functioning wetland and upland vegetative communities on the project site. Therefore, the impacts of habitat conversion would be mitigated, and there would not be significant adverse unavoidable direct impacts to existing plant communities.

The proposed action would not likely create water quantity or quality changes that would result in significant adverse indirect impacts to wetlands. Development of 15 athletic fields, including 11 with night lighting, and the wetland/habitat complex would result in an unavoidable increase in human use and use intensity on the project site. With respect to plant communities in the wetland/habitat complex, however, probable significant adverse impacts associated with this increase in use have not been identified.

3.4 ANIMALS AND FISH

3.4.1 Wildlife

3.4.1.1 Affected Environment

Sand Point Magnuson Park currently provides diverse wildlife habitats based on the vegetation community types present. Vegetative communities on the site are identified as lake shoreline, savannah, meadow, mowed grasslands, non-native shrub thickets (primarily blackberry), non-native trees, deciduous forest, and four wetland types, including forested, shrub, wet meadow, and seasonal marsh. Within the proposed project area, the most common existing habitat type is wet meadow complex and savannah. This cover type is a mosaic of unmowed upland meadow and wet meadow interspersed with native and introduced trees, shrubs and blackberry thickets.

Outside the immediate project area are additional habitat types that are used by wildlife species that also use habitats within the proposed project area. For example, the NOAA property to the north contains upland meadow and non-native trees (primarily Lombardy poplars) that provide prey production and perch sites for owls and other raptors. The complex of former naval station buildings to the northwest and west of the project site has structures in which barn owls are known to breed. Promontory Point to the south of the project site has a mixed native forest much larger than any of the small deciduous forest patches contained within the project area, and has been a focus of recent vegetation restoration work. Habitats within the park are quite variable, however most of those within the project site are reduced in habitat value because they support simple vegetation communities, they lack structural diversity and complexity, and the vegetation community types are relatively young (they are all early successional stages of recovery, having established subsequent to removal of the airfield).

Bird use in the park and within the proposed project area has been documented by the Seattle Audubon Society (SAS), which conducted monthly bird surveys from December 1995 to the present (unpublished data). The SAS also commissioned a wildlife habitat study (Adolfson Associates 1998). Local birders carefully watch bird use of the site (e.g., Jan Bragg, and Herb Curl, (personal communications, November 9, 2001). Seattle Audubon Society volunteers and local bird experts keep an updated list of birds observed in the park (Bragg et al. 1997). Limited data is available on documented use by amphibian and mammal species. Use was characterized based on information from the Washington Department of Fish and Wildlife (WDFW), local experts (Herb Curl, personal communication), and anticipated use by species ordinarily associated with the habitats present.

Birds

At least 156 species of birds have been observed within Sand Point Magnuson Park (See **Appendix C**, Exhibit C8; SAS, unpublished data; Bragg, 1997). Approximately 28 species of birds are year-round residents of the park, including waterfowl such as Canada geese and mallards; passerines such as robins and wrens; and five non-native species: rock dove, European starling, house sparrow, California quail, and ring-necked pheasant. With the exception of the California quail, the introduced species of birds are all habitat generalists able to adapt to a wide range of urban and suburban habitat types, which the park well represents in its existing conditions.

SAS volunteers observed 27 bird species breeding within the park and the adjacent NOAA property. The abundant meadows and shrub thickets provide opportunities for ground nesters such as the pheasant and Savannah sparrow. Ring-necked pheasants remain uncommon, and were not observed by SAS birders during monthly surveys in 2000 (SAS, unpublished data). Barn owls nested in a building on the Sand Point property to the northwest of the proposed project area in 2001 (Herb Curl, personal communication) and Bullock's orioles have been observed nesting in Lombardy poplars and native black cottonwoods throughout the park and on the NOAA property (Jan Bragg, personal communication, 2001). Other breeding birds common in the park include mallard and killdeer, which nest on the ground; bushtit, winter wren and Bewick's wren, which nest in shrubs or trees; and marsh wrens and red-winged blackbirds, which breed in emergent wetlands. Although 27 species breed in the Park, the presence of brown-headed cowbirds has a deleterious effect on breeding success. Passerine birds breeding in small forest patches (such as those found in the park) are generally more susceptible to nest failure due to cowbird parasitism than birds breeding in large, contiguous forests (Donovan et al. 1995).

A larger number of birds use the park habitats seasonally. Forty-eight bird species stop at the park during spring and/or fall migration (see Exhibit C8 in **Appendix C**). Common migrants include orange-crowned and yellow-rumped warblers. Golden crowned sparrows, cedar waxwings, ring-billed gulls, and common snipe are all winter residents. Twenty-seven species breed in the near vicinity, but haven't been documented as breeding in the park; they include the great blue heron, common tern, Vaux's swift, and violet-green swallows. Barn swallows, cliff swallows, common yellowthroat and American goldfinch all are documented to breed in the Park. The 76 species observed in the winter in the park include many species of waterfowl observed near the Lake Washington shoreline. Common winter visitors, all seen from the shoreline of Lake Washington, include the pied-billed grebe, bufflehead, American coot, double-crested cormorant, common merganser, and mew gull. Passerines such as the ruby-crowned kinglet are also common winter visitors, often seen foraging in deciduous trees and shrubs. Most of the wintering birds are seen uncommonly or rarely.

Mammals

Mammal use of the project site and surrounding area was investigated through on-site observations by Sheldon & Associates staff and previously by SAS volunteers. Many mammals that may be present on the site were not directly observed, and their expected presence was based on interpretation of common habitat associations (Larrison 1976; Adolfson Associates 1998) and the history of the site.

Approximately 33 species of mammals are expected to use the project site and surrounding habitats at NOAA and Promontory Point (**Table 3.4-1**). Coyotes were removed from the park by WDFW in about 1996 in response to neighbors' complaints about missing house cats (Herb Curl, personal communication). Coyotes are highly adaptable species and it would not be surprising if they returned. Feral house cats and rabbits or cottontails have not been seen in the park regularly for a number of years, and may have been reduced in numbers by the coyotes. Small mammals such as voles and mice are very common in the meadow and savannah habitats, as evidenced by their trails, scat and tunnel openings and as reported by others (Herb Curl, personal communication). They provide forage for nesting and migrating raptors, including red-tailed hawks, barn owls, and the occasional snowy owl. Bats are likely to inhabit the park, although they have not been directly observed. Prime forage habitats for bats include lights around buildings at Sand Point (Rydell 1992; Rydell and Racey 1995; Reihle et al. 1998) and areas near water, where insects congregate.

Table 3.4-1
Mammals Expected to Use Sand Point Magnuson Park

Species	Scientific name	Forest	Shrub	Meadow/ Savannah	Shoreline
Big brown bat	*Eptesicus fuscus*	L	L	L	L
Hoary bat	*Lasiurus cinereus*	L		L	L
Yuma myotis	*Myotos yumanensis*	X			X
River Otter	*Lontra canadensis*				P
Beaver	*Castor canadensis*				L
Muskrat	*Ondatra zibethica*				L
Townsend's vole	*Microtus townsendii*		P	P	P
House mouse (I)	*Mus musculus*		L	L	
Little brown bat	*Myotis lucifugus*	L	L	L	L
Deer mouse	*Peromyscus maniculatus*	L	L	L	L
Northwestern deer mouse	*Peromyscus oreas*	X			
Norway rat (I)	*Rattus norvegicus*	P	P	P	
Black rat (I)	*Rattus rattus*	L	L	L	L
Shrew-mole	*Neurotrichus gibbsii*		X	X	X
Coast mole	*Scapanus orarius*	X	X	X	X
Townsend's mole	*Scapanus townsendii*	L	L	L	L
Masked shrew	*Sorex cinereus*	X	X		X
Dusky shrew	*Sorex obscurus*	X	X	X	X
Trowbridge's shrew	*Sorex trowbridgii*	X			X
Vagrant shrew	*Sorex vagrans*		X	X	X
Townsend's chipmunk	*Eutamias townsendii*	X	X	X	X
Eastern gray squirrel (I)	*Sciurus carolinensis*	L	L	L	L
Douglas squirrel	*Tamiasciurus douglasii*	X			
Mountain beaver	*Aplodontia rufa rufa*	X			X
Rabbit (I)	*Lepus sp.*	X	X	X	
European rabbit (I)	*Oryctolagus cuniculus*			X	X
Eastern cottontail (I)	*Sylvilagus floridanus*		X	X	X
Opossum (I)	*Dedelphis virginiana*	L	L	L	L
Striped skunk	*Mephitis mephitis*	X	X		X
Raccoon	*Procyon lotor*	L	L	L	L
House cat (I)	*Felis catus*	X	X	X	
Coyote	*Canis latrans*	X	X	X	X
Red fox	*Vulpes vulpes*	X	X	X	X

Legend:
L likely to occur based on habitat use, site history
X expected based on habitat use, but unlikely to occur due to site history
P expected based on personal communication (Herb Curl, 11/10/01; Helen Ross, SAS, 11/9/01)
I introduced, non-native species

Introduced mammal species comprise approximately 25 percent of the mammal species expected to use the park (**Table 3.4-1**). Habitat conditions are suitable for the Norway rat, opossum, house mouse, and eastern gray squirrel, among others. House cats and off-leash dogs from adjacent residential areas and park users likely cause disturbance to native and introduced mammals at the park. Small mammals such as mice and voles are likely to be impacted most often, although their rapid reproductive rates may allow them to persist despite frequent disturbance. Aquatic species such as the beaver, muskrat, and river otter are only occasional visitors to the shoreline, as the park does not provide enough forage habitat for them. Most forest-dwelling mammals are probably absent from the park because of the small, isolated and disturbed nature of the existing forest cover in the park. Mountain beaver and Douglas squirrel are very sensitive to human presence; if present in the park, they are probably only found in the forests of Promontory Point.

Most of the terrestrial habitat in the western portion of the project site (in the area proposed for sports field development) would be for small prey species such as voles and mice. Species needing more diverse habitat structure, such as that found in the woodland of Promontory Point, would not be found in the wet meadow complex that comprises the majority of this part of the project area.

Amphibians and Reptiles

Existing amphibian and reptile use of the project site was established by direct observation and through interpretation of expected habitat-species associations, (Brown et al. 1995; Corkran and Thoms 1996) site history and land use. Based on these methods, as many as 8 species of amphibians and 8 species of reptiles may occur in the project area and adjacent habitats (**Table 3.4-2**). However, the history of disturbance at the park and the relative isolation of the park from native forest and wetland habitats make the presence of many of these species unlikely. Domestic animals disturb and hunt reptiles and amphibians, causing population declines and local extinctions (Barratt 1997). Lake Washington does not provide adequate breeding habitat for pond-breeding amphibians such as bullfrog, Pacific treefrog, Northwestern salamander, and red-legged frog, but it does provide a corridor along which dispersing amphibians and reptiles may reach the park. Habitat for amphibians and turtles on the shoreline is extremely limited, but turtles from other areas in Lake Washington may utilize the park occasionally, and likely inhabited the park historically.

Garter snakes and lizards are expected to inhabit the site, particularly around abandoned buildings and debris piles that provide cover, forage, and basking areas. Land use disturbance and domestic cats may have reduced or eliminated these populations. Amphibian use of the site is limited by the shallow, ephemeral nature of the wetlands and lack of suitable upland forest habitat for winter and summer hiding and foraging. Pacific treefrogs are easily heard during spring breeding season around a small, seasonally flooded wetland known as "Frog Pond." Approximately 2 years ago a chain-link fence was constructed around this wetland to keep dogs and human intruders from disturbing the breeding treefrogs. The treefrogs can also be heard calling occasionally during fall and winter from shrub thickets, meadow, and savannah habitats. The long-toed salamander may also be present on the site, as it breeds in shallow wetlands and requires a very small home range and little forest cover. Terrestrial salamanders such as the Ensatina and western red-backed salamander may be present in the forest area at Promontory Point; their small home range allows them to persist in small forest fragments, where they can be found living in down logs and small mammal burrows.

Table 3.4-2
Amphibians and Reptiles Expected and Observed under Existing Conditions

Species	Scientific Name	Occurrence
Bullfrog (I)	*Rana catesbieana*	X
Ensatina	*Ensatina eschscholtzii*	X
Long-toed salamander	*Ambystoma macrodactylum*	L
Red-legged frog	*Rana aurora*	X
Northwestern salamander	*Ambystoma gracile*	X
Pacific treefrog	*Pseudacris regilla*	O
Rough-skinned newt	*Taricha granulosa*	X
Western red-backed salamander	*Plethodon vehiculum*	X
Common garter snake	*Thamnophis sirtalis*	X
Northwestern garter snake	*Thamnophis ordinoides*	X
Western terrestrial garter snake	*Thamnophis elegans*	X
Rubber boa	*Charina bottae*	X
Northern alligator lizard	*Elgaria coerulea*	X
Western fence lizard	*Sceloporus occidentalis*	X
Painted turtle	*Chrysemys picta*	L
Red-eared slider (I)	*Trachemys scripta*	L

Legend:
L likely to occur based on habitat use, site history
X expected based on habitat use, but unlikely to occur due to site history
O observed
I introduced, non-native species

3.4.1.2 Wildlife Impacts of the Proposed Action

Wildlife Habitat/General Impacts

The proposed action involves the development of a large sports field complex and an extensive wetland/habitat complex, plus associated drainage and circulation facilities. These project components could create short-term impacts to wildlife during the construction period for the project, and long-term impacts through displacement or conversion of wildlife habitat and/or disturbance of species using the post-construction habitat. The primary purpose for a major component of the project, the wetland/habitat complex, is to provide a significant increase in the functions of the upland and wetland habitats found on the site.

Construction Impacts

Construction activity on the project site would occur over a span of approximately 10 years or more. Clearing, grading and other construction activities would disturb most of the acreage within the project site at one time or another during that period. These activities would result in the temporary elimination

of existing vegetative cover and the wildlife habitat values that it provides. In addition, noise, dust, fumes, human presence and other aspects of construction projects would create temporary disturbance of wildlife species using the site. While construction activity would be somewhat localized within the site at any given time, the active construction sites and adjacent areas would have little or no habitat value for the duration of the activity at each site. While the total duration of the construction period would be approximately 10 years or more, the project phasing approach would result in site-specific impacts of more limited duration, and construction impacts would not extend over the entire site in each phase. The project plan provides for the retention of the physically complex upland and wetland habitats existing on the site (such as "Frog Pond," emergent marsh wetlands and upland and wetland forest stands), although species use of these habitats might be reduced during active construction in nearby locations.

Long-Term Habitat Conversion

On a long-term basis, the proposed action would convert some existing wildlife habitat to developed park uses, leave some habitat essentially unchanged, and enhance or convert other areas to improve their habitat values. These types of actions would generally result from changes to the existing vegetative cover, which were previously discussed in detail in **Section 3.3.2.2**. In summary, the most complex of the existing upland forest and wetland habitats on the site would be retained under the proposed action, while overall wildlife habitat value for the entire project site would be increased through the development of a 65-acre wetland/habitat complex (representing an increase of approximately 10 acres over the existing habitat that is roughly comparable) that would provide greater diversity and quality of habitat compared to existing conditions. Site-specific examples of habitat conversion are discussed below, while the effects of expected habitat changes on birds, mammals, and amphibians and reptiles are addressed in subsequent discussions.

The proposed action includes construction of new artificial-turf sports fields, parking lots, pedestrian ways, service facilities and landscaped areas in the western portion of the project site. Much of this area is already in developed use, has been previously disturbed, or has relatively low function for wildlife habitat. A portion of this area includes wet meadow and some scrub wetland habitats, which would be displaced by intensive park uses.

Three other small areas of existing wetland habitat would be converted to other uses for the proposed action. An existing emergent wetland located immediately north of NE 65th Street and west of Building 193 would be eliminated by parking lot and drainage feature development. Some additional wet meadow habitat, which is a mosaic of wet and upland meadow, would be eliminated along the eastern margins of the proposed sports fields. The northeast corner of the proposed field complex would also eliminate a portion of the shrub/emergent habitat that is present in the swale that traverses the site from the north to the southeast.

Balanced against these habitat losses would be a positive change resulting from the increase in acreage and diversity of wetland habitat and upland forest surrounding the wetlands. Several types of new wetland habitats would be created on the project site, including seasonally-flooded, emergent marshy pools; shallow, seasonally-flooded mudflat wetlands; ponds with deep permanent open water and vegetated margins; permanently-flooded groundwater wetlands; and a permanently-flooded lagoon open to Lake Washington with convoluted margins, emergent vegetation and overhanging vegetation. Under

the proposal all of the wetland habitats would be buffered by upland forest and shrub habitats and would be linked across the landscape from the lakeshore to the existing upland forest on Promontory Point.

Human Disturbance Effects

Common types of indirect impacts of development actions on wildlife or wildlife habitat generally stem from one or more forms of human disturbance. Two aspects of the proposed action are relevant for assessing the potential for human disturbance effects on wildlife: (1) an increase in overall human use of the project site in response to increased capacity and expanded opportunities for park activities; and (2) some proposed shifts in human circulation patterns within the project site that could relate to disturbance effects. (Issues associated with potential effects on wildlife from artificial lighting, which can also be considered a form of human disturbance, are discussed subsequently under a separate heading.)

The number of recreational visitors to the project site and the total annual hours of on-site recreational use would increase dramatically with the proposed action, primarily in conjunction with the major capacity expansion represented by the sports field complex. As noted previously in **Section 3.3.2.3**, future sports field use would likely be several times larger than the current numbers. However, this large relative increase in sports field capacity and expected use would not automatically translate into large numbers of those visitors entering the wetland/habitat complex. Sports field users on site for evening games under the lights would be unlikely to visit the wetland/habitat complex, which would not be lighted and would be more difficult to negotiate. In addition, unlike other types of park visitors, sports field users would predominantly be coming to the site for late-afternoon and evening game or practice activities on a specific schedule, and would have more constraints on their time both before and after the scheduled event. Overall, sports field users would likely have a relatively small propensity (compared to other types of park visitors) to visit the wetland/habitat complex in conjunction with visits to the sports field complex.

Completion of the proposed project would likely generate increased use specifically oriented to the wetland/habitat complex. This component of the project would represent a large increase in available opportunities for passive-appreciative recreational activities such as wildlife observation, nature interpretation, environmental education, and simply walking or hiking in natural settings. These opportunities would increase the attraction of Sand Point Magnuson Park for a large segment of the recreational public that participates in these activities, and would prompt many people to come to the park specifically to visit the wetland/habitat complex, or to visit the wetland/habitat complex as a secondary activity in conjunction with use of the trails, beach area, boat launch or other resources in the park. A primary objective of the proposed project is to provide a resource base for formal environmental education programs centered on the wetland/habitat complex; implementation of these programs would generate another substantial visitor stream to the wetland/habitat complex. Considering all pertinent aspects of user, trip and resource characteristics, nature-oriented recreational visitors and environmental education participants would likely account for the largest share of future users of the wetland/habitat complex. Casual walkers would also likely generate a sizable share of the recreational use within the wetland/habitat complex.

To some extent, the potential for wetland/habitat complex visitors to disturb wildlife would depend on their behavior while in this area of the park. Project design elements and park management would actively and passively encourage good stewardship by visitors. Trails and viewing sites would provide visitors with ample opportunities to experience the wetland/habitat complex without venturing off-trail

into the interior of the complex. Informational handouts and signage would encourage visitors to remain in approved locations. Park users currently have full access to the existing habitat areas within the park, and make full use of an informal trail network that extends to all areas of the park. The trail network in the proposed action has been designed specifically to avoid access to the interior habitat zones, and fencing in strategic locations would block off-trail access to more sensitive habitats. Park management staff, citizen volunteers and organized user groups would, to varying degrees, help to monitor user behavior and reinforce communication about proper use and care of the resource. On balance, there is reason to believe that the vast majority of visitors to the wetland/habitat complex would behave responsibly, which would help to minimize or avoid adverse human disturbance impacts on wildlife using that complex.

Some wildlife species are relatively sensitive to the presence of humans. These species do not use the project site at present, and they would not be expected to use the proposed wetland/habitat complex because of the likely presence of considerable numbers of people.

Two aspects of the proposed action would cause shifts in human circulation patterns within the project site that could result in wildlife disturbance effects. Development and operation of the proposed sports field complex would cause some changes in the daily patterns of the evidence of human use within the habitat areas. The most noticeable change from existing conditions would likely be to extend artificial lighting into areas of the park where it is not now evident; this effect is discussed subsequently under a separate heading. A second change would be to increase the daily hours during which sports field noise would be audible within the adjacent habitat areas. **Section 3.6** of the EIS provides a detailed assessment of the existing sound environment for the project site and the expected sound levels resulting from operation of the proposed fields.

One key physical aspect of the proposed action would serve to eliminate a component of human disturbance effects that presently exists. The interior parking lot and tennis courts and the associated access road through the internal meadow/savannah area would be removed and replaced with native wetland vegetation. This feature of the proposed action would significantly reduce the degree of human access to the interior of the project site. In addition, the proposal would result in the removal of existing formal and informal trails accessing the interior portions of the site. Removing these existing access routes would allow for the establishment of a larger, more contiguous and diverse habitat complex area with a sizable core area free from human intrusion.

Effects of Artificial Lighting

The proposed action includes the installation of artificial lighting systems at the 11 sports fields with synthetic turf (Fields 5 through 15). Lighting system physical characteristics are described in detail in **Section 2.2.9**, their operation is summarized in **Section 2.2.13**, and most aspects of potential light and glare impacts are addressed in **Section 3.9**. The baseball/softball field lights could be used up to about 7 hours per day and about 600 hours each per year, while the soccer/rugby field lights are expected to be in use up to approximately 1,000 hours per year. The lighted fields closest to the wetland/habitat complex (Fields 6, 9, 10, 13 and 15) would use full-cutoff technology, which minimizes glare and sky glow that escapes from the fixtures and the illuminated area, but does allow more spill light. Some unintended illumination would extend beyond the playing field area toward the adjacent wetland/habitat complex. Spill light with an illuminance level of 1 foot-candle would extend for a lateral distance of approximately

135 feet beyond the fencelines of these fields, while the illuminance level would decline to 0.2 foot-candle at a distance of approximately 205 feet. (For comparison, the design illuminance levels on the playing field surfaces range from 20 to 30 foot-candles). In most locations, this 205-foot zone would overlap developed features such as the cross-country trail, the habitat area restroom and education annex, the basketball courts and park/lawn planting areas. To the east of Field 9, however, the 0.2-foot-candle level extends into the westernmost tier of the proposed marsh ponds at the edge of the wetland/habitat complex. Consequently, the sports field lighting systems would produce a dim level of artificial light for a few hours at a time on a regular basis in a small band of the proposed wetland area.

The Draft EIS presented a summary of research conclusions about the effects of artificial lighting on wildlife. Many review comments on the Draft EIS expressed concern over effects of the proposed sports field lighting on the wetland/habitat complex, including comments that specifically maintained there could be adverse effects on various types of wildlife in the complex. In response to these comments, the Department of Parks and Recreation directed the EIS preparers to investigate this issue in additional detail. The following material addresses the coverage and applicability of available research on this issue in general terms, describes how the research evidence might be related to the proposed project based on lighting characteristics, and discusses potential implications for various groups of wildlife species.

Research Coverage and Applicability

Very little scientific research exists on the direct effects of sports field lighting on wildlife populations. The literature review conducted for the Final EIS identified no research specifically on the effects of tall, shielded sports field lights on wildlife. The scientific literature that was found assessed impacts of street lights, lights associated with towers and large buildings, and lights associated with tennis courts on wildlife. Extensive querying of experts and the scientific literature failed to find any studies of effects of sports field lights on wildlife. This distinction is very important, because it prevents direct application of the research results based on other types of lighting systems to sports field lights. Street lights are typically illuminated all night long, while the proposed sports field lights would only be operated for several hours at a time. Lights on towers and tall buildings can have consequences for migrating flocks of birds that would not necessarily apply to sports field lights with much lower mounting heights. Lights on tennis courts are often not shielded, unlike the proposed sports field lights, and would have a different light dispersal pattern.

There is evidence that some sources of artificial lights could have negative impacts on most guilds of animals that could use the wetland/habitat complex at Sand Point Magnuson Park. Extensive summaries of the effects of artificial lighting resulted from a recent conference in California (Harder 2002; Longcore and Rich 2001; Urban Wildlands Group and UCLA Institute of the Environment 2002), where presentations covered research showing that artificial lights have had adverse effects on a wide range of guilds including mammals, amphibians, reptiles, fish and invertebrates. Because this research focused on specific types of artificial lighting such as street lights, however, the applicability of the conclusions to the proposed sports field lights is uncertain and subject to interpretation.

Lighting Characteristics

The perception and potential response of wildlife to artificial lighting appears to depend on a number of variables, including the height and intensity of the light fixture, the type of bulb used and the wavelength

of the light emitted. Streetlights, for example, have a typical maximum light level (at the surface directly under the fixture) of approximately 5 foot-candles, and floodlights on existing Sand Point buildings typically produce up to 3 foot-candles. With exceptions such as high-mast freeway lighting, the lighting levels from these fixtures typically diminish rather rapidly with lateral distance away from the fixture. The lighting level from the proposed sports field lights would decline to 1 foot-candle at a horizontal distance of 135 feet from the light source, and 0.2 foot-candle at a distance of about 205 feet. By comparison, the approximate lighting level for full moonlight is 0.02 foot-candle. Consequently, the small portion of the wetland/habitat complex that would receive spill light from the nearest sports fields would experience (during times when the lights were on) artificially-elevated lighting levels from the project that would be brighter than moonlight by a factor of 10 or more, but much less bright than areas close to nearby floodlights or streetlights.

The available research reports contradictory conclusions regarding whether and how artificial lights and specific lighting levels may affect natural environments. Some research has found that light in excess of and even below the level of full moonlight may alter behavior and the circadian rhythms of wildlife and plants (Health Council of the Netherlands 2000). Conversely, other studies have found that under laboratory conditions it takes very bright light to alter the biological rhythms of animals (Health Council of the Netherlands 2000). Consequently, it is not possible to apply the research results to identify a specific lighting level that corresponds to a demonstrated response by wildlife. Moreover, it is quite possible that a given species might respond to a given lighting level, but that response might not translate into a measurable effect on the health or persistence of the species.

Some of the available research indicates that the type of lighting fixture also appears to influence the potential effects of the light. Research on the effects of light of different wavelengths on wildlife has primarily been done in a laboratory setting rather than in the field (Wise, pers. comm.). Frogs are sensitive to lights, and most amphibians are attracted to blue light (Wise, pers. comm.). Many insects are more attracted to blue light than yellow light (Eisenbeis 2002; Frank 2002). A study in Germany showed that high-pressure sodium lamps, which emit yellow light, attracted 60 percent fewer insects than mercury vapor lamps, which emit blue-green light (Eisenbeis 2002). High-pressure sodium bulbs put out light in the yellow and red portions of the spectrum, which appears to be very attractive to migrating birds (Gauthreaux, Jr. and Belser 2002). Yellow lights also disrupt the homing ability of Eastern newts, causing them to become disoriented (Wise, pers. comm.).

Overall, the research implications relating to the light spectrum and the type of fixture are inconclusive. As noted, bright lights in the white/blue end of the spectrum may affect some amphibians and invertebrates, whereas the "warmer" sodium lights, with light in the yellow/red end of the spectrum, may attract migrating birds and perhaps some amphibians. In addition, this body of research to date has addressed the basic responses (attraction or avoidance) of wildlife to various types of light, but has apparently not extended that response information to conclusions about species behavior in the field and consequences for specific populations.

Luminaires proposed for use on the sports fields are 1000-watt metal-halide bulbs. These bulbs produce a bright, focused, white light in the blue and green portions of the light spectrum. High-pressure sodium lights produce more diffused light in the yellow and red portions of the spectrum, and are often used for streetlights. Low-pressure sodium lights do not produce bright enough light for sports field use

(Armstrong, pers. comm.). Some lighting engineers use a combination of metal-halide and high-pressure sodium lights, however, to produce a more natural, full spectrum of light.

Wildlife Behavior Responses

Some animals have been shown to alter their behavior during moonlit nights and in brightly lit areas. For example, bright lights have caused nocturnal amphibians and salamanders to stop foraging and reproductive activities for hours after the lights were turned off (Harder 2002). Other animals will avoid feeding in lighted areas to avoid predation (Longcore and Rich 2001; Harder 2002). Some predators will extend feeding into the night under artificial light, increasing predation risk to prey species (Longcore and Rich 2001).

Crepuscular animals (those that time their activity according to when dawn and dusk occur) inhabiting the site might experience a shortened night due to the proposed sports field lights (Wise, pers. comm.). For some frogs, salamanders, small mammals, birds, and reptiles, this could result in less time available for feeding and other activities. Without any screening such impacts could extend several hundred meters from the light source (Health Council of the Netherlands 2000); research does not identify how or if wildlife behavior might change if screening and shielding are used, or the specific type or configuration of lights associated with this conclusion.

There is some research on the effects of artificial light sources, such as street lamps and lights associated with tall structures, on birds. Studies have shown many species of birds are affected by artificial lights (for extensive reviews, see Trapp 1998 and Urban Wildlands Group 2001). In one study, birds were found to avoid nesting within several hundred meters of areas lighted by street lamps (Molenaar et al. 2000). However, no research was found on bird nesting impacts from sports field lights, which, unlike street lights, are not left on all night. Bright light beams, such as spotlights, were found to cause migrating birds to slow down and fly higher (Bruderer et al. 1999). Again, however, the proposed sports field lights would be focused into downward cones and/or would use full-cutoff or shielded fixtures to minimize glare and spill light; therefore, the research based on bright light beams may not be directly applicable. Birds that migrate nocturnally can be strongly attracted to lights (Verheijen, 1958, 1985) and, once inside a beam of light, become trapped because they are reluctant to fly out into the dark (Graber 1968). The most susceptible species include those that fly relatively low, such as warblers, thrushes, vireos, and other songbirds, raptors, and shorebirds (Cooper and Ritchie 1995).

Sports field and parking lot lights are not likely to have the same impact as TV towers or tall buildings, which have been shown to have adverse effect on migrating birds. Many cases of bird deaths due to collisions with lighted buildings and TV towers (up to 700 feet tall) have been documented (Avery 1980, Caldwell and Wallace 1966, Dinsmore et al. 1987, Grunbaum et al. 1998). Because little research has been done on the effects of light sources from relatively short shielded towers, such as those proposed for the sports fields, it is not possible to conclude the degree of potential adverse effect from the proposed lighting plan based on the research.

Many species of birds have been observed using artificial light to extend their feeding period into the night, including hummingbird, robin, kestrel, bittern, Scissor-tailed flycatcher (Imber 1975; Reed 1978; Goertz et. al. 1980; Frey 1993; Tryjanowski and Lorek 1998; Negro et al. 2000), and great blue heron

(personal observation, Greenlake, Seattle, 2001). Extended feeding patterns may cause disruption to the biological day-night cycles of birds and greater feeding pressure on prey species.

Summary

As indicated above, the available research concerning the potential effects of artificial lighting on wildlife is inconclusive, and the results cannot be directly applied to the proposed sports field lighting systems. The documented studies indicating potential lighting effects on various wildlife guilds have focused on different types of artificial lighting systems, different lighting spectrums, different heights of lighting sources, and/or on lighting that has much longer daily duration than the proposed sports field lights. The research also includes some results with contradictory implications for the proposed project.

Because the existing research is inconclusive, it is not possible to predict *whether* the proposed sports field lights would trigger a response in local wildlife, and whether that response would result in adverse consequences. Regardless of whether such effects would occur, however, the physical characteristics of the project and the site can be assessed to support valid observations about the context and intensity of such impacts if they were to occur. Specifically, pertinent observations include:

1. *If* spill light from the sports field lighting systems did result in adverse effects for wildlife, the *extent* of that impact would be limited to a band approximately 200 to 300 feet wide along the western perimeter of the wetland/habitat complex. At distances much beyond that range, spill light from the sports fields would not be measurable. In addition, upland forest plantings are proposed for much of the perimeter area around the sports fields, including around most of the east and south sides of Fields 6 and 9, the southeastern corner of Field 10, the eastern side of Field 13 and the northern side of Field 15. These plantings are proposed to create a buffer for the habitat areas and would, over time, serve to screen or block some of the spill light that would otherwise escape to the wetland/habitat complex.
2. The *magnitude* of the lighting level within the western perimeter of the wetland/habitat complex would be low, exceeding 1 foot-candle only within a very limited area and generally ranging from 1 foot-candle to 0.2 foot-candle or less.
3. The *duration* of the artificial light presence within the perimeter habitat area would be limited to late-afternoon and evening hours (depending on the season) on a daily basis, but would not be continuous throughout all hours that are normally dark. Artificial light would be present within the subject area throughout the week and in all seasons of the year.

As described in the SEPA rules, evaluation of the significance of an impact involves consideration of the context and intensity of the impact (WAC 197-11-794). The rules note that the context may vary with the physical setting, that intensity depends on the magnitude and duration of an impact, and that the severity of an impact should be weighed along with the likelihood of its occurrence; an impact may be significant if its chance of occurrence is not great, but the resulting environmental impact would be severe if it occurred. In the present case, the observations about impact extent, magnitude and duration all point to a potential impact (adverse effects of the sports field lighting systems on wildlife using the wetland/habitat complex) of relatively limited intensity. With respect to context, a pertinent distinction is that the resource that might be affected by the proposed lighting systems is not now in existence; the proposed

action is intended to provide a significant increase in the functions of the habitats found on the site. Therefore, if an adverse lighting impact were to occur, that impact would represent a marginally reduced increase in habitat function on the site, rather than a net loss of existing habitat function. Finally, while the likelihood of this impact is not known, it does not appear that the impact would be severe if it did occur.

The impact context can also be evaluated in more site-specific detail. In the proposed action, the Frog Pond wetland would be the closest breeding amphibian habitat to the field lighting systems, but this pond would lie outside the zone of spill light (this feature would be located more than 600 feet from the nearest lighted field) and the proposed lighting would not be detectable in this amphibian habitat. More generally, the area of the proposed wetland/habitat complex that would be subjected to light spill consists of the outer edge of the marshy flow-through pools. Those marshy pools do not now exist in that setting, and the existing habitat does not provide more than low-quality meadow habitat. Therefore, the issue of creating potential adverse impacts to wildlife habitat from sports field lighting could be avoided simply by not enhancing wetland habitat within the spill lighted zone of the fields. Instead, designing that perimeter area to be forested wetland would avoid potential adverse impacts to emergent marsh in a lighted fringe zone. Given the uncertain occurrence of those potential adverse effects, as indicated from the range of research available, DPR has instead elected to maintain the full original extent of the marshy pools. In view of the concern over the potential impacts, however, the proposal includes mitigating measures to reduce or eliminate light spill into the wetland area, monitor the habitats within the lit fringe compared to those in the unlit interior habitat zone, and initiate contingency actions if adverse affects are documented (see Section 3.4.1.5, below).

Potential Impacts to Specific Wildlife Types

Birds

Overall, birds are expected to increase in number and diversity with the changes anticipated under the proposed action. It should be stressed that bird abundance and diversity at the enhanced wetlands would not be expected to immediately match those of natural wetlands, but would increase as wetland vegetation became established (Brown and Smith 1998). The reduction in extent of meadow, savannah, and blackberry thicket would likely result in reduced numbers of ground-breeding and ground-dwelling birds (including Savannah sparrow, introduced ring-necked pheasant and California quail) and birds that forage and take cover in meadows and shrub thickets. The increase in wetland and upland habitat, in both area and diversity, is expected to provide new habitat for birds not currently using the park. Waterfowl species currently only observed in Lake Washington from the shoreline would be likely to inhabit the lagoon and the permanent open-water ponds, particularly in winter. Waterfowl might also breed at the interior edges of these ponds, which is now a rare occurrence (with the exception of the Canada goose, gadwall, and mallard).

The interior shallow mud-flat wetlands, with their soft substrate, are intended to provide habitat for benthic macroinvertebrates. This would in turn provide food for migrating and wintering shorebirds, including greater and lesser yellowlegs, semi-palmated plover, marbled godwit, long-billed curlew, and willet, and Virginia rails among others. Emergent wetlands would provide additional breeding and summer habitat for red-winged blackbirds, marsh wren, and common yellowthroat; emergent wetlands might provide habitat for secretive marsh birds not currently listed as occurring at the park, including the

American bittern and sorarail. Shallow foraging habitat for wading predators such as great blue heron, green heron, and the occasional egret would be more abundant. In addition to the wetland habitats, the proposed action would also result in an increase in native shrubs and forest on the site, linking the shoreline environment with the existing forests of Promontory Point. Forest-dependent birds such as woodpeckers, jays, crow, bushtit, warblers, and flycatchers might be predicted to increase in presence over time as the woody dominated habitats matured. Therefore, the proposed action is assumed likely to provide a broader range of habitat and fill niches for a broader range of bird species than the existing conditions.

The productive seasonally-flooded wetlands are expected to increase the invertebrate and plant productivity of the park overall. Invertebrates attracted to water, such as dragonflies, damselflies, caddis flies, mayflies, and midges would attract fly-catching birds (olive-sided flycatcher, Pacific-slope flycatcher, willow flycatcher, cedar waxwing, among others) that are now largely rare to uncommon (see the table of bird species provided in **Appendix C**). Other passerine birds might also be attracted to shrubs in and around the wetlands, which would likely attract a great number of insects and spiders for forage. Wetlands also provide a barrier to human and dog access, resulting in less disturbance of birds, particularly in the interior of the wetland complex.

As noted above, lighted sports fields associated with the proposed action might disorient migrating birds. Many species of birds have been observed using artificial light to extend their feeding period into the night (Imber 1975; Reed 1978; Goertz et al. 1980; Frey 1993; Tryjanowski and Lorek 1998; Negro et al. 2000) which could have unknown consequences on the availability of prey and effects on life history patterns. Light standards can also provide perches for predatory birds when other appropriate perches are missing, and documentation even exists of osprey utilizing athletic field light standards as nest locations when no other appropriate structures were readily available. It is proposed to provide perch/snag features within the interior of the wetland habitat zone in this part of the project site as a design element to demarcate the extent of the former runways on the site.

Mammals

The proposed action and lesser-capacity alternative are expected to have reduced area of upland habitats, increased area and types of wetland habitat, and therefore an increase in the structure and diversity of habitat availability for some wildlife species. There may be a net decrease in upland habitat and therefore a decrease in upland species (such as some prey species of mice and voles). However, the proposed action and lesser-capacity alternative are both expected to result in an increase in mammal diversity on the site. Species expected to decline in abundance include the meadow vole, vagrant shrew, deer mouse, rat, rabbit, and other ground-dwelling mammals. Increased shrub cover could allow feral cats to become more abundant in the park, which could cause additional declines in meadow-dwelling small mammals.

The wetlands, with their increased structural complexity and species diversity, are expected to provide more habitat for beaver, muskrat and river otter, all present and common in the Lake Washington system. Beaver would likely take advantage of woody browse along the margins of the lagoon and interior wetland habitats, while muskrat would focus habitat use within the freshwater marshes and open permanent ponds of the interior. Nutria, an introduced aquatic mammal, could migrate to the park from the lake, potentially damaging the earthen berms separating wetlands with its large burrows. Moisture-loving shrews and moles might increase in abundance, providing additional forage for raptors and other

predators. Raccoons would likely find new amphibian and invertebrate forage at the wetlands. Insect-eating bats are expected to increase in abundance as forests grow more mature and roosting habitat improves, and as insect abundance increases with additional wetland habitat.

Assuming meadow voles and mice are currently at maximum density in the park, the reduction of meadow and savannah habitat is expected to cause these species to decline in abundance. Rats, rabbits, and other ground-dwelling animals that prefer upland meadows, and do not favor forested areas are also expected to decline. Eastern gray squirrels, Douglas squirrels, and mountain beaver, if present, are expected to increase slightly as forests mature and native trees and shrubs increase. Mammals that are not present (other than some aquatic species) are not expected to colonize the site because the park is isolated from other natural areas.

The proposed action would provide a large interior wetland/upland habitat complex with limited human access. Placement of brush piles in upland buffers and large woody debris and snags in both upland and wetland habitat would benefit many small mammals, and cavity nesting species such as raccoons. Sports field and parking lot lights associated with the proposed action can be expected to attract insects and bats from surrounding areas. Bat populations are expected to increase slightly with this new food source (Reihle 1998).

Amphibians and Reptiles

Amphibian and reptile species are expected to increase in both diversity and abundance with the proposed action and the lesser-capacity alternative. Increases would be due to the increase in wetland habitat area, wetland diversity, and increased habitat structure created by habitat succession, brush piles, and down logs. Sports fields and parking lots would replace some existing snake and lizard habitat at abandoned buildings; these species, if present, might not recover if other structural features were not provided in the immediate vicinity. It is proposed to install rock piles along the southern sides of the upland landscape berms within the habitat area, to create reptile habitat. In addition, brush piles and dead trees (standing and downed) are proposed throughout the habitat area in wetland and upland forest settings. Pond-breeding amphibians that manage to colonize the new wetlands are expected to thrive with the abundance of food, cover and breeding sites. Species not known to breed at the site, including the Northwestern salamander, Northern red-legged frog, rough-skinned newt, and long-toed salamander might colonize via the shoreline of Lake Washington. Turtles are also likely to colonize the lagoon and permanent wetlands from other sites along Lake Washington. The introduced bullfrog might be expected to colonize the project site through dispersal from the wild. If not, experience indicates that well-meaning park visitors might transplant bullfrogs to the site. Other non-native species of amphibians, fish and turtles might be brought in and released, and these could have detrimental impacts on native species.

Sports field lights associated with the proposed action might extend the daily feeding periods of wading birds in shallow wetlands adjacent to the sports fields; if so, this would result in higher predation of amphibians. Amphibians and reptiles might alter their behavior to avoid lighted areas at night to avoid being eaten by visual feeders such as wading birds (Reed 1978). They also may curtail calling activity during the early evening hours of the spring breeding season when lights are on, potentially avoiding breeding in habitat near lighted areas (Buchanan 1993).

3.4.1.3 Wildlife Impacts of the Alternatives

Lesser-Capacity Alternative

The lesser-capacity alternative has a substantially different artificial-turf field configuration than the proposed action, fewer new parking lots on the west side of the park, and fewer illuminated fields. For the lesser-capacity alternative, the existing tennis courts and associated interior road and parking lot would be retained, allowing continued access to the interior of the proposed habitat area. Proposed increases in wetland habitat type and complexity would provide greater habitat diversity than existing conditions, as even the reduced field configuration would result in increased water (relative to existing conditions) directed into the interior habitat areas. The revised configuration of the lesser-capacity alternative includes only 3 lighted fields, compared to 11 for the proposed action. Therefore, the number of expected night park visitors would be significantly reduced, as would any issues associated with the influence of artificial lighting on wildlife. The revised configuration also eliminates one Little League baseball field (Field 9), resulting in the retention of a greater area of existing wet meadow vegetation.

The creation of new seasonally-flooded wetlands even in the lesser-capacity alternative is expected to increase the diversity and abundance of wildlife using Sand Point Magnuson Park because of the high productivity of such wetlands. The seasonal inundation by water and drying ensures that minerals become oxidized each year and remain in circulation, producing a much greater quantity of plant and invertebrate biomass than uplands or permanently flooded wetlands over the same area. Permanently ponded wetlands would provide a range of habitat for invertebrates and amphibians as well that is not present in existing conditions.

The lesser-capacity alternative might not increase the abundance or diversity of wildlife species sensitive to human activity as much as the proposed action, due to the retention of the access road through the interior of the proposed wetland complex. Greater access by foot traffic into the expanded wetland, meadow and savannah habitats (because of the continued presence of the interior roadway and parking lot) would reduce the benefits for more reclusive species, relative to the proposed action. Human access to the interiors of the habitat zones would result in disturbance of resting, foraging, and breeding birds, and even potentially cause nesting failures.

No Action Alternative

Under the no action alternative, wildlife habitat at the park would change over time through implementation of the Vegetation Management Plan for Sand Point Magnuson Park (City of Seattle, 2001), and by natural succession. A key component to the plan is removal on non-native vegetation such as Himalayan blackberry and hawthorne thickets. Removal would occur in phases and thickets would, in most cases, be replaced with native shrubs. Savannah, wetland, and forest habitats would continue to mature, although no new wetland habitats would be created. Meadow area would decrease through replacement by woody shrubs and trees as the wet and dry meadow and savannah habitats progress through anticipated vegetation community succession. Shallowly-ponded wetlands such as Frog Pond would eventually succumb to succession, in time becoming dominated by woody shrubs and trees that would eliminate breeding habitats for amphibians and invertebrates. Deciduous forest would likely become a more common component of the park as existing saplings mature and existing trees reproduced. Wetlands that are currently dominated by sapling cottonwood and willow would become forested

wetlands, and the wetlands would likely dry earlier in the season due to increased rates of tree transpiration. Deciduous trees and native shrubs are expected to be larger and form denser thickets, improving their function for cover and forage for wildlife, particularly passerine birds. Forested habitat at Promontory Point would remain intact, with assumed continued efforts to control invasive species such as clematis and English ivy, and install native conifers. Expected changes in habitat and population conditions for key species groups under this scenario are summarized below.

Birds

Bird use patterns in Sand Point Magnuson Park are expected to change over the next 25 years as a result of implementation of the Vegetation Management Plan and natural succession over the next 25 years. Birds that use meadow habitats exclusively, including the Savannah sparrow, black swift, and common snipe, are expected to decline slightly in numbers due to replacement of open meadow with woody vegetation. However, the number of bird species that would benefit from the increasingly diverse, larger and denser native shrub and forest habitats is expected to offset these declines. Migrating warblers and other passerines would be expected to benefit from the additional insects, fruits and nuts provided by the mature woody vegetation. Passerine and ground-dwelling birds that use meadow habitat would diminish in presence while shrub and savannah habitat adapted species are expected to benefit from the increased cover, nesting, and forage habitat provided by larger and more mature vegetation.

Based on the recommendations of the VMP, blackberry thickets would be removed sequentially so resident and migrant passerine birds would not dramatically decline until native vegetation can become established. The phased, limited nature of the planned blackberry removal would limit the extent of the impact. Sequential removal and restoration is proposed, but it is not clear how long it would take planted native shrubs to provide similar habitat quality. The adopted VMP is clear in its directive for the timing of non-native vegetation removal to avoid prime bird breeding seasons. In addition, the VMP provides guidance on the seasonality for mowing and maintaining meadows to avoid nesting birds, and guidance as to when to mow lawn and turn areas in the spring to reduce the opportunity for ground nesting birds to use inappropriate sites for nesting.

Mammals

The increase in forest area would provide additional habitat for medium-sized mammals that may already be present, such as the Eastern gray squirrel, opossum, raccoon, and mountain beaver. This alternative would provide no additional habitat for aquatic mammals such as river otter, beaver, nutria, and muskrat other than the increase in size of willows along the shoreline. Reductions in numbers of small mammals that use meadow habitats is expected, with an increase in species in shrub thickets and forests. Species expected to decline in abundance include the meadow vole, vagrant shrew, deer mouse, rat, rabbit, and other ground-dwelling mammals. The declines are not expected to be as dramatic as with the proposed action and the lesser-capacity alternative. Increased shrub cover could allow feral cats to become more abundant in the park, which could cause additional declines in meadow-dwelling small mammals.

Amphibians and Reptiles

With natural succession and the implementation of the park's Vegetation Management Plan, terrestrial amphibian habitat is expected to improve while habitat for pond-breeding amphibians declines. As

forests matured, dead and down material would provide more winter and summer foraging and cover habitat for non-breeding and terrestrial amphibians. Specifically, terrestrial amphibians such as Ensatina and Western red-backed salamander might increase, while long-toed salamanders and Pacific treefrogs might decline due to loss of suitable breeding habitat as ponds become shaded and dry earlier in the summer. Opportunities for the introduced bullfrog to colonize the park are not expected to increase as wetlands become tree dominated over time.

Future conditions for reptiles will depend largely on the current population status (which is unknown) and minor habitat changes and impacts from domestic animals and other predators. The majority of habitat alterations would not directly impact reptiles in the proposed project area. Piling brush around the park following vegetation removal and maintenance as directed by the VMP would provide additional cover and basking areas for snakes and lizards. Habitat would not be modified significantly enough to alter habitat for turtles.

3.4.1.4 Cumulative Wildlife Impacts

Urban and agricultural development around the shores of Lake Washington, in the City of Seattle, and within the surrounding region has created long-term loss of natural vegetation and the wildlife habitat it supported, representing significant adverse cumulative impacts to wildlife habitat. Implementation of the proposed action would result in a net increase in the acreage of upland and wetland plant communities with desired natural characteristics on the project site, and a corresponding increase in the value and diversity of wildlife habitat on the site. This increase would run counter to the long-term trend of diminished wildlife habitat in the local area and the surrounding region. At a more localized scale, the proposed project would restore a substantial portion of the historical wetland and upland habitats that once existed on the Sand Point peninsula. Therefore, with respect to physical changes to functioning ecological communities and wildlife habitats, the proposed action does not have the potential for adverse cumulative impacts.

Creation of new sports fields and the establishment of formal educational uses in the wetland/habitat complex would likely increase the public awareness of the expanded habitat areas within the park and increase the numbers of park users. For some species of wildlife this increase in human presence could be a deterrent to their use of the site; however, those species would not be attracted to use the site without the proposed increase and diversification of habitat types proposed with either action alternative. Proposed changes in the existing conditions of the Off-Leash Area (along the trail and at the water access) would result in a net benefit for habitat function in immediately adjacent areas. Stabilization of the beach in the Off-Leash Area would benefit aquatic-based species south along the shoreline to the proposed lagoon. The new continuous perimeter fencing surrounding the permanent Off-Leash Area would decrease the random entrance of dogs into the habitat area by jumping over the past sagging temporary fencing. The presence of some dogs off-leash outside of the official Off-Leash Area in the habitat zones would continue in any alternative, including the no action alternative, as is the case in all parks.

Additional shoreline restoration work proposed for the North Shore Recreation Area might provide additional forage for beaver. If so, habitats within the interior of the project site could become utilized by breeding populations. Such urban re-settlement of beaver has occurred within the last 5 years at Meadowbrook Pond on Thornton Creek, from beaver moving up the creek from Lake Washington.

3.4.1.5 Wildlife Mitigation Measures

A primary purpose of the proposed project is to provide a significant increase in the functions of the upland and wetland habitats on the site. An extensive set of specific actions intended to restore former habitat, enhance existing habitat or create new habitat, and to protect the functions of those habitats in operation, is included in the proposed project. Those actions are described in detail in Chapter 2 of the EIS, primarily in **Section 2.2.5**. Some of the specific habitat-related actions included in the proposal would effectively represent mitigation for existing habitat displaced by developed park uses, while others would appropriately be considered enhancement of existing habitats. To provide a complete summary of proposed mitigation, all applicable features of the habitat design are discussed below. A subsequent discussion of potential mitigation related to concerns over the possible effects of artificial lighting is also included.

Habitat Design

For both action alternatives, it is proposed to provide physical complexity to the habitats on site through the installation of brush piles, placement of large woody debris in upland and wetland habitats, and placement of snags and perches throughout the site. Even in the no action alternative, the recently adopted Vegetation Management Plan calls for the placement of brush and large woody debris culled from the removal of invasive species such as Lombardy poplars throughout the habitat zones within the park. The VMP identifies appropriate methods of using poplar debris to form habitat elements. Within the open-water ponds and along their margins, large woody debris would be placed for haul outs for waterfowl and turtles, as surfaces for egg masses, and as a source for large organic surfaces for detritivores to inhabit.

In addition, in the proposed action and lesser-capacity alternative it is proposed to place design elements along the perimeter of the former airstrips to denote the historical presence of the landing strips. These elements would be designed to provide perch sites and nesting opportunities for small to large raptors and /or owls. Where appropriate, standing Lombardy poplars can be converted to snags by complete girdling, and careful control of stump and root sprouting. Choosing locations that are far from pedestrian and/or vehicular access would be critical. Creating chip mulch piles in some habitat locations would facilitate decomposition, fungal and bacteria development and subsequent soil health more rapidly.

The linear landscape design berms scattered along the western and northern limits of the habitat area would be constructed with large to small boulder caches and piles along their flanks to provide for reptile, mammal and amphibian habitat niches. The rock faces would provide sunning and observation perches, as well as refuge from predators.

Physically eliminating aquatic linkages between the lagoon and open-water habitats of the interior, while allowing water to flow through leaky berms into the lagoon from the wetlands, is designed as a compensation element. Export of dissolved organics into the lagoon and lake is important for linking aquatic food chains. Limiting easy access for invasive predatory fish and amphibians into the interior habitats would prolong the benefits there for native species.

Anticipating extensive herbivory on soft-stemmed and woody wetland and buffer species, and over-planting willows and cottonwoods initially to assure adequate food supply would allow beaver to freely

feed while not jeopardizing attainment of performance standards for the lagoon revegetation. Temporary fencing may have to be placed to protect herbaceous species and some woody species (especially existing older black cottonwood trees) until newly installed specimen reach sufficient size to be able to withstand annual grazing by beaver or muskrat.

Temporary, and if necessary, permanent innocuous fencing would be placed at strategic locations around the perimeter of the interior portions of the habitat zones to preclude inappropriate access. Fencing would be placed at the time of initial habitat planting and installation to assure protection of plants, exclusion of inappropriate access and protection of establishing wildlife populations. As vegetation matured, fence removal would be dependent upon use patterns of humans and wildlife populations, and observations/responses by park users. Wildlife habitat would be significantly enhanced in the park due to mitigation measures including the addition of brush piles, downed logs, and snags. Animals currently present in the park in limited numbers due to lack of habitat could be expected to increase in abundance. Wildlife that might benefit from such habitat enhancements include mice, voles, shrews, snakes, frogs, salamanders, songbirds including sparrows and wrens, and the animals that eat them, including raptors, great blue heron, and raccoons. Turning invasive woody trees such as Lombardy poplars into standing snags would provide feeding and nesting habitat for birds, including woodpeckers, chickadees, swallows, European starlings and house sparrows. Snags could also provide new perching habitat for crows, red-tailed hawks, bald eagles, and other raptors.

Monitoring of future conditions on the site would be a key component of the proposed project. A variety of monitoring activities would be conducted as a comprehensive program to track the success of the wetland/habitat complex. Specific monitoring objectives would be to determine the rate of progress of habitat development/enhancement over time, establishment success for specific habitat types, species use of the respective habitats, species diversity and numbers, and control of human disturbance factors.

Mitigation for Lighting Effects

Several options exist for mitigating potential lighting effects on wildlife habitat. Options include lighting and field configuration changes, lighting design changes to provide more screening, structural screening measures, lighting operational changes , and modifications to the planned configuration of the wetland/habitat complex. These options are discussed further below.

- Lighting and field configuration changes. Plans for the lighted sports fields could be modified to remove or reduce the amount of sports field lighting near the habitat areas. Under the proposed action the perimeters of Fields 6, 9 and 10 would be essentially adjacent (beyond a narrow buffer) to the western edge of the wetland/habitat complex, while corners of Fields 13 and 15 would be within about 100 feet of the wetland/habitat complex. Eliminating light systems from Fields 6, 9 and 10 would create an unlighted buffer between the remaining lit fields and the habitat areas of 200 to 300 feet. Eliminating lighting from fields directly adjacent to the habitat areas area would eliminate spill light into the habitat areas from those fields, but would not change light spilling from other fields located further away (Armstrong, pers. comm.), such as Fields 5 and 8. Another possible way to remove lighting from sensitive habitat areas would be to lower the light poles, as lower light poles keep the light in a smaller area (Longcore, pers. comm.; Armstrong, pers. comm.).

- Lighting design changes. Direct glare from luminaires in shielded conventional flood lights (as proposed for use on Fields 7 and 8) can be seen from a distance of two times the mounting height at the elevation of the sports fields (Armstrong, pers. comm.). Conventional shielded floodlights on the western side of these fields would cast some glare directly into the wetland area as a result of their aiming angle. Taller light poles with a narrower light beam pattern and/or a higher aiming angle could be used to reduce the amount of light escaping from these fields, although this measure would represent an aesthetic tradeoff because the taller poles would be more visible. Alternatively, use of full-cutoff fixtures on these fields would reduce the illumination and glare produced beyond the targeted lighting area of the field.

- Structural screening measures. Some of the light directed toward the habitat area could be screened using mounds and tall trees and shrubs between the habitat area and the sports fields. The benefits of such screening at the immediate edge of the habitat area would be little until the trees grew as high as the light poles and, given the assumed year-round use of the sports fields, coniferous trees would be the only effective year-round screen. Mounds and trees would shield some of the habitats from sports field lighting, making the habitats nearest the fields usable for those species less sensitive to lighting and human presence

- Lighting operational changes. The sports field lights would always be turned off when not in use, as discussed in **Section 2.2.**9. Beyond that, the proposed hours of light system operation could be reduced to minimize the number of days when artificial light would be experienced in the habitat areas nearest the sports fields. Examples of such measures include a lighting curfew set for a certain time each night (such as 10 or 11 p.m.); a limit on the number of days per season or per year that the light systems closest to the wetland/habitat complex could be operated; or a variable limit on the number of operating hours year-round, to more closely approximate natural seasonal light and dark cycles.

- Wetland/habitat reconfiguration. The zone of the wetland/habitat complex that would be within the fringe of light spill from the fields could be changed in the project design from marshy pool habitat to wetland forest. This would reduce the potential for lighting effects to amphibian and aquatic species by eliminating the proposed marshy pool habitat, and increasing the forested fringe between the sports fields and the aquatic habitats to the east would thereby increase shielding for the other aquatic habitats over time.

3.4.1.6 Significant Unavoidable Adverse Wildlife Impacts

The total habitat area within the project site would be enlarged over that which currently exists, resulting in an overall increase of 11 acres of effective habitat area. Development of sports fields within the existing habitat zones of Sand Point Magnuson Park would reduce those existing habitats by 11.4 acres, but that decrease would be more than offset by habitat expansion and improvements elsewhere within the project site. The proposed action would also provide increased habitat diversity and structural complexity, and greater duration and depth of inundation in the proposed wetlands. Therefore, the proposed action would result in positive (rather than adverse) direct impacts on the extent and quality of wildlife habitat.

The proposed action or the lesser-capacity alternative would both result in many more visitors to Sand Point Magnuson Park. The park is designed and prioritized for public use and enjoyment, and the proposed action and lesser-capacity alternative both include measures to minimize human disturbance effects on wildlife habitat. The increased human use could possibly be detrimental to species of wildlife that are sensitive to humans and/or domestic animals, however. Even in the no action alternative, one should assume that simple demographics would lead to increased human use over time as population pressures mount.

3.4.2 Fish

3.4.2.1 Affected Environment

Historic Conditions

The following information has primarily been taken from "Seattle's Aquatic Environments" by Keith Kurko (2001), which relied heavily on the "Lake Washington Subarea Chapter" by Kurt Fresh in the *Draft Reconnaissance Assessment – Habitat Factors that Contribute to the Decline of Salmonids* by the Greater Lake Washington Technical Committee (2001).

Prior to 1916, the elevation of Lake Washington was approximately 32 feet and the natural outlet was the Black River on the southern shoreline. The typical hydrology consisted of a lower lake elevation during the summer and a higher level in the winter, with a maximum change of 6.5 feet in any year. In 1916, the Lake Washington Ship Canal and Hiram M. Chittenden Locks were opened, the lake level was dropped approximately 10 feet to 22 feet in elevation, and the outlet to the Black River was blocked. The decrease in elevation exposed approximately 3.2 square miles of previously shallow-water habitat, reduced the lake's surface area by 7.0 percent and eliminated much of the lake's wetlands. The Cedar River, which formerly flowed into the Black River, was diverted to flow into the lake at the southeast corner to provide sufficient water flow through Lake Washington. Also, the hydrology of the lake was reversed such that summer water levels were approximately 2 feet higher than winter levels, with the lake acting as a reservoir for lock operation.

With increasing urbanization, the shoreline of Lake Washington has been extensively altered. The majority of the shoreline is now urban-residential with the exception of a few commercial and industrial developments. Seattle and 12 other cities now border the lake. The lake has approximately 80 miles of shoreline, including the shoreline on Mercer Island. Lakefront parks maintained by Seattle and other jurisdictions provide the only substantial exception to this highly developed shoreline condition. Seattle's city park shorelines are relatively undeveloped, although riparian vegetation is often absent.

As the watershed has developed, dredging, filling, and the construction of piers, docks, and floats have occurred in shoreline areas. Shorelines have been bulkheaded, rip-rapped, or hardened with concrete rubble or treated wood; substrates consist of mixed gravels, sands, and debris. Over 2,700 docks surround the lake, consisting mostly of single-family residential docks with a few marinas (Toft 2001). The shoreline geomorphology is almost all moderate or low gradient, with few areas of emergent marsh and stream delta habitats (Toft 2001). The upland cover directly above the shoreline is mostly garden/lawn, with under 20 percent of natural scrub/shrub, forested, or herbaceous habitat. Much of the large woody debris that was likely associated with the lake's shore has been removed (Kurko 2001).

Existing Conditions

There is no existing fish habitat within Sand Point Magnuson Park, with the exception of the shoreline of Lake Washington. In current conditions, the shoreline in the park is approximately 2,000 feet long. For nearly its entire length that shoreline is armored with asphalt and/or concrete rubble or debris. In some locations poured walls are in place, in other locations, debris has been piled and stacked to form bulkheads. In addition there is concrete and asphalt rubble on the lake bottom for up to 30 feet distant from the shore in some places. No surface water connection from the lake into the interior of the park has existed since Mud Lake was filled in the early 1900s.

The proposed lagoon development area is located immediately north of the existing boat launch. The shoreline in this location is bulkheaded and rip-rapped with concrete rubble. Native and non-native vegetation is found along the shoreline, with over 50 percent of plant cover consisting of Himalayan blackberry and weeping willow. A few tall trees are located just north of the boat launch; they provide some afternoon shade to the immediate shoreline in the vicinity of the proposed lagoon.

The limnological characteristics of Lake Washington have undergone dramatic changes during the last 50 years. The lake received direct discharges of secondary treated sewage effluent from 1941 to 1963. The phosphorus additions greatly increased blue-green algal production. Since 1968, phosphorus has decreased with the diversion of sewage effluent, but alkalinity and surface water temperatures have increased.

Eurasian watermilfoil has colonized a large percentage of the littoral zone since the 1970s and replaced much of the native aquatic vegetation. Milfoil has altered the physical characteristics of littoral zone habitats by changing substrate characteristics and decreasing levels of dissolved oxygen.

Shoreline areas may receive contamination from leaching of polyaromatic hydrocarbons (PAHs) and heavy metals from treated wood. Piers shade the water and reduce phytoplankton production. Summer boating traffic, combined with the effects of high water levels and bulkheads, contributes to a high level of wave activity and substrate disturbance.

Existing Fish Use of Lake Washington Shorelines

Native fish known to use the shoreline habitats of Lake Washington are identified in **Table 3.4-3**. Cutthroat trout, rainbow trout, and bull trout/Dolly Varden are found in Lake Washington during rearing phases of their life history, although spawning and egg development occur in cool-water streams (Wydoski and Whitney 1979). Northern squawfish, longfin smelt, threespine stickleback, peamouth, and sculpins are also native to Lake Washington (Wydoski and Whitney 1979). Northern squawfish are found in shallows with sand or mud bottoms where water temperatures are warm; adults feed on sculpins and other small fish. Longfin smelt are usually found in open water, preferring deeper water during the day and migrating upwards at night. Stickleback are associated with aquatic vegetation and are found at the bottom of the lake; peamouth prefer warm water areas in Lake Washington, and move from deep water in winter to inshore areas during spring and summer.

Table 3.4-3
Fish Species Expected and Observed under Existing Conditions

Species	Scientific Name
Cutthroat trout	*Oncorhynchus clarki clarki*
Rainbow trout	*Oncorhynchus mykiss*
Bull trout/Dolly Varden	*Salvelinus confluentus*
Northern squawfish	*Ptychocheilus oregonensis*
Longfin smelt	*Spirinchus thaleichthys*
Threespine stickleback	*Gasterosteus aculeatus*
Peamouth	*Mylocheilus caurinus*
Sculpins	*Cottus* spp.
Sockeye salmon	*Oncorhynchus nerka*
Coho salmon	*Oncorhynchus kisutch*
Chinook salmon	*Oncorhynchus tshawytscha*

Salmonid fry rearing in the lake and salmonid smolts migrating through the lake prefer shallow shoreline areas with sandy beaches (City of Bellevue 2001). Based on research done on salmon fry at the south end of Lake Washington (coming in from the Cedar River), small fry tend to stay in quite close in the shallows of the lake margin in order to avoid predators. When quite small, they are not a preferred food source for heron, kingfisher or other near-shore predators, but are preyed upon more by larger fish, which do not come into the shallows. As the fry increase in size, they tend to move into deeper water where they more readily avoid predators in the shallows (Tabor, personal communication). Sockeye salmon fry move into the lake shortly after emergence and spend at least one year rearing in the lake. Coho salmon migrate through the lake as fry. Chinook salmon usage and life history are discussed below since they are a "threatened" species in the Puget Sound area under the Endangered Species Act.

Anadromous fish that would be in the vicinity of the proposed lagoon would be coming out of the Sammamish system at the north end of Lake Washington and moving south toward the Ship Canal. Salmonid fry in the Sammamish system tend to stay in that system longer than in the Cedar River system, meaning that fry coming into Lake Washington at the north end tend to be larger (older) than the fry entering from the Cedar. The larger fry tend to move slightly more off-shore than the younger smaller fry, so it is unknown how they might use a created lagoon habitat (R. Tabor, personal communication). Unlike riparian habitats, where large woody debris and rocks provide the habitat complexity that research has shown to be beneficial to anadromous fry, the lake shore habitat configurations may need to be less cluttered (Kurko, 2001). Logs and other woody debris along the lakeshore provide habitat niches to species such as bass (and in some instances provide habitat for crayfish, a preferred prey of bass) which can feed on young fish. Rocky crevices (from rip rap or boulders) can provide habitat for crayfish, which can prey on young fish. Therefore, structural complexity within the water column may not be the most advantageous for anadromous fry.

It was noted by Tabor, during a field visit in December 2001, that some areas of the shoreline provide adequate substrate conditions in existing conditions, south of the proposed lagoon, near the southern

limits of the Park. The area is completely bulk-headed, however, the lower lake levels in the winter shift the waters edge away from the rubble wall so that wave wash occurs over small to modest sized gravels (the higher summer water level creates standing water at the face of the wall). Juvenile fish moving south in the lake in late spring would be sufficiently offshore that they would be in an area of appropriate substrate size.

In addition to native fish, several non-native fish species have been introduced to the Lake Washington system, including largemouth and smallmouth bass, black crappie, yellow perch, sunfish, and brown bullhead (Li 1998). The distribution of smallmouth and largemouth bass in shallow areas overlaps that of chinook juveniles; they are both present between April and June (City of Bellevue, 2001). Largemouth bass prefer warm water and shallow, weedy areas with mud, sand or organic substrates, while smallmouth bass are commonly found over rocky substrates where some current is present (Wydoski and Whitney 1979). The majority of known bass predation on juvenile salmonids occurs in the Ship Canal (City of Bellevue, 2001). Bass are oriented to structures for both spawning and foraging, and will utilize artificial structures such as rock piles for nest sites. Twenty-three non-native fish species are currently in the lake; some are known to prey on juvenile salmon (e.g., largemouth bass) while others are potential competitors for food. **Table 3.4-4** identifies non-native fish known to use the shoreline habitats.

Table 3.4-4
Non-Native Fish Species Expected and Observed under Existing Conditions

Species	**Scientific Name**
Largemouth bass	*Micropterus salmoides*
Smallmouth bass	*Micropterus dolomieui*
Black crappie	*Pomoxis nigromaculatus*
Yellow perch	*Perca flavescens*
Sunfish	*Lepomis* spp.
Brown bullhead	*Ictalurus nebulosus*

3.4.2.2 Fish Impacts of the Alternatives

Proposed Action and Lesser-Capacity Alternative

Both the proposed action and lesser-capacity alternative include creation of a 4.4-acre lagoon along the shoreline of Lake Washington, in the approximate location of the former outlet of Mud Lake. The lagoon, shown in **Figure 2.2-1**, would add approximately 5,180 linear feet of new shoreline to Lake Washington. The objectives for the lagoon are to:

- eliminate an existing length of rip-rapped shoreline on the lake and to create extensive heterogeneous shoreline conditions for various aquatic species;
- create an area that provides secluded habitat for waterfowl and other wetland associated birds;
- create overhanging woody vegetation and woody browse within riparian habitats for aquatic mammals and other species;
- create a convoluted shoreline to maximize shoreline length and provide the opportunity for adequate shading to allow regulation of water temperatures; and

- create the opportunity for export of biomass into the near shore environments of the lake.

It is expected that this lagoon would provide habitat for a variety of native fish found in Lake Washington, while assuring that no increased risk to the survivability of federally or state listed species occurs (K. Kurko and R. Tabor, personal communications). At the northern end of Lake Washington, Puget Sound chinook salmon most often enter the lake system in April after spending an extended time in the Sammamish River watershed. As slightly larger juveniles, these fish tend to move towards the outlet of the lake in slightly deeper water conditions than the much smaller fry which enter the Lake Washington system from the Cedar River watershed to the south. The larger juveniles tend to hold and move slightly off-shore, to avoid the predatory birds towards land and the predatory fish in deeper habitats. (R. Tabor, personal communication, December 2001). It is unknown if these fish would utilize the lagoon because there is so little data on young salmonids in northern lake Washington, although there is no reason to consider that the lagoon would prove a detriment to native salmon fry (R.Tabor, personal communication, December 2001). Other native fish such as fat-scale sculpin would use the lagoon readily, and thereby provide additional prey source for predatory fish within the lake.

Water temperature is a typical concern relative to fish habitat, and there is some risk that water within the lagoon would be warmed from sunlight. The lagoon design includes five key features to address that potential impact. The size of the lagoon has purposefully been kept relatively small to reduce the surface area subject to thermal heating. The lagoon has been designed to maintain a deep (greater than 4 feet) open-water connection to Lake Washington during the summer months, when water temperatures are highest. The open-water connection would allow relatively cooler water from the lake to circulate into the lagoon. The interior lagoon would be over-excavated to approximately 13 feet in depth to assure a year-round connection to the groundwater present in that area, providing a cool groundwater flow source into the lagoon in the summer months. In addition, the outer lagoon is designed to act as a passive sediment trap, entrapping water-borne sediment entering into the lagoon opening from the open water of the lake, thereby reducing the amount of water-borne sediment that would accumulate in the inner lagoon. Finally, existing trees along the southern edge of the lagoon would be retained as much as possible (**Section 2.2.5**), and a mixed deciduous/coniferous forest would surround the entire southern and western margins and fingers of the lagoon. This is intended to surround the lagoon on the south, west and north sides with a convoluted woodland mosaic, in an effort to provide the maximum amount of shade as quickly as possible over the water's surface. Although it would take several decades for the coniferous and deciduous trees to attain heights greater than 40 feet, shading of the shallow near-shore habitats in the lagoon would be provided in a much shorter time frame. These design features are expected to maintain water in the lagoon at relatively cooler temperatures that are more suitable to the habitat needs of native fish, and that are not preferred by non-native predatory fish, such as large-mouthed bass.

Some review comments on the Draft EIS expressed concern over postulated adverse effects of operation of the proposed lighting systems on fish using the lagoon habitat. Based on the substantial distance separation between the sports fields and the lagoon area (approximately 1,000 feet or more) and the upland forest communities that would be developed around the lagoon area and in the buffer area to the east of the sports fields, there would be no measurable increase in lighting levels above the fish habitat created by the proposed project. Consequently, there is no basis to assume any adverse lighting impacts from the project on fish.

No Action Alternative

If the proposed project were not implemented, the shoreline of the lake within the park would slowly be restored according to the provisions of the Vegetation Management Plan. The VMP calls for the existing shoreline armoring to be removed, for non-native plant species to be replaced with native woody species and, where feasible (outside of high human use zones), for native riparian and aquatic vegetation to be re-established within and along the shoreline in clusters focused where existing pockets of native vegetation are present. The reality of park management priorities and budgeting constraints is that such actions would occur gradually over the long term.

3.4.2.3 Cumulative Fish Impacts

Three other projects are under consideration for Sand Point Magnuson Park that may contribute to a net benefit to fish habitat along the lake shorelines of the Park. The North Shore Recreation Area project to create a small non-motorized watercraft launching facility is currently in the preliminary design phase. This project is considering removing a portion of the extensive bulkheading that was placed at the time Pontiac Bay was filled in the early 1900s, and replacing it with a more gently sloping and vegetated shoreline. The project plans are still in the early conceptual stages so no final plans have been developed, but project planning is taking into account restoration of native shoreline habitat.

A second design idea is under consideration in the dog Off-Leash Area (OLA), immediately along the shoreline. This is an area of concentrated dog use, year-round, with active dogs in and out of the water through the near-shore environments. Design concepts for this area of the OLA have discussed reshaping and stabilizing the shoreline by creating a gradual beach slope with a thick blanket of gravels as substrate. The goals of the redesign for this shoreline area are to reduce sediment movement into the lake and provide a more stable beach substrate for humans and dogs.

Plans are also in development for major maintenance improvements to the Magnuson Boat Launch (see **Section 2.6.7**). The improvements would include replacement of the deck surface of the existing launch piers with a more habitat-friendly grated surface near the shore.

These three shoreline concepts within the park would result in a net benefit for fish and other aquatic species. Reduction in sediment inputs to the water, increase in native riparian and overhanging vegetation, and elimination of some of the shoreline bulkheading would all be positive acts towards restoring some natural shoreline integrity to the lake margin in the park.

The proposed lagoon would result in the creation of more than 11,000 linear feet of new shoreline and provide additional fish habitat in an area that is currently upland grassland and meadow. There is no anticipated cumulative adverse impact associated with this concept.

3.4.2.4 Fish Mitigation Measures

Because no fish habitat occurs on site, no on-site adverse impacts to fish habitat are expected. In anticipation of any adverse effect on water quality from runoff generated from on-site roads and parking, all stormwater generated from the proposed project area would be directed through a series of treatment

trains to provide for water quality improvement prior to the stormwater being discharged to the created wetland complexes and then through the lagoon into the lake.

Removal of the shoreline rip-rap in the area of the lagoon would benefit native fish by reducing crawfish habitat, reducing the erosive power on wave action on the small unprotected portions of shoreline, and allow for the re-establishment of native riparian vegetation.

In the proposed lagoon, shoreline substrates and riparian conditions would be heterogeneous in order to provide as many habitat opportunities as possible for various aquatic species. Some arms of the lagoon would be designed to have aquatic emergent wetland vegetation with soft fine-grained substrates; some arms would be gravelly bottomed with steep margins to provide woody riparian vegetation overhanging water two or more feet deep; and some arms would be created with gravelly substrates and gently sloping margins. Mixed deciduous/coniferous forest would surround the entire southern and western margins and fingers of the lagoon. Over time, this would provide shading to the lagoon to the maximum extent possible. The goal of the shading is to keep the water as cool as possible to preclude creating warm vegetated shallows, a preferred habitat for non-native bass.

3.4.2.5 Significant Unavoidable Adverse Fish Impacts

As discussed above, the shoreline features of the proposed action are designed to provide beneficial habitat for salmonids, and would not result in the loss of existing habitat. Therefore, the project would not have adverse effects on the targeted species and, if successful, would have positive effects.

3.5 ENERGY AND NATURAL RESOURCES

3.5.1 Affected Environment

Seattle City Light (electricity) and Puget Sound Energy (natural gas) supply energy for the project site and surrounding area. Approximately 75 percent of Seattle City Light's electrical energy is provided from City-owned hydroelectric generation facilities, which have a capacity of nearly 1,900,000 kilowatts (kW). The other 25 percent of the City's electrical supply is purchased from other power sources such as the Bonneville Power Administration (Seattle City Light, 2001).

Energy use on the project site is minimal at present, and is limited to a relatively small number of light fixtures at all existing park restroom and parking facilities. Energy use in the surrounding vicinity is typical for residential, commercial, institutional and community uses. No unusual sources of energy demand are present in the local area.

The Water Services division of Seattle Public Utilities (SPU) supplies water to Sand Point Magnuson Park and the project site. The park uses modest quantities of water in normal park operations and maintenance, primarily for irrigation of the existing natural-turf sports fields and limited landscaping areas. Please refer to **Section 3.13 Public Services and Utilities** for additional discussion of the park water supply system.

3.5.2 Environmental Impacts of the Proposed Action

3.5.2.1 Energy

The major source of energy consumption under the proposed action would be sports fields lighting. The five baseball/softball fields (Fields 7-11) would be lit an estimated 600 hours per year each. Based on the lighting configuration planned for each field (see **Section 2.2.9**), the combined instantaneous demand for these fields would be an approximate load of 325kW. The remaining six fields (Fields 5-6 and 12-15) would be lit an estimated 1,000 hours per year and represent an approximate load of 450 kW. Together, these facilities would consume an estimated 645,000 kilowatt-hours (kWh) annually.

The lighting systems for parking lots, roadways, building security and certain trails would supply the minimum amount of light necessary to meet safety standards for those use areas. The combined total electric demand for these systems is estimated at approximately 83 kW. The hours of operation for these lighting systems would vary among the facilities. Building security lights would remain on throughout the night, for example, while parking lot lights would only be operated during hours when the park is officially open for use.

A typical level of total annual electricity consumption by Seattle City Light customers in recent years is approximately 9,500,000,000 kWh (Seattle City Light, 2001). The estimated electricity consumption for sports field lighting use under the proposed action represents less than 1/100 of 1 percent (specifically, 0.007 percent) of the current annual electricity supply delivered by Seattle City Light. The peak load (the maximum 1-hour demand for electricity) on the City Light system has averaged about 1,840,000 kW in recent years. The combined load of 775 kW for the proposed sports fields would be equivalent to 0.042 percent of the existing peak load on the system. Consequently, in relative terms the new sports field load

would represent an insignificant and almost imperceptible increase in the demand for electricity from Seattle City Light, and would not have a significant effect on the utility's ability to supply power to its customers. Some of the hours of proposed sports field lighting would coincide with times of peak electrical demand (e.g., weekday late afternoon and early evening hours from late fall through early spring), while much of the lighting system use would occur during off-peak times (e.g., weekend evenings all year and weekday late evenings during the summer). The additional peak load represented by operation of the proposed project would not, by itself, be sufficient to require Seattle City Light to obtain additional peak-hour supply sources. City Light currently owns nearly 1,900,000 kW of generating capacity, and purchases any needed additional power that is in excess of the City's generating capacity. City Light has contracted with the Bonneville Power Administration to purchase a share of the federal agency's power supply over a 10-year period, which will result in City Light purchasing approximately 494,000 average kilowatts from 2001 to 2006 and 608,000 average kilowatts from 2006 to 2011.

Use of the lighting systems would add to annual park operations costs. At the current Seattle City Light retail rate of $.06 per kWh, the estimated annual consumption for sports field lighting would cost approximately $38,700 per year. The unit operating cost for the ancillary lighting systems (parking lots, roadways, security and trails) is estimated at approximately $5 per hour. If these systems were in use for an average of 4 hours daily throughout the year, the annual operating cost would be about $7,000.

3.5.2.2 Water

Implementation of the proposed action would result in an increase in water consumption at Sand Point Magnuson Park. Expansion of the natural-turf fields in the sports meadow would cause a small increase in water use for sports field irrigation. Addition of less than 3 acres of lawn and landscaping area (park, lawn and planting in **Table 2.2-1**) would also represent a small increase in water consumption for irrigation. The largest source of increased water consumption with the project would be irrigation needed for establishment and maintenance of plantings in the wetland/habitat area. Regular irrigation would be required in much of the approximately 30 acres of wetland communities to be developed, and would also be used in selected small areas of upland planting. The volume of water consumed for irrigation in the wetland/habitat complex would decrease considerably over time, as some of these communities would no longer need to be irrigated once they became fully established. Over the long term, most of the water volume needed to sustain the wetland/habitat complex would be supplied through the integrated project drainage system.

Water use at park facilities such as restrooms and concessions would dependent upon use levels and scheduling of the sports fields. Because these variables have not yet been firmly established, a precise determination of daily or annual domestic water consumption cannot be made at present. For the purpose of estimating peak flow water requirements, however, it was determined that the peak flow would be less than 100 gallons per minute if all restrooms and concessions were in use.

Water use for the synthetic-turf field areas would be limited to the small quantities needed to prepare infield mix areas and for spot cleaning. Irrigation use for the natural-turf sports meadow would vary throughout the year, with peak use typically during July and August. At an assumed watering rate of 1.2 inches per week, water use for the sports meadow would be approximately 280,000 cubic feet per month during peak months. Based on typical weather patterns for the Seattle area, the annual water use for

sports field irrigation is estimated at slightly over 1.1 million cubic feet or 25.75 acre-feet. Water consumption for non-turf landscaped areas would follow a usage pattern similar to that for the natural-turf sports fields, with peak use in July and August. Specific estimates for these areas have not been prepared, but the quantity would be considerably less than the amount for the sports fields.

The irrigation and domestic water requirements for the proposed features would not represent a significant increase in demand on the SPU water supply, and would not result in identifiable impacts such as need for additional water supply sources.

3.5.3 Impacts of the Alternatives

3.5.3.1 Lesser-Capacity Alternative

Energy

The major source of energy use under the lesser-capacity alternative would also be sports field lighting. A total of three sports fields would be lit in this case. As above, two baseball/softball fields would be lit an estimated 600 hours per year each, with an approximate combined load of 130kW. One soccer field would be lit an estimated 1,000 hours per year, with an approximate load of 75 kW. Together, these facilities would consume an estimated 175,000 kWh annually, or about 27 percent as much electricity as under the proposed action. Sports field lighting for this alternative likewise would not have a significant impact on the power supply situation for Seattle City Light.

Electrical demand from other sources, such as lighting for parking lots, roadways, building security and certain trails, would be considerably less than the 83 kW figure estimated for the proposed action, primarily because only two parking lots would be lit under the lesser-capacity alternative.

Water

Long-term water consumption under the lesser-capacity alternative would be substantially higher than for the proposed action, because of the greater number of natural-turf sports fields in the lesser-capacity alternative. Regular irrigation would be needed to maintain approximately 10 natural-turf fields (including the somewhat smaller sports meadow area) with the lesser-capacity alternative, compared to only 3 to 4 fields in the sports meadow area with the proposed action. Consequently, overall peak water demand and annual consumption for the lesser-capacity alternative would likely be on the order of 3 times higher than the proposal. Nevertheless, this level of increased water demand is still not likely to represent a significant effect on overall water demand on the SPU system.

3.5.3.2 No Action

Under the no action alternative, new sports fields would not be developed at Sand Point Magnuson Park and lighting systems would presumably not be installed at the existing sports fields. Energy would not be consumed for sports field lighting. Some energy would continue to be consumed for building, street and parking lot lighting. Modest quantities of water would continue to be used for irrigation of sports fields and landscaping within the project site.

3.5.4 Cumulative Impacts

Either of the action alternatives would represent and extremely small incremental contribution to an overall increase in electricity demand and consumption within the City of Seattle and the surrounding region. The magnitude of this increase would not be significant in the context of local utility demand and supply. Similar conditions and conclusions apply to the increased water demand represented by the proposed project. Other pending or planned projects at Sand Point Magnuson Park would not add perceptibly to the energy or water demand represented by the proposed action. Under the no action alternative, no increase in electricity or water demand would be anticipated.

3.5.5 Mitigation Measures

Energy impacts resulting from operation of the proposed park facilities would be minimized through design and operational measures. Proposed measures include:

- programmable control systems that allow lights for each athletic field to be operated separately and turned off when fields are not in use;
- specification of the minimum lighting levels necessary for safety standards in public-use areas;
- use of energy-efficient lighting fixtures for ancillary systems; and
- use of a lighting operations manual for the sports filed complex, prescribing methods and timing for light system use.

Similar measures would be employed to limit the use of water, primarily for irrigation, in the operation and maintenance of project resources. Specific plans for those measures would be developed during detailed design for the sports fields and wetland/habitat features.

3.5.6 Significant Unavoidable Adverse Impacts

Proposed development under either of the action alternatives would result in increased electricity and water consumption. The proposed energy conservation measures could reduce energy consumption, but would not eliminate it. The increase in electricity consumption would be unavoidable with either the proposed action or the lesser-capacity alternative, but in either case would not be significant within the context of local electricity supply and demand. The increase in water consumption likewise would not be significant within the local context.

3.6 NOISE

3.6.1 Affected Environment

3.6.1.1 Introduction to Noise Terminology and Descriptors

Noise can be characterized as excessive or unwanted sound. Noise, as perceived by humans, is commonly measured on a weighted logarithmic scale (A-scale) in decibels (dBA). Using this scale, humans perceive an increase of 10 dBA as a doubling of loudness; for example, a 70-dBA noise level sounds twice as loud as a 60-dBA noise level. Under ideal listening conditions, people generally cannot detect differences of 1 dBA, while people with normal hearing can usually detect differences of 2 or 3 dBA . In the outside environment, and especially near complex noise sources such as roads, sound level changes of 2 or 3 dBA might not be noticeable to most people, while a 5-dBA change would likely be perceived as a clear and noticeable change.

Because of the logarithmic scale used to describe noise, a doubling of a noise source strength produces a 3-dBA increase in average noise. For example, two adjacent, discrete noise events occurring simultaneously would result in a 3-dBA increase over the sound level produced by only one event. Such an increase would not be perceived as a doubling in noise *loudness*, which requires a 10-dBA increase.

Noise levels are decreased by distance, by obstructions such as buildings or terrain, by atmospheric absorption, and by absorption by the ground and vegetation. Sounds from line sources (e.g., fairly continuous roadway traffic) decrease by approximately 3 dBA for each doubling of the distance from the source. Sounds from point sources (i.e., discrete events such as a cheering sports spectator) decrease by 6 dBA when the distance from the source is doubled.

Many regulatory agencies use the equivalent sound level (L_{eq}) and the day-night sound level (L_{dn}) to evaluate noise impacts. The L_{eq} is the level of a constant sound that has the same sound energy as the actual fluctuating sound. As such, it can be considered an energy-average sound level. In discussing sound level measurements and predictions, it is important to identify the time period being considered, because most sound-energy criteria address sound-energy averages over some time period. The L_{dn} is a 24-hour L_{eq} with a 10 decibel penalty added to sound levels that occur between 10 p.m. and 7 a.m. in consideration of potential disturbance of people trying to sleep. The L_{90} is the level exceeded 90% of the time during a measurement, and this level can be used to represent the background level that is almost always present during a given period of time.

3.6.1.2 City of Seattle Noise Limits

Noise generated by the operation of the project would be governed by the timing restrictions and the noise limits included in the Seattle noise rule (Municipal Code, Chapter 25.08). This rule defines maximum permissible sound levels based on the zoning of the noise source and receiving properties.

Unlike many local noise codes in Washington State, the Seattle noise rule does not exempt noise produced during construction and demolition activities. Using the maximum permissible sound levels as a base, the Seattle rule sets maximum levels and durations of allowable daytime construction noise. If nighttime construction were to occur, it would not be allowed to exceed Seattle's maximum permissible sound levels thereby being held to the strict nighttime noise limit (daytime limit minus 10 dBA). In the

absence of a project-specific variance, this effectively limits all except the quietest construction activities to daytime hours.

A summary of the Seattle noise rule limits for operational and construction noise is displayed in **Table 3.6-1**.

Table 3.6-1
Seattle Maximum Permissible Levels and Construction Noise Limits (dBA)

Zoning District of Noise Source [25.08.410 & 420]	**Zoning District of Receiving Property**		
	Residential Day / Night	**Commercial**	**Industrial**
Operational Noise Limits			
Residential	55 / 45	57	60
Commercial	57 / 47	60	65
Industrial	60 / 50	65	70
Daytime Construction Noise Limits - at 50' or a real property line, whichever is greater, construction noise is limited to the higher levels listed below **during daytime hours only**, which are defined as 7 A.M. to 10 P.M. weekdays and 9 A.M. to 10 P.M. weekends.			
On-site sources like dozers, loaders, power shovels, cranes, derricks, graders, off-highway trucks, ditchers, and pneumatic equip (**maximum+25**) [25.08.425 A.1]			
Residential	80	82	85
Commercial	82	85	90
Industrial	85	90	95
Portable equip used in temporary locations in support of construction like chain saws, log chippers, and powered hand tools (**maximum+20**) [25.08.425 A.2]			
Residential	75	77	80
Commercial	77	80	85
Industrial	80	85	90
Impact types of equipment like pavement breakers, pile drivers, jackhammers, sand-blasting tools, or other impulse noise sources - may exceed maximum permissible limits between 8 a.m. and 5 p.m. weekdays and 9 a.m. and 5 p.m. weekends, but may not exceed the following limits [25.08.425 B]: Leq(1 hr) 90 dBA Leq(30 minutes) 93 dBA Leq(15 minutes) 96 dBA Leq(7.5 minutes) 99 dBA			

The noise criteria in **Table 3.6-1** can be exceeded by a total of not more than 15 minutes in any one-hour period by the following: 5 dBA for no more than 15 minutes in any hour, or 10 dBA for no more than 5 minutes of any hour, or 15 dBA for no more than 1.5 minutes of any hour. Sometimes these exceptions are described in terms of an hourly percentile, or the percentage of time a certain level is exceeded. For example, L_{25} represents a sound level that is exceeded 25 percent of the time, or 15 minutes in an hour. Similarly, $L_{8.3}$ and $L_{2.5}$ are the sound levels that are exceeded 5 and 1.5 minutes in an hour, respectively. At no time can the allowable sound level be exceeded by more than 15 dBA.

The Seattle noise ordinance allows various exceptions to the general noise limits for specific types of noise sources. For example, noise from motor vehicles traveling on public roadways is exempt from the

noise limits (SMC 25.08.480). Noise from *individual* motor vehicles is subject to noise limits specified in the Washington Administrative Code.

The ordinance also provides for variances that can permit noise levels higher than those specified.

The Seattle Municipal Code also includes some special noise allowances for parks, specifically for officially sanctioned musical events held outside in public parks and places. SMC 25.08.520 restricts noise from these events in these outdoor venues to a one minute Leq of 95 dBA at a distance of 50 feet. Indoor events are not subject to this restriction. If it is likely either through the expected power and type of amplification required for the event or through past experience with the permittee that noise from the event could exceed the above level, then noise monitoring of the event will be required.

Finally, the Seattle Municipal Code in SMC 18.12.170 restricts the use of any public address system, loudspeaker or other sound-amplifying device in any park, unless authorized by the Superintendent for specific events and times or if necessary for the preservation of public peace or safety.

3.6.1.3 Existing Sound Environment

The nearest residences to the proposed project site are multi-family transitional housing units at the Sand Point Community Housing Association, directly west of the existing Sand Point athletic fields. The area to the west and south of the park is predominantly a residential neighborhood characterized by a mixture of single-family homes and multi-family buildings.

The predominant sources of existing noise on and near the project site include traffic on local streets, aircraft flyovers and watercraft on Lake Washington (largely a warm-weather occurrence). Traffic related to existing organized sporting activities within Sand Point Magnuson Park represent a minor contribution to local traffic noise. Participants and spectators at sporting events produce noise (cheers, whistles, etc.) that can dominate the noise environment within the park and at the nearest Sand Point Community Housing facility west of the existing sports fields and is occasionally audible beyond the park boundaries. These sources of noise contribute to the acoustic environment in the project area that varies somewhat depending on the time of day and duration of the noise event(s).

Vehicle traffic on Sand Point Way NE is the largest source of existing noise in the local area, and background noise levels tend to decrease with distance away from Sand Point Way. Noise measurements taken for the Sand Point Reuse Project indicated an average day/night noise level of 70 dBA at a location on Sand Point Way near NE 80th Street (City of Seattle, 1996). Noise levels at another location off and somewhat west of Sand Point Way on NE 70th Street averaged 60 dBA. On the park property itself, past noise monitoring indicated average day/night sound levels of 53 dBA near the southeastern corner of Sand Point Magnuson Park (near Promontory Point) and 60 dBA on NE 65th Street near the intersection with Sportsfield Drive (City of Seattle, 1996).

Additional long-term sound levels were measured at several representative areas in the project vicinity to more fully characterize the existing sound environment. These measurements were taken over several days in May 2002 using three Larson Davis 820 Type I integrating sound level meters. The microphones were placed on tripods in acoustically neutral environmental shrouds approximately 5 feet above the ground and connected to the sound level meters with extension cables, and the meters were field-calibrated prior to and immediately following the measurements.

Weather conditions during the measurement period varied dramatically and included partly cloudy days with light winds on Thursday and Friday, May 9th and 10th, sunny and warm days with light winds on Saturday and Sunday, May 11th and 12th, and cooler, cloudy days with some rain and winds on Monday and Tuesday, May 13th and 14th. Although the meters were not attended for the entire measurement, noise sources were noted during setup and retrieval of the meters. A summary of the sound level measurement (SLM) results is displayed in **Table 3.6-2**, and detailed information regarding the measured levels is included in **Appendix E**.

3.6.1.4 Noise Complaint History

Several review comments on the Draft EIS alluded to a substantial history of resident complaints about noise in Sand Point Magnuson Park that the reviewers claimed was well documented, and requested that this information be reported in the Final EIS. In response, the Department of Parks and Recreation conducted a review of the various records of noise complaints made to the Seattle Department of Parks and Recreation, Seattle Department of Construction and Land Use (DCLU), and the Seattle Police Department. The results of this review indicate that past activities (both sports field activities and community events) at the Sand Point Magnuson Park facility have resulted in occasional, but relatively few noise complaints.

Discussions with staff from the Sand Point Magnuson Park Division of the Department of Parks and Recreation indicated that noise complaints from the View Ridge neighborhood on the hillside west of the site are typically made in response to activities occurring in the buildings at the north end of the Sand Point site, particularly Buildings 2 South and 27 in the community campus portion of the site. These activities tend to include live, amplified music and/or voices. One event in the large parking lot near the north end of the project site involved noise from a "fire pipe" that created a sonic boom type noise that elicited several complaints. The Parks Department has responded in the past by disallowing certain types of activities or equipment, or by closing doors of venues. The former events coordinator for the Sand Point Magnuson Park facility does not recall receiving noise complaints associated with athletic activities at either the Sand Point or Magnuson Park fields.

Seattle Police Department (2002) response records for the dispatch location of Magnuson Park date back to February 1998. SPD staff provided a summary of all calls for the call type "noise" with a dispatch location of 6500 or 7400 Sand Point Way NE, the two official addresses for Sand Point Magnuson Park. The records indicate that 6 noise complaints were received in 1998 (February to December), 4 in 1999, 7 in 2000, 2 in 2001, and none so far in 2002 (January to May). These records are kept according to the general location of dispatch (Magnuson Park), and do not reveal the specific location within the park or the specific type or source of the noise occurrence. Therefore, the actual number of complaints regarding noise emanating from the Sand Point Magnuson Park, or more specifically from the existing sports fields, is unknown; this number could be somewhat lower than the total number of noise complaints reported. Even so, these records indicate that relatively few noise complaints concerning Sand Point Magnuson Park have been registered with the Seattle Police.

Table 3.6-2
Range of Measured Sound Levels (dBA)

Location	Days	Time	Leq	Lmax	L2	L8	L25	L90	Ldn
SLM1	5/9/02-5/13/02	Daytime	45-61	56-90	49-68	47-65	45-64	43-50	56
		10–11 pm	46-55	60-74	51-64	47-62	45-48	43-46	
		Nighttime	44-55	48-81	45-64	45-62	44-49	43-47	
SLM2	5/9/02-5/13/02	Daytime	44-65	63-89	50-71	46-68	43-59	37-48	53
		10–11 pm	43-44	63-69	52-53	46-47	41-43	37-39	
		Nighttime	36-53	48-85	38-56	36-50	34-44	32-41	
SLM3	5/11/02-5/14/02	Daytime	44-64	66-87	53-75	46-64	43-56	39-49	60
		10–11 pm	46-47	69-72	54-56	48-50	43-44	37-39	
		Nighttime	36-60	57-86	44-70	38-64	35-58	30-45	
Seattle Noise Limit		Daytime	NA	70	65	60	55	NA	NA
		Nighttime	NA	60	55	50	45	NA	

Notes:
Daytime hours are between 7 a.m. and 10 p.m. weekdays, 9 a.m. and 10 p.m. weekends. Nighttime hours are between 10 p.m. and 7 a.m. weekdays, 10 p.m. and 9 a.m. weekends. The periods between 10 and 11 p.m. are included in this tabulation because of particular interest in this period of time related to the proposed project.
Ldns were computed for the entire measurement period.

SLM1: Taken at the Sand Point Community Housing Association (SPCHA) Building 224. This location represents the SPCHA transitional housing units nearest the project site. Existing noise sources observed during visits to the measurement location included exterior ventilation noise from equipment in Building 224, park athletic activities, traffic on local roads, aircraft flyovers, birds, and residential activity. On Saturday and Sunday, May 11th and 12th, the SPMP fields were experiencing close to maximum use with 6 youth ultimate Frisbee games and a little league baseball game happening concurrently. The ultimate tournament was scheduled to last from 9 a.m. to 5 p.m. each day.

SLM2: Taken at the southwestern corner of Promontory Point, adjacent to 6118 65th Ave NE and across 65th Ave NE from the Radford Court student housing. This location represents residences on the hillside south of the park. Observed noise sources included light aircraft, jets, traffic on local roadways, children playing, wind in trees, birds, distant voices from SPMP, and distant construction noise. During a visit to the meter on Saturday May 11th, light aircraft appeared to cause many of the maximum levels. In general, the sound levels at this location were fairly low for an urban residential location.

SLM3: Taken at 7221 56th Avenue NE. This location had line of sight to many of the athletic fields at SPMP and represents residences in the View Ridge neighborhood west of SPMP and distant from Sand Point Way NE. Noise sources observed during several visits to the measurement location included traffic on Sand Point Way NE and other local roadways, aircraft, and local residential activity (e.g., lawn maintenance). Although the measured levels at this location are generally consistent with levels expected in dense, urban residential locations, sound levels at night, primarily between 1 and 3 a.m. are dramatically lower.

Source: Sound level measurements by MFG, Inc., May 2002

Discussions with staff from the Department of Design, Construction and Land Use indicate that they have no records of noise complaints from activities at the Sand Point Magnuson Park site (D. George, personal communication, Seattle Department of Design, Construction and Land Use, March 2002). DCLU code compliance staff were aware of only one complaint and action in the vicinity of the project site, which involved the USGS Western Fisheries Research Center on NE 65th Street.

3.6.2 Environmental Impacts of the Proposed Action

3.6.2.1 Construction

The proposed action would create temporary, intermittent noise associated with construction and demolition activities. The primary sources of construction noise would be heavy equipment used for grading and excavating the site to prepare for developing the sports fields and wetland/habitat area, and for installing utility improvements. Construction workers and equipment would also generate noise associated with travel to and from the site. These activities would typically occur during daylight hours.

The proposed action would be constructed in four phases over a period of approximately 10 years. Within each of the four phases, heavy earthmoving equipment would be used for approximately 3 consecutive months. The remainder of time during each phase would see less intensive levels of construction, with much lower levels of construction noise.

The phasing of the proposed project would result in highly varying levels of construction noise received at the closest residential receivers (i.e., SPCHA Building 224). In terms of distance from this building, construction activities in Phase 1 would vary from 1,600 to 2,600 feet, Phase 2 would vary from 120 to 2,300 feet, Phase 3 would range from 400 to 3,500 feet, and Phase 4 would range from 350 to 1,800 feet. **Table 3.6-3** displays ranges of noise produced by typical construction equipment at 100, 400, and 2000 feet to indicate the range of construction noise that may be received at Building 224 during the construction period. Off-site residential locations would be further from the nearest construction activities and would receive lower overall levels of construction noise.

Table 3.6-3
Typical Construction Equipment Noise (dBA)

Activity	Range of Hourly Leqs		
	At 100’	At 400’	At 2000’
Clearing	77	65	51
Grading	69-82	67-70	43-56
Paving	66-82	64-70	40-56
Erection	66-78	64-66	40-52
Source: EPA, 1971			

Construction activities for the proposed project would be subject to regulation under the City's noise ordinance. As indicated previously, daytime construction activities in general are allowed to exceed the underlying use-based noise limits by 25 dBA for the louder mobile equipment; therefore, maximum permissible sound levels for project construction noise could be as high as 80 dBA in adjacent residential areas and still comply with the noise ordinance. As can be seen in **Table 3.6-3**, the potential exists for heavy equipment in operation 100 feet from the nearest residences to exceed Seattle's noise limits for construction. Therefore, attention would have to be given during the construction planning process to ensure that Seattle's noise limits are met. Construction noise at more distant locations would easily meet Seattle's construction noise limits, and at very distant locations would fall within or below the existing range of noise levels.

It is likely that construction noise would be audible at times in the residential areas near the project site. However, it is unlikely that noticeable construction noise from the project would be extensive throughout the surrounding area, or that project-related construction noise would be intrusive much or most of the time in the off-site residential areas closest to the project site. As a starting point for this conclusion, it is assumed that project construction activities would be monitored to ensure compliance with the City's noise ordinance and therefore would not result in a significant impact.

3.6.2.2 Operation

The proposed action would result in new and increased ongoing noise sources created by a variety of uses of the new park resources. The primary potential sources of operational noise impacts would be seasonal programmed activities, such as participant and crowd noise associated with outdoor sports. The proposal would also lead to increases in traffic noise on local roadways. Both sorts of noise are addressed in the following sections.

Sports Field Noise

During the sports season in 2001 (as in previous years), seven soccer fields and four softball diamonds were in operation (but not concurrently, given the overlapping of the present field configurations) at Sand Point Magnuson Park. Athletic activities on the fields generated the same types of noise that would be expected with the proposal.

The sports field component of the proposed action is focused on recreational sports, as opposed to competitive or spectator sporting events; bleacher seating for spectators would be limited, so large crowds of spectators would not be present on the fields. Sports field use would produce intermittent noise during some portions of the day (primarily late afternoon and evening hours on weekdays, plus more daytime hours on weekends), rather than on a constant basis.

Sound level measurements were taken of various sports events to characterize the types and levels of noise associated with these events. Events measured included an ultimate Frisbee tournament, a youth baseball game, a youth baseball practice, an adult softball game, and an adult soccer game. Because some events were not available for sound level measurements during the period of this noise analysis, the measured events were used to estimate sound levels of similar activities. For example, the youth ultimate games were assumed to be similar to the types and levels of noise associated with youth soccer games and practices. Also, adult softball and baseball games were assumed to be similar.

The source sound level measurements were taken so as to include measurement statistics that correspond to the sound level limits defined in the Seattle noise ordinance. Specifically, the Seattle noise limits are based on the L_{25}, $L_{8.3}$, $L_{2.5}$, and L_{max} corresponding to the level exceeded 15 minutes of an hour, 5 minutes of an hour, 1.5 minutes of an hour, and a level "never to be exceeded." Noise from all of the athletic activities must meet these limits. The L_{25} and L_{max} generally encompass the levels most likely to be exceeded and are, therefore, the descriptors used in this analysis to assess potential future compliance with the Seattle Noise Code.

The source noise measurement results shown in **Table 3.6-4** would likely vary from game to game. This seems particularly true for the adult baseball/softball game measurement, because the game measured for this analysis was at 7 p.m. and had relatively more spectators, including numerous children. Games occurring between 10 and 11 p.m. are unlikely to have as many spectators, and the measured L_{25} is anticipated to be somewhat lower than indicated. Also, all of the measurements were somewhat "contaminated" by other nearby human activities, traffic, and airplane noise. To the degree possible, these extraneous sources were removed from the measured levels of the activity noise, but it was not possible to completely remove all the extraneous noise. Therefore, the measured source noise levels displayed in **Table 3.6-4** are somewhat higher than would be likely.

Table 3.6-4
Athletic Source Noise Events at 100 feet (dBA)

Event	L_{25}	Lmax
Youth Baseball Practice	52	68
Youth Baseball Game	52	75
Adult Baseball/Softball Game	56	79
Youth Soccer/Ultimate Practice	55	75
Youth Soccer/Ultimate Game	55	75
Adult Soccer Game	48	69

Noise calculations at various "receptor locations" were based on distance attenuation alone. Additional noise reduction would likely occur from atmospheric absorption, structural or topographic obstructions, and absorption from soft intervening ground. These reductions would be greatest for the more distant receivers, on the hillsides west and south of SPMP. However, these additional reductions have not been included in the noise level calculations. Therefore, it is likely that the levels estimated at the hillside residences would be much lower than indicated by this conservative approach results.

Predicted noise from each of the activities anticipated to occur during each season, time of day, and day of week were added together to estimate the overall sound level with all of the anticipated activities occurring simultaneously. The level of activity can generally be grouped into a fall/winter season (October through March) and a spring/summer season (April through September). The results shown are for the loudest hour during each of those seasons before 10 p.m. and from 10 to 11 p.m., according to current Seattle sports field scheduling practices.

Receiver locations considered in the noise calculations include the following:

- The nearest existing residences to the athletic fields, the existing transitional housing units of the Sand Point Community Housing Association (SPCHA) in Building 224. This building is located on the western side of Sportsfield Drive.

- Residences on the hillside south of Sand Point Magnuson Park, in the vicinity of NE 61st Street

- Residences on 57th Avenue NE, on the hillside west of Sand Point Magnuson Park and overlooking the site. Residences west of 57th Avenue NE are further from the athletic fields and would experience somewhat lower sound levels. No obstructions were assumed for residences on 57th Avenue NE, although some obstructions exist between at least some of the athletic field areas and almost all of the residences on the hillside.

- The base of the hill west of Sand Point Magnuson Park, representing residences in the Park Point condominium complex and on 58th Avenue NE. Again, the noise predictions/reductions were based on distance attenuation alone. For residences near the base of the hill, numerous obstructions exist between the athletic fields and the residences, and the sound levels received at these residences would likely be much lower than the predicted levels.

Predicted maximum sound levels for these locations are listed in **Table 3.6-5**.

Table 3.6-5
Predicted Sound Levels with Proposed Action (dBA)

Time Period		SPCHA Bldg 224		Hillside South of SPMP		57th Ave NE (West)		Park Point (Base of Hill West)	
		L25	Lmax	L25	Lmax	L25	Lmax	L25	Lmax
Fall and Winter									
Daily	<10 pm	50	66	41	54	40	51	43	54
	10-11 pm	37	54	32	48	29	44	32	48
Spring and Summer									
Daily	<10 pm	50	70	41	54	39	55	42	56
	10-11 pm	49	70	38	53	38	55	40	56
Seattle Limits	<10 pm	55	70	55	70	55	70	55	70
	10-11 pm	45	60	45	60	45	60	45	60

Scheduling assumptions for the analysis were as follows: (1) primary fall and winter use for all fields (including Fields 7-11) on weekdays before 10 PM would be practice for soccer, rugby and ultimate Frisbee, with adult soccer games on the soccer fields and rugby on the rugby pitch up to 11 PM; (2) spring and summer use would include soccer, rugby and ultimate Frisbee only on the soccer and rugby fields, with adult games until 11 PM, and adult and youth baseball and softball on Fields 7-11 with games lasting until 11 PM.

The shaded cell indicates a predicted sound level that exceeds the Seattle noise limits. The limits are 55 dBA L_{25} and 70 dBA L_{max} during daytime hours, and 45 dBA L_{25} and 60 dBA L_{max} during nighttime hours. Daytime hours are 7 a.m. to 10 p.m. weekdays and 9 a.m. to 10 p.m. weekends. Nighttime hours are all others.

As is shown in **Table 3.6-5** anticipated sound levels from sports field events during the winter and fall months would easily meet Seattle's noise limits during daytime and nighttime hours at all residential locations. Also, the predicted sound levels are generally lower than the existing sound levels measured in the project vicinity, and are much lower than the existing measured levels on the hillsides south and west of SPMP. The primary use of the athletic fields during the fall and winter would be for youth and adult soccer, rugby, or ultimate Frisbee games.

The spring and summer months are assumed to entail somewhat heavier use of the sports fields and include activities (baseball and softball) capable of producing higher maximum sound levels. Predicted spring/summer sound levels from sports field events continue to meet Seattle's *daytime* noise limits at all nearby residential locations. The predicted sound levels also easily meet Seattle's nighttime limits at all off-site residential locations south of NE 65th Street and west of Sand Point Way NE. In addition, predicted worst-case sound levels associated with park uses are lower than measured existing levels in off-site residential areas (see **Table 3.6-2**). For these reasons, noise associated with the proposed action, although at times clearly audible, would not be expected to result in significant noise impacts at off-site locations.

At the nearest residential use to the project site, the existing SPCHA Building 224, Seattle's nighttime noise limit of 45 dBA L_{25} could be exceeded by a predicted level of 49 dBA. The main contributors to this predicted level are spectator and/or participant noise from adult baseball games played on Fields 7 and 11. The existing measured L_{25} levels between 10 and 11 p.m. range from 45-48 dBA, and the addition of the future predicted sound could result in up to a 5-dBA increase over the existing level. Also, Seattle's nighttime maximum sound level limit (L_{max}) of 60 dBA could be exceeded by a predicted L_{max} level of 70 dBA due to adult baseball/softball games played on Fields 7, 8, 10, and 11. Although the potential exists to exceed Seattle's L_{max} noise limit, the measured L_{max} levels currently experienced by residents of Building 224 between 10 and 11 p.m. range from 60 to 74 dBA, indicating that these residences are currently exposed to similar maximum events from existing noise in the area (see **Table 3.6-2**). Because the maximum noise events with the proposed action would be similar to those under existing conditions, this would reduce the potential for significant noise impacts. However, it is clear that noise from the proposed sports activities would be audible, might occasionally be intrusive, and would occasionally be the source of maximum noise levels at this location.

Traffic Noise

The proposed project would result in an increase in traffic on area roadways. This is particularly true for nighttime games, when the SPMP currently generates little traffic and other traffic on area roadways decreases. Therefore, the greatest potential for traffic noise impacts would occur during nighttime hours, after 10 pm. To estimate the traffic noise levels during this hour, it was assumed that all the fields would be in use, and all participants and spectators would exit during a one-hour period.

Traffic noise on public roadways is exempt from the Seattle noise limits. Public roadways include Sand Point Way NE, NE 65th Street, NE 70th Street and NE 74th Street. However, Sportsfield Drive is considered a park road, and traffic on this roadway would not be exempt from meeting the limits. Traffic noise from Sportsfield Drive would primarily affect the residents of Building #224. Potential traffic noise impacts for off-site residential uses adjacent to Sand Point Way NE, NE 65th Street, and NE 70th Street are discussed separately from the on-site residential uses.

On-site Traffic

Traffic noise impacts at on-site residential receivers in Building 224 were estimated by calculating the traffic noise levels on Sportsfield Drive and comparing these to Seattle's noise limits. The greatest potential for traffic noise impacts is expected to occur after 10 p.m., and this traffic noise analysis considers the later evening hours.

To ensure the traffic noise analysis is conservative, it was assumed all traffic from nighttime games would exit the site in a one-hour period between 10:30 and 11:30 p.m. This would include five baseball games and up to four soccer games. According to the traffic noise study, each baseball game would involve approximately 30 vehicles and each soccer game approximately 35 vehicles, for a total of 290 vehicles exiting in a one-hour period. In determining how many vehicles might pass Building 224 between 10:30 and 11:30 p.m., the following assumptions were applied:

- Approximately 80 vehicles were assumed to use the North Fields parking lot (all vehicles from players on Field 6 and half of the vehicles from Fields 7, 8, and 9). All but 10 percent of these vehicles were assumed to exit via the nearest exit at NE 74th Street.

- Approximately 70 vehicles were assumed to use the South Fields parking lot (all vehicles from Field 14 and half of the vehicles from Fields 12 and 13). All but 10 percent of these vehicles were assumed to exit via the nearest exit at NE 65th Street.

- The remaining 140 vehicles were assumed to use the Sportsfield Drive parking lot, with 50% traveling north to exit and 50 percent traveling south to exit.

- Vehicles traveled at 20 mph on the site.

- Because of the configuration of Building 224, each receiving residential window would have only a partial view of the roadway.

The previous assumptions result in an estimated 77 vehicles traveling north on Sportsfield Drive past Building 224 and 8 vehicles traveling south to exit the Sand Point Magnuson Park facility. Traffic noise levels were calculated using the FHWA NOISE model. The resulting traffic noise level (L_{eq}) at the nearest residences in Building #224 was 39 dBA. Adding this to the predicted sound level (L_{25}) of 49 dBA from all athletic activities results in an overall sound level of 49 dBA. This level would exceed Seattle's noise limit of 45 dBA after 10 p.m. if all previous assumptions were correct. Please note that adding the predicted traffic noise L_{eq} to the predicted athletic field noise L_{25} does not necessarily result in an accurate prediction of the overall L_{25}. Unfortunately, the noise prediction tool for traffic noise does not calculate an L_{25}. Therefore, the predicted overall level of 49 dBA is simply the best estimate of the overall L_{25} using the available tools. Also, the athletic events would end at staggered times, with only a portion of games still in play while some of the vehicles exit the site. Unfortunately, this scenario is too complicated to allow for noise predictions and the scenario presented should be considered "worst-case" with somewhat overstated overall sound levels.

Off-site Traffic

Because the Seattle noise limits do not apply to traffic traveling on public roadways, traffic noise impacts at off-site residential receivers were estimated by calculating the potential increases in traffic noise on area roadways. For example, a doubling of traffic noise would be expected to cause a 3-dBA increase in the hourly L_{eq} due to traffic noise sources. If other noise sources were substantial contributors to the existing noise environment, the increase in overall noise would be somewhat lower than the increase in traffic noise. A 2 to 3 dBA increase in an existing noise source may be just discernable in an active outdoor noise environment. An increase of 5 dBA is likely to be clearly noticed.

To determine the existing conditions in the project vicinity, 15-minute sound level measurements and traffic counts were taken on NE 65th Street and NE 70th Street between 10:30 and 11:30 p.m. on Monday, June 3, 2002. Counts of traffic on Sand Point Way NE were also taken during this period.

A sound level measurement and traffic count were taken just off of NE 70th Street between 10:36 and 10:51 p.m. The measured L_{eq} of 60 dBA was dominated by aircraft noise. The 15-minute traffic count indicated that 20 vehicles used the road, corresponding to an hourly count of 80 vehicles. The worst-case scenario assumes that 290 vehicles would exit the Sand Point Magnuson Park site between 10:30 and 11:30 p.m. According to the traffic study, approximately 20% of these vehicles are expected to travel on NE 65th Street, resulting in an additional 58 cars using this road between 10:30 and 11:30 p.m. and an anticipated traffic noise increase of just over 2 dBA. However, because the main noise contributors to the existing environment during this period are jet aircraft, the actual increase would be somewhat lower than 2 dBA and barely discernible.

Similarly, a sound level measurement and traffic count were taken just off of NE 65th Street between 10:55 and 11:10 p.m. Several Metro buses driving on NE 65th Street during the measurement dominated the measured L_{eq} of 59 dBA. During the 15-minute traffic count, 14 cars and 2 buses used the road corresponding to an hourly use of 56 cars and 8 buses. According to the traffic study, approximately 25% of the 290 vehicles leaving SPMP are expected to travel on NE 65th Street. This would result in an additional 73 cars using this road between 10:30 and 11:30 p.m. Because the existing buses dominate the noise environment and bus usage is not expected to increase due to the proposed project, the estimated traffic noise increase is 1 dBA and would be unlikely to be discernible.

Existing traffic volumes and noise on Sand Point Way NE are considerably higher than on NE 65th Street and NE 70th Street. A traffic count taken of traffic on Sand Point Way between 10:36 and 10:51 indicated existing volumes of 50 cars and 1 medium truck, corresponding to hourly volumes of 200 cars and 4 medium trucks. According to the traffic study, vehicles from the park could exit the area via several routes, with the maximum percentage of vehicles on any one portion of Sand Point Way NE estimated to be 30%. Assuming that 290 vehicles exit between 10:30 and 11:30 p.m,, the additional 87 vehicles on Sand Point Way NE would result in a less than 2 dBA increase in traffic noise, which would barely be discernable.

3.6.3 Impacts of the Alternatives

3.6.3.1 Lesser-Capacity Alternative

Construction Noise

Construction activities for the lesser-capacity alternative would be expected to produce intermittent noise impacts that would be similar in nature, duration, magnitude and extent to those described for the proposed action. Again, these construction-related impacts would be regulated by the City of Seattle's noise ordinance. Due to the large distances between them, it is unlikely that construction noise from this alternative would be intrusive much or most of the time in the residential areas on the hillsides overlooking the project site. Although construction noise would be audible and at times intrusive at the nearest residential uses to the project site in SPCHA Building 224, construction activities would be intermittent, would move throughout the fairly large project site, and would occur only during daytime hours. Because of these factors, if construction noise levels comply with the noise limits applied to construction activities by the City of Seattle, construction noise is not anticipated to cause a significant noise impact even at these nearest residential receivers.

Operational Noise

Operational noise associated with the lesser-capacity alternative would be similar to conditions under the proposed action, but the noise would likely be somewhat less in magnitude, extent and duration. This alternative would result in a significant increase in aggregate use of the park, primarily in conjunction with operation of the sports field complex, but the level of increased use would be less than for the proposed action. Traffic produced by sports field users would still increase, but by a smaller volume.

Sports Field Noise

With the lesser-capacity alternative, noise from the sports field activities during evening hours would be less extensive because only 3 fields (compared to 11 fields with the proposed action) would be lit and used in the evenings. During daylight hours, noise of athletic activities is expected to be similar to the proposed action. One less field would be developed (i.e., Field 9), which is anticipated to contribute little difference to the overall noise from the park. The fields that would be lit in this case are Fields 7, 11, and 12.

Even with the lesser-capacity alternative, sound levels from baseball or softball games on these fields between 10 and 11 p.m. continue to have the potential to exceed Seattle's nighttime noise limits at the nearest SPCHA residential units (**Table 3.6-6**). This is because with either the proposed action or the lesser-capacity alternative, adult baseball games on Fields 7 and 11 are the primary contributor to the predicted noise levels at the SPCHA housing west of Sportsfield Drive.

Table 3.6-6
Predicted Sound Levels with Lesser-Capacity Alternative (dBA)

Time Period		SPCHA Bldg 224		Hillside South of SPMP		57th Ave NE (West)		Park Point (Base of Hill West)	
		L25	Lmax	L25	Lmax	L25	Lmax	L25	Lmax
Fall and Winter									
Daily	<Sunset	50	66	41	54	40	51	43	54
	Sunset-11 pm	33	54	25	45	23	44	32	48
Spring and Summer									
Daily	<Sunset	48	70	40	54	39	55	42	56
	Sunset-11 pm	48	70	33	53	34	55	39	56
Seattle Limits	<Sunset	55	70	55	70	55	70	55	70
	Sunset-11 pm	45	60	45	60	45	60	45	60

Seasonal scheduling assumptions for this analysis are essentially the same as reported in **Table 3.6-5** for the proposed action.

The shaded cell indicates a predicted sound level that exceeds the Seattle noise limits. The limits are 55 dBA L25 and 70 dBA Lmax during daytime hours and 45 dBA L25 and 60 dBA Lmax during nighttime hours. Daytime hours are 7 a.m. to 10 p.m. weekdays and 9 a.m. to 10 p.m. weekends. Nighttime hours are all others.

Traffic Noise

The lesser-capacity alternative would also result in increases in traffic volumes on area roadways, but would result in much fewer vehicles during the late evening hours when traffic noise impacts would likely be greatest.

On-site Traffic

Similar to the Proposed Action, traffic noise impacts at on-site residential receivers in Building 224 were estimated by calculating the traffic noise levels on Sportsfield Drive and comparing these to Seattle's noise limits. With the lesser-capacity alternative, only two baseball fields and one soccer field would be scheduled for use between 10 and 11 p.m. Therefore, only 95 vehicles would be exiting during the late evening compared to 290 with the Proposed Action. All of the vehicles were assumed to use the Sportsfield Drive parking lot, with 50 percent exiting north and 50 percent exiting south. The resulting traffic noise level of 37 dBA, added to the predicted athletic noise level of 48 dBA, results in an overall sound level from the park of 48 dBA. Although traffic noise would not be a major contributor to the overall level, noise from the athletic fields is not anticipated to meet Seattle's nighttime noise limits of 45 dBA, so noise from traffic plus the athletic fields is also not anticipated to meet the limit. Again, because

most of the vehicles would likely be exiting after a cessation of the athletic activities, this estimated sound level is anticipated to be somewhat overstated.

Off-site Traffic

The lesser-capacity alternative would result in far fewer vehicles exiting the Sand Point Magnuson Park site between 10:30 and 11:30 p.m. than the proposed action. Because there would be no impact with the proposed action, no off-site traffic noise impacts are expected with the lesser-capacity alternative.

3.6.3.2 No Action Alternative

A few minor improvements to Sand Point Magnuson Park would likely occur under this alternative, which could produce some limited, short-term construction noise. The most likely source of noise in this case would be the planned demolition of several existing buildings on the site, including the former Navy Commissary complex. Construction or demolition activities under this scenario would be much less extensive and would generate much less noise than either action alternative. Organized use of the existing sports fields would continue, with resulting intermittent noise from participants and spectators; this noise source would be limited to daylight hours, as at present. Overall, considering both construction and operational sources, potential noise impacts under the no action alternative would not likely be significant.

3.6.4 Cumulative Impacts

There is little potential for the increase in noise (relative to the current condition) from the proposed action to result in significant cumulative noise impacts in the surrounding community. Existing sources of noise in the local area are typical, common sources such as traffic on Sand Point Way and other local streets. There have not been other major construction projects of the scale of the proposed action in the Sand Point neighborhood in recent years, and no planned major projects have been announced. Construction activity for a new Children's Hospital office facility at the southwest corner of NE 70th Street and Sand Point Way NE began in November 2001and is expected to be complete by January 2003. This facility has required a construction project of relatively modest scale that has produced recent, localized construction noise, but this project should be completed before the anticipated start of construction for the proposed action. Projects elsewhere on the Sand Point Magnuson Park site undertaken to implement the Sand Point Reuse Plan have generally taken place indoors, as existing buildings have been renovated to accommodate new activities. Outdoor construction for current or near-future projects such as the dog Off-Leash Area and the North Shore Recreation Area will not involve extensive activities that will produce significant and/or ongoing construction noise in the local area (City of Seattle, 1996).

The incremental increase in ongoing noise from operation of the proposed park facilities, primarily the sports fields, is not expected to comprise a significant impact. Intermittent noise from increased park use resulting from the proposed action is not likely to substantially increase the existing background noise sources in the local area, or potential new sources associated with other projects at Sand Point Magnuson Park, and thereby result in cumulative noise impacts.

3.6.5 Mitigation Measures

3.6.5.1 Construction

Construction activities for the proposed action or lesser-capacity alternative would be subject to the noise-control requirements of the City's noise ordinance. Specific measures that would be required by the ordinance, or would otherwise be incorporated into the proposal, include:

- Limit construction vehicle access to the project site to one designated route, to limit the off-site area affected by project construction traffic
- Limit the hours of construction activity to daytime hours, per the City's Noise Ordinance
- Monitor construction activities for compliance with the noise ordinance
- Transport fill materials that must be imported to the project site by barge, to minimize construction hauling traffic on local streets

3.6.5.2 Operation

Based on the level of neighborhood concern over potential operational noise impacts from the proposed sports fields, a monitoring program would be a key component of the mitigation measures for the proposed action or the lesser-capacity alternative. Department or contractor staff would monitor actual noise levels, particularly at night, under different game scenarios to determine the sound levels produced by sports events and their compliance with the Seattle noise ordinance.

The use of loudspeakers, air horns, and similar devices is already prohibited at all athletic events in City parks, particularly between 10 and 11 p.m., by the Seattle Municipal Code (Section 18.12.170), unless authorized for specific events and times. Signs detailing this restriction would be placed at key locations near the fields.

Because predicted sound levels from the athletic fields, under either the proposed action or the lesser-capacity alternative, were shown to be capable of exceeding Seattle's nighttime noise limits at the SPCHA Building 224, several mitigation measures for operational noise were analyzed for their effectiveness. These mitigation measures included:

- Rotate fields 7, 8, 9, 10 and 11 counterclockwise by 90 degrees to increase the distance between spectators and SPCHA residences
- Switch fields 14 and 15 to increase the distance between field 14 and residences south of NE 65th Street since this field may be used more often and/or later than field 15 (the rugby/football field)
- Install resilient material on the baseball field backstops to eliminate high maximum sound levels that occur when the ball hits the backstop

The predicted sound levels with these mitigation measures included are displayed in **Table 3.6-7**

Table 3.6-7
Predicted Mitigated Sound Levels with Proposed Action (dBA)

Time Period		SPCHA Bldg 224		Hillside South of SPMP		57th Ave NE (West)		Park Point (Base of Hill West)	
		L25	Lmax	L25	Lmax	L25	Lmax	L25	Lmax
Fall and Winter									
Daily	<10 pm	47	60	41	54	40	51	43	54
	10-11 pm	37	54	32	48	29	44	32	48
Spring and Summer									
Daily	<10 pm	46	64	41	54	39	54	42	56
	10-11 pm	45	64	38	53	37	54	40	56
Seattle Limits	<10 pm	55	70	55	70	55	70	55	70
	10-11 pm	45	60	45	60	45	60	45	60

The shaded cell indicates a predicted sound level that exceeds the Seattle noise limits. The limits are 55 dBA L_{25} and 70 dBA L_{max} during daytime hours, and 45 dBA L_{25} and 60 dBA L_{max} during nighttime hours. Daytime hours are 7 a.m. to 10 p.m. weekdays and 9 a.m. to 10 p.m. weekends. Nighttime hours are all others.

Mitigation included in these calculations include:

1) Rotate fields # 7, 8, 9, 10 and 11 counterclockwise by 90 degrees (i.e., move homeplate further east on each field)
2) Switch fields #14 and #15 since the soccer field may be used more often or later than the rugby/football field, and field #14 is further from potentially affected residences.
3) Line the baseball field backboards with resilient material to eliminate high maximum levels that occur when the ball hits the backboard. This results in a higher maximum with baseball than slowpitch softball.
4) Place bleachers for fields 12 and 13 between the two fields, to place observers further to the east relative to Building 224.

These potential mitigation measures result in somewhat lower predicted sound levels, particularly during the spring and summer months at the SPCHA Building 224. The effect of implementing these specified measures would be to reduce the predicted L25 levels by 3 or 4 dBA, and the Lmax levels by 6 dBA. The resulting predicted L25s at Building 224 meet Seattle's nighttime noise limit of 45 dBA. However, although it would be substantially lower, the predicted L_{max} at Building 224 would still exceed the nighttime limit of 60 dBA.

Among the mitigation measures addressed in **Table 3.6-7**, the use of resilient material on the baseball/softball backstops has been incorporated into the plans for the proposed action (see **Section 2.2.4**). The feasibility and desirability of the potential field configuration changes is still being evaluated, and need to be discussed with the respective sports organizations. (Rotating the baseball/softball fields 90 degrees would result in a northwesterly homeplate-centerfield directional alignment that is not consistent with the preferred orientation to the northeast, for example.)

A potential additional mitigation measure not included in the analysis of predicted noise levels is the possible restriction of the hours of sports field operation, to avoid the potential exceedances of the Seattle noise limits. The decisionmakers for this proposal (the Mayor and the Seattle City Council) can evaluate the potential mitigation measures that are not included in the proposed action when they consider final action on the proposal.

Other available, practical measures to mitigate potential noise from use of the proposed sports fields are limited.

3.6.6 Significant Unavoidable Adverse Impacts

Construction activities associated with the proposed action would result in unavoidable intermittent noise impacts within the neighboring community. While the total duration of the construction period would be long (approximately 10 years), intensive construction activity and associated noise levels would be concentrated in relatively short periods within four of the construction phases. Based on required compliance with the City's noise ordinance and the large distances between much of the construction site and the affected residences, these impacts would not likely be significant.

Predicted noise levels at all off-site residential locations would easily meet Seattle's noise limits, both the daytime and more stringent nighttime limits, and would generally be below or within the range of existing noise levels. Therefore, operational noise impacts from the proposal are not anticipated at off-site residential receivers.

Operation of the new park resources resulting from the proposed action could create long-term, intermittent noise impacts at on-site residential receivers that would be unavoidable. Between 10 and 11 p.m., Seattle's noise limits might be exceeded at the nearest residential units to Fields 7 and 11 (i.e., Building 224). , Because the predicted L_{25} sound level under maximum usage would result in a moderate increase in noise (i.e., 5 dBA or less) when compared to the range of existing L25s between 10 and 11 p.m., and because existing maximum noise events louder than the predicted L_{max} level currently occur at Building 224, these noise impacts are not expected to be significant. With the potential additional mitigation measures discussed in the analysis, the predicted L25s and L_{max}s could be reduced further.

3.7 LAND AND SHORELINE USE

3.7.1 Land Use Patterns and Housing

This section describes existing land use and housing on the project site and in the surrounding vicinity, evaluates potential land use and housing impacts of the proposed action and the lesser-capacity alternative, and discusses any mitigation measures necessary to avoid or reduce potential significant impacts. Information contained in the Final EIS for the Sand Point Reuse Project (City of Seattle, 1996) and land use inventories conducted during multiple site visits were the primary information sources used to compile this section.

3.7.1.1 Affected Environment

Historical Uses

The project site is within the boundaries of the former Naval Station Puget Sound, Sand Point. The larger Sand Point site was used as a military facility from 1922 to 1995. Approximately 4,600 military personnel and 2,800 civilian personnel were present on the base during the height of operations in 1945. The military airfield was closed in 1970 and most of the site was transferred to the City of Seattle in 1975, but a 151-acre complex at Sand Point remained in operation to support administrative activities for the Navy. In the mid-to-late 1980s, prior to the announcement of the final Sand Point base closure, there were approximately 1,750 personnel on site. According to the Navy's inventory, approximately 66 structures built between 1922 and 1989 remained in place. These structures range in size from large aircraft hangars to small sentry posts and pump stations. Many other structures that served the Navy at various times have been demolished or conveyed to other agencies during previous surplus actions. The base was formally closed for all Navy occupation and use in October 1995. During the time of transition, the property was in "caretaker" status, with only security and maintenance personnel on site. The naval base and its existing structures have helped define the character of the surrounding neighborhood for over 60 years.

Area Overview

Adjacent to the project site to the north and east is Sand Point Magnuson Park land extending to the shoreline of Lake Washington. Further to the north is the National Oceanic and Atmospheric Administration (NOAA) Western Administrative Support Center. The southern boundary of the project site is generally NE 65th Street, and the western boundary is generally along Sportsfield Drive (see **Figure 2.1-2**). The area to the west of the project site, between Sportsfield Drive and Sand Point Way, consists generally of recreational and multi-family residential uses. The area further to the west, across Sand Point Way, consists of multi-family residential uses and two neighborhood-serving commercial uses. Beyond the multi-family development lie the Burke-Gilman Trail and single-family residences.

Land Uses Adjacent to Sand Point Magnuson Park

The neighborhood surrounding Sand Point was developed for urban uses primarily in the 1940s and 1950s. The City of Seattle has been divided into 12 subareas for planning and other purposes. Sand Point and the adjacent neighborhood are located within the Northeast Subarea. The Northeast Subarea contains

approximately 5,686 gross acres (including open space, roads, etc.) and houses approximately 68,000 people. Approximately 17,376 single-family and 10,610 multi-family residential uses are in the Northeast Subarea. The Northeast Subarea has a slightly higher density than other City areas, with five households per gross acre compared to four households per gross acre citywide. For purposes of this EIS, only land uses within approximately ¼ mile of the project site are considered in this analysis. The significant change in grade, a steep hill approximately ¼ mile west of the project site, and the distinct change in neighborhood land use character within ¼ mile north and south of the former base all serve as natural boundaries and help to delineate the neighborhood most likely to be affected by the proposal.

The developed property closest to the project site is predominantly multi-family residential use, with a few small commercial uses. The area to the west, beyond the multi-family development, is mostly single-family residences.

Commercial land uses near the project site along Sand Point Way NE consist of two small neighborhood commercial ventures, a bakery and a convenience store. Several blocks south, along Sand Point Way NE are a take-out restaurant and non-profit organization offices.

Educational, arts and cultural areas exist nearby. Several licensed childcare facilities are located within the study area and a school (View Ridge Elementary) is located approximately 1 mile west of Sand Point Magnuson Park. North Seattle Community College operates continuing education programs at the former Sand Point Elementary School, located south of NE 65th Street.

Three federal government administrative facilities operated by NOAA, the U.S. Geological Survey (USGS) and the National Archives and Records Administration are located adjacent to or near the project site. The 112-acre NOAA facility contains 10 buildings totaling 599,000 square feet. Three of these structures are used for offices and an auditorium. One building includes warehousing, offices and a diving center. Two former hangars are used for bulk storage and some wet laboratory activities. The staging pier, used primarily to transport personnel and supplies, can accommodate vessels up to 250 to 300 feet long.

South of NE 65th Street, the 5-acre USGS Western Fisheries Research Center (also a part of the former Naval Air Station) complex houses fisheries research laboratory facilities and office space. Existing buildings, including four newly constructed buildings, contain approximately 56,500 square feet. USGS moved into the new buildings in April 1994. The National Archives facility (also a former Naval Air Station property) is a regional facility for the Pacific Northwest and is located on the west side of Sand Point Way NE, south of the project site. The primary activity at this regional records center is information storage and the site could be considered warehouse use.

Multiple recreational facilities are found next to the project site and within the study area. The Burke-Gilman Trail, located to the west of the project site, separates the multi-family and single-family housing west of Sand Point Magnuson Park. This regional pedestrian/bicycle corridor stretches approximately 20 miles from the Fremont neighborhood of Seattle north to Bothell. The Burke-Gilman Trail connects with the Sammamish River Trail in Bothell, which extends to Redmond. The total length of these regional trails is about 29 miles, extending from Fremont in Seattle to Marymoor Park in Redmond. Other nearby recreational facilities include the Sand Point Country Club golf course, a private membership facility approximately 110 acres in; the View Ridge Swim and Tennis Club, a private membership facility at NE

77th Street and Sand Point Way NE; and Matthews Beach Park, a City of Seattle park located north of Sand Point Magnuson Park and via NE 93rd Street from Sand Point Way NE. Inverness Ravine and View Ridge Parks are also located within the neighborhood land use study area.

Land Uses on the Project Site

The project site and the larger Sand Point Magnuson Park are owned by the City of Seattle. The park is operated by the Seattle Department of Parks and Recreation. Sand Point Magnuson Park is a 352-acre, multi-purpose recreation area that includes waterfront access, sports fields and a historic community campus with special event venues and a community center. Water-related activities are concentrated along approximately 2,000 linear feet of shoreline. Recreational facilities include four softball fields, four soccer fields, a multi-use sports meadow area (accommodating up to three soccer fields), six unlit outdoor tennis courts, picnic areas, children's playground, restroom facilities, a permanent float at the swimming beach, a small wading pool, one boat launch site with three piers and two launching lanes, and paved and informal trails.

The Seattle Comprehensive Plan designates the project site as Single-Family Residential and City Owned Open Space (Seattle Comprehensive Plan Future Land Use Map, 1994). The current underlying zoning classification of the project site is Single-Family Residential 7200 (SF 7200) (**Figure 3.7-1**). In 1997, the Sand Point Overlay District was established by Ordinance 118624 to implement the Sand Point Amendments to the Comprehensive Plan (please refer to **Section 3.7.2 Land Use Plans and Policies** for a discussion of the Sand Point Overlay District). Portions of the project site are located within this district (Figure 3.7-2). Portions of the project site located within 200 feet of the shoreline of Lake Washington are subject to the Seattle Shoreline Master Program. These areas have Conservancy Recreation (CR) and Conservancy Management (CM) shoreline environment designations (**Figure 3.7-2**). The proposed embayment area is located within the CM shoreline environment, which generally allows fish passage/habitat uses.

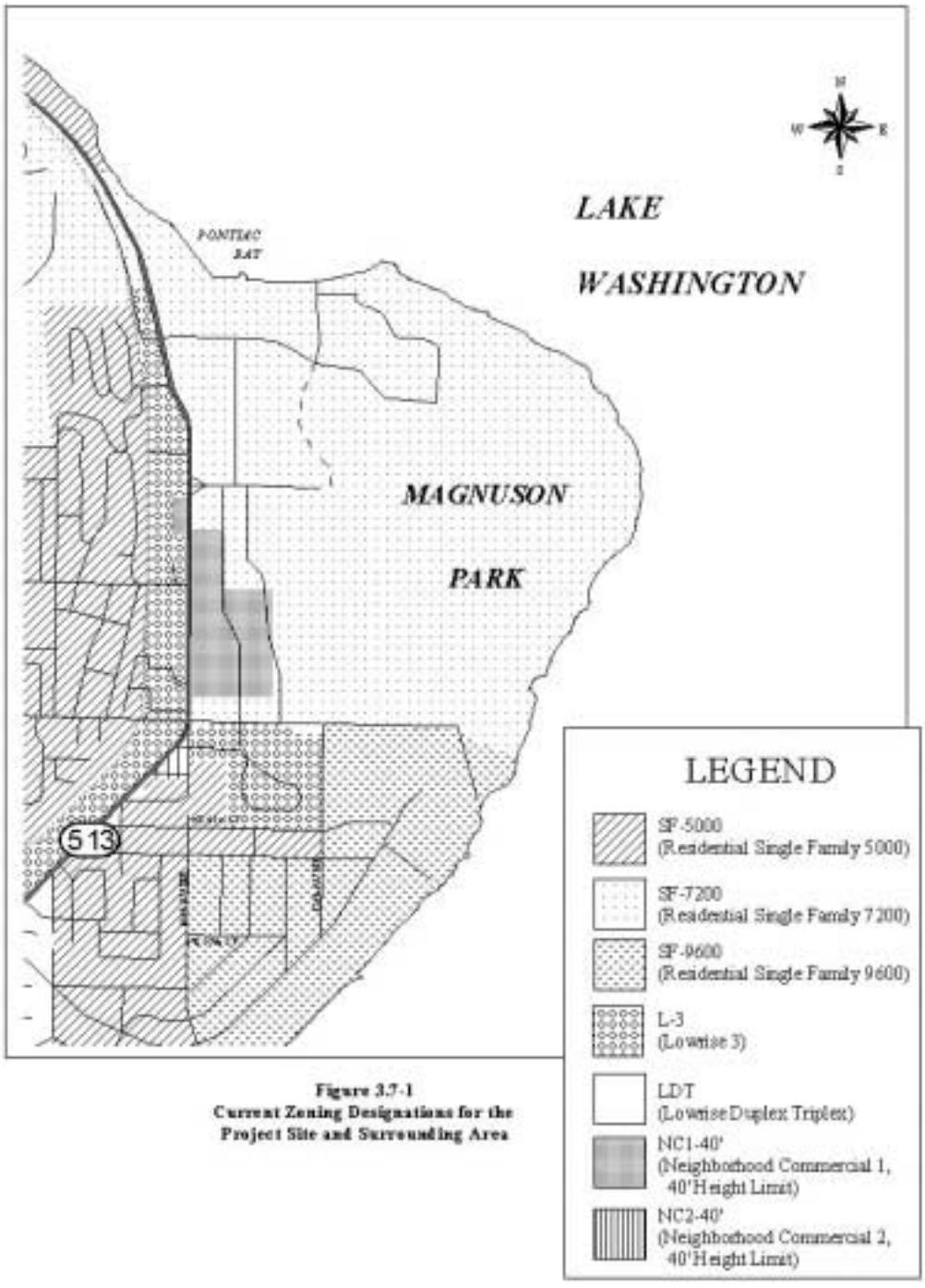


Figure 3.7-1
Current Zoning Designations for the Project Site and Surrounding Area

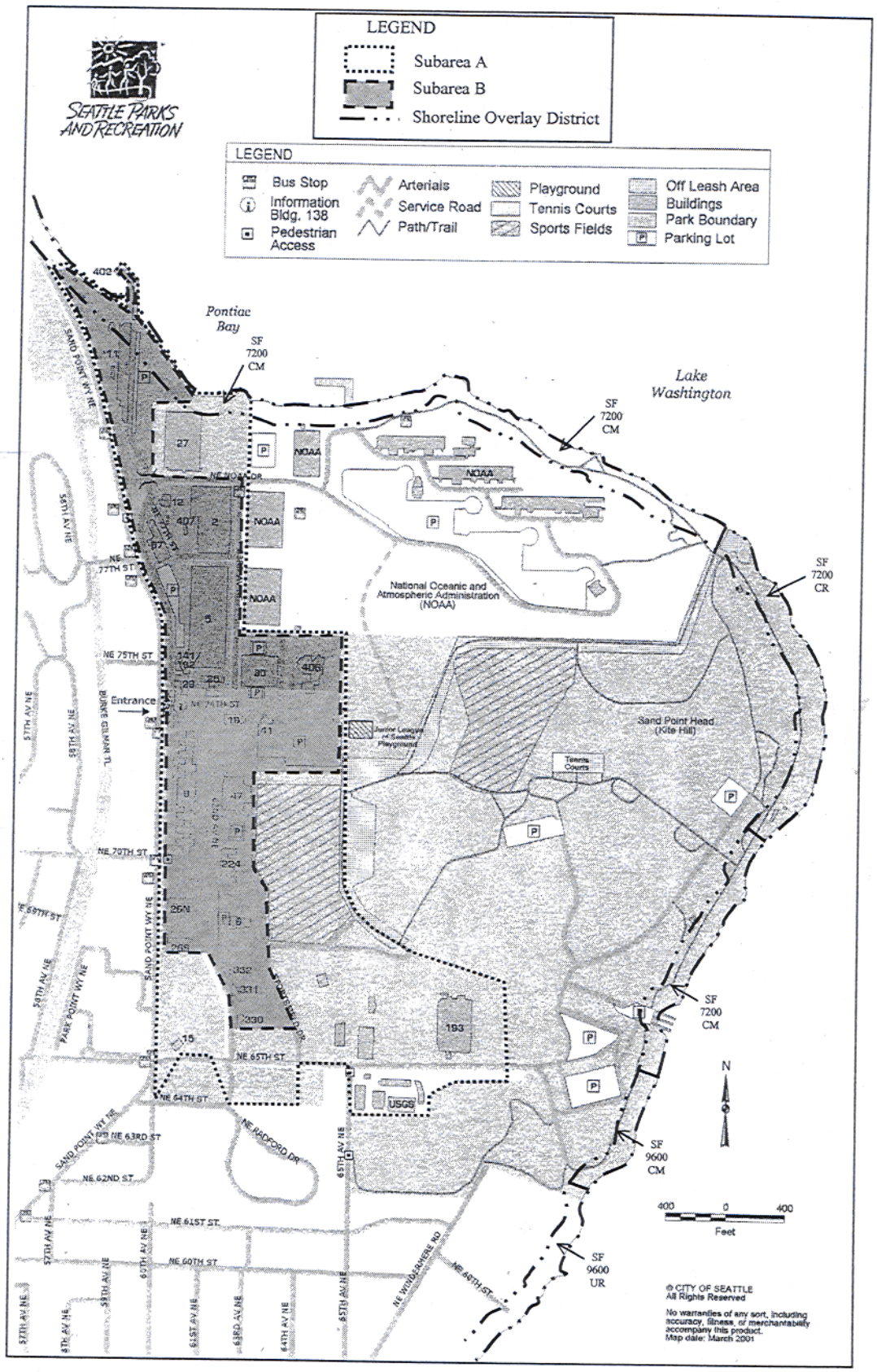


Figure 3.7-2
Sand Point Overlay District and Shoreline Overlay District Zoning Designations

3.7.1.2 Environmental Impacts of the Proposed Action

Direct Impacts

The proposed action would increase/intensify the amount of active and passive recreational facilities and activities available for the public in this area, but would not change the types of land uses that currently exist on site. Table 2.2-1 in Section 2 illustrates the existing and proposed land use allocation. The acreage devoted to individual existing uses would increase or decrease depending upon the respective recreational use, but the type of use would remain essentially the same. With respect to broad land use categories, the 153 acres within the project site are currently park land used for a variety of structured and unstructured recreational activities, and they would remain as park land supporting the same types of uses under the proposed action. The area devoted to athletic fields would increase by 15 acres, however, and the area used for parking would decrease by 8 acres.

The proposed action would also intensify human use of the site with the addition of all the various recreational facilities on the site. The proposed redevelopment of this public facility would be consistent with the City's goals and policies for the site and the *Seattle Parks and Recreation Plan 2000* (see discussion in **Section 3.7.2**), as well as provisions of the underlying zoning, the Sand Point Overlay District and the Shoreline Overlay District in the *Seattle Land Use and Zoning Code*.

As noted in **Chapter 2** of this Draft EIS, development of this project would involve removal/displacement of an historic structure located near the intersection of NE 65th Street and Sand Point Way NE. As is discussed in the City's *Final Sand Point Historic Properties Reuse and Protection (HPRP) Plan* (EDAW, Inc., 1998), mitigation of this impact would be necessary. Please refer to **Section 3.11 Historic and Cultural Preservation** of this Draft EIS for more details.

No significant adverse land use impacts are expected as a result of long-term operation of the proposed action.

Indirect Impacts

Implementing the proposed action would not be expected to result in significant indirect impacts on land use patterns in the surrounding community. Development of a significantly expanded sports field complex in the park would not promote a similar pattern of sports field development in the vicinity of the project site. Increased demand for off-site, localized redevelopment actions to provide increased commercial/retail services (e.g., additional sports supply or service shops, food service or coffee shops, etc.) in support of the increased number of people expected to use the upgraded facility is not anticipated to be significant. Some redevelopment of existing off-site commercial uses might occur after buildout of the sports fields, but a significant amount of commercial spin-off development is not anticipated.

Short-term, construction-related activity associated with the proposed action could indirectly affect nearby land uses. The nature of such impacts could include temporary increases in localized noise levels and increased levels of ambient light, increases in traffic congestion as a result of construction-related truck traffic/routing, and short-term disruption of utilities serving the area (due to the need for disconnections associated with existing land uses on-site and connections to serve the project). Such impacts are anticipated to be insignificant. Construction-related impacts -- particularly construction hours

of operation -- are regulated by the City's Noise Code (Chap. 25.08). Construction-related traffic is typically addressed through a construction vehicle routing plan.

The increased number of sports fields would generate additional parking needs for the project site. The City of Seattle parking code requires a minimum number of parking stalls based on the mix of land uses associated with a proposed development. Parking space requirements in the code vary according to use (23.54 Chart A): ball courts require (1) one space per court; parks do not require any spaces; indoor/outdoor participant sports and recreation require (1) one space for each 350 square feet of use; and playgrounds do not require parking spaces. The proposed action includes the provision of approximately 990 parking stalls, which is anticipated to be sufficient to meet the peak parking demand for the project; therefore, spillover parking into adjacent neighborhoods is not anticipated to be a problem. Please refer to **Section 3.12 Transportation** for more information on parking.

3.7.1.3 Impacts of the Alternatives

Lesser-Capacity Alternative

In general, potential impacts for this alternative would be similar in nature and character to those described for the proposed action. The specific allocation of park land to developed facilities and natural open space would be slightly different, with slightly less area devoted to sports fields and the wetland/habitat complex (4.9 acres and 3.6 acres less, respectively), but the total acreage of park land use would be the same. The modification of the lesser-capacity alternative for the Final EIS, primarily a reduction of lighted, synthetic-turf sports fields from seven to three, would not result in any corresponding differences in land-use impacts relative to the proposed action.

Redevelopment of the project site under this alternative would still provide for extended use of the park at night, as would the proposed action, although considerably fewer fields would be lit under this alternative. Therefore indirect impacts associated with this alternative (specifically lighting and transportation) would be of a lesser magnitude than those associated with the proposed action.

No Action Alternative

Because no new construction would occur as a result of the no action alternative, potential impacts associated with redevelopment of the project site would not occur. Under this alternative, the project site would continue to exist in generally its current state and would continue to be used by individuals and groups for active and passive recreational activities.

3.7.1.4 Cumulative Impacts

The proposed action would not result in significant direct or indirect land use impacts. The community surrounding Sand Point Magnuson Park was developed for urban uses several decades in the past, and subsequent changes in land use patterns have been relatively minor. The most significant changes in the community have involved the Sand Point peninsula and the transfer of the former naval air station property to other ownership and uses. Most of the peninsula has been allocated to institutional use for the past 70 to 80 years, although the types of institutional use have changed over that period. Approximately 70 percent of the naval station property was converted from military use to federal office and municipal

park use in the 1970s. The remainder of the property was converted from military to park and civic uses in the 1990s. These land use conversions have not had a significant effect on land use patterns in the surrounding community.

The City determined the future land use allocation for the western part of the Sand Point peninsula through the 1996 Sand Point Reuse Plan. New recreational, civic, educational, residential and cultural uses sanctioned under this plan will continue to take shape for a number of years. Based on the insignificant land use changes associated with the proposed action, and its compatibility with adjacent uses, the project does not have the potential for cumulative impacts on land use patterns.

3.7.1.4 Mitigation Measures

Because no significant land use impacts have been identified, no land use mitigation measures are required or proposed. Measures to address impacts associated with removal of historic structures are identified in **Section 3.11 Historic and Cultural Preservation**. Measures to address parking and transportation-related impacts are listed in **Section 3.12 Transportation**.

3.7.1.5 Significant Unavoidable Adverse Impacts

No significant unavoidable adverse land use impacts are anticipated. The land use changes that would result from the proposed action or the lesser-capacity alternative would be neither adverse nor significant.

3.7.2 Land Use Plans, Policies and Regulations

3.7.2.1 City of Seattle Comprehensive Plan (2000)

The City of Seattle's *Comprehensive Plan, Toward a Sustainable Seattle,* was adopted in 1994 to meet the requirements of the State Growth Management Act; the *Comprehensive Plan* was last amended in December 2000 (Seattle 1994, '95, '96, '97, '98, '99, '00, '01). This plan supports the Multiple Urban Center concepts of the Multi-County Planning Policies (PSRC, 1993), King County's Countywide Planning Policies (King County, 1992), and Seattle's Framework Policies (Seattle, 1992).

The City's *Comprehensive Plan* consists of nine major elements – land use, transportation, housing, capital facilities, utilities, economic development, neighborhood planning, human development, and cultural resources. Each element contains goals and policies that are intended to "guide the development of the City in the context of regional growth management" for the next 20 years. While each element affects development on and adjacent to the project site, the *Land Use Element* is the most relevant to this proposal.

The *Land Use Element* includes the following major components:

- Preferred Development Pattern;
- Categories of Urban Villages;
- Areas Outside of Urban Villages;
- Distribution of Growth;

- The System of Land Use Regulation;
- Open Space Network;
- Annexation;
- Shorelines; and
- Tree Preservation and Enhancement.

The goal that unifies all the elements of the *Comprehensive Plan* is to preserve the best qualities of Seattle's distinct neighborhoods while responding positively and creatively to the pressures of change and growth. A key component of the City's plan to achieve this goal is the urban village strategy. The urban village strategy combines small changes in the city's development pattern with a more complete and competitive intermodal public transportation system, the targeted use of housing assistance funds and planning tools to provide desirable and affordable housing, investment in facilities and service delivery systems designed to serve higher density neighborhoods and neighborhood-based decisions built upon local citizens' expressed priorities.

The *Comprehensive Plan* focuses most future growth and development (in terms of employment, housing and commercial uses) into areas that are designated as Urban Centers, Urban Center Villages, Manufacturing/Industrial Centers, Hub Urban Villages and Residential Urban Villages. The Comprehensive Plan provides for only a limited amount/type of development outside urban centers and urban villages. The proposed project is not a designated Urban Center or Urban Village, however Sand Point Magnuson Park is located within a reasonable commuting distance from most designated centers/villages throughout the city.

In 1996, the City Council adopted the Sand Point Amendments to the Comprehensive Plan in order to expand the allowed uses at Sand Point to include more recreational, educational, cultural and public uses at the facility. The Sand Point Overlay District (discussed later in this section) was established in 1997 to implement the Sand Point Amendments to the Comprehensive Plan.

Identified City Open Space and Recreation Facility Goals include the following: open space equaling one (1) acre per 100 residents Citywide and usable open space equaling ¼ to ½ acre within ¼ to ½ mile of every resident for areas outside of the Urban Villages. Specific goals for Recreational Facilities, such as athletic fields, are contained in the *Seattle Parks and Recreation Plan*, which is discussed later in this section. The following goals and policies from the *Land Use Element* are applicable to development of the proposal.

The System of Land Use Regulation – General Land Use Regulations - Overlay Areas

Goals

<u>LG78</u> – Provide flexibility in, or supplement, standard zone provisions to achieve special public purposes where circumstances warrant. Such areas include shoreline areas, the airport height district, special review districts, major institutions, subarea plan districts, and other appropriate locations.

Policies

L261 – Permit the establishment of zoning overlay districts, which may modify the regulations of the underlying land use zone categories to address special circumstances and issues of significant public interest in a subarea of the City, subject to the limitations on establishing greater density in single-family areas.

Discussion: The western portion of the project site is located within the Sand Point Overlay zoning district and the area proposed for the embayment is located within the Shoreline Overlay zoning district, both of which are discussed below in this section. As is discussed in greater detail below, the proposed project would be consistent with provisions of these overlay zoning districts.

Open Space Network

Goals

LG83 – Provide places for the people of Seattle to interact with others, and experience repose, recreation and natural beauty. Provide healthy play space for children and their families; passive uses such as strolling, sitting, viewing, picnicking, public gathering, and community gardening; and active uses such as competitive sports and running.

LG85 – Facilitate biking and walking as viable transportation choices, provide access to healthful recreational activities, and link major parks and open spaces with Seattle neighborhoods.

LG86 – Enhance the urban village strategy through the following:

1. amenities in more densely populated areas;
2. recreational opportunities for daytime populations in urban centers;
4. increased opportunities to walk regularly to open spaces by providing them close by;
6. a network of connections to the regional open space system; and
7. protected environmentally critical areas.

Policies

L291 – Provide unstructured open play space for children in or near residential neighborhoods.

L292 – Guide development of shoreline public access and recreation as important elements in the city's open space network.

L295 – Emphasize flexibility in planning, designing, and developing new open space and encourage development of innovative projects.

L298 – Designate and preserve important natural or ecological features in public ownership as greenspaces for low-intensity open space uses.

L301 – Continue development of a system of urban trails intended to provide a comprehensive, interconnected network of routes including local streets, boulevards, non-motor corridors and other open space elements.

L303 – Include the following considerations in the design of trails:

1. *Design trails and associated improvements to respond to the specific purpose of the trail, whether or not the trail will carry combined motor, pedestrian and bicycle traffic, shared bicycle/pedestrian traffic or be limited to pedestrians. Seek to provide separate trail facilities for bicyclists and pedestrians where heavy trail use is anticipated. Include strategies to address the needs of disabled users.*
2. *Plan trails to interconnect wherever feasible, thereby allowing users the opportunity to return to the point of beginning via a different route.*

Discussion: The proposed project would be consistent with the Open Space Network goals and policies in that the project would provide a facility in a densely populated area, provide recreational opportunities for daytime populations within a reasonable distance to the City's urban centers, provide increased opportunities to walk regularly to and through open spaces, provide a network of connections to the regional open space system, and provide protected environmentally critical areas. Public access to the shoreline would also be provided via a cross-country trail that would travel though the wetland/embayment portion of the park, the wetland/embayment area would be preserved and protected by the City, and trails located within the park would be connected to nearby regional/local trails. Trails would be designed consistent with the policies outlined above. Please refer to Chapter 2 for more project details.

Shorelines

Shoreline Access

Goals

LG92 – Provide for the optimum amount of public access – both physical and visual – to the shorelines of Seattle.

LG93 – Preserve and enhance views of the shoreline and water from upland areas where appropriate.

Policies

L320 – Increase opportunities for substantial numbers of people to enjoy the shorelines by permitting non-water-dependent uses, providing public access to locate in waterfront areas less suited for water-dependent uses, and by requiring public access on public property.

L321 – Promote public enjoyment of the shorelines through public access standards by requiring improvements that are safe, well designed, and offer adequate access to the water.

Discussion: The proposed project would be consistent with Shoreline Access goals and policies in that the project would maintain public access to the shoreline via a cross-park trail that would travel though the wetland habitat complex; the wetland habitat complex would be preserved and protected by the City; the lagoon and ponds in the wetland habitat complex would increase the accessible shoreline are in the park; views from the upland areas surrounding the park of the lake and shoreline areas would be preserved for the most part; parking for viewing the shoreline would be replaced, and the existing trail adjacent to the shoreline would be enhanced/upgraded for park visitors. Please refer to Chapter 2 for more project details.

Conservation

Goals

LG96 – Preserve, protect and restore areas such as those necessary for the support of wild and aquatic life or those identified as having geologic or biological significance

Policies

L336 – Identify those areas that have potential for restoration to "natural" conditions, develop standards for the conditions in those areas, and provide incentives for achieving such standards.

Discussion: The proposed project would be consistent with the Shoreline Conservation goals and policies in that the project would restore and protect environmentally critical areas (wetlands, shoreline) on site. Please refer to **Section 3.3 Plants /Wetlands** and **Section 3.4 Animals and Fish** for more detail.

Recreation

Goals

LG101 – Manage publicly owned shorelines that are suitable for public recreation to optimize their potential.

LG102 – Increase the amount of shorelines dedicated to public recreation and open space.

LG103 – Identify, protect and reserve for public use and/or enjoyment those areas containing special shoreline qualities that cannot be easily duplicated.

Policies

L343 – Allow for increased opportunity for the public to enjoy water-dependent recreation including boating, fishing, swimming, diving, and enjoyment of views.

Discussion: The proposed project would be consistent with the Shoreline Recreation goals and policies in that the project would provide a significant publicly owned open space facility, provide increased opportunities to walk regularly to and through open spaces, and provide a network of trail connections (bicycle and pedestrian) to the regional open space system. Public access to the shoreline would also be

provided via a cross-country trail that would travel though the wetland/embayment portion of the park, and public views of the park and from the park would be retained. Please refer to **Section 3.8 Aesthetics** for more detail on views.

Area Objectives for Seattle's Shorelines

Goals

LG108 – Recognize the unique opportunities in different areas of our shorelines to accommodate different types of water-dependent businesses and shoreline recreation, and to protect and enhance natural areas and views of the water.

Policies

L354 – The area objectives for Seattle Shorelines…are as follows:

I. Area Objectives for Shorelines of Statewide Significance
f. Lake Washington and Union Bay

- *Preserve the resources of natural areas and fish migration, feeding areas and spawning areas.*
- *Provide quality public access to the shoreline by encouraging and enhancing shoreline recreational activities, particularly in developed parks.*
- *Preserve and enhance views of the water.*

Discussion: The proposed project would be consistent with the Shoreline Area Objectives for the Lake Washington/Union Bay area goals and policies in that the project would restore and protect environmentally critical areas (wetlands, shoreline) on site, as well as restoring fish spawning/feeding/migration areas in the embayment. Please refer to Sections 3.3 and 3.4 for more detail.

The project would also provide increased opportunities for the public to walk regularly to and through open spaces and along shorelines, and provide a network of trail connections (bicycle and pedestrian) to the regional open space system. Public access to the shoreline would be provided via a cross-country trail that would travel though the wetland/embayment portion of the park and continue north through the remainder of the park. Public views of the park and from the park would be retained for the most part. Please refer to **Section 3.8 Aesthetics** for more detail on views.

3.7.2.2 City of Seattle Parks and Recreation Plan (2000)

The *Seattle Parks and Recreation Plan 2000*, as adopted by City Council Resolution 30181, updates the *Seattle Department of Parks and Recreation's COMPLAN (1993*), a comprehensive plan for parks and recreation that addressed the City's open space, park, and recreation services for a 10- to 20-year time frame when it was first prepared in 1993. The *Parks and Recreation Plan* (2000), like the *COMPLAN*, is a general guide and framework for decisions and policy directions affecting the future of Seattle's park and recreation system and represents a functional plan consistent with the City's Comprehensive Plan (1994). The *Seattle Parks and Recreation Plan* (2000) contains the Department of Parks and Recreation's

Revised Vision Statement, Policy Statements, and a new Six-Year Action Plan for the 2000 to 2006 timeframe.

The Plan's Revised Vision Statement consists of the following:

> *Seattle's parks and recreation system will be a neighborhood-based system of open space, parks, facilities and programs that captures the spirit of Seattle's magnificent setting in the Olmstead tradition. Seattle's parks and recreation system will:*
>
> *- be connected by boulevards, trails, public transportation, and green streets;*
> *- encompass views and provide opportunities for the enjoyment of the vast water resources in Seattle;*
> *- be linked closely with the City's neighborhoods, schools and other city services;*
> *- be maintained for public enjoyment, stewardship of resources and a healthy environment; and*
> *- be brought to life through programs, events, employees, and the efforts of volunteers.*

The Plan's Policy Statement begins with the Fundamental Responsibilities of the Department, which are basic policies that cut across all services the Department provides. The Policy Statement is then divided into the two major roles of the Department – Partner for Recreation and Steward of Park Resources. The role of Partner for Recreation refers to the Department's role to develop and maintain a variety of community-based support facilities, and is comprised of three activities: Development of Park and Recreation Facilities, Management and Maintenance of Park Facilities, and Recreation Programs. The role of Steward of Park Resources refers to the Department's role in working with others to acquire, develop, operate, and maintain open space, parks boulevards and trails, as well as other recreational facilities, and is also comprised of three activities: Acquisition and Development, Park Management and Environmental Stewardship, and Environmental Education. The Policy Statement also outlines Primary Roles and Responsibilities, which indicate activities that will receive the highest priority in budgeting, and Secondary Roles and Responsibilities, which are also regarded as highly desirable, but which will be more subject to budget fluctuations and more dependent on volunteers or self-help efforts.

The *Seattle Parks and Recreation Plan 2000* is focused on a new 6-Year Action Plan that is based upon various planning activities that have occurred since the 1993 COMPLAN – the Urban Wildlife Habitat Plan, the Joint School/Parks Athletic Development Program, the Magnuson Park Concept Design (as amended in 2001), ongoing preparation and updating of the Major Maintenance Plan, watershed plans, and the 38 separate City Neighborhood Plans. (No neighborhood plan has been completed or is proposed for the View Ridge and Sand Point neighborhoods.) The *6-Year Action Plan* includes unmet recommendations left from the COMPLAN, as well as recommendations included in all of the recent planning efforts mentioned above. The following actions listed in the *6-Year Action Plan* relate specifically to the proposed action:

Partner for Recreation – Development of Park & Recreation Facilities

<u>*Sports fields*</u>

- *SF2 – Complete the sports meadow at Magnuson Park (design in 2000).*

- *SF3 – Develop new sports fields at Sand Point per the 1999 Magnuson Park Concept Design, and provide facilities for softball, baseball, soccer, rugby, and track and field. Provide floodlighting on such fields per the plan.*

Tennis Courts

- *TC3 – Develop an indoor tennis facility at Sand Point per the 1999 Magnuson Park Concept Design.*
- *TC4 – Replace the outdoor tennis courts at Magnuson Park per the 1999 Magnuson Park Concept Design.*

Steward of Park Resources – Acquisitions & Development

Regional and Major Park Development

- *RMP9 –MAGNUSON PARK: Implement high priority elements of the adopted Magnuson Park [classified as a regional park] Concept Design. Specifically, develop sports fields, upgrade dog off-leash area, undertake shoreline restoration and provide initial development of the northshore recreation area. Renovate Building 47 for community center and swimming pool use, and undertake other building renovation as funding is available. Provide for an environmental education center in one of the buildings. Remove the old Navy commissary (Building 193, et. Al), restore wetlands and restore wildlife habitat at Promontory Point. Reuse Building 406 for community use.*

Boulevards and Trails

- *BT7 – Develop link from north end of Sand Point to Burke Gilman Trail spur in Magnuson Park.*

Steward of Park Resources – Environmental Education

Environmental Education Programming

- *EEP1 – Expand existing environmental education programs at …..Develop new environmental education programs at Seward Park and Magnuson Park. Develop outreach or off-site programs in addition to programs at these particular sites. Utilize volunteer (docent) programs to achieve such expansion. Consider environmental education programming recommended in neighborhood plans.*

Discussion: The proposed project involves implementing the actions outlined above. It would, therefore, be consistent with the policies outlined in the Seattle Parks and Recreation Plan and with the role of Sand Point Magnuson Park as a regional park facility.

3.7.2.3 City of Seattle Land Use and Zoning Code

Consistent with provisions of the Growth Management Act[1], Seattle's Land Use Code is directed toward implementing the goals and policies of the City's *Comprehensive Plan* and neighborhood plans. The immediate area surrounding the project site is governed by three land use zones – generally emphasizing

[1] RCW 36.70A.

predominantly residential land uses in most areas with supporting neighborhood commercial land uses along Sand Point Way (residential, commercial, retail). Sand Point Magnuson park is covered by residential zoning, as are most City parks in Seattle. As shown by **Figure 3.7-1**, the project site is located in the Single-Family - 7200 (SF-7200) zone (which is the underlying zoning), as well as the Sand Point Overlay District and the Shoreline Overlay District. Provisions of the Sand Point Overlay District and the Shoreline Overlay District are discussed below. The purpose of the SF-7200 designation is "to preserve and maintain the physical character of Single-Family Residential Areas in a way that encourages rehabilitation and provides housing opportunities throughout the City[2]. Single Family Residential Areas should contain housing that offers diversity in housing opportunities, including low cost subsidized housing."

As with Seattle's other zoning districts, the SF-7200 zone contains provisions relating to land uses and development regulations. Use provisions in this zone identify land uses that are permitted outright, uses that may be conditionally authorized, and land uses that are prohibited. A wide variety of land uses are permitted outright in this residential zoning district, including single-family dwelling units, floating homes, existing cemeteries, public/private parks, public playgrounds, childcare centers, nursing homes, adult family homes, and public schools.

A height limit for all structures, including light poles, of 30 feet has been established in this zone (23.44.012). Proposed uses in single-family zones are also required to meet the transportation concurrency level-of-service standards prescribed in the code (23.52) – please see **Section 3.12 Transportation** for more information on transportation concurrency. Parking space requirements in the code vary according to use (23.54 Chart A): ball courts require (1) one space per court; parks do not require any spaces; indoor/outdoor participant sports and recreation require (1) one space for each 350 square feet of use; and playgrounds do not require parking spaces. For portions of the project located within the Sand Point Overlay District, parking space requirements for the SF-7200 district are superceded by the Overlay District (discussed below). Required parking may be provided anywhere within the Sand Point Overlay District, including public rights-of-way.

Discussion: The proposed project would be consistent with land uses that are permitted outright in the SF-7200 zone.

The proposed project would be consistent with most of the applicable development standards of the SF-7200 zone. In order to install the 65- to 85-foot high light poles for the athletic fields, the Parks Department would need to seek a City Council modification of the height development standards, which is called a Council Land Use Action. This action is a Council concept approval to waive or modify development standards for a City facility. The Parks Department would need to prepare a petition in conjunction with the Master Use Permit (MUP) Analysis and Decision that would be addressed by DCLU. DCLU would prepare an evaluation of the action as part of their recommendation to Council. The proposed one-story restroom buildings would not exceed the height limit.

The proposed project would meet City transportation concurrency and parking space requirements of the code. Please refer to **Section 3.12 Transportation** for more detail.

[2] Seattle Municipal Code Chap. 23.12.050.

3.7.2.4 Sand Point Overlay District (Chapter 23.72 of the Land Use and Zoning Code)

The purpose of the Sand Point Overlay District Chapter is to implement the Sand Point Amendments to the Comprehensive Plan. This chapter accomplishes this by regulating land use and development within the Sand Point Overlay District Area (Chapter 23.72 Map A - District is divided into Subareas A and B) [**Figure 3.7-2**] in order to integrate the property into the City of Seattle as a multi-purpose regional center that provides:

a. Expanded opportunity for recreation, education, arts, cultural and community activities;

b. Increased public access to the shoreline and enhanced open space and natural areas;

c. Opportunities for affordable housing and community and social services with a special priority for addressing the needs of homeless families;

d. Expanded opportunity for low-impact economic development uses that could provide employment and services for residents of the property and for the broader community.

As with Seattle's other zoning districts, the Sand Point Overlay District contains provisions relating to land uses and development regulations. Use provisions identify land uses that are permitted outright in this district. The following principal uses are permitted outright in existing structures located in the SF-7200 zone within Subarea B as depicted on Map A in this district (these uses are in addition to those listed for the SF-7200 zone above): custom and craft work and accessory retail sales and services, institutions except hospital, lecture and meeting halls, motion picture studio, participant sports and recreation, police training facility, research and development laboratories, storage of fleet vehicles and accessory service and repair, and warehouse. Within Subarea A, which is depicted on Map A, areas not occupied by existing structures, existing paved areas, or rights-of-way would be limited to open space uses, such as parks and playgrounds. The following principal uses are permitted outright in existing structures located in the Lowrise-3 (L3) zone within Subarea B as depicted on Map A in this district: food processing for human consumption, horticultural use, institutions except hospital, lecture and meeting halls, medical service uses, office, and restaurants without cocktail lounges.

Development standards for this district indicate that all new structures will comply with the development standards of the underlying single-family or L3 zoning

Discussion: The proposed action is located within the eastern and southern portions of the Sand Point Overlay zone (**Figure 3.7-2**) and would be subject to the standards of this zone. The proposed project would be consistent with land uses that are permitted outright in the Sand Point Overlay District zone.

The proposed project would be consistent with the applicable development standards of the Sand Point Overlay District zone. No design/land use code departures would be requested for the project. The proposed project does not include residential development. The proposed heights of the restroom buildings would be approximately 20 feet or less, and would not exceed the height limit.

The proposed project would meet City transportation concurrency and parking space requirements of the code. Please refer to **Section 3.12 Transportation** for more detail.

3.7.2.5 Shoreline Overlay District (Chapter 23.60 of the Land Use and Zoning Code)

The Legislature enacted the Shoreline Management Act (SMA) to protect the public interest associated with shorelines of the state while, at the same time, recognizing and protecting private property rights consistent with the public interest. The SMA regulates development within 200 feet landward from the "ordinary high water mark" (OHWM) of marine shorelines, streams with a mean annual flow in excess of 20 cubic feet per second, lakes of 20 acres or more in size, as well as to the edge of wetlands associated with these water features.

Shorelines of the State are regulated by the Washington Department of Ecology (WDOE) through local agencies. Each county or city in the state, including the City of Seattle, has developed a Shoreline Master Program (SMP), which specifies any restrictions that may apply to a given water body and outlines the steps necessary to obtain approval for alteration or development. The SMP for the City of Seattle was developed in 1987 (Ordinance 113466) subsequent to the Shoreline Management Act of 1971. Permit requirements are dependent upon the specific shorelines designation assigned by the local Shorelines Master Plan. In 1995, the legislature amended the Growth Management Act to state that shoreline master program goals/policies and use regulations are considered an element of the comprehensive plan and local development regulations, respectively (RCW 36.70A.480). Comprehensive plans and shoreline goals, policies and use regulations must also be consistent with each other (RCW 36.70A.481).

The City of Seattle has a Shoreline District Overlay (Chapter 23.60) that regulates substantial development that occurs within shoreline areas for compliance with the Shoreline Management Act and the Shoreline Goals and Policies of the Seattle Comprehensive Plan in order to:

1. *Protect the ecosystems of the shoreline areas;*
2. *Encourage water-dependent uses;*
3. *Provide for maximum public use and enjoyment of the shorelines of the City; and*
4. *Preserve, enhance and increase views of the water and access to the water.*

The shoreline substantial development permit evaluation process identifies major issues of compliance in order for a development project to be consistent with the regulations in this chapter. Major issues of compliance consist of determining if a given project lies within a Shoreline of State-wide significance, as defined in the SMP and designated on the City's Zoning Map; and, if so, whether the project complies with the Development Standards for the Environmental Designation in which the project is located. A shoreline substantial development permit is required for any development in a designated shoreline area for which the total cost or fair market value exceeds $2,500 or any development that materially interferes with the normal public use of the water or shorelines of the City (23.60.020A).

The code also specifies those actions that are exempt from the requirement for a shoreline substantial development permit. The following exemption could possibly apply to the proposed project (23.60.020 C 16.):

C. 16. A public or private project, the primary purpose of which is to improve fish or wildlife habitat or fish passage, when all of the following apply:

a. *The project has been approved in writing by the State Department of Fish and Wildlife as necessary for the improvement of the habitat or passage and appropriately designed and sited to accomplish the purpose;*
b. *The project has received hydraulic project approval by the State Department of Fish and Wildlife pursuant to Chapter 75.20 RCW, and*
c. *The project is consistent with the City's Shoreline Master Program. This determination shall be made in a timely manner and provided to the project proponent in writing.*

Where a substantial development is proposed that would be located partly within and partly out of the Shoreline District, a shoreline substantial development permit is required for the entire development. The use and development standards of this chapter apply only to that part of the development that occurs within the Shoreline District unless the underlying zoning requires the entire development to comply with all or part of this chapter (23.60.022).

This chapter establishes shoreline environment designations that serve different purposes/objectives for their respective shoreline areas. The following shoreline environment designations are present on the project site (refer to **Figure 3.7-2**):

Conservancy Recreation (CR) *Conservancy Management (CM)*

The purpose of the CR shoreline environment is to protect areas for environmentally related purposes, such as public and private parks, aquaculture areas, residential piers, underwater recreational sites, fishing grounds, and migratory fish routes. While the natural environment is not maintained in a pure state, activities provide minimal adverse impact to the environment (23.60.220.3.a). The purpose of the CM shoreline environment is to conserve and manage areas for public purposes, recreational activities, and fish migration routes. While the natural environment need not be maintained in a pure state, development is required to minimize adverse impacts to natural beaches, migratory fish routes and the surrounding community (23.60.220.4.a)

As with Seattle's other zoning districts, the Shoreline Overlay District contains provisions relating to land uses and development regulations. Use provisions in this zone identify land uses that are permitted outright, uses that may be conditionally authorized, and land uses that are prohibited. The proposal involves creation of an embayment along the shoreline of Lake Washington, in an area that contains a CM shoreline designation. Uses permitted outright in the CM environment include utilities (lines and services), existing yacht, boat and beach clubs, shoreline recreation, and aquaculture. A wide variety of land uses are prohibited in this shoreline environment, including residential uses, various commercial uses, salvage and recycling uses, railroads, manufacturing uses, high-impact uses, among others (23.60.420).

Discussion: The proposed project would be consistent with land uses that are permitted outright in the Shoreline Overlay District zone. The project may qualify for an exemption from the shoreline substantial development permit process, as outlined above, for development of the embayment because the primary goal of providing the lagoon is to improve fish habitat and passage on site for this portion of the Lake Washington shoreline. Please refer to **Sections 3.3 and 3.4** for more detail.

The proposed project would be consistent with the applicable development standards of the Shoreline Overlay District zone. No design/land use code departures would be requested for the project.

3.7.2.6 City of Seattle Regulations for Environmentally Critical Areas (SMC Chapter 25.09)

This chapter of the Seattle Municipal Code implements the Seattle Environmentally Critical Areas Policies, as adopted by Resolution 28559, and as amended. This chapter applies to all development located in designated environmentally critical areas. The following are defined in the code as environmentally critical areas:

1. Geologic Hazard Areas
    a. Landslide-prone Areas
        i. Know Landslide-prone Areas
        ii. Potential Landslide-prone Areas
            1. Areas over 15 percent slope with either impermeable soils, have identified unstable soils, or areas containing springs or groundwater seepage.
            2. Steep slope areas of 40 percent average slope or greater
            3. Areas covered under 1) or 2) that have been modified (retaining walls, non-engineered cut/fill)
            4. Any slope area potentially unstable as a result of rapid stream incision or stream bank erosion.

    b. Liquefaction-prone Areas – areas underlain by cohesion-less soils of low density usually in association with a shallow groundwater table that loses substantial strength during an earthquake.

2. Flood-prone Areas – areas that would likely be covered with or carry water as a result of a 100-year storm….
3. Riparian Corridors – areas within 100-feet measured horizontally from the top of bank…
4. Wetlands
5. Fish and Wildlife Habitat Conservation Areas
6. Abandoned Land Fills

Environmentally critical areas mapped by the Department of Construction and Land Use (DCLU) as present on or near Sand Point Magnuson Park consist of the following: Liquefaction-Prone Areas, Fish and Wildlife Habitat Conservation Areas and Steep Slope Areas.

SMC 25.09.100 contains development standards for sites with Liquefaction-Prone Areas, among which are the following:

1. Soils engineering studies would be required…to determine the physical properties of the surficial soils, especially the thickness of unconsolidated deposits, and their liquefaction potential.
2. …mitigation measures appropriate to the scale of development would be recommended through the Grading and Drainage Ordinance (SMC Title 22 Subtitle 8) and the Building Code (SMC Title 22 Subtitle 1).

SMC 25.09.200 contains development standards for sites with Fish and Wildlife Habitat Conservation Areas, among which are the following:

1. The characteristics of fish and wildlife habitat conservation areas would be used to evaluate development within wetlands, riparian corridors and steep slopes. Preserving the integrity of fish and wildlife habitat corridors, and minimizing the intrusion of development into these designated habitat areas would be considered in applications for buffer reductions and conditional use permits to transfer development credit to non-critical portions of a site.

SMC 25.09.180 contains development standards for sites with steep slopes, among which are the following:

1. Development shall be avoided on areas over forty percent (40%) slope whenever possible.
2. The Director of DCLU shall require a fifteen foot (15 foot) buffer from the top or toe of slope whenever practicable…The width of the buffer may be increased or decreased as determined by the Director…

***Discussion*:** Sand Point Magnuson Park contains some identified liquefaction-prone areas, mostly concentrated in the northern shoreline area, in the location of the historical Mud Lake area, and in areas adjacent to Sand Point Way. Of these, only the areas near the historic Mud Lake are within the project site for the proposed action. The project site also contains lands mapped as fish and wildlife habitat conservation areas; these areas are generally bounded on the north by the existing NOAA facility, on the west by Sportsfield Drive, and on the south by the southern park boundary, but do not occupy all of the area within that perimeter. In addition to these features, the park contains small, localized areas of steep slopes, mostly concentrated in the southern portion (near Promontory Point) and adjacent to both sides of Sand Point Way in the northwestern portion of the park. No other critical areas are located within the park or the project site.

The proposed action would be designed and constructed to minimize or avoid impacts to designated Environmentally Critical Areas and would be consistent with SMC Chapter 25.09. No structures would be located in the liquefaction-prone areas, as this location corresponds to the interior of the wetland/habitat complex. The characteristics of the fish and wildlife habitat conservation areas have been considered in the plans for the project, particularly the wetland/habitat complex, and the impacts of the project have been evaluated relative to those characteristics. The proposed drainage system and wetland/habitat complex are intended to improve the fish and wildlife habitat on the site by enhancing some existing habitat types and creating new habitat types that do not presently exist. The proposed action would provide a net increase in the acreage of usable upland and wetland habitat present, an increase in habitat diversity, and a substantial increase in overall habitat value on the project site. **Sections 3.3 and 3.4** of the EIS provide detailed information on the characteristics of the fish and wildlife habitat conservation areas, anticipated project impacts to those resources, and mitigation measures associated with development in these areas.

3.7.2.7 Sand Point Physical Development Management Plan (1997)

The purpose of the *Sand Point Physical Development Management Plan* (City of Seattle, 1997) is to provide guidance for the implementation of the reuse of the Naval Station Puget Sound at Sand Point.

The City was to receive sole ownership of 75 percent of the 151-acre Sand Point property transferred by the Navy in 1997, while reuse partners would get 16 percent and federal agencies 9 percent. As the primary landowner and through agreements with reuse partners, the City has control over the uses and development on the site. This plan defines how the City will approach and implement that ownership responsibility through selection of reuse participants, allocation of space among various uses, tenant leases and site-wide management. This *Physical Development Plan* is intended to augment the Sand Point Amendments to the *Seattle Comprehensive Plan,* and the zoning and other controls prescribed in the *Seattle Land Use and Zoning Code*.

The subject Sand Point property is divided into six Activity Areas, including the Magnuson Park Open Space and Recreation Expansion area, which represents a portion of the project site for the proposed action. Development planned for this area was designed around the following principal considerations:

- *Expand recreational opportunities*
- *Enhance open space and natural areas*
- *Demonstrate environmental sensitivity*
- *Improve accessibility*
- *Reuse historic resources*

Activities listed in the *Sand Point Physical Development Plan* for the Magnuson Park Open Space and Recreation Expansion area include improvement of the park entrance/circulation and access, rehabilitation of open space and wetlands (Mud Lake) near the former Commissary facilities, development of additional sports fields and playgrounds, development of a Tennis Center and Community Recreation Center, and expanded parking for the park facility.

Discussion: The proposed project involves implementing most of the activities outlined above and would, therefore, be consistent with the policies outlined in the Sand Point Physical Development Plan.

3.7.2.8 Final Sand Point Historic Properties Reuse and Protection (HPRP) Plan (1998)

Included in the 151-acre Sand Point property transferred to the City of Seattle and the University of Washington in 1997 are several older buildings that comprise an historic district that has been determined eligible for listing in the National Register of Historic Places. Section 106 of the National Historic Preservation Act (1966) requires federal agencies, such as the Navy, to consider what effects the transfer of the property out of Navy ownership may have on the character of the historic district, and, if potential adverse effects are identified, to seek to avoid, reduce or mitigate them. The outcome of this Section 106 review process for Sand Point was a Programmatic Agreement (PA) between the Navy, the Washington State Office of Archaeology and Historic Preservation (OAHP) and the National Advisory Council on Historic Preservation (ACHP), with several additional interested parties having input. With this document, all parties to the transfer determined that no adverse effects resulted from the property transfer, with the agreement that the City of Seattle and the University of Washington will maintain and manage the historic district in an appropriate manner, as outlined in the PA.

The purpose of the *Sand Point Historic Properties Reuse and Protection Plan* (HPRP Plan; EDAW, Inc., 1998) was to fulfill, in part, the requirements of the PA. The plan identified the contributing historic buildings and landscape features and outlined the appropriate maintenance and management techniques

that will avoid or minimize adverse effects on the historic resources at Sand Point. In addition, the HPRP Plan also established the review process for proposed projects within the historic district that have the potential to affect the historic properties. Moreover, the HPRP Plan defined the preservation and rehabilitation policies for reuse of historic properties as being in accord with the Secretary of the Interior's *Standards and Guidelines for Historic Preservation Projects* (U. S. Department of the Interior, 1990)

As mentioned previously under the *Sand Point Physical Development Management Plan*, the Sand Point property is divided into six Activity Areas, including the Magnuson Park Open Space and Recreation Expansion area, which represents a portion of the project site. The Sand Point Historic District has a total of 20 buildings that meet the criteria to be considered as contributing elements to the district, and these buildings are described by Activity Area in the HPRP Plan. The Magnuson Park Open Space and Recreation/Expansion Area contains two buildings that are considered contributing buildings to the district: Building 47, which is the former Auditorium and Recreation Facility (now known as the Community Recreation Center) located directly west of the proposed sports fields, and Building 15, which is the Hobby Shop located on the northeast corner of the intersection of NE 65th Street and Sand Point Way.

Several of the buildings within the Sand Point Historic District are considered to be non-contributing elements to the District, either because of insufficient age or extensive alterations to the original building. These buildings are not governed by the HPRP plan to the extent that the modifications/alterations would not have an effect on any contributing building or the district as a whole. If these modifications would affect the district or buildings, they would then be subject to review under this plan. At the time the HPRP was prepared, the Magnuson Park Open Space and Recreation/Expansion Area contains two buildings that are considered non-contributing buildings to the district: Building 41, which is described as an office/gas station located directly southwest of the Community Activity Center (Building 406), and Building 222, which is the Ship's Supervisor Building located on the site of the proposed indoor/outdoor tennis center (which is not a part of the project addressed in this EIS). Building 222 was demolished in October 2000, subsequent to the preparation of the HPRP Plan, and Building 41 is not within the project limits for the proposed action.

Discussion: The proposed project would involve demolition of Building 15 to accommodate the reconfiguration of the park entry and NE 65th Street within the park. As is mentioned above, Building 15 has been identified as a contributing element for the Historic District, the potential demolition of which would require mitigation to avoid or minimize adverse effects on this and other historic resources at Sand Point. The proposed action would not affect buildings that are non-contributing elements to the Historic District. See **Section 3.11 Historic and Cultural Preservation** for additional discussion.

3.8 AESTHETICS

3.8.1 Affected Environment

Two primary factors considered in this analysis of potential aesthetic impacts are viewing opportunities and distance from the site. Viewing opportunities relate to whether and for how long people can see the site. Factors that affect viewing opportunities are topography, vegetation, existing built structures, and travel speed. How the site is viewed is also affected by distance. In the foreground (0 to 0.5 miles), detail, color and scale are easily discerned. In the middle ground (0.5 to 3 miles), visual simplification occurs, details are less discernible and colors soften. Vegetation and built structures typically begin to interrupt views at this distance. Background views (more than 3 miles) are viewed as patterns of light and dark with little or no detail discernable.

In addition to the physical characteristics of the potentially affected views, the analysis must consider the regulatory context for aesthetic impacts. Therefore, the following material summarizes City of Seattle policies and regulations concerning protection of views and characterizes existing view conditions relevant to the proposed project.

3.8.1.1 City of Seattle View Policies and Regulations

Designated Viewpoints

Seattle has identified sites for the "public's enjoyment of views of mountains, water and skyline and has many scenic routes and other places where such views enhance one's experience" (Seattle SEPA Code 25.05). Public View Protection policies contained in Seattle's SEPA Code are intended to "protect public views of significant natural and human-made features: Mount Rainier, the Olympic and Cascade Mountains, the downtown skyline, and major bodies of water include Lake Washington, Lake Union and the Ship Canal, from public places consisting of specified viewpoints, parks, scenic routes, and view corridors identified in Attachment 1" to the SEPA Code.

Within the vicinity of the project site, the only designated viewpoint noted in Attachment 1 to the SEPA code is Sand Point Magnuson Park itself, identified as the Sand Point Park/Beach at Sand Point Way NE and NE 65th Street. No specific location within the park is noted in the City's SEPA policy with regard to public view protection. As shown in **Figures 3.8-1** through **3.8-7**, existing views vary from different locations within the park. In some cases, the primary view is of existing buildings, parking lots, fields and vegetation within the site. Extending beyond the project site, views to the west are of the View Ridge residential hillside rising above the site. Lake Washington is the predominant view to the east and is also visible to the north, beyond the National Oceanic and Atmospheric Administration (NOAA) facilities in some views. To the south, the primary view from NE 65th Street is of the USGS Western Fisheries Research facility, and the University of Washington multi-family housing. Much of the residential area to the south is screened from the site by mature vegetation.

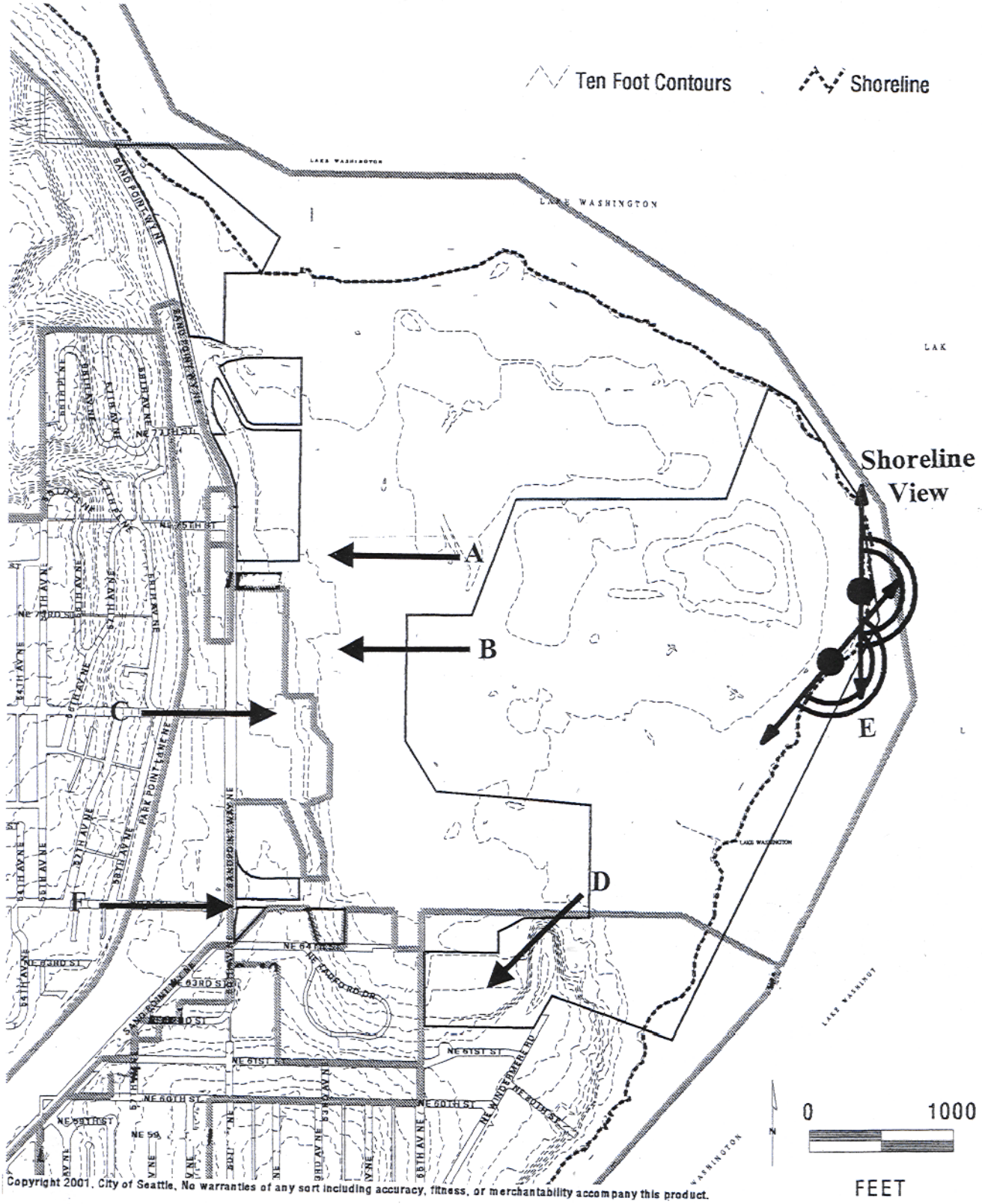


Figure 3.8-1
Reference Map of Existing View
Figures 3.8-2 through 3.8-7

Figure 3.8-2
Existing View "A" within Sand Point Magnuson Park

Figure 3.8-3
Existing View "B" within Sand Point Magnuson Park

Figure 3.8-4
Existing View "C" within Sand Point Magnuson Park

Figure 3.8-5
Existing View "D" within Sand Point Magnuson Park

Figure 3.8-6
Existing View "E" of Sand Point Magnuson Park Shoreline

Figure 3.8-7
Existing View "F" of Sand Point Magnuson Park Entrance at NE 65th Street

While the City's SEPA code does not identify specific views or view locations within the park, DPR's Sand Point Magnuson Park Design Guidelines identify important views that are to be protected. In addition, the Seattle Department of Construction and Land Use (DCLU) recently developed an inventory of 86 city viewpoints protected under SEPA. Viewpoints identified in the inventory may eventually be subject to additional protective regulations, and the City will consider the information provided in the inventory in determining conditions for proposed future development. The DCLU (2002) study identifies two viewpoints in Sand Point Magnuson Park, both located east of Kite Hill near the Magnuson Beach area. These locations provide panoramic views along the shoreline of Lake Washington and to the Cascade Mountains and Mt. Rainier. Two other viewpoints included in the inventory, at Inverness Ravine and Matthews Beach Park, are within the general vicinity of Sand Point Magnuson Park but do not provide views to the project site.

Scenic Routes

City of Seattle ordinances (#97025 and #114057) identify specific scenic routes throughout the City along which view protection is to be encouraged. The two streets designated as scenic routes in the vicinity of the project site are Sand Point Way NE (extending along and north/south of the park) and NE 65th Street between 50th Avenue NE and Sand Point Way NE.

Views along Sand Point Way NE are of a mix of commercial, office and multi-family residential development and mature vegetation. The Sand Point Magnuson Park entrance at NE 65th Street provides a view into the site that is heavily screened by existing trees (see **Figure 3.8.7**). Existing features at the NE 65th Street entrance include the former Hobby Shop, currently boarded up for protection, and a sidewalk that extends east into the park. Views of the proposed project area cannot be easily discerned from the NE 65th Street entrance. Mature vegetation blocks views into the project site from vehicles or pedestrians passing by on Sand Point Way.

At most other locations along Sand Point Way between NE 65th Street and NE 80th Street, the former naval air station buildings that are generally parallel to Sand Point Way NE block views into the park. The most prominent of these buildings is Building 9, which extends over 800 feet in length. However, eastern views into Sand Point Magnuson Park can be seen through the check-station at the NE 74th Street Entrance. From this entrance, the formal naval station buildings, streets, surface parking, and distant views of the park's natural areas can be seen.

East-facing views down NE 65th Street between 50th Avenue NE and Sand Point Way NE are primarily of Lake Washington and mature vegetation within the surrounding residential neighborhood (see **Figures 3.8-8** and **3.8-9**). Intermittent partial views of the project site are present in some locations, but are limited by existing vegetation and residential development.

Figure 3.8-8
View to East on NE 65th Street at 51st Avenue NE

Figure 3.8-9
View to East on 65th Street at 55th Avenue NE

Private Views

The City SEPA code notes that "(a)dopted Land Use Codes attempt to protect private views through height and bulk controls and other zoning regulations but it is impractical to protect private views through project-specific review." The issue of private view protection has been considered by the City many times; to date, however, the City has not adopted any specific policy or regulatory action directing that private views be protected. The Seattle Parks Tree Policy prescribes that no trees on city park property are to be trimmed or removed for the sole benefit of private view improvement.

3.8.1.2 Views to the Site

The View Ridge neighborhood west of the project site rises in elevation from Sand Point Way NE to the crest of the hill at approximately 50th Avenue NE. In general, views from the west toward the project site include mature vegetation in the neighborhood and along Sand Point Way NE in the foreground while Lake Washington, residential and commercial development along the east side of the lake, and the Cascade Mountains are seen in the distance. Features within Sand Point Magnuson Park are partially visible in the mid-range at some locations within the View Ridge neighborhood, including various points along NE 75th, NE 70th and NE 65th Streets. Prominent views of the site are found at NE 70th Street/50th Avenue NE, NE 70th Street/56th Avenue NE, and NE 75th Street/55th Avenue NE (see **Figures 3.8-10** through **3.8-12**). Sand Point Magnuson Park features that can be seen from these views include open fields and mature vegetation and the former Navy Commissary building. Distant views of Lake Washington and the Cascade Mountains can be seen beyond the park. The project site is generally not visible from other public rights-of-way in the site vicinity, generally because buildings or vegetation on residential lots block the views.

Public facilities in the View Ridge neighborhood include Bryant Park, the View Ridge Playground, and View Ridge Elementary School. None of these facilities have views of the project site. The Burke Gilman Trail is a regional non-motorized trail that runs west of and roughly parallel to Sand Point Way NE in the vicinity of the site. Due to existing development between Sand Point Way NE and the Burke Gilman Trail, the project site is generally not visible from the trail; at selected locations where the trail crosses public rights-of-way, where there are brief views of existing structures adjacent to Sand Point Way NE.

Views to the site from the south are shown in **Figures 3.8-13** and **3.8-14**. Intermittent views of features within Sand Point Magnuson Park are available from NE 60th and NE 61st Streets, between 60th Avenue NE and 65th Avenue NE. Sand Point Magnuson Park features that can be seen from southern viewpoints primarily include mature evergreen trees and vegetation and some open areas along the waterfront. The best viewing access to the park in this area is along NE 61st Street, where a portion of the park is visible beyond the University of Washington multi-family residences, some of which are currently under construction. The Commissary can also be seen intermittently between trees from this area. When construction of the University of Washington resident complexes is complete, the new structures may block some views into Sand Point Magnuson Park from the south. Beyond the park, distant northeastern views of the shores of Lake Washington and the Cascade Mountains can also be seen from these areas.

Figure 3.8-10
View to East from NE 70th Street at 50th Avenue NE

Figure 3.8-11
View to East from NE 70th Street at 56th Avenue NE

Figure 3.8-12
View to East from NE 75th Street at 55th Avenue NE

Figure 3.8-13
View to North from NE 61st Street at 65th Avenue NE

Figure 3.8-14
View to North from NE 60th Street at 63rd Avenue NE

Unobstructed views of Sand Point Magnuson Park are available from the surface of Lake Washington, which surrounds the park to the north, east and southeast of the site. Features in the park that are visible vary with location relative to the site. From the north, for example, the large buildings in the NOAA complex are prominent and help to obscure park features located farther to the south.

Views of Sand Point Magnuson Park from the east can also be seen from downtown Kirkland, approximately 3 miles distant (see **Figure 3.8–15**). The Commissary, located at the southern end of the park, a large expanse of open park space around Kite Hill, and the white-colored NOAA facilities can easily be discerned from Marina Park in downtown Kirkland. Beyond the park, residential neighborhoods surrounding the park and the Olympic Mountain range can be seen from this vantage point. Residential light sources are also be evident from this and other locations on the eastern shore of Lake Washington.

Figure 3.8-15
View to West of Sand Point Magnuson Park from Marina Park, Kirkland

3.8.1.3 Views from the Site

Views from the project site are described in **Section 3.8.1.1** and shown in **Figures 3.8-1** through **3.8-7**. Views vary from different locations within the site. In general, the primary foreground view is of existing buildings, parking lots, fields and vegetation within the site. Extending beyond the site, mid-range views are of the View Ridge neighborhood, Lake Washington, and mature vegetation in the surrounding area. Distant views are of Kirkland, Finn Hill and Kenmore east and north of Lake Washington and the Cascade Mountains.

3.8.2 Environmental Impacts of the Proposed Action

The following discussion focuses on the anticipated impacts of the project upon existing views in and near the project site during daylight hours. The visual effects of the project on these same views at night would be dominated by the lighting elements of the proposal, which are addressed in detail in **Section 3.9 Light and Glare**.

3.8.2.1 Designated Viewpoints

As described above, the Sand Point Park/Beach (Magnuson Park) is identified in the City of Seattle SEPA code as a designated viewpoint. Foreground views throughout much of Sand Point Magnuson Park would change as a result of the proposal. Views of the western portion of the project site would be of developed parking areas, sports fields and pedestrian pathways. The lighting systems around the sports fields, which would involve a total of 80 light poles with an average of 8 luminaires on each pole and each 65 to 85 feet in height, would be prominent in the foreground views. Buildings in the background would also be seen in the context of these light poles; the light poles would be significant new features of the built environment. (Please refer to **Section 3.9 Light and Glare** for a discussion specific to potential light and glare impacts.) In the southern portion of the park and project site, foreground views of existing structures (primarily the former Navy Commissary) would be replaced by created wetlands, sports fields and parking areas. Foreground views in the central portion of the park would primarily be of natural wetland areas, walking trails and shoreline areas.

Views from the two specific locations identified in the DCLU (2002) inventory of viewpoints protected under SEPA would not likely be significantly affected by the proposed action. The view orientation at these locations (at/near Magnuson Beach, as shown in View "E", **Figure 3.8-6**) spans a viewing angle from due north around to the south-southwest and is focused on lake Washington and the Cascade Mountains beyond. Westerly views toward the interior of the park are currently screened by existing upland vegetation that would generally remain undisturbed with the proposed action. It is conceivable that a few of the sports field light poles would be visible above the vegetation but, if so, they would be viewed against a backdrop of vegetation and housing rising beyond the sports field complex. The amount of screening would increase over time as the vegetation matured.

Figure 3.8-16 is a simulation of the anticipated future view from the western portion of the wetland/habitat complex, based on a photo taken from the existing sports meadow parking lot. The simulation indicates that, at least during the initial period of operation of the project, park visitors in this area would have partially screened views of field light systems within the sports field complex. In general, the luminaire assemblies and the top half to three-quarters of the light poles would be visible above the existing vegetation. The light systems would be viewed against a background of vegetation and residential development on the hillside to the west and south of the park, which would reduce the degree of visual contrast introduced by the sports field facilities. Over time, existing vegetation that would remain and native trees and shrubs planted to support habitat development (little of which is portrayed in the simulation) would grow and provide additional screening of the light systems and the urban development in the background.

Figure 3.8-16
Simulation of On-Site View from Wetland/Habitat Complex with Proposed Action

The location of the simulated view in **Figure 3.8-16** is approximately 600-700 feet from the eastern edge of the proposed sports field complex, and is generally representative of potential future views from the marshy pool and wet meadow areas in the western part of the wetland/habitat complex. Other locations within the wetland/habitat complex would be located at distances of up to about 2,000 feet from the sports field complex. Much of the remaining area of the wetland/habitat complex, including the Promontory Ponds, Lagoon, Beach Drive Ponds and central habitat reserve areas, would have substantial cover of upland forest vegetation. Consequently, throughout much of the wetland/habitat complex views of the sports field facilities would be entirely blocked by vegetation, or would be sufficiently screened and seen at such a distance that the light systems would be indistinct. This condition would apply to views toward the west from the shoreline area of the park.

Figure 3.8-17 is a simulation of the anticipated future view from approximately the northern entrance of the realigned Sportsfield Drive, looking south. This view intentionally does not include much of the landscaping vegetation that would be planted with the proposed action, so as not to obscure the athletic field improvements modeled in the simulation. Landscape plantings would ultimately provide much greater screening and softening of the view than is shown in this rendering. Nevertheless, **Figure 3.8-17** accurately indicates that the constructed sports field facilities would be prominent visual elements of the scene throughout much of the western portion of the project site. Depending on the viewer's location, some luminaire assemblies would stand out against the skyline while others would be seen with trees in the background and/or foreground. Sports field fencing and backstops would be evident, but would not be massive or dominate the view.

3.8.2.2 Scenic Routes

Designated scenic routes in the vicinity of the site include Sand Point Way NE and NE 65th Street (between 50th Avenue NE and Sand Point Way NE). The proposed action would have minimal adverse effect on the existing limited views of Sand Point Magnuson Park along Sand Point Way NE. At the NE 65th Street entrance to the park, Building 15 (the Hobby Shop) would be demolished, the right-of-way would be realigned and landscaping would be added along the entrance road. The visual character of this location would change with the new park entrance boulevard and associated landscaping.

Because views of Sand Point Magnuson Park from NE 65th Street are limited, no significant visual impacts from the proposal are anticipated in this location. To the extent that the project site is visible, the enhanced landscaping along the proposed park entrance boulevard would likely be the most visible feature.

3.8.2.3 Views to the Site

Views of Sand Point Magnuson Park from the View Ridge neighborhood to the west could be affected by the proposed action, depending on the location of the viewing site and the degree of existing view obstruction. Locations with the most unobstructed views, including various points along NE 70th and NE 75th Streets, would likely experience the greatest change. Changes could include partial views of new sports fields and light poles (please refer to **Section 3.9 Light and Glare** for a discussion of potential light and glare impacts on nighttime views) in the western half of the project site, and enhanced natural areas in the eastern half of the site.

Figure 3.8-17
Simulation of On-Site View from Sportsfield Drive Entry with Proposed Action

Three simulations have been prepared to help assess the effects of the proposed action on views to the site. **Figure 3.8-18** is a simulation of the anticipated future view with the proposed action from NE 75th Street at 55th Avenue NE, looking east. **Figure 3.8-19** is a simulation of the anticipated future view from NE 70th Street at 50th Avenue NE, looking east. **Figure 3.8-20** is a simulation of the anticipated future view from NE 61st Street at approximately 64th Avenue NE, looking north.

Figures 3.8-18 and **3.8-19** are indicative of the range of likely future views of the project from residential areas on the hillside to the west of Sand Point Way NE. Some locations, particularly those at higher elevations that have clear viewing corridors that are not blocked by structures or vegetation, would have views of the project site similar to that portrayed in **Figure 3.8-18**. (**Figure 3.8-18** is based on essentially the same view shown previously in **Figure 3.8-12**; please note that part of a tree trunk in the foreground has been digitally removed in the simulation to reveal additional area of sports field features.) In this example, sports field features seen at a distance of roughly ½-mile would be noticeable in the middle ground of the view, with varying degrees of view blockage by structures and vegetation lower on the hillside (the degree of view blockage would vary considerably from site to site on the hillside). The expanse of the sports field surfaces would probably be the most distinct element visible, although viewers at this distance would also be able to discern fencing, backstops, parking lots and light systems. These sports field features would not be out of context in an urban park setting, and would be one of several distinct visual elements (along with other expansive areas of the park, surrounding development, Lake Washington, urban development on the east side of the lake, and the Cascade Mountains) present in this panoramic view. **Figure 3.8-18** is probably representative of View Ridge locations with the maximum visual exposure to the project site and the greatest visibility of sports field features.

Figure 3.8-19 (which corresponds to the existing view shown previously in **Figure 3.8-10**) represents a simulated view from a location approximately 5 blocks to the south and east from the location shown in **Figure 3.8-18**. In this case, only intermittent views of sports field features are possible because of intervening vegetation (primarily) and structures. The simulation shows discontinuous patches of sports field surfaces, fencing/backstops, parking lot surfaces and light systems intermingled among the hillside landscaping and open patches and trees within the park. The sports field light poles and assemblies create narrow, vertical visual elements that are similar to the street lights in the foreground. Overall, the degree of visual contrast created by the sports fields in this view is relatively minor. This visual condition would likely be applicable to sizable portions of the View Ridge neighborhood to the west of the project site, particularly areas lower on the hillside and south of approximately NE 70th Street.

As discussed in **Section 3.8.1.3**, intermittent views toward the project site are possible from some areas in the residential neighborhood to the south of the project site. **Figure 3.8-20** simulates the anticipated future view to the north from NE 61st Street near 64th Avenue NE, within the Radford Court housing complex. In this case sports field features occupy a rather narrow slice of the center middle ground view; they are framed by existing trees, rooftops within the housing complex, existing buildings within the community campus area of Sand Point Magnuson Park, and buildings in the NOAA complex beyond the park. The light poles shown in this view extend to about the same viewing height as the tops of existing trees, and are not distinct when viewed against light-colored buildings. Based on the limited extent of sports field features evident and the degree of visual contrast introduced by other, existing elements in this view, the sports fields would not be prominent features in views such as this. Existing trees and structures block or screen views toward the project site from many areas in the neighborhood to the south,

Figure 3.8-18
Simulated View from NE 75th Street/55th Avenue NE with Proposed Action

Figure 3.8-19
Simulated View from NE 70th Street/50th Avenue NE with Proposed Action

Figure 3.8-20
Simulated View from NE 61st Street/64thAvenue NE with Proposed Action

so project facilities would not be evident in such locations. Conversely, the units in the northeastern corner of the Radford Court complex would have clear views directly across NE 65th Street toward the sports field complex.

Views from nearby locations (such as near NE 75th Street/55th Avenue NE on View Ridge) of the existing structures associated with and including the former Navy retail complex (Building 193 – the Commissary) would be changed with demolition of these structures (see **Figure 3.8-12**). Under the proposal, the Commissary and surrounding buildings would be replaced by less prominent but more expansive patterns of sports fields, parking lots and light poles. These views would likely be most apparent at the crest of the hill (near 50th Avenue NE) and less visible as the viewer moves down the hill toward Sand Point Way NE.

Because the project site is not visible from the Burke Gilman Trail or other public facilities in the vicinity, the proposed action would have no effect on views from these locations.

From the neighborhood to the south of the park, the proposed action could modify views at various points along NE 60th and NE 61st Streets to include the new sports fields, parking lots, light poles and enhanced wetland areas. Existing views of the former retail complex (Building 193) would be replaced with wetland habitat, parking lots and sports fields. However, as indicated in **Figures 3.8-13** and **3.8-14**, most views to the site from the south are pretty well screened. Most views of the project site from the south would likely show fragments of the proposed project facilities, as shown in **Figure 3.8-20**.

Modified daytime views of features resulting from the proposed action would be most apparent from Lake Washington to the east. From the east, the entire Sand Point Magnuson Park facility can be seen without obstruction. These views would change in both positive and negative ways. With the removal of the light-colored Commissary, this structure would no longer be a prominent feature on the western shore of Lake Washington. Removal of this large structure would increase the natural-appearing character of the park in views from the lake. Under the proposed action, discernable park features that would be introduced into the western portion of the project site and seen from the water would primarily include vegetated areas and partially-screened views of parked cars in surface lots, some of the sports field light structures, and fenced areas within the sports fields.

Southern and northern views from Lake Washington to the site would differ somewhat than those from the east. From the north and northeast, views of the park would not likely change. Kite Hill would continue to be the most prominent feature seen from this vantage point. This feature blocks views of the southern portions of the Sand Point Magnuson Park site from the north. Similarly, views of the park from the south on Lake Washington are not anticipated to change significantly. From the south, the more-natural areas in the eastern portion of the park (on the outer part of the peninsula) are most readily seen. Other features, such as the Commissary and the location of the sports field complex, are set back considerably from the shore, so project-caused changes in these locations would not be as easily seen directly from the south.

Under the proposal, park features seen from distant views to the site from the east side of Lake Washington would be somewhat similar to those features seen from the water, although features would be less discernable due to the distance. In general, the NOAA facilities, open spaces, and the Commissary features of Sand Point Magnuson Park can currently be seen from the eastern shores of Lake Washington.

Therefore, the removal of the Commissary would change the park's appearance from this distant view. However, the impact of this change is not significant due to the distance (Please refer to **Section 3.9** for a discussion of potential light and glare impacts from this location.)

3.8.3 Impacts of the Alternatives

3.8.3.1 Lesser-Capacity Alternative

In general, potential aesthetic impacts from the lesser-capacity alternative would be similar in nature and extent to those described in Section 3.8.2.1 for the proposed action. Because this alternative would have considerably fewer lighted sports fields, potential impacts associated with light poles (21 light poles, rather than 80) and lighting would be correspondingly less than under the proposed action. Viewers within the western portion of the wetland/habitat complex, for example, would see at most a fraction of the light systems shown in **Figure 3.8-16**. In more distant views (such as shown in **Figure 3.8-18**) fewer light systems would be visible, but field surfaces, fencing and parking areas would still be evident. Conversely, visitors to the interior of the park would see more evidence of development within the wetland/habitat area (as they do in the existing condition), because the interior roadway, tennis courts and parking lot would be retained in the lesser-capacity alternative.

3.8.3.2 No Action

Because no or minimal new construction would occur with the no action alternative, no changes in views of the site would result from development of sports fields and wetland/habitat areas. At some point in the future, views to the site would no longer include the former Navy Commissary as a prominent feature. Maturing of vegetation within the park could result in minor modification over time of some views from the project site, or some views across the site from neighboring areas.

3.8.4 Cumulative Impacts

None of the alternatives are expected to result in cumulative aesthetic impacts on the project site or in the vicinity. Other current and planned projects in Sand Point Magnuson Park generally involve redevelopment of existing structures, and would not result in a significant change to the extent of constructed features evident in views of the park. Proposed major projects or development trends that would significantly change the aesthetic character of the surrounding community have not been identified.

3.8.5 Mitigation Measures

Potential mitigation measures to reduce the aesthetic effects of the proposed action include the following:

- Design proposed facilities to maintain view corridors along the western edge of the proposed surface parking and sports fields.
- Consider lighting management criteria, landscape buffers, low-sodium lighting, full cut-off lighting fixtures for parking lots, and low hanging street lamps to minimize light impacts in the transition areas between the sports fields and the Sand Point Historic District to the west and the adjacent residential neighborhoods to the south.

- Use recessive colors on light poles, sports field fencing and related structures.
- Provide landscape screening around surface parking lots and sports fields to minimize visibility of cars and light poles from views on site and from surrounding locations.
- Provide landscape screening of views toward sports fields from viewing platforms and other key viewing locations in the wetland/habitat complex.

3.8.6 Significant Unavoidable Adverse Impacts

The Commissary would no longer be a prominent feature in many views on or to the Sand Point Magnuson Park site. Instead, daytime views of natural vegetation, wetlands, and features associated with sports fields in the park would increase from some surrounding viewpoints and from within the park itself. Sports field light poles and luminaires would be notable new features visible from within the park looking west and in some views from the west to the park.

The Sand Point Magnuson Park design standards, guidelines, and the mitigation measures described above, together with the City's development regulations, are adequate to mitigate the significant adverse visual impacts anticipated for the proposed action and lesser-capacity alternative.

Figure 3.8-2
Existing View "A" within Sand Point Magnuson Park

Figure 3.8-3
Existing View "B" within Sand Point Magnuson Park

Figure 3.8-4
Existing View "C" within Sand Point Magnuson Park

Figure 3.8-5
Existing View "D" within Sand Point Magnuson Park

Figure 3.8-6
Existing View "E" of Sand Point Magnuson Park Shoreline

Figure 3.8-7
Existing View "F" of Sand Point Magnuson Park Entrance at NE 65th Street

Figure 3.8-8
View to East on NE 65th Street at 51st Avenue NE

Figure 3.8-9
View to East on 65th Street at 55th Avenue NE

Figure 3.8-10
View to East from NE 70th Street at 50th Avenue NE

Figure 3.8-11
View to East from NE 70th Street at 56th Avenue NE

Figure 3.8-12
View to East from NE 75th Street at 55th Avenue NE

Figure 3.8-13
View to North from NE 61st Street at 65th Avenue NE

Figure 3.8-14
View to North from NE 60th Street at 63rd Avenue NE

Figure 3.8-16
Simulation of On-Site View from Wetland/Habitat Complex with Proposed Action

Figure 3.8-17
Simulation of On-Site View from Sportsfield Drive Entry with Proposed Action

Figure 3.8-18
Simulated View from NE 75th Street/55th Avenue NE with Proposed Action

Figure 3.8-19
Simulated View from NE 70th Street/50th Avenue NE with Proposed Action

Figure 3.8-20
Simulated View from NE 61st Street/64thAvenue NE with Proposed Action

3.9 LIGHT AND GLARE

3.9.1 Affected Environment

3.9.1.1 Applicable City of Seattle Policies

SEPA Policies

City of Seattle SEPA policies concerning light and glare state:

> *It is the City's policy to minimize or prevent hazards and other adverse impacts created by light and glare. If a proposed project may create adverse impacts due to light and glare, the decision maker shall assess the impacts and need for mitigation.*

DPR Lighting Performance Standards

The City of Seattle has identified the need to install lighting systems at athletic fields because of the limited availability of new open spaces for active recreation within the city and the need to increase athletic filed scheduling capacity (Seattle Department of Parks and Recreation, 2001). In response to concerns of neighborhood groups and individuals over the spill light and glare from sports field lights, the Department of Parks and Recreation commissioned a lighting study to develop a predictable method for planning, designing and developing sports field lighting systems. A portion of the ballfield lighting study report (McGowan Broz Engineers/DMD, 2001) addresses the impacts of extending sports play into the evening at City-owned facilities, and recommends a set of sports field lighting performance standards. The standards are described as follows:

> The maximum maintained vertical illuminance level for spill light must not exceed 0.8 fc [foot candles] (initial 1.1 fc) at the residential property line.
>
> The designer shall undertake initial vertical illuminance calculations on a line along the edge of the properties and roadways as defined by the City to establish compliance with the 0.8 fc level. The levels shall be calculated at five feet above grade.

3.9.1.2 Existing Light and Glare

Sand Point Magnuson Park/Project Site

Outdoor illumination currently exists at many locations within Sand Point Magnuson Park and at non-park facilities on the Sand Point peninsula. These primarily include exterior floodlights on buildings, street lights and parking lot lights. In number, the existing lights are concentrated in the western sector of the park, where most of the former Navy buildings are located, and are not within the project site. In general, these lighting features are not noticeable in the off-site vicinity of the Park.

The most prominent existing source of lighting within Sand Point Magnuson Park is Building 193, the former Navy Commissary facility located adjacent to NE 65th Street near the southern edge of both the

park and the project site. Perimeter lighting around this large building and the adjacent parking areas is extensive; combined with the light-colored exterior of the building, the effect is to make the Commissary highly visible in unscreened views from the surrounding area. The lights in this area are turned on intermittently for security purposes.

Two federal agency installations on the Sand Point site but not within the park boundaries also have extensive exterior lighting. The NOAA administrative complex on the north side of the peninsula occupies approximately 110 acres, and includes 10 buildings and their associated parking lots. The numerous exterior lights at this facility are plainly visible at night throughout much of the park, along a section of Sand Point Way NE, to varying degrees from the residential areas west of Sand Point Way, and in views from on or across Lake Washington. The USGS Western Fisheries Research Center on NE 65th Street, just south of the park and the project site, is a 5-acre complex with fewer, smaller buildings. Lights at the USGS facility are visible from much of the southern part of Sand Point Magnuson Park and from neighboring residential uses immediately to the west and south, but are generally not evident from locations farther to the west or south.

During daylight hours, existing sources of reflective glare in Sand Point Magnuson Park are limited. Windows and other highly reflective surfaces on buildings can generate glare. Given the prevailing architectural style of the buildings in the park, however, reflective surfaces and associated glare are not extensive. Vehicles in the park can also produce reflective glare.

Surrounding Vicinity

Lighting in the vicinity of Sand Point Magnuson Park comes from a variety of sources and displays a range of intensity. Lighting levels are of greatest intensity in the area along Sand Point Way NE. Several commercial and multi-family developments have building, parking lot and security lights that contribute to light levels along this corridor. The Children's Hospital administrative office building currently under construction on the west side of Sand Point Way will presumably have some additional exterior lighting. The View Ridge Swim and Tennis Club, located at NE 77th Street and Sand Point Way NE, has lighted tennis courts with spillover light onto Sand Point Way and nearby uphill residences. Streetlights along Sand Point Way NE are located about every 150 feet. Most of these contain 200-watt sodium vapor lamps, but their power ranges from 70 to 400 watts.

Lighting levels in the residential neighborhoods west of Sand Point Way are lower, consisting primarily of residential yard and house lighting and street lights. Street lights and exterior residential lighting in the uphill areas west of Sand Point Way are visible from the interior of the project site and elsewhere in Sand Point Magnuson Park. Landscaping vegetation around many of these residences has been maintained in low-growing form while taller trees exist in some places, so the visibility of lighting on the hillside is variable. Similar conditions apply to the residential area to the south of the project site, although exterior lighting levels in the Radford Court housing complex are somewhat higher than in adjoining single-family residential areas.

Commercial lighting along Sand Point Way, vehicles on local roadways, windows, and various other reflective surfaces within the vicinity of Sand Point Magnuson Park currently produce glare during daylight hours. In general, buildings along Sand Point Way and in adjacent areas do not have extensive reflective surfaces. Reflective glare can be created by vehicular traffic.

3.9.2 Environmental Impacts of the Proposed Action

The proposed action would significantly increase the amount of light in the area during evening hours. The lighting impacts may be assessed by evaluating two source components: the athletic field lighting, and the balance of the other lighting systems. The athletic field lighting represents over 90 percent of the light sources at the site. The balance of the project lighting would consist of parking lot, roadway, pathway, building perimeter and egress lighting systems. The "other lighting" systems utilize sources and lighting techniques that are comparable to the existing on-site lighting and do not represent a significant impact when scaled against the athletic field lighting, or against the lighting that now exists at the site.

The potential environmental impacts of the athletic field illumination consist of increased light levels inside the park, spillover light into the wetlands, spillover light onto areas outside of the park, glare and "sky glow".

Lighting terms used in this report are defined as follows; most are paraphrased from The IESNA Lighting Handbook, 8th Edition:

Foot-candle is a description of the amount of light striking a surface. It is equal to 1 lumen per square foot. You cannot see the light striking the surface, see luminance. Some examples of foot-candle levels are:

Full moonlight (approximate)	0.02
Lighted freeway, minimum	0.20
Lighted freeway, or residential roadway (avg)	1.00
Existing Sand Point building floodlights (max)	3.00
Residential street light (max)	5.00
Downtown Seattle streets	5.00
SPW cross walk (max)	10.00
Sports field, Class IV (proposed Sand Point - average)	30.00
Citgo gas station pumps on Sand Point Way (max)	40.00
Office building (interior average)	50.00
Safeco Field, Class I (average)	200.00

full cutoff luminaire is a luminaire (light fixture) which does not send any light upward. (Some organizations such as the International Dark Sky Association refer to this type of luminaire as a fully shielded luminaire, see the International Dark Sky Association's Outdoor Lighting Code Handbook, Section 5.02 or http://www.nofs.navy.mil/about_NOFS/staff/cbl/LC_Handbook_v11.html#cutoff.)

glare is the sensation produced by luminance within the visual field that is sufficiently greater than the luminance to which the eyes are adapted to, causing annoyance, discomfort, or loss in visual performance and visibility. IESNA breaks glare into several categories:

disability glare is the glare that results in reduced visual performance and visibility. It is often accompanied by discomfort. For example, if you are trying to observe Lake

Washington at night (a dark surface) from above and west of the park, direct or reflected light from inside the park can create a veiling luminance, that will disable your ability to view the lake. Another example is attempting to see a roadway with a setting or rising sun along the same line of sight.

discomfort glare produces a physical sensation of annoyance or pain, but without interfering with visibility.

In this report the term "glare" will most often refer to disability glare, or the presence of a veiling luminance. Glare, or disability glare, will be subdivided into direct and reflected elements, as follows:

direct glare describes when an observer can see directly into a luminaire's light source, where the lamp or the reflector are visible.

reflected glare describes when light reflected from a surface causes disability glare. It is assumed that the surface is not intentionally a light source. Surfaces attributable to reflected glare will have a higher luminance than adjacent or nearby surfaces.

Glare is sensitive to the position of the observer; a light source that prevents one observer from seeing can be helping a different observer at the same time.

light trespass is when spill light extends beyond the property line of the owner of a light source, and onto or above another owner's property.

luminance is the amount of light that is reflected off of a surface, in general terms it is proportional to the reflectance of the surface and the amount of light striking the surface. It is what we see, but because it varies with the viewer it is difficult to calculate.

sky glow is the haze or glow of light emitted above the lighting installation and reduces the ability to view the darkened night sky. This is a combination of light emitted directly from the light source, light reflected upward from the illuminated surface, and light reflected from airborne particles between the light source and the illuminated surface.

spill light is light from a source which does not strike the area intended for illumination. Spill light can be characterized by foot-candles (fc) calculated or measured in a vertical plane.

Figure 3.9-1 illustrates spill light and light trespass. **Figure 3.9-2** illustrates direct and reflected glare.

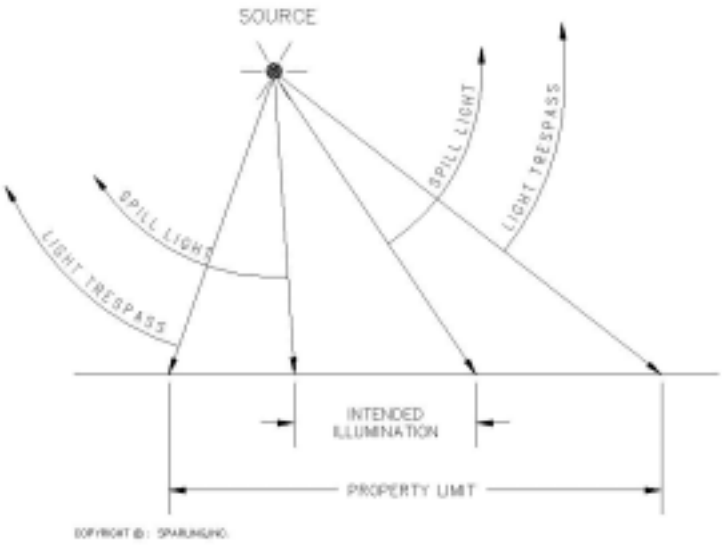


Figure 3.9-1
Spill Light and Light Trespass

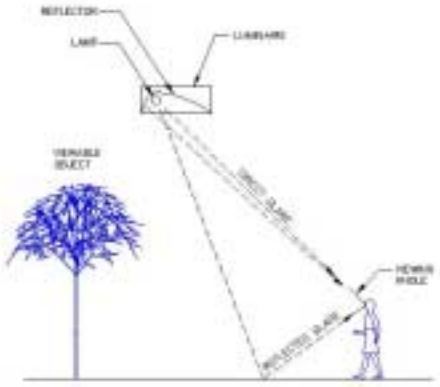


Figure 3.9.2
Direct and Reflected Glare

The Class IV light levels of 20 to 30 footcandles are the minimum recommended for safe play by the IESNA. The light level is comparable to most of the levels now present in the Seattle Parks system. The lighting systems selected for use with this project employ the latest technologies currently available, and control light much better than systems that were put in more than 5 years ago. So while the light levels are comparable to existing fields the control of light will be much better. The luminaires selected for the project consist of full-cutoff floodlights for nine of the lighted fields, and shielded floodlights with extended external visors for the remaining two fields. The proposed lighting systems are described in **Section 2.2.9**. As a point of comparison, **Table 3.9-1** gives examples of recreational field lighting systems in the Seattle area, and identifies whether the system uses older unshielded floodlights, or the newer shielded conventional or cutoff floodlights.

Spill light and light trespass, including direct glare, can be controlled through the use of luminaire locations, light distributions, aiming angles, and mounting heights. Placing luminaires close to the field with nearly downward aiming angles will minimize the spill light and direct glare components of light trespass. Pole mounting height and light distribution patterns can also be optimized, however field size and sport performance criteria can set minimum pole heights and daytime viewing aesthetics or maintenance restrictions can set maximum pole heights.

3.9.2.1 Spill Light

Spillover light can be quantified and measured. Over 95 percent of the spill lighting coming directly from the sports field luminaires would land on areas immediately adjacent to the fields, and inside the park boundaries. Some spill light would extend toward the wetland/habitat buffer area immediately adjacent to the sports fields.

Figure 3.9-3 is an illustration of the calculated lateral distribution of spill light (vertical foot-candles) from a typical sports field light system. The full cut-off system was chosen for analysis due to the fact that it generates more spill light behind the poles as compared to shielded floodlights. The graphic shows conditions specific to a little league baseball/fast-pitch softball field (Fields 9 through 11) proposed for Sand Point Magnuson Park; this field configuration was selected because Fields 9 and 10 would be the fields located closest to the wetland/habitat complex.

The numbers on the graphic indicate the calculated lighting intensity, in vertical foot-candles 5 feet above the field, at specific location intervals outside of the field. The lines show the distance away from the field at which the light level would fall off to 1 and 0.2 foot-candles. The distance from home plate to the outfield fence would be 225 feet for this field. As shown on the graphic, the light level beyond the fence line would diminish to 1 foot-candle at a distance of approximately 135 feet beyond the fence line, and to 0.2 foot-candle at approximately 205 feet beyond the fence line.

Table 3.9-1
Typical Existing Lighting Systems

NAME	TYPE OF FLOODLIGHT	LEVEL	FIELD SURFACE	REMARK
Des Moines Field House Park 1000 S. 220th Street Des Moines, WA	Shielded Conventional with Extended External Visor	IES Class IV 30 ft-c Infield 25 ft-c Outfield	Skinned Infields Natural Turf Outfields	Utility Field
Sacajawea Park 1405 Dash Point Road Federal Way, WA	Shielded Conventional with Extended External Visor	IES Class III 30 ft-c	Synthetic Turf	Soccer Field
Phil Johnson Fields 400 West Sievers-Ducey Blvd. Everett, WA	Full Cutoff Forward Throw Shoebox	IES Class IV 30 ft-c Infield 20 ft-c Outfield	Synthetic Turf Infields Natural Turf Outfields	4 Little League Fields
North SeaTac Park 13735 24th Avenue South SeaTac, WA	Full Cutoff Forward Throw Shoebox	IES Class IV 25 ft-c	All Weather	2 Soccer Fields
Marymoor Park 6046 West Lake Sammamish Parkway N.E. Redmond, WA	Unshielded Floodlights Full Cutoff Forward Throw Shoebox	IES Class IV 25 ft-c Soccer 30 ft-c Infield 20 ft-c Outfield	All Weather (Soccer) Skinned Infields Natural Turf Outfields (Softball)	Unshielded Floodlights at 2 Softball, 3 Soccer Fields & Velodrome Full Cutoff at 1 Soccer & 3 Softball Fields
Delridge Field 4458 Delridge Way S.W. Seattle, WA	Unshielded Floodlights	IES Class IV 30 ft-c Infield 20 ft-c Outfield	Skinned Infields Natural Turf Outfields (Softball)	Unshielded Floodlights at 2 Softball Fields with 1 Soccer Field Overlay
Lower Woodland Park 5201 Green Lake Way North Seattle, WA	Unshielded Floodlights Shielded Conventional with Extended External Visor	IES Class IV 20 ft-c Soccer 30 ft-c Infield 20 ft-c Outfield IES Class III 50 ft-c Infield 30 ft-c Outfield	All Weather (Soccer) Skinned Infields Natural Turf Outfields (Softball) Synthetic Turf Infield Natural Turf Outfield (Baseball)	Unshielded Floodlights at 4 Softball & 2 Soccer Fields (Fields #2-#7) Construction of Lighting System to be completed 8/01/02 (Field #1)

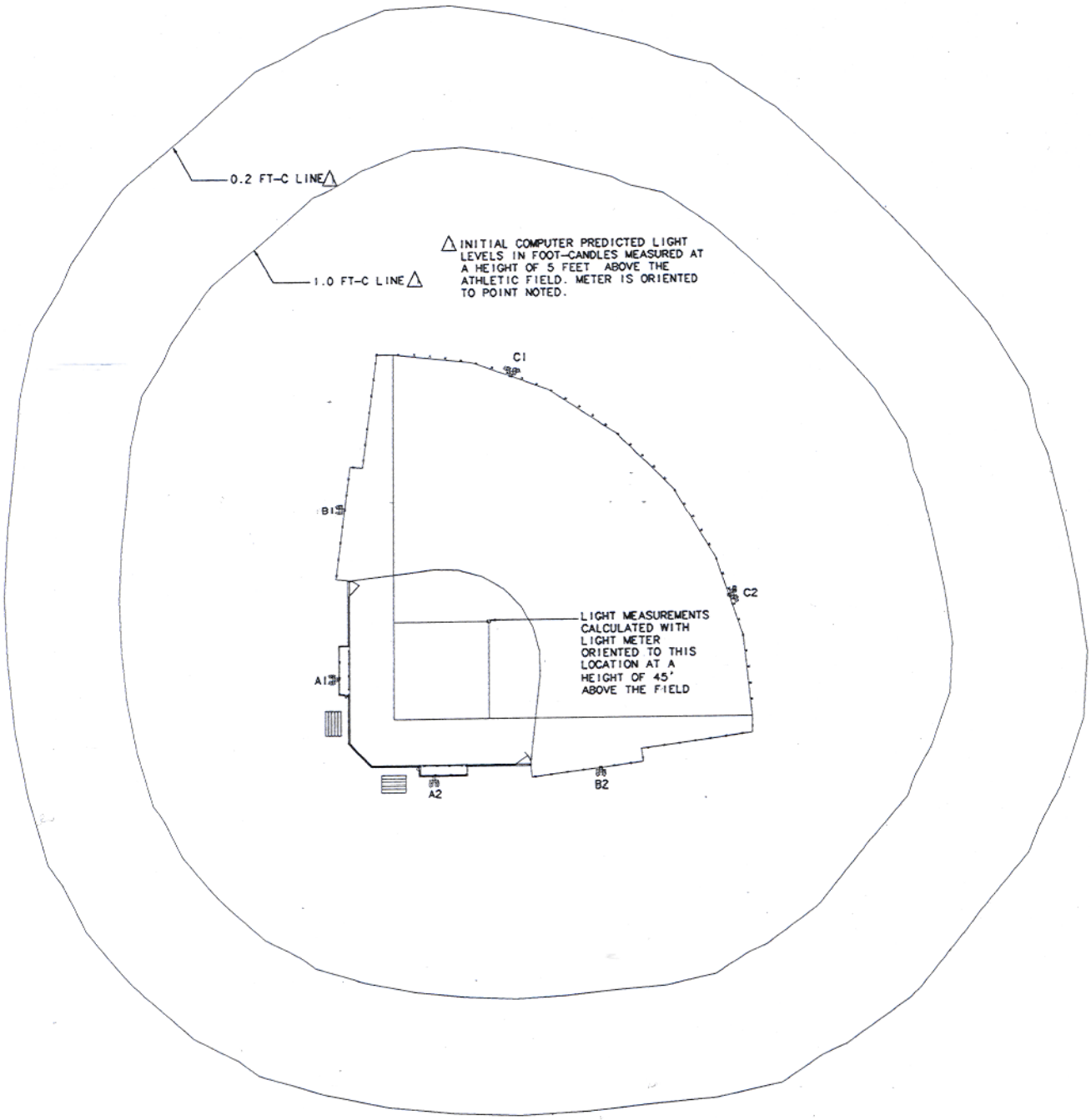


Figure 3.9-3
Typical Vertical Light Limits
Little League/Fast-pitch Softball Field
(225 feet from home plate to outfield fence)

The Department of Parks and Recreation has adopted a sports field lighting standard with a guideline that the maximum light level at the nearest residential property line should not exceed 0.8 vertical foot-candles maximum maintained (1.1 foot-candles initial), as discussed in **Section 3.9.1.** For the proposed light systems, this lighting level corresponds to a distance of no more than about 150 feet beyond the fence line for a given field. All of the lighted sports fields included in the proposed action would appear to meet this standard. For Field 14, the field closest to the Radford Court complex, the 150-foot distance corresponds to a location just south of NE 65th Street. The precise location of the 0/8 foot-candle limit relative to the property line for the Radford Court complex would need to be verified during detailed engineering design for the sports field lighting systems. The centerline of Sportsfield Drive would be approximately 125 feet from the fence lines of Fields 7, 11 and 12. There would be less spill light generated from Field 7 into Sportsfield Drive than shown with the use of the shielded floodlights. Consequently, the proposed action would not result in adverse spill light impacts for residential uses adjacent to the project site.

Issues relating to potential spill light and glare effects on wildlife are addressed in **Section 3.4 Animals and Fish**.

3.9.2.2 Glare

Light emanating from the park might be perceived as a source of glare by viewers inside or outside of the park. The presence of glare depends on the viewer's orientation, what the viewer is trying to see, and on the distribution of intervening buildings, terrain or vegetation. The primary sources of glare from the proposed action would be direct glare from the luminaires and reflected glare (luminance) from the surfaces in the park.

Direct glare would be a component of spillover light when viewable from outside of the park. Although direct glare would be visible from outside the park, the angles at which the light sources could be seen would be obscure enough to limit the amount of light to levels that are within the City of Seattle spill light standard.

The synthetic athletic field surfaces would be the greatest contributor to reflected glare. Light reflected from luminaire housings, luminaire visors and poles would also be a contributor. Reflected glare might be visible from any viewpoint overlooking the site. The impacts of glare are extremely difficult to quantify, as varying conditions such as ambient light levels, reflective characteristics of surfaces, and atmospheric conditions cause the level of impact to vary considerably.

During daylight hours the proposed action would not add any source of lighting that would cause any appreciably noticeable glare. In general, the number of structures with the potential to reflect daytime light in a specular manner, as is common with windows, would decrease. Daytime reflection and nighttime headlight glare from vehicular traffic would change in proportion to the amount of traffic in the park.

Direct Glare

The potential for the direct glare form of light trespass can be evaluated based on the proposed luminaire construction, mounting height and aiming angles. At any viewpoint inside or outside of the park, the

existence and amount of direct glare will be dependent on the distance to the luminaire and the elevation difference between the viewer and the luminaire. Light intensity decreases in proportion to the square of the distance from the light source. Also, raising a remote viewer's elevation will expose a viewer to less of the light coming from a luminaire that is aimed downward. The impact of direct glare decreases as a viewer get farther away from, and higher in relationship to, the location of a luminaire. While viewers at considerable distances from the sports fields could be exposed to direct glare, the illuminance level of the direct glare would not exceed the 0.8 fc lighting standard adopted by the City.

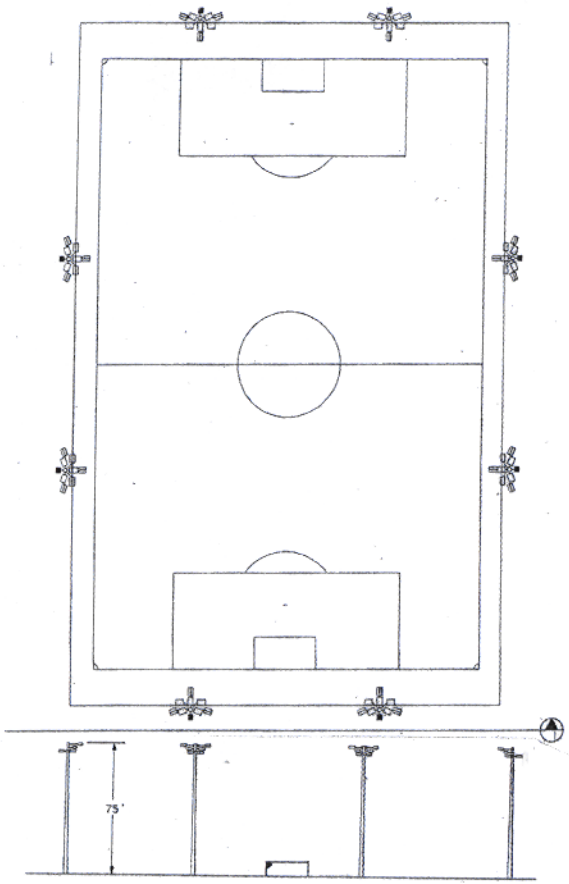
The street and parking lot luminaires would be mounted on 40-foot high poles. Because full-cutoff fixtures would be used for these lights, direct glare from these luminaires would be primarily confined to the boundaries of the park. The sports field lighting offers the greatest potential for direct glare to occur outside of the park. The sports field pole heights and luminaire types are described in **Section 2.2.9**. **Figure 3.9-4** includes plan-view and cross-sectional diagrams of a typical soccer field (with full-cutoff floodlights) and baseball field (shielded floodlights.

Full-cutoff athletic field luminaires are proposed at all fields, except Fields 7 and 8. No direct glare would be visible at elevations equal to or above the height of these luminaires, as the lamps and reflectors are fully shielded. The elevations of the play fields are 35 to 40 feet above sea level. The light poles for these fields add another 75-feet, giving a top elevation of 110 to 115 feet above sea level. Viewers at elevations above approximately 115 feet above sea level would not be exposed to direct glare from the athletic field light systems at all fields except, Fields 7 and 8.

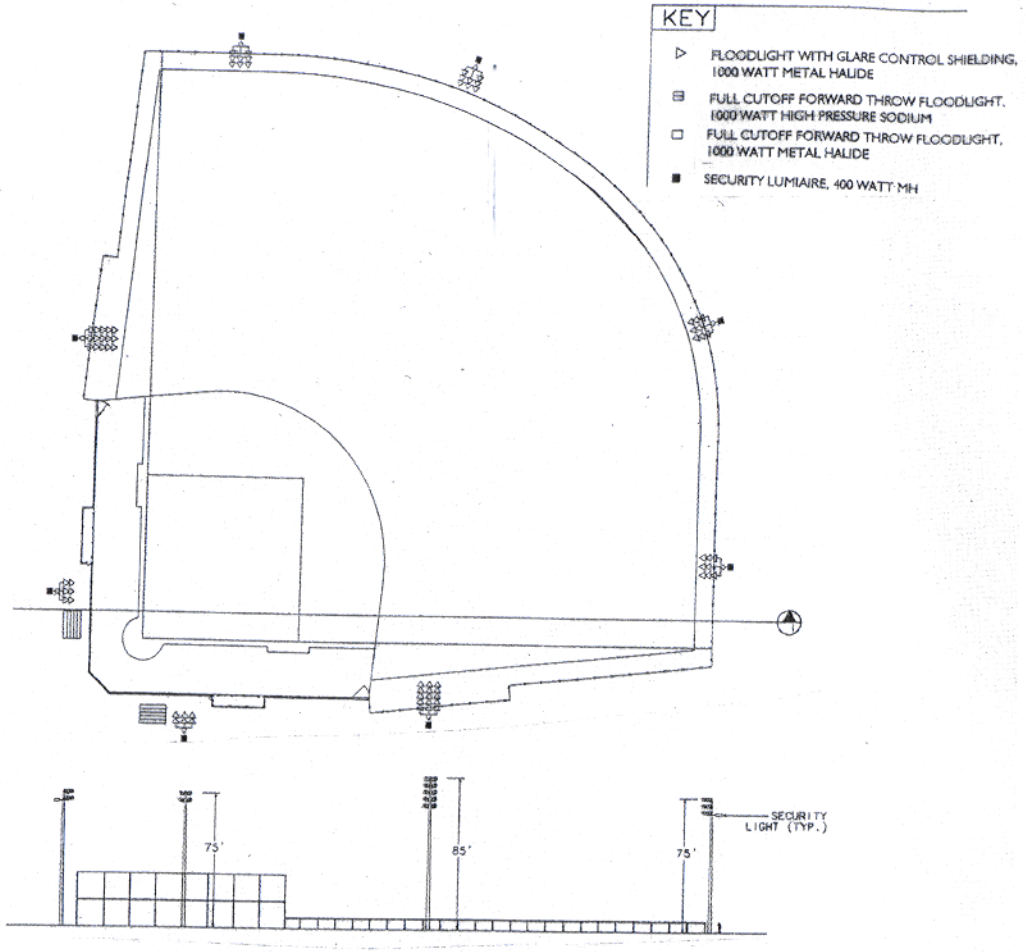
Shielded floodlights (luminaires) are proposed for Fields 7 and 8, the two larger baseball/softball fields. The shielded floodlights do not completely cutoff the light, and direct glare would be visible above the level of the luminaire from outside the park, depending on the viewer's orientation relative to the aiming of the floodlights. The elevation of the playing surfaces of Fields 7 and 8 range from 35 to 37 feet above sea level. Six of the light poles at these fields would be 75 feet high, and two would be 85 feet high. The elevation at the top of the 85-foot poles would be approximately 120 to 122 feet above sea level. The luminaires would be aimed down to the field as much as possible to control direct glare.

On-Site Glare Exposure

The primary exposure to direct glare from the sports field lights would occur within the transitional housing area of the Sand Point campus, particularly at Building 224 (Santos Place). This building is located immediately to the west of Sportsfield Drive and directly across from the locations for Fields 7 and 11, respectively, and at a base elevation of approximately 50 feet. Because there is little intervening vegetation between Building 224 and the sports field complex location, views to the east from the structure would be fully exposed to direct glare from virtually all of the lit fields. Buildings 26N and 26S (located west of 62nd Avenue NE, across from Building 6) would also be exposed to direct glare from the field lights, although trees to the north and south would frame this exposure to a corridor including Fields 11 and 10, and perhaps some of the light poles at Fields 7 through 9 and 12 and 13. Elsewhere within the residential area of the Sand Point campus, such as at Buildings 330, 331 and 332, mature trees to the west of Sportsfield Drive should filter exposure to direct glare from the sports fields.



SOCCER FIELD WITH
FULL CUTOFF FLOODLIGHT



BASEBALL FIELD WITH SHIELDED
CONVENTIONAL FLOODLIGHT

Figure 3.9-4
Sports Field Lighting Schematics

The Sand Point Community Housing Association is proposing to build 103 additional housing units on the Sand Point campus, consistent with the Sand Point Reuse Plan. Two locations considered for new housing construction are across 65th Street and across Sportsfield Drive from the proposed athletic field complex. General schematic drawings were prepared for both sites in 1996, but no further design work for the additional housing has been conducted since. The SPCHA expects to begin the design process in late 2002 and construction in 2003/2004. Depending upon the outcome of site selection and design, the additional housing could also be exposed to direct glare from the sports field lights.

Off-Site Glare Exposure

The cutoff fixtures would not be seen at viewing elevations above 115 feet, and the shielded floodlights are mounted at 125 feet. Above 125 feet only light from the floodlights on Fields 7 and 8 would cause direct glare, and then only if the luminaires have a component of light aimed at the viewer's direction. The 125-foot level sets a threshold for direct glare effects, and it is worth considering where this elevation lies in the adjacent community.

To the west of the project site, the terrain rises noticeably to the west of Sportsfield Drive and again to the west of Sand Point Way NE. In this area the 125-foot elevation contour runs generally along the west side of the Burke-Gilman Trail from about NE 60th Street up to NE 70th Street, and generally along the course of 58th Avenue NE between NE 70th Street and NE 82nd Street (USGS, 1968). The 125-foot contour in this area is located approximately 1,200 to 1,300 feet west of the project site. To the south of the project site, the 125-foot contour is located part-way up the hillside that forms Promontory Point within the park and in the general vicinity of NE 61st and NE 62nd Streets outside the park, at distances ranging from 400 to 1,000 feet from the project site. Off-site uses below the 125-foot level in this area are essentially limited to the Radford Court student-housing complex; the southern tiers of units in this complex appear to be situated above 125 feet in elevation.

Most of the single-family residential areas west of the Burke-Gilman Trail are above the 125-foot elevation. This area would not have exposure to direct glare from the cutoff luminaires, or from the shielded floodlights that are aimed eastward. They would only be exposed to direct glare from portions of the shielded floodlights on the 16 poles serving Fields 7 and 8, if the luminaires were oriented to the direction of the viewer.

Some of the units in the northerly and easterly portions of the Radford Court complex, which are generally at elevations ranging from about 50 to 125 feet above sea level, would have exposure to direct glare from the sports field lighting. Trees and other buildings in the complex would block views toward the project site and the sports field lights at some locations, while other locations would have a clear viewing path to the lights. In these cases, the direct glare exposure would most likely involve the southernmost sports fields, particularly Fields 14 and 15 and possibly Fields 12 and 13. These fields would be lit with full-cutoff fixtures at mounting elevations of about 110 feet above sea level, and residences in Radford Court (which would be a minimum of 200 to 250 feet from the closest field lights) would be subjected to the small mount of direct glare that would be present at an oblique viewing angle.

Motorists, pedestrians and bicyclists traveling along Sand Point Way NE, at elevations ranging from about 50 to 100 feet and at a distance of about 800 feet from the project site, would have brief, intermittent exposure to direct glare from the sports field lights. Similar conditions could apply to the

commercial and multi-family residential uses on the west side of Sand Point Way, depending on the specific locations of individual structures. As described in **Section 3.8.1**, trees and/or buildings block eastward views into Sand Point Magnuson Park from most locations on Sand Point Way.

Residences along or east of 58th Avenue NE and north of approximately NE 70th Street are at a low enough elevation that they might experience glare from multiple fields. This would depend upon site-specific physical characteristics; existing trees and buildings that block views toward the lights or limit the views to narrow corridors between buildings and tree clumps. Elsewhere in the View Ridge neighborhood, direct glare could be evident at various locations where the viewing elevation and lack of view blockage (by vegetation or structures) permit views into the interior of the project site.

Summary

In summary, locations outside the park but within the viewshed of the park and above an elevation of 125 feet could only be exposed to direct glare from some portion of the 100 sports field luminaires (out of 640 total in the park) used to light Fields 7 and 8. Potential off-site exposure to direct glare from these lights, and the number of lights involved in each case, would depend upon site-specific view corridor conditions. For viewers located at elevations below 125 feet, the chances of exposure to direct glare would be dependent on proximity to a sports field, the field use, and any intervening vegetation. Residences in certain locations would experience direct glare from a few of the light assemblies depending on the circumstances at each residence.

These conclusions should not be interpreted to mean that the sports field lights would not be evident or visible from the surrounding community. From a number of locations on View Ridge, for example, clear viewing paths to the project site exist and nighttime viewers would be able to see large arrays of luminaires in use at the sports fields. The sports field light systems would also be visible from more distant viewing locations with clear lines of sight to Sand Point Magnuson Park. This would include a large area of the surface of Lake Washington and considerable portions of the suburban development east of the lake.

The Seattle Department of Design, Construction and Land Use (DCLU) has been involved in reviewing permit applications for several sports field lighting projects at other Seattle parks. The recent DCLU impact evaluations for Woodland Park and the Genesee Playfield concluded that, with the inclusion of mitigating measures such as newer floodlight technology and limited hours of operation, light and glare impacts could be reduced to an insignificant level. Both of these proposals involved residential uses adjacent to the sports fields that would be lit. While these conclusions may not be directly transferable to the Sand Point Magnuson Park proposal, it should be noted that the nearest residences to the proposed fields would be at a distance of 300 feet.

3.9.2.3 Surface Luminance

When light strikes a surface, part of the light is reflected away from the surface; when reflected light strikes the eye, the surface can be seen. Luminance is a metric of the amount of light reflected from a surface. The nighttime luminance of surfaces within the park would significantly increase with the proposed action. The average illuminance would increase, as would the average surface reflectance, resulting in an overall increase in luminance.

In general terms the overall increase in luminance is assessed in **Table 3.9-2**. **Table 3.9-2** is intended to represent an overall average and magnitude. The PLP (unlighted) represents all surfaces within the park that are unlighted. The PLP (Spill Light) represents all surfaces within the park that are adjacent to intentionally illuminated spaces, but would receive spill light. The acreage indicated is a rough estimate.

Table 3.9-2
Surface Luminance, Existing and Proposed Conditions

Existing Conditions

Surface	Average Illuminance (FC)	Average Reflectance	Luminance (lumens/sf)	Acres
Entire Park				352
Park, Lawn & Planting (PLP) (Unlighted)	<0.2	5%	0.0	332
Park, Lawn & Planting (PLP) (Spill Light)	>0.2 FC and <1 FC	5%	.05	16
Impervious Surfaces (Lighted)	1	10%	0.1	4
Sports Fields (Lighted)	0	N/A	N/A	0

Proposed Action

Surface	Average Illuminance (FC)	Average Reflectance	Luminance (FL)	Acres
Entire Park				352
Park, Lawn & Planting (PLP) (Unlighted)	<0.2 FC	5%	0.0	236
Park, Lawn & Planting (PLP) (Spill Light)	>0.2 FC < 20 FC	5%	.5	82
Impervious Surfaces (Lighted)	1	10%	0.1	12
Sports Fields (Lighted)	25	20%	5	22

Actual luminance calculations with the system in place would be dependent on the angle at which light strikes the surface, the surface's degree of specular or diffuse reflective characteristics, and the angle at which the surface is viewed from. **Table 3.9-2** grossly simplifies what is necessary for luminance calculations, using just the illuminance multiplied by the reflectance to determine luminance. The sports fields would use an artificial turf. The reflectance of this turf is unknown, but it is estimated to be twice as bright as a typical concrete pavement, or about 20 percent.

Table 3.9-2 shows that the area of the park with a luminance of 0.2 FL or less would decrease from approximately 332 acres to 236 acres. It also indicates that the 22 acres used for sports fields would be 50 times brighter than any park surface that is presently illuminated.

With the sports field lights on, anyone with a view corridor to the sports field complex would notice the increase in surface luminance. In addition to the general luminance increase, there would be luminance hot spots at the sports field lighting poles and housings. The mounting arrangements of the luminaires would result in light from one luminaire striking the outside housing of another luminaire or striking the pole the luminaire is mounted on. While the area of the surfaces is small, these surfaces are very close to the light source, and would have a high luminance.

If an observer were trying to view a dark element within or in the vicinity of the park, the luminance of surfaces within the park could create reflected glare that prevented discernment of the dark element.

The increase in surface luminance means that there would be more light emanating from reflective surfaces in the park. This reflective light would travel in all directions and strike other surfaces within and outside of the park, and would be reflected again and again. Areas within and bordering the park would receive reflected light even if they did not receive light directly from a source. The potential for reflected light to be objectionable decreases in proportion to the square of the distance away from the light source and in direct proportion to the surface reflectance. Reflected light would rapidly dissipate with distance away from the park, but it would not immediately disappear. As with detailed luminance calculations, it is not possible to determine the magnitude and direction of reflected light that would cause light trespass. The City of Seattle has no ordinances addressing surface luminance or how light reflected off of a surface should be controlled (it would be very difficult to write, quantify, and enforce such an ordinance).

In summary, the proposed lighting system would significantly increase the average surface luminance within the park. The increased surface luminance could result in reflected glare and sky glow. Light reflected from surfaces within the park would contribute, to a limited extent, to increased ambient light in the vicinity of the park.

3.9.2.4 Sky Glow

The contribution of the proposed lighting systems to "sky-glow" would be from the floodlights emitting directly into the atmosphere and from light reflected by pavements, synthetic-turf surfaces, and nearby natural-turf areas. The extent of skyglow is dependent on how much water or particulate matter is in the air for the light to strike. There is no recognized industry standard to measure or quantify sky glow, although some methods such as star counting are in use.

The project site is located within an urbanized environment that is part of a large metropolitan area, extending along the I-5 and I-405 corridors. The sky above the metropolitan area is influenced by light sources located throughout the area. The park and the existing neighborhoods experience a base level of sky glow as a result of their location within this urbanized metropolitan environment. On a smaller scale, within the larger environment, the Sand Point and View Ridge neighborhoods are not as intensively developed as some of the nearby cityscapes. Portions of the park and nearby Lake Washington are comparatively darker pits in what is otherwise a sea of light.

The usual goal of a lighting system in minimizing sky glow is to control the amount of upward-directed light. Over 98 percent of the light from the proposed lighting system would be directed downward, leaving only a small component of light from the shielded floodlights traveling upward, and directly contributing to sky glow (see **Figure 3.9-5).** Although the direct component is controllable and would be minimized, light would be reflected upward (and in all other directions) from the illuminated sports fields and the surrounding terrain. The general increase shown for the park's surface luminance in **Table 3.9-2** is also indicative of the increase in light that would travel from the park into the air. The amount of light in the air above the park would increase significantly during the hours of operation for the sports field lights.

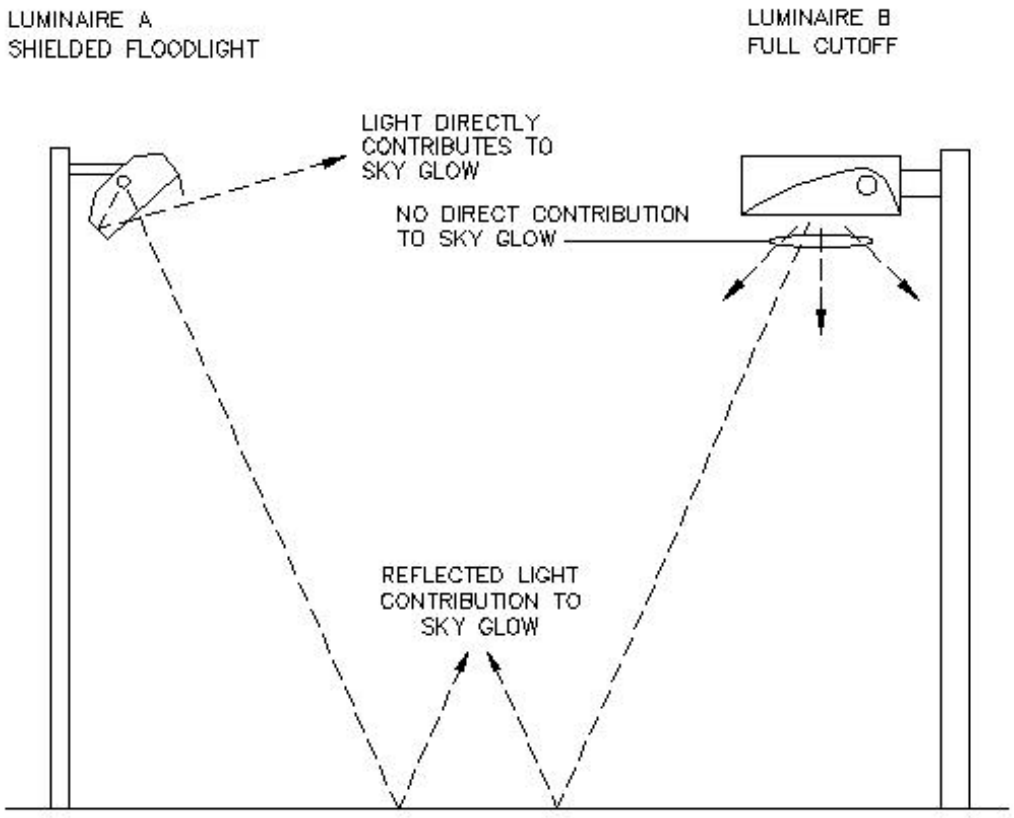


Figure 3.9-5
Sky Glow Contributions

The weather at the park is often humid, cloudy, rainy or otherwise prone to having airborne particles that will reflect light. Light emanating from the park would illuminate these particles, making them visible. Light would interreflect among particles, creating a glow in the air around the park. Light reflected from the particles could cause disability glare, compromising the ability of an observer to see naturally illuminated dark surfaces in the vicinity of the park or from seeing dim stars.

The proposed action would increase the glow of the sky in the metropolitan area when the field lighting systems were in use. The glow of the air around the park might be observable for several miles away from the park. On overcast nights, upward light might reach the clouds, permitting them to be seen when they otherwise would not.

3.9.3 Impacts of the Alternatives

3.9.3.1 Lesser-Capacity Alternative

Light and glare impacts under the lesser-capacity alternative would be of the same type and duration as the proposed action, but would be less in magnitude and extent. The primary differences between the alternatives would result from 3 lit sports fields under the lesser-capacity alternative compared to 11 for the proposed action. With 24 light poles rather than 80, and a similar reduction in the number of light fixtures, the amount of glare, sky glow and spillover light would be reduced proportionately. Under this alternative, the new sports field lighting systems would still represent a significant new source of light, glare, and luminance in the local area, primarily for the on-site transitional housing and, to a lesser degree, for nearby residential areas immediately to the west and south of the project site.

3.9.3.2 No Action Alternative

Sports field lighting and ancillary lighting systems would not be installed at Sand Point Magnuson Park with the no action alternative. Existing light sources on the project site would be reduced through the demolition of some existing buildings, most notably the former Commissary building that is lit brightly at night.

3.9.4 Cumulative Impacts

Either of the action alternatives would contribute to a general, long-term increase in night lighting levels and associated glare and sky glow (to a lesser degree) from various light sources in an existing urbanized environment. Some of the actions within Sand Point Magnuson Park that are pending or proposed under the Reuse Plan could add slightly to the extent of outdoor lighting evident in the vicinity of the park. Additional lights might be installed in the North Shore Recreation Area or the Community Campus area as existing structures and parking areas are refurbished, although it is unlikely there would be a substantial increase to the existing exterior lighting in these areas. The Off-Leash Area that will extend along the northern edge of the project site will, when completed, include a lighted corridor from the central sector of the park to the Lake Washington shoreline. This facility will employ the minimum practical lighting level and low-height light poles, however, so the new lights in the off leash area are not likely to add prominently to the existing light sources. A future tennis center is planned for a site near the northwest corner of the proposed project. This proposed facility would include lighted outdoor courts with light poles in the 30- to 40-foot range situated on the east side of the tennis center building, which

would partially obstruct visibility of these lights from the west. Demolition of the Commissary building will result in the removal of one prominent existing light source in the local area.

There are two proposals for increased development to the west of the project site. The Sand Point Community Housing Association is proposing to build 103 new housing units, likely in townhouse form, on the Sand Point campus. Exterior structure lighting and surface parking lighting from this development might add to the ambient lighting levels. On the west side of Sand Point Way NE, near NE 74th Street, several properties are underdeveloped relative to their current zoning (NC1-40). While no known development proposals are under consideration, development to the maximum allowable zoning would permit taller structures with exterior lighting on these sites.

Overall, the proposed action would likely result in significant light and glare impacts. The cumulative effect of all Sand Point Magnuson Park projects would be no greater than the combined effects of the individual projects. The sports field lighting would dominate over the visibility of any of the lighting considered in the other projects.

3.9.5 Mitigation Measures

Available technological measures to mitigate light and glare impacts from the proposed action have been incorporated into the design of the lighting systems. These include:

- use of full-cutoff lighting fixtures wherever possible;
- use of shielded lighting fixtures in remaining situations;
- meeting Department of Parks and Recreation requirements for maximum allowable light trespass levels from sports fields; and
- limiting lighting levels for ancillary lighting systems to the minimum required for safety and egress.

The impact analysis indicates there would likely be significant glare impacts for some facilities within the transitional housing area immediately to the west of the proposed sports field complex, and possibly at some units in the Radford Court complex to the south of the project site. In response to these impacts, it would be appropriate to consider other mitigation measures in addition to those identified above. Possible measures to consider include:

- restricted hours of operation of the sports field lights, either for the complex as a whole or for the fields closest the residential areas (Fields 7, 11 and 12 on the west side of the project site, and possibly Fields 14 and 15 on the south side)
- shielding to block or screen glare evident at Buildings 224, 26N, 26S and 6, if feasible physical measures can be identified
- additional trees between the lights and the affected areas and properties;
- higher poles and luminaire mounting heights would permit more downward aiming angles and greater control of the light. However higher poles are more visible during the day, only work if shielded floodlights are used, and are more expensive to construct and maintain.
- coordinating with plans for a second phase of on-site transitional housing, to develop a housing proposal that would be more compatible with athletic field lights

- evaluation of whether sports field design changes, such as rotating the orientation of the two baseball/softball fields with shielded floodlights, would reduce potential lighting impacts

Recent experience with evaluation of sports field lighting proposals by the Seattle Department of Design, Construction and Land Use (DCLU) indicate that it is possible to reduce sports field lighting impacts to insignificant levels through technological and operational mitigation measures. The first potential mitigation measure identified above, the possible restriction of the hours of sports field operation, would be capable of reducing the expected lighting impacts to insignificant levels. The decisionmakers for this proposal (the Mayor and the Seattle City Council) can evaluate the potential mitigation measures that are not included in the proposed action when they consider final action on the proposal.

3.9.6 Significant Unavoidable Adverse Impacts

Some of the specific light and glare impacts expected for the proposed action or the lesser-capacity alternative would represent significant adverse unavoidable impacts. Direct exposure to glare from the sports field lights at some residences immediately adjacent to the project site appears to be a significant impact that would be unavoidable, even with the mitigation features incorporated into the project design. Potential additional mitigation measures that have not been incorporated into the proposed action, particularly reduced hours of field operation, would be capable of reducing these lighting impacts to insignificant levels.

Beyond these immediately adjacent areas, terrain and vegetation conditions would adequately serve to limit direct glare from the lights. Some residents in areas farther to the west and south of the project site would notice the sports field lights in operation, even though they would not be directly exposed to glare, and would likely consider this to be a significant impact. This type of visible evidence of the lighting systems would be unavoidable. Light trespass from the sports fields would comply with the Department of Parks and Recreation standard for the maximum lighting level at the nearest residential property line, and therefore would not represent a significant impact on the built environment. There would be additional "sky-glow" impact under the proposed action, although it is not technically possible to measure the degree of skyglow change that would be attributable to the proposed action.

3.10 RECREATION

This section describes existing recreational use on the project site and in the surrounding vicinity, evaluates potential impacts of the proposed action and the lesser-capacity alternative, and discusses any mitigation measures necessary to avoid or reduce potential significant impacts. Information contained in the Final EIS for the Sand Point Reuse Project (City of Seattle, 1996), unpublished data maintained by Sand Point Magnuson Park staff and multiple site visits were the primary sources of information used to compile this section.

3.10.1 Affected Environment

3.10.1.1 Sand Point Magnuson Park

The project site includes somewhat less than half of the area of Sand Point Magnuson Park, which is a 352-acre regional park in the City of Seattle park system. The park is a multi-purpose property that provides a diverse array of opportunities for recreation and leisure activities, scheduled and informal sports, nature-oriented activities, and arts, cultural and education functions. Many of the activities use recreational facilities originally developed by the Navy, while others occur on unprogrammed, open park lands. Key existing facilities and activity areas within the overall park property include:

- a community campus area with an historic district of more than 20 former naval station structures, generally along the western edge of the park property and housing most of the arts, cultural, civic and education events and activities;
- two existing sports field areas, one in the western part of the park adjacent to part of the historic district(known as the Sand Point Fields, or just the Sports Fields) , the other a Sports Meadow area (known as the Magnuson Park Fields or the Sports Meadow) in the central portion of the park;
- a children's play area and a community garden, located generally east of the historic district and between the two sports field areas;
- an off-leash exercise area for dogs located west of the Sports Meadow, with a narrow extension to the Lake Washington shoreline;
- six unlighted outdoor tennis courts, located just east of the Sports Meadow;
- a shoreline area along Lake Washington that includes a swimming beach with a permanent float, a wading pool, and two picnic shelters (both available for reservation) plus scattered individual tables (some available for reservation);
- a low, open, grassy hill, known as Sand Point Head or Kite Hill, located between the tennis courts and the beach area;
- a motorized boat launch facility on Lake Washington, in the southeastern corner of the park, with four paved launch lanes and three piers;
- a forested hill and shoreline area known as Promontory Point, located to the southwest of the boat launch;
- two additional picnic shelters (located north of the Sand Point sports fields and available for reservation) and isolated picnic tables; and
- park roadways, parking lots and pathways to support vehicular and pedestrian circulation and parking needs.

The 153-acre project site incorporates portions of many of the facilities identified above. These include a small portion of the community campus and historic district; the two sports field areas; the tennis courts; the parking lot and access road serving Kite Hill and the beach; a segment of the shoreline between the swimming beach and the boat launch; two of the four picnic shelters; and a significant portion of the park's vehicle and pedestrian circulation network, including approximately 1.4 miles of trails and pathways. The Sand Point Fields area has two baseball/softball fields overlapped by two soccer fields and off-season practice field area. The Sports Meadow has two additional baseball/softball field layouts but generally supports multiple field uses, including soccer and ultimate Frisbee as well as informal uses. Most of the acreage within the project site is unprogrammed space, including open vegetated areas and several non-historic buildings that housed the former Navy Commissary and associated activities.

Recreational use of the existing Sand Point Magnuson Park facilities includes both scheduled and unscheduled activities. Park staff coordinate use of the existing sports fields with little league baseball, softball, youth soccer and other organizations based in the local community. Programmed field use for practices, league games and tournaments occurs on nearly a year-round basis.

Comprehensive statistical records of all recreational activity at Sand Point Magnuson Park are not maintained, and the data that are available do not provide the ability to estimate total park use on a daily, monthly or annual basis. To provide a partial picture of the park uses that can be quantified to some extent, **Tables 3.10-1** through **3.10-4** include recent data for four activity components at the park.

The public may reserve four picnic shelters and five individual picnic tables at Sand Point Magnuson Park on a first-come, first-served basis. **Table 3.10-1** shows picnic shelter and table reservations by year for four recent years. The entries reflect the number of days per year on which the given facility was reserved, but not the number of people using the facilities. Shelter 1 accommodates 100 people, Shelters 2, 3 and 4 accommodate up to 50 people each and individual picnic tables can accommodate 8 to 10 people each. The typical party size for groups reserving picnic facilities is not reported in the data.

Table 3.10-1
Picnic Shelter/Table Reservations by Year
1997-2001

Picnic Shelter/Table	1997	1998	1999	2001
Shelter #1 Boat Ramp location	216	208	202	208
Shelter #2 Near Kite Hill	204	176	182	198
Shelter #3 Junior League Playground			170	228
Shelter #4 Sand Point Fields			92	166
Table 1 – Lake Washington Shoreline	72	60	46	56
Table 2 – Lake Washington Shoreline	68	70	44	38
Table 3 – Lake Washington Shoreline	30	18	18	22
Table 4 – Lake Washington Shoreline	28	16	14	10
Table 5 – Lake Washington Shoreline	30	20	18	10

Note: No data available for year 2000 due to software problems at reservation office.

There are lifeguards on duty at Magnuson Beach for several hours per day during a 10-week period of the summer. Lifeguards take head counts 4 times per day in order to estimate daily beach attendance. **Table 3.10-2** provides the annual totals of the daily beach attendance reports for 1992 through 2001. The figures ranged from a low of 11,753 in 1995 to a high of 19,168 in 1996, and averaged just over 15,000 per year for this 10-year period. Beach use is highly dependent upon weather patterns and subsequent water temperatures. The reported beach attendance figures under-count total actual use, because some portion of all beach use occurs outside of the 10-week managed season or outside the in-season hours when lifeguards are present.

Table 3.10-2
Magnuson Beach Attendance by Year
1992-2001

Year	Attendance	Year	Attendance
1992	17,590	1997	15,050
1993	12,604	1998	16,655
1994	18,438	1999	12,600
1995	11,753	2000	15,245
1996	19,168	2001	11,873
			10-Year Avg. = 15,098

The Magnuson Boat Ramp is available for use by permit from the Department of Parks and Recreation. Annual use of the boat launch fluctuates considerably; the busiest years have been those when a sockeye salmon fishing season is opened. The numbers in **Table 3.10-3** are estimates of the number of boats (not people) using the launch, based on payment receipts for launch permits. If an average of 2.5 people per boat is assumed, the boat launch figures would correspond to a range of about 16,000 to 46,000 annual users in recent years. Actual use is somewhat higher than what is reported in the table, as there is always some non-paid parking/launching use occurring.

Table 3.10-3
Number of Paid/Authorized Boat Launch Uses
by Vehicles with Trailers, 1996-2001

Year	Number of Users
1996	18,550 (sockeye season)
1999	8,678
2000	12,191
2001	6,294

In addition to typical active and passive recreational uses of the park, many major recreational and community events are held at various sites at Sand Point Magnuson Park. **Table 3.10-4** summarizes the numbers of special events that have occurred at Sand Point Magnuson Park within the past few years, and corresponding estimates of participants. Total events ranged from 18 to 78 per year over the period, with the number of events in the past 2 years (2000 and 2001) at a much higher level than in the initial 3 years. Recreational functions accounted for the largest share of the special events (70 out of 220 total), while there were also sizable numbers of arts, benefit and "other" events. Estimates of annual attendance at the special events ranged as high as about 85,000 for the 76 events in 2001.

Table 3.10-4
Special Events Summary, 1997-2001

Year	Total Events	Event Type					Estimated Visitors	
		Recreation	Exhibition	Arts	Benefit	Other	Low	High
1997	18	8		4	3	3	31280	36700
1998	23	3	3	3	8	6	28345	34945
1999	25	11	2	4	5	3	26190	37170
2000	78	28	4	21	12	13	50790	65455
2001	76	20	7	17	11	21	59106	85367
Totals	**220**	**70**	**16**	**49**	**39**	**46**	**195711**	**259637**
Five Year Average	**44**	**14**	**3**	**10**	**8**	**9**	**39142**	**51927**

Notes:
Event Days are the number of calendar days per year when events were held. Multiple events could be held each day.
Total Events are the total number of distinct events held per year.
Event Types: Recreation includes summer camps, skateboard exhibitions, kite festivals, fun runs; Exhibition includes art installations such as Horsehead, art shows such as Best of the Northwest, and specialty exhibitions such as Western Fruit Society.
Performing Arts includes theatre productions, cabaret performances such Circus Contraption and open-air band concerts.
Benefit includes sales and auctions that support non-profit organizations both on-campus and city-wide.
Other includes large volunteer events such as Eddie Bauer United Way Day of Caring, large private events - weddings, company dinners, reunions.

Source: Seattle Department of Parks and Recreation, Sand Point Magnuson Park Division, unpublished data, 2002.

3.10.1.2 Project Vicinity

Multiple recreational facilities are found next to the project site and within the surrounding local area. The Burke-Gilman Trail is located to the west of the project site. This regional pedestrian/bicycle corridor stretches approximately 20 miles from the Fremont Neighborhood of Seattle north to Bothell. The Burke-Gilman Trail connects with the Sammamish River Trail in Bothell, adding approximately 10 more miles to the trail that then ends in Redmond. Other nearby recreational facilities include the Sand Point Country Club golf course, a private facility of approximately 110 acres; the View Ridge Swim and Tennis Club, a private membership facility at NE 77th Street and Sand Point Way NE; and the City's Matthews Beach Park, located north of Sand Point Magnuson Park, and east of Sand Point Way NE. Inverness Ravine and View Ridge are also City parks located within the neighborhood land use study area.

3.10.2 Environmental Impacts of the Proposed Action

3.10.2.1 Construction Period

Construction activity for the proposed project would disrupt and, in some cases, displace existing recreational uses at Sand Point Magnuson Park. Given the planned phasing of project construction, disruption of existing activities would be limited to certain sectors of the project site during a specific period, but would not extend across the entire site or the entire park. The proposed phasing plan also attempts to minimize disruption of existing recreational uses by scheduling completion of selected new recreational elements prior to eliminating existing recreational elements. An example of this is the completion of rebuilding and enlarging the natural-turf sports meadow prior closing the Sand Point fields for phase 2 construction. While construction effects at a specific area or facility would typically be noticed for only one or two construction seasons, disturbance from project construction would occur on an intermittent basis for a period of 10 years or more.

Specific on-site cases of disruption or displacement of existing recreational uses during project construction are summarized as follows:

- Use of the existing Sports Meadow (Magnuson Park) fields would be displaced during Phase 1 (expected to occur during 2003) while this area was being reconstructed, and could continue for another year as the new natural-turf fields became established.
- Use of the existing baseball and soccer fields along Sportsfield Drive (the Sand Point fields) would be displaced beginning with Phase 2 (expected to begin in 2004). Four of the new synthetic-surfaced fields would be constructed during Phase 2, but these fields would probably not be completed for approximately 3 years after work began in this area.
- The existing outdoor tennis courts and Sports Meadow parking lot would be removed during Phase 3. Users of these tennis courts would presumably be able to shift their activity to the tennis center planned for a site immediately north of Building 47. If the proposed tennis center were not ready in time, however, these users would be displaced to other parks or private facilities.
- Construction of the expanded Kite Hill/Beach Drive parking lot during Phase 3 would cause some construction disturbance for users of the beach area and would likely disrupt traffic on Beach Drive at times.

- Reconfiguration of NE 65th Street, Sportsfield Drive and Beach Drive would occur during Phases 2 and 3. These construction activities would cause intermittent traffic disruptions for all park users heading to the shoreline area of the park, including the beach and boat launch facilities.
- Clearing and grading activities would occur throughout extensive portions of the proposed wetland/habitat complex at times during Phases 2 and 3, which could span a period of up to about 7 years. Many of the users of the existing habitat zones of the park would likely be displaced as a result, at least during periods of active construction work.

3.10.2.2 Operation Period

As described in detail in **Section 2.2**, the proposal involves development of a sports field complex, a wetland/habitat complex, an integrated drainage system, and a circulation system on the project site. This would entail construction of eleven (11) sports fields with synthetic, all-weather surfaces and lighting systems; a sports meadow accommodating up to 4 fields that would have a natural-grass surface and would not be lit; a wetland and habitat area of approximately 65 acres with a connection to Lake Washington between the existing swim beach and the boat launch; a total of approximately 990 parking spaces; three building complexes to house restrooms, concession stands and maintenance facilities for the playfield, sports meadow and habitat areas; paved surfaces for an inline-skate hockey area and three basketball courts; three sand volleyball courts; and open lawn flex space for multiple uses; a 1.5-mile cross-country running trails; and a pedestrian trail system through the sports fields and around the wetland habitat.

Completion of the proposed action would represent a significant expansion in the capacity of Sand Point Magnuson Park to accommodate both scheduled and informal recreational sports activities. In 2000 the sports fields at Sand Point Magnuson Park were scheduled for use a total of 3,712 hours. **Table 3.10-5** indicates the anticipated maximum estimated increased hours of use for each major sport activity that would be possible at Sand Point Magnuson Park with the new sports fields. The Department of Parks and Recreation does not have specific future projections of field use hours or participant occasions with the proposed sports fields completed and in operation. The figures in **Table 3.10-5** indicate that the proposed fields would provide the capacity to support over 20,000 hours of field use, however, suggesting that future sports field use could be several times larger than the current numbers.

Table 3.10-5
Capacity Analysis for Sand Point Magnuson Park

Maximum Estimated Hours of Increase by Sport	
Softball	6,200
Baseball/Softball	2,500
Baseball	2,500
Soccer	8,700
Ultimate Frisbee	600
Track and Field	600

Source: Seattle Department of Parks and Recreation 2000.

Several reviewers of the Draft EIS expressed concern that the new and redeveloped sports fields in Sand Point Magnuson Park would be dedicated primarily or exclusively to formal, scheduled league sports

activities, thereby depriving users who are not affiliated with organized leagues of the opportunity for informal, drop-in use of sports fields. While the proposed sports fields would be used primarily for scheduled team-sports activities (games, practices and tournaments), there would still be frequent and considerable blocks of unscheduled field time that would allow ample opportunity for informal use of the fields. The 2002 update of the JAFDP acknowledges the need for community access to unprogrammed park space (Seattle Department of Parks and Recreation, 2002). It notes that most playfields are available for unstructured play until 3 PM on weekdays and that evening and weekend times may also be available, depending upon the season and the type of facility.

Based on the current athletics schedule for April through June 2002, the existing Magnuson and Sand Point fields are heavily scheduled for team sports beginning at 3 PM on weekdays, 8 AM on Saturdays, and as early as 9 AM on Sundays (Sand Point Magnuson Park Division, 2002). The programmed activities typically end around 6 PM on Saturdays and at 4, 4:30 or 5 PM on Sundays. With the proposed action, the redeveloped sports meadow fields would likely follow a similar programming schedule, with opportunities for unstructured play limited primarily to weekdays before 3 PM and early morning and late afternoon/early evening times on weekends. The new, lighted fields would probably follow a similar scheduling pattern, with the addition of extended evening play under the lights. These fields would not all be scheduled for evening use on every night of the week, but the lights at these fields would be left off when not scheduled for use. Therefore, informal, drop-in use of the lighted sports fields would not be possible during non-daylight hours. Because the overall City scheduling approach for park fields would not change, however, the net opportunity for unstructured play would actually increase by virtue of the greater number of fields.

Formal use of the proposed wetland/habitat complex, such as through organized group visits and environmental education programs, and unstructured visits to the habitat complex represent another component of increased future park use. Because the proposed wetland/habitat complex would be significantly different from existing resources on the site or at other sites in the city, a specific projection of future use of this project component has also not been developed. It can be noted, however, that the types of passive recreational activities (e.g., bird watching and other passive-appreciative interests) that presently occur in the undeveloped portions of the park would still be available in the future, and would be promoted and enhanced through the proposed action. Visitor amenities (such as trails, benches, restrooms and interpretive/educational facilities) included in the project would facilitate passive uses in the wetland/habitat complex and increase the quality of the experience for most users. The development of educational programs for K-12 and higher education classes is considered an integral part of the function of the wetland/habitat complex and would further increase use of this park amenity.

The increased usage of the Sand Point Magnuson Park facilities would occur over a relatively long time rather than all at once. It is possible that use of the park could actually decrease during certain portions of the buildout period, when construction activities would limit use of certain areas of the park. The proposed redevelopment of this public facility would be compatible with the existing uses on site and would be consistent with the City of Seattle's comprehensive plan and the *Seattle Parks and Recreation Plan 2000* (see discussion in **Section 3.7.2 Land Use Plans, Policies and Regulations**).

Redevelopment of the project site would intensify activity in some of the existing recreational use areas on the site. The increased number and variety of proposed recreational uses planned for Sand Point Magnuson Park would attract an increased number of people to the park with an interest in the activities

that would be supported. Additional lighted ball fields would attract substantially more people to the park for baseball/softball games over extended operating hours for such activities. The addition of more multi-use fields could attract an increased number of groups to the park or lead to an increased number of tournaments of similar events (see **Table 3.10-4**) being scheduled at the park, though it should be noted that limited spectator amenities (limited bleachers, no scoreboards, no public address systems) have been incorporated in the project design to minimize spectator-related impacts. Environmental education uses would represent a substantial increase in visitor numbers in the wetland/habitat area of the park. The increased number and length of trails available for pedestrian and bicycle use could attract an increased number of pedestrians from the adjacent neighborhoods, as well as cyclists from surrounding communities who might use the Burke Gilman Trail and its proposed connections to the park. The proposed re-design of the surface drainage system and wetland area would attract an increased number of individuals and groups to enjoy and/or study the wildlife habitat area, consistent with park system goals to establish wetland/habitat features in urban locations.

Redevelopment of the park would also modify certain use patterns in some areas on the project site. For example, human access and use in some portions of the wetland/habitat area would be limited to reduce the potential for impacts to plant and animal life, whereas the entire area is currently open to the public. However, new trails created under the proposed action would provide limited but more directed access to the wetland/habitat area for the enjoyment of the public. In addition, on-site parking patterns would be modified as some existing areas used for parking would be relocated under the proposed action.

Redevelopment of Sand Point Magnuson Park could also lead to an increase in the number of recreational users present off-site in the vicinity of the park. For example, there could be more bicyclists, walkers and joggers using local streets adjacent to the park as routes to access park facilities.

3.10.3 Impacts of the Alternatives

3.10.3.1 Lesser-Capacity Alternative

In general, potential recreational impacts for this alternative would be similar in nature and character to those described for the proposed action. Redevelopment of the project site under this alternative would still provide for extended use of the park at night, although scheduled night use would occur on 3 fields, rather than 11 fields in the case of the proposed action. The lesser-capacity alternative would still represent a substantial increase in the capacity of Sand Point Magnuson Park to support programmed recreational sports and environmental education activities. However, the lesser-capacity alternative would increase sports field capacity by only about half as much as the proposed action.

3.10.3.2 No Action Alternative

Because no new construction would occur as a result of the no action alternative, potential impacts associated with redevelopment of the project site would not occur. Under this alternative, the project site would continue to exist in its current state and would continue to be used by individuals and groups for active and passive recreational activities, on both a scheduled and an informal basis. The level of park use would likely increase over time at approximately the same rate of growth in the local and regional population using the park.

3.10.4 Cumulative Impacts

Re-development of the project site under either the proposed action or the lesser-capacity alternative would not impact use of other recreational facilities or contribute to a larger pattern of redevelopment associated with recreational uses in the vicinity of the project site. Rather, it would respond to a need for additional open space and recreational facilities/acreage that was identified in the City's Comprehensive Plan (1994) and the Seattle Parks and Recreation Plan 2000. The Sand Point Reuse Plan adopted by the City in 1997 involves redevelopment of other areas on the Sand Point property that could contribute to an increase in usage of the overall site beyond that identified in this EIS, along with increased construction activity and impacts associated with this redevelopment, and increased traffic on- and off-site. However, none of these activities or project alternatives is anticipated to result in significant cumulative recreational use impacts in the vicinity of the project site.

3.10.5 Mitigation Measures

Because no significant adverse recreation impacts have been identified, no mitigation measures are required. The Parks Department has proposed the following measure to reduce conflicts between scheduled events at the proposed facility.

- Scheduling of recreational/athletic activities at the sports field complex and special events in the community campus sector of Sand Point Magnuson Park would be coordinated to minimize "overscheduling" more visitors than park facilities can comfortably accommodate.

3.10.6 Significant Unavoidable Adverse Impacts

No significant unavoidable adverse impacts to recreation from the proposed action are anticipated. The proposal would result in a significant, unavoidable increase in opportunities for programmed and informal recreational activities and a significant increase in the use of Sand Point Magnuson Park, but those changes are considered to be positive and consistent with the objectives identified for the project.

3.11 HISTORIC AND CULTURAL PRESERVATION

3.11.1 Affected Environment

This section addresses the historical and cultural resource potential of the proposed project site within Sand Point Magnuson Park. The Final EIS for the Sand Point Reuse Project (City of Seattle, 1996) and the Sand Point Historic Properties Reuse and Protection Plan (EDAW, Inc., 1998) were the primary sources of information used to prepare this section. Those documents identify the basis for historical and cultural resource consideration of features on the Sand Point peninsula as their contribution to the development of the City of Seattle, its former use as a Naval Air Station, and the architectural characteristics of resources on-site and in the project vicinity.

3.11.1.1 Sand Point Magnuson Park History

The Sand Point Peninsula, where the project site is located, was originally the location of a mix of forest, wetlands, and a diverse wildlife habitat that revolved around a spring-fed 15-acre lake, later called Mud Lake. Due to its rich natural environment, the peninsula was chosen as an early encampment by a Native American tribe, the Xatou'abc, or the "People of the Lake."

In 1855, the peninsula was surveyed under a contract with the Government Land Office. Under the Homestead Act, Euro-Americans settled the area in the 1860s. Morgan Carkeek, an early settler, invested in property along Pontiac Bay at the northern end of the peninsula. Both the Xatou'abc and early pioneers coexisted in this area until the turn of the century, when more settlers were brought to Seattle area by the railroad.

In 1916, the shoreline of the Sand Point Peninsula was changed significantly by the 8-foot drop in Lake Washington's water level due to the construction of the Montlake Cut. Mud Lake and Pontiac Bay shrank in size, and 2 years later Carkeek donated the property (now the northwestern part of Magnuson Park) to the City of Seattle for park use. The property remained in park use until World War I, when the military identified Sand Point as the best potential location for seaplane operations in the region. The federal government collaborated with King County and the City to assemble a 400-acre site on Sand Point, which included the park area. In 1924, military aviation operations began at the site. In that same year, a group of army planes completed the first round-the-world military flight beginning and ending at Sand Point. On March 4, 1925, the Naval Air Station, Seattle was recognized and approved by Congress.

During World War II, the Naval Air Station, Seattle was at the height of its operation and had expanded its facilities to accommodate 4,625 Navy and Marine personnel, 2,834 civilian employees, and expanded the Naval base site by an additional 100 acres. The base consisted of a full runway, airplane frame hangars, military barracks and operational buildings, and was the main supply and repair unit for Navy air bases in Alaska and the North Pacific (see **Figure 3.11-1**). Amenities at the base served military personnel, their families, veterans and civilians employed by the Navy.

Source: HistoryLing.org (photo courtesy of the U.S. Navy)

Figure 3.11-1
Historic View of Naval Air Station, Seattle During WWII

Naval Air Station, Seattle continued to be active during the Korean War and for several years after. However, the General Services Administration began surplusing land in the mid 1950s. In 1957, the "Comprehensive Plan for Seattle" identified Sand Point Peninsula as a potential park site and the airstrip as an incompatible land use. The Navy discontinued military flying at the Naval Air Station, Seattle by 1970. During the early 1970s, the Navy declared approximately 347 acres at Sand Point as surplus property. The Navy transferred a 112-acre portion of the base to the National Oceanic and Atmospheric Administration (NOAA) and the remainder to the City of Seattle for Magnuson Park under a conditioned agreement. Much of the runway and associated airfield paving were removed in the 1970s following this first land transfer. The Navy continued to use the remaining 151 acres of the base as a Naval Support Activity, Seattle until 1991, when naval operations began transferring to the new Naval Station Everett at Everett, Washington and the Sand Point base reuse planning began. The base officially closed as Naval Station, Puget Sound in September 1995. Some of the buildings constructed by the Navy during its operation of the base have been removed or altered since then, while others have been used for temporary park and community uses while financial and program plans are developed for long-term uses. The Naval Station, Puget Sound base was combined with the original Magnuson Park in 1999 to establish the current Sand Point Magnuson Park.

3.11.1.2 Project Site Resources

Included in the property transferred to the City by the Navy in 1997 are several older buildings that comprise an historic district designated under the provisions of the National Historic Preservation Act. The 153-acre project site includes the southeastern section of the historic district. Most of the project site is within Sand Point Magnuson Park but outside of the designated historic district. The historical and cultural significance of the existing structures and other resources on the project site are discussed below.

Building Inventory

Table 3.11-1 indicates the structures currently located on the project site. These structures have been evaluated in the 1998 *Sand Point Historic Properties Reuse & Protection Plan* (EDAW, Inc., 1998), with the exception of the former munitions bunkers and the recently constructed restroom facilities (1970s). See **Figure 3.11-2** for the location of these structures on the project site.

Table 3.11-1 Inventory of Structures Located Within Project Site Boundary

Map No.	Structure Name (Orig. Navy Bldg. No.)	Description	Current Use
1	Hobby Shop (15)	Small wood and brick building	Vacant
2	Check point hut	Small wood structure	Vacant
3	Receiving	Small wood structure with receiving window	Vacant
4	Navy Exchange Service Bay (345)	Large corrugated metal shed	Park Equipment Storage
5	Store (344)	Large corrugated metal and expanded wood structure	Vacant
6	Warehouse (308)	Large corrugated metal building	Vacant
7	Commissary (193)	Large brick and wood structure with high ceilings and rounded roof	Parks Department Storage
8	N. Beach Facility	Small wooden beach hut with public facilities	Restrooms, storage
9	Munitions Bunker 1	Partially underground cement structure with metal door	Parks Department Storage
10	Munitions Bunker 2	Partially underground cement structure with metal door	Parks Department Storage
11	Munitions Bunker 3	Partially underground cement structure with metal door	Parks Department Storage
12	Swim Beach Facility	Large wooden shelter with fireplace	Picnic Shelter
13	S. Restroom Facility	Small concrete structure	Restrooms/Phones
14	Picnic Shelter 4	Wood Shelter	
15	Picnic Shelter 3	Metal Shelter	
16	Restroom	Small concrete restroom	

Sources: City of Seattle, 1996; EDAW, Inc., 1998.

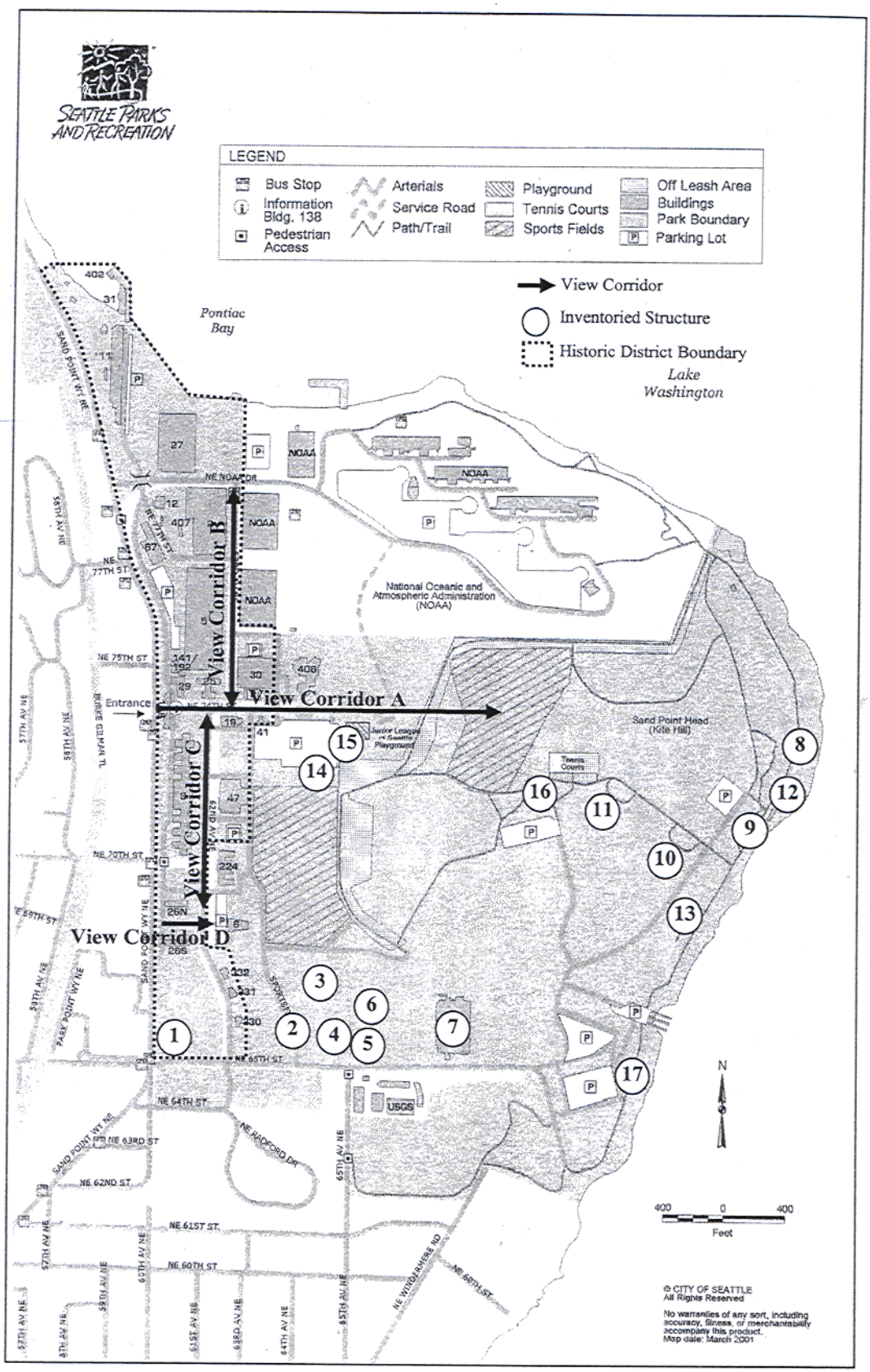


Figure 3.11-2
Existing Sand Point Structures and Historic View Corridors within Project Site

View Corridors

Several historic preservation covenants were outlined in the federal government's land transfer documents in the early 1970s. The 1998 Historic Properties Re-Use and Protection Plan (HPRP) is one of several documents that provides guidelines and standards for carrying out these covenants for developers and property mangers working with Sand Point Magnuson Park. The 1998 HPRP Plan identifies historic buildings, landscape features, and view corridors to be "preserved and maintained."

Five historic view corridors are identified by the HPRP Plan and qualify for historic resource designation. Four of these corridors extend across or near the project site and could be affected by the proposed project. However, the plan does not provide specific guidance or criteria for how to "preserve and maintain" these views. **Table 3.11-2** lists the view corridors; locations are indicated on **Figure 3.11-2**. (The view corridors are addressed in **Section 3.11**, rather than in **Section 3.8 Aesthetics**, because of their historic dimension.)

Table 3.11-2
Historic View Corridors

Map Key	Designated View Corridors	Existing Views
A	West to east view corridor from Sand Point Way NE to Lake Washington down NE 74th Street.	East-facing views of Sand Point Magnuson Park and NE 74th Street streetscape. Distant views of Cascade Mountains.
B	North / south view corridor down 63rd Avenue NE near NE 74th Street to Lake Washington.	North-facing view of 63rd Avenue NE streetscape, Sand Point Historic District, and Lake Washington. South-facing view of 63rd Avenue NE streetscape and Sand Point Historic District.
C	North / south view corridor from the north end of 62nd Avenue NE to its southern terminus.	North- and south-facing views of 62nd Avenue NE streetscape and Sand Point Historic District.
D	West to east view corridor across open field between 65th and 74th Streets NE from Sand Point Way NE.	East-facing view over existing structures and tennis courts of Sand Point Magnuson Park open spaces, Lake Washington, and the Cascade Mountains.

Source: EDAW, Inc. 1998.

The historic view corridors are not currently in the same condition as they were in 1970, primarily because growth of trees on the Sand Point site has resulted in partial screening of views. Restoring the historic view corridors to their 1970s state would entail removal of many native black cottonwood trees that have grown to 40 to 50 feet in height since the removal of the airstrip, as well as pruning of other tree species. These views cannot be restored and maintained while simultaneously restoring native vegetation communities also subject to historic landscaping conditions of the transfer. Restoring the view corridors is primarily an issue of park vegetation management, and not a project impact issue.

Archeological Resource Potential

As previously discussed, the Sand Point Peninsula, on which the project site is located, was originally an encampment of the Xatou'abc tribe, as well as an early pioneer settlement (EDAW, Inc., 1998). Construction of the Naval Air Station, Seattle disturbed virtually all of the land within the project site, and most of Sand Point Magnuson Park as a whole. The site was transformed from open space to an intensively developed naval station, with extensive paved areas including an airstrip and well over 300 naval support buildings. Further extensive site disturbance occurred with the removal of the airstrip in the 1970s, after the City of Seattle acquired the original Magnuson Park property from the Navy. Due to the extent of the earthwork, construction and demolition activity that has occurred on the project site since the 1920s, the potential for discovering intact archeological resources on the project site has diminished considerably.

Development and operation of the naval station represents another historic use of the Sand Point peninsula. Consequently, there is some potential for the presence of historic archeological resources associated with naval station facilities and the daily activities of base employees from the 1920s through the 1940s within Sand Point Magnuson Park. This potential would be greatest within the western part of the park property (the parcel transferred in 1997), where the naval station buildings were concentrated.

3.11.2 Historic and Cultural Preservation Policy

3.11.2.1 Identification and Evaluation of Historic and Cultural Resources

Federal & State Historic Preservation Policy

The National Register of Historic Places (National Register or NRHP) was established by the 1966 National Historic Preservation act (NHPA). The NRHP is the federal list of historic, archeological, and cultural resources considered worthy of preservation. Resources listed on the NRHP include districts, sites, buildings, structures, objects, and landscapes that are significant in American history, prehistory, architecture, archeology, engineering, and culture. The Washington Office of Archeology and Historic Preservation (OAHP) in Lacy, Washington administers the NRHP program in Washington state, under the direction of the State Officer of Historic Preservation (SHPO).

To be eligible for the National Register, a property must meet the following conditions:

- Must be at least 50 years old;
- Must possess integrity of location, design, setting, materials, workmanship, feeling, and association; and
- Must fulfill at least one of the following four criteria:
  1. Association with events that have made a significant contribution to the broad patterns of our history;
  2. Association with the lives of persons significant in our past;
  3. Embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or represent a significant and distinguishable entity whose components may lack individual distinction; or
  4. Yield information important in prehistory or history.

In 1993, the U.S. Navy inventoried and evaluated all properties at Sand Point that may have met the criteria for listing in the National Register to comply with the NHPA and Federal archeological protection legislation in preparation for base closure. From this effort, the 1994 *Historic and Archaeological Resources Protection Plan* was created (1994 HARP Plan). Resources evaluated during this planning process were given Category I, II or III status by the Navy. Category I resources comprise outstanding historical, archaeological, or cultural significance in good condition. Category II resources also met NRHP criteria but were of lesser importance. Category III resources did not meet NRHP criteria and are not historically significant. The 1994 HARP Plan identified and delineated a National Register historic district, the Sand Point Historic District, with 20 contributing buildings identified as either Category I or II resources. A portion of this historic district is located within the project site. The majority of the project site area is located within the Magnuson Park recreational areas (see **Figure 3.11-2**).

During the 1990s, the City of Seattle conducted an extensive planning effort to guide the use of the naval station and some park areas to improve Sand Point Magnuson Park. The *1993 Sand Point Reuse Plan* (1993 Reuse Plan) was a product of this effort. In compliance with the Washington State Environmental Policy Act (SEPA), environmental review of the plan was conducted to address the potential for adverse affects to the environment, including historic resources. The *1998 Sand Point Historic Properties Reuse and Protection Plan* (1998 HPRP Plan) (EDAW, Inc., 1998) was prepared as mitigation for actions taken to implement the *1993 Reuse Plan*. The 1998 *HPRP Plan* provides further detail of anticipated impacts and likely mitigation measures for individual projects proposed in the *1993 Reuse Plan* with regard to historic resources.

State Archeological Legislation

State archeological resource legislation (Chapter 25-48 WAC, *Archeological Excavation and Removal Permit*, and RCW Chapter 27-44, *Indian Graves and Records*) establishes strict regulations regarding archeological resources discovered in any area. In addition, the legislation provides guidelines and standards for the treatment of any historic artifacts identified on project sites. In order to determine whether any Native American or early American pioneer artifacts existed on site, a surface level survey was conducted at Sand Point as part of the 1994 HARP Plan effort.

3.11.2.2 Historic and Cultural Resource Potential of the Project Site

The following sections describe potential historic contributions on the project site as outlined in the 1996 Sand Point Reuse Project EIS and the 1998 HPRP Plan.

Contributing Resources

The Navy and the SHPO have identified one of the existing structures on the project site as a contributing historic resource located within the Sand Point Historic District. That is the Hobby Shop (Building 15), a small structure located in the southwestern corner of the park at the NE 65th Street entrance (see **Figure 3.11-3**, below). **Table 3.11-3** summarizes pertinent information for this structure.

Figure 3.11-3
Hobby Shop – Existing Conditions

Table 3.11-3
Contributing Resources On-Site

Map No.	Building Name	Year Built	Historic Category	Current Use	Proposed Use for Site
1	Hobby Shop (#15)	1938	II	Vacant	Demolish to conduct entrance improvements

No other structures on the project site were identified as contributing resources in the *1996 Sand Point Reuse Project Environmental Impact Statement* or the *1998 HPRP Plan.* However, not all of the existing structures on the project site were reviewed in these documents. Of the structures not reviewed, two munitions bunkers, likely built before 1945, are located in the north central portion of the site and could be considered for potential historic significance.

Historic View Corridors

As mentioned previously, four designated view corridors cross the project site. These view corridors are considered "historic" in nature. In accordance with transfer documents, these views are to be maintained in conditions similar to those existing in the mid 1970s, when the Naval Air Station lands were transferred to City responsibility. However, the 1998 HPRP does not provide specific guidance for preserving and maintaining historic views.

Archeological Resources

Results of a surface level survey at Sand Point conducted prior to the 1994 HARP Plan revealed that there are no evident archaeological resources present (Sand Point HARP Plan, 1994). However, according to the study, it is possible that undiscovered archeological resources exist. Under state archaeological legislative mandates, it is the City of Seattle's obligation to protect archeological resources under its jurisdiction.

3.11.3 Environmental Impacts of the Proposed Action

This section assesses the potential for impacts on historic and cultural resources by the proposed action. Investigations included review of previously recorded historic resources within the project vicinity and site from established lists such as the NRHP, the Washington Heritage Register, and the list of Seattle City Landmarks. Research also included reviewing determinations of eligibility to the NRHP generated by prior environmental review and site reconnaissance.

3.11.3.1 Historic Resources

Of the 11 existing structures on the project site, one is a recorded National Register of Historical Places (NRHP) property. This property, the Hobby Shop, is located at the northeast corner of Sand Point Way NE and NE 65th Street and has been designated as a contributing historic resource for its association with Naval Air Station, Seattle. Under the proposal and as planned in the 1993 Reuse Plan, the Hobby Shop would be demolished to make way for park entrance boulevard improvements. The effect of this action would be the loss of a contributing building to the historic district (EDAW, Inc., 1998).

Originally a golf club and later a crafts workshop, the Hobby Shop was added to the Sand Point Historic District by the SHPO for its contributing role to the recreational activities on base. The 1994 HARP Plan listed this 1938 structure as a Category II resource, or one that meets NRHP criteria but is of lesser importance than Category I resources. The proposal would remove the Hobby Shop to enhance the NE 65th Street entrance's visual appeal and to provide separated access routes for vehicles, bicycles and pedestrians. Because the proposed demolition activity affects a contributing historic building, the Department of Parks and Recreation must comply with required mitigation procedures related to demolition or modification of designated historic resources prior to the removal of this structure.

Demolition activities of historic resources automatically require a "Level C Review," or full historic preservation review, by City staff and consultation with the SHPO to determine specific mitigation measures. The *1997 Sand Point/Magnuson Park Design Guidelines Manual* (1997 Manual) provides specific guidance in terms of building demolition and should be followed by City staff when removing the Hobby Shop. Demolition issues covered by the 1997 Manual include procedural considerations, technical guidelines, a list of local building material recyclers, and a project waste analysis checklist. Removal of the Hobby Shop would also go through the City of Seattle's permitting process, initiating public notice procedures and opportunities for public input.

Removal of the Hobby Shop would also be mitigated through Historic American Building Survey (HABS) documentation. The HABS includes written context statements and descriptions of physical appearance, as well as photographic documentation to National Park Service standards, of an historic

building proposed for demolition or alteration that would adversely affect the building's historical integrity.

The effect of removal of the Hobby Shop on the overall integrity of the Sand Point Historic District is open to interpretation and further evaluation. The Reuse Plan does not identify the Hobby Shop as a building proposed for renovation and reuse, and the HPRP Plan identifies demolition as the proposed use for the structure. In review comments on the Draft EIS (see comment record A9 in **Appendix F**), however, the SHPO stated that Building 15 plays an important visual role in anchoring the southern end of the historic district and that removal of the building would have adverse effects to the overall character of the district, although the district would likely remain National Register-eligible. Consequently, the SHPO requested that alternatives to demolition be considered in the Level C review, and that other mitigation measures (beyond those identified in the Draft EIS) be identified.

No impacts are anticipated to other historic resources within the adjacent Sand Point Historic District as a result of the proposed action.

Historic View Corridors

Under the proposal, views of the interior of the project site would change. As discussed in **Section 3.8 Aesthetics,** light poles around the sports fields would be visible and views of the western portion of the site would be of developed parking areas, sports fields and walking trails. To the south, views of existing structures would be replaced by restored wetlands, sports fields and parking areas. Views of the central portion of the site would primarily be of natural wetland areas, walking trails and shoreline areas.

With respect to the changes to the interior of the project site discussed above, future conditions of the designated view corridors are summarized below (see **Figure 3.11-2**):

Table 3.11-4
Changes to Existing Historic View Corridors – Proposed Project

Map Key	Existing View Corridors	Future View Corridors resulting from the Proposed Project
A	East-facing views of Sand Point Magnuson Park and NE 74th Street streetscape. Distant views of Cascade Mountains.	No noticeable change anticipated from existing.
B	North-facing view of 63rd Avenue NE streetscape, Sand Point Historic District, and Lake Washington. South-facing view of 63rd Avenue NE streetscape and Sand Point Historic District.	No change anticipated from existing.
C	North- and south-facing views of 62nd Avenue NE streetscape and Sand Point Historic District.	No change anticipated from existing.
D	East-facing view over several existing structures and tennis courts of Sand Point Magnuson Park open spaces, Lake Washington, and the Cascade Mountains.	In addition to existing conditions, the proposed playfields, parking lots, and lighting would be seen down this corridor.

With the exception of continued growth from existing trees and natural features, distant views from the site to the surrounding neighborhood, Lake Washington and Cascade Mountains provided along three of the four designated historic view corridors would not change under the proposal.

Historic view corridor D would realize a change to close east-facing views of Sand Point Magnuson Park from approximately 63rd Avenue NE. Figure 3.8-4 (introduced previously in **Section 3.8 Aesthetics**) approximates the existing view in this corridor. Close views with the proposed action would be of new parking lots, light poles, additional landscaping, and baseball, soccer and rugby fields. Historic view corridor D would continue to realize distant eastern views of Lake Washington and the Cascade Mountains. Changes under the proposal would be an extension of active recreational areas of Sand Point Magnuson Park and are not anticipated to be significant in nature.

Archeological Resources

Review of background literature indicates that there are no evident archeological resources present on-site (EDAW, Inc., 1998). Because the project site was significantly altered from its natural state during the construction of the Naval Air Station, Seattle, the potential to discover prehistoric archeological resources below the project site surface is low. Virtually all of the area within the project site was disturbed again during the removal of the runway, tarmac and some buildings in the 1970s. These previous site disturbances severely diminished the likelihood of discovering intact archeological resources of past Native American and early pioneer settlements. Artifacts that may have been present on the site originally were likely to have been destroyed or damaged through one or more episodes of construction or demolition, which would also have affected the historical context of the potential finds.

Some potential exists for the presence of archeological resources associated with the Naval Air Station and daily activities of base employees in the 1920s or later. This potential would be greatest in the western part of the Sand Point property, where the remaining naval station buildings are concentrated, and would be low within most of the project site as a result of demolition activity during the 1970s. Overall, it is unlikely that clearing, grading and other ground-disturbing activities undertaken for the proposed action would damage significant archeological resources.

Archeological resources encountered during construction of the proposed project could be damaged or destroyed by ground disturbing activities, such as the extensive grading associated with the construction of new sports fields and the wetland complex.

3.11.4 Impacts of the Alternatives

3.11.4.1 Lesser-Capacity Alternative

In general, potential historic and cultural resource impacts from the lesser-capacity alternative would be similar in nature and character to those described for the proposed action. The Hobby Shop, a contributing resource within the Sand Point Historic District, would also be demolished under this alternative. Because this alternative includes considerably fewer sports field lights (21 light poles, compared to 80 for the proposed action), potential impacts to historic view corridor "D" (see **Figure 3.11-2**) associated with light poles and lighting would be somewhat less than under the proposed action.

3.11.4.2 No Action

Because no new construction would occur as a result of the no action alternative, no construction-related impacts to historic or cultural resources associated with the proposed action would occur. Future demolition of some existing buildings might create minor potential for impacts to archeological resources.

3.11.5 Cumulative Impacts

Redevelopment of the project site under the proposed action or the lesser-capacity alternative would not contribute to a cumulative degradation of historic or cultural resources in the vicinity of the project site. Instead, these alternatives would advance the goals of the 1993 Seattle Park and Recreation Comprehensive Plan; 1994 Historic Architectural Resources Protection Plan; the 1998 Sand Point Historic Properties Reuse and Protection Plan; and the 1996 Sand Point Reuse Plan. Goals of these plans respond to the need for park improvements and historic preservation of Sand Point facilities. Under the proposed action and the lesser-capacity alternative, the City of Seattle's commitment to protecting and preserving existing historic resources in Sand Point Magnuson Park would be advanced by improving park facilities in the context of the park's historic setting. Therefore, none of the alternatives are expected to result in cumulative impacts to historic or cultural resources on the site or in the vicinity.

3.11.6 Mitigation Measures

Compliance with prescribed mitigation for demolition or modification of historic properties would be required in conjunction with removal of the Hobby Shop to accommodate park entrance boulevard improvements. The following measures from the HPRP Plan would apply to demolition of this structure:

- Conduct a Level C review of the proposed demolition of the Hobby Shop, including consultation with the SHPO regarding alternatives to demolition and additional possible mitigation measures, per the guidance of the HPRP and the SHPO's review comments on the Draft EIS.
- Provide Historic American Building Survey (HABS) documentation. HABS documentation requires that any new construction/improvements must conform to 1998 HPRP design, preservation, and reuse of architectural elements guidelines.
- Provide an interpretive display on-site or other commemorative work that depicts the historic significance of the Hobby Shop.

The following mitigation measures should be followed with regard to the potential for encountering archeological resources during construction:

- Require City personnel or contractors working on site to report the discovery of any archeological resources. Archeological resources encountered could include artifacts, such as bones, pottery, or arrowheads.
- In the event archeological resources are encountered, provide for curation of significant artifacts.

3.11.7 Significant Unavoidable Adverse Impacts

No significant unavoidable adverse impacts to historic or cultural resources are anticipated.

3.12 TRANSPORTATION

3.12.1 Introduction

This section documents the potential transportation impacts of the proposed project analyzed in this EIS. The report is divided into four main sections.

- **Existing Conditions** – documents the current conditions within the study area. Existing intersection geometry and traffic volumes are used to evaluate the existing levels of service at the study area intersections. Transit service available in the area, existing non-motorized facilities, and traffic safety at the study area intersections and roadways adjacent to the site are also discussed in this section.
- **2007 No Action Alternative** – documents the conditions expected within the study area in the year 2007 without development of the project. The analysis includes any roadway improvements within the study area, any changes to the existing transit service, and any changes in the non-motorized facilities. It also recognizes other developments on the larger Sand Point site, such as the North Shore Recreation Area, the Community Gardens and reuse of buildings on-site formerly occupied by the Navy, and includes other non-park projects already in the "pipeline" for the study area. These on-site developments were covered programmatically in the 1996 Reuse Project FEIS and/or subsequently in other project-specific environmental documentation.
- **Proposed Action (Horizon Year 2007)** – documents the impacts of the proposed action at full build-out and less than full build-out conditions. The analysis compares the 2007 With-Project condition (see note above on timing) to the 2007 No Action condition in order to establish the transportation-related impacts of the proposed project.
- **Lesser-Capacity Alternative (Horizon Year 2007)** – documents the impacts of the alternative plan. As with the analysis of the proposed action, this analysis compares the impacts of the lesser-capacity alternative for year 2007 to the 2007 No Action condition.
- **Mitigation** –any improvements needed to offset the impacts of the proposed project are discussed and summarized in this section.

Though the EIS describes a construction phasing plan (see **Section 2.2.12**) that spans through year 2012, the time horizon used for the transportation analysis assumes full buildout of the new park facilities in 2007. Applying full buildout traffic with the project to the expected future baseline conditions in year 2007 does front load, to a considerable degree, the anticipated traffic generated by the project and might overestimate the level of impacts that could actually occur by that time. The Department of Parks and Recreation intends to engage in aggressive fund-raising to support the project, however; if successful, it is conceivable that the project could be completed within about 5 years rather than the longer period assumed in the phasing plan. The 2007 time horizon adopted for the traffic analysis corresponds to the period covered in the City's current 6-year Transportation Improvement Plan and Capitol Improvement Plan. These plans outline the future improvements needed to address the expected growth in traffic for the next 6 years. Analyzing projected traffic volumes beyond the 6-year period would not account for any transportation improvements that would be needed to accommodate future growth beyond this time period. It was also recognized that the further traffic is forecast into the future, more variables and assumptions need to be employed and the analysis becomes less reliable.

3.12.1.1 Study Approach

The study area for the traffic analysis was initially determined following site visits and coordination with staff at the Seattle Department of Construction and Land Use (DCLU) (J. Shaw, City of Seattle DCLU, personal communication, October 2001). The study intersections were chosen based on which intersections were anticipated to be affected the most by the proposed project. Project trips were distributed to the local road network based on prevailing traffic patterns and other recent traffic studies applicable to the area. Generally, intersections that would be impacted by more than 20 percent of project traffic were studied, unless an intersection was already known to operate well based on other traffic studies. Several other traffic studies have been conducted over the last few years that have analyzed intersections in the vicinity of the project, and only a couple of intersections have been flagged for potential future congestion problems. These intersections were included in the analysis, as well as other key intersections in the area identified in review comments on the Draft EIS. The study intersections are listed below:

- Sand Point Way NE / NE 70th Street
- Sand Point Way NE / NE 65th Street
- Sand Point Way NE / NE 74th Street
- Sand Point Way NE/NE 95th Street
- 35th Avenue NE/NE 65th Street
- 35th Avenue NE / NE 70th Street
- 35th Avenue NE / NE 75th Street
- 35th Avenue NE / NE 95th Street
- NE 45th Street / Union Bay Place

All nine of the intersections included in the study were evaluated during the weekday PM peak hour of traffic volumes on adjacent streets for the existing conditions. The PM peak hour for traffic on adjacent streets was chosen as the primary time period for the impact analysis because it represents the one hour of the day with highest combined background and project traffic volumes. It is assumed that operations of roadway and intersections in the study area at all other times of day are better, due to lower volumes; a worst case scenario is analyzed. A figure showing the location and geometry of the study area intersections relative to the project site is shown in **Figure 3.12-1**.

3.12.2 Existing Conditions

This section describes the existing conditions in the vicinity of the site, including the existing street system, traffic volumes, parking, transit, non-motorized facilities, and operational analyses of the study area intersections.

3.12.2.1 Roadway Network

The study area roadways and intersections in the project vicinity are discussed below.

Figure 3.12-1
Study Area Intersections/Lane Geometry

Sand Point Way NE provides access southbound to the University and Montlake neighborhoods and beyond to I-5 and SR-520, and access northbound to Lake City and the northern suburbs. Adjacent to the project site, Sand Point Way NE is classified as a minor arterial and has four lanes, two in each direction. North of NE 74th Street, the roadway narrows to two lanes. South of NE 65th Street, Sand Point Way NE is designated as State Route 513 (although Washington Department of Transportation and City staff have discussed possible relinquishment of the state route designation). Traffic signals control the intersections at NE 65th Street and NE 74th Street. A sidewalk is provided on the east side of Sand Point Way from NE 65th Street to NE 74th Street. There are no pedestrian facilities on the west side of the street.

NE 70th Street is a two-lane collector arterial that provides access from the Park to the west and to the I-5 ramps at NE 80th Street via 35th Avenue NE and NE 75th Street. To the west of Sand Point Way NE, there are sidewalks and on-street parking on both sides of the street. The intersection at Sand Point Way NE is controlled by a Stop sign.

NE 65th Street and **NE 75th Street** are two-lane roadways providing access from Sand Point Magnuson Park to the west. NE 65th Street is classified as a minor arterial and NE 75th Street is classified as a collector arterial. Sidewalks and on-street parking exist along both streets.

35th Avenue NE is a north-south minor arterial, located approximately a mile to the west of the project site. It is a two-lane street south of NE 75th Street with parking on both sides of the street. North of NE 75th Street, there are parking restrictions during the morning and evening commute times that result in two lanes of travel in the peak direction – southbound in the morning and northbound in the evening. Traffic signals control the intersections at NE 65th, NE 70th, NE 75th, and NE 95th Streets.

Internal Roadways are located throughout the site and provide internal circulation and access to the various parts of the existing park. Several roadways within the Park (such as NE 65th, NE 74th and NE 77th Streets and 62nd and 63rd Avenues NE) are classified as public rights-of-way, while others (Sportsfield Drive and Beach Drive) are categorized as park roads. The internal roadways were originally designed to support aircraft operations at the former naval station and do not necessarily provide ideal internal connections between various destinations within the site. The park and project site can currently be entered via two access points from Sand Point Way NE: at the park's main entrance, located on the east side of Sand Point Way NE at NE 704th Street; and at NE 65th Street. From the eastern terminus of NE 65th Street, the boat launch, beach swimming and picnic areas, and Kite Hill parking can be accessed via Beach Drive. Sportsfield Drive and 62nd Ave NE provide access from NE 65th Street northward into the park. Internal roadways from the north entrance, northward include 63rd Ave NE, NE 77th Street and NE 74th Street, which is the only roadway that provides a connection to the North Shore Recreation Area.

NE NOAA Drive provides access from Sand Point Way to the National Oceanic and Atmospheric Administration facilities. This roadway is grade separated from the park itself and does not provide access to park facilities. There are two gates located on NE NOAA Drive, aligned approximately with 63rd Avenue NE, that provide vehicle access to the large parking lot on the east side of Building 27 and exit access from 63rd Avenue NE. NOAA has allowed park operations to open that gate to vehicles exiting the Building 27 east lot during large special events to assist with in-and-out use of the lot more efficiently during event hours. Continuing this arrangement is difficult to predict with the growing concerns over security for federal facilities. The 1996 Reuse Project EIS identified a future north entrance to the Park from Sand Point Way to be located south of the NOAA road access. Plans for this entrance have not yet been pursued.

From the eastern terminus of NE 65th Street, at the area just west of the boat launch, access to the swimming beach area and the Kite Hill parking lot is provided via Beach Drive. Another roadway provides access to the large parking lot that serves the north Magnuson Park fields (the sports meadow). This roadway is hereinafter referred to as "North Park Fields Drive." Vehicular parking along both sides of both of these roadways occurs, particularly during warm summer weather and special events in this area of the park.

3.12.2.2 Traffic Volumes

Figure 3.12-2 shows the existing PM peak hour traffic volumes for the study area intersections. The traffic volumes are from traffic counts conducted in October and November 2000 and factored to the existing year 2001 with a 2 percent growth rate. This growth rate is based on historical traffic volume growth in the study area.[1] The exact dates of the intersection counts were crosschecked with the field schedule for the Sand Point ball fields to determine the level of activity on those dates. It was noted that none of the park fields were scheduled for games on those dates. In order to assure intersection operations are examined for a period of high park activity, the previous counts were also increased by a number of vehicle trips that would occur had the existing ball fields at Sand Point been scheduled for games.[2]

3.12.2.3 Intersection Operations

Operational analyses were conducted to evaluate the performance of intersections in the study area for the existing traffic conditions. The level of service concept is used to evaluate and quantify operating conditions and traffic congestion at intersections. Level of service values range from LOS A, which indicates free-flow traffic, to LOS F, which indicates extreme congestion and long delays.

Peak hour levels of service (LOS) were calculated at the study area intersections using methodology published in the 2000 Highway Capacity Manual (HCM, Transportation Research Board Special Report 209). **Table 3.12-1** summarizes the resulting PM peak hour levels of service for existing conditions. **Appendix D** contains a description of the signalized and unsignalized intersection level of service criteria.

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[1] New counts were not collected for this analysis. At the time of the analysis Children's Hospital was using a parking lot near Building 193 for a park-and-ride shuttle service as a temporary solution to their parking shortage during construction at the Medical Center. Other facilities, such as the National Archives and Records Administration building and the Center for Spiritual Living, both located on Sand Point Way south of the Park, also provide parking spaces on a temporary basis for the Children's Hospital shuttle. A parking garage is currently being built as part of the Master Plan for Children's Hospital to solve the parking problem. The shuttle service will no longer be needed or exist once the parking garage is completed, which is anticipated to occur before the proposed Sand Point Magnuson Park project begins. However, due to the impacts of the many vehicles parking on these off-site lots and the trips associated with this arrangement during the PM peak hour of adjacent streets, new traffic counts would likely have significantly overestimated future traffic volumes in the study area, particularly at intersections nearest the Park.

[2] The methodology for estimating the number of trips and the distribution of those trips is the same as that used to estimate new trips and distribution associated with the new fields included in the proposed action and is described in detail later in Section 3.12.

Figure 3.12-2
Existing PM Peak-Hour Traffic Volumes

Table 3.12-1
Existing Levels of Service

	Existing Conditions		
	LOS[1]	Delay[2]	V/C[3]
PM Peak Hour			
NE 65th Street/Sand Point Way NE	A	6.2	0.44
NE 70th Street/Sand Point Way NE[4]	C	19.2	n/a
NE 95th Street/Sand Point Way NE	D	34.7	n/a
NE 65th Street/35th Ave NE	B	15.8	0.80
NE 70th Street/35th Ave NE	A	5.8	0.53
NE 74th Street/Sand Point Way NE	A	4.1	0.28
NE 75th Street/35th Ave NE	C	33.4	0.96
NE 95th Street/35th Ave NE	A	7.6	0.55
NE 45th Street/Union Bay Place	F	102.9	1.20

1. Level of Service
2. Delay in seconds per vehicle
3. Volume to capacity ratio (not applicable for unsignalized intersection)
4. This intersection is currently unsignalized so LOS and Delay are reported for the worst movement and the V/C ratio is not applicable.

As shown in the table, except for the NE 45th Street/Union Bay Place intersection, the study area intersections currently operate at LOS D or better during the PM peak hour. The LOS D conditions indicate that adequate capacity exists at the intersections. The NE 45th Street/Union Bay Place intersection currently operates at LOS F during the PM peak hour. The LOS F condition indicates congestion and more lengthy delays during the peak hours. Level of service worksheets are provided in **Appendix D**.

3.12.2.4 Queuing Analysis

A queuing analysis (a study of the lines, or queues, of vehicles formed when they must wait to pass through an intersection, and the storage capacity of the roadways) was conducted for the existing, 2007 No Build and 2007 Proposed Action for all the study area intersections. The Synchro, v. 5 software program was used to analyze the 95th percentile queues at the intersections. The 95th percentile queue represents the queues resulting from the 95th percentile traffic flows and therefore reflects the relative worst-case queuing at the intersections.

The queuing analysis indicated that during the existing PM peak hour, all intersections except NE 45th Street/Union Bay Place have adequate capacity to accommodate the peak hour queues. Left turn queues along Union Bay Place are expected to extend approximately 400 feet beyond the available left-turn lane storage capacity. Eastbound left-turns on NE 45th Place are expected to extend approximately 200 feet beyond the available left-turn lane storage capacity. The analysis indicated that the existing storage capacity would be able to accommodate all other movements during the existing PM peak hour.

3.12.2.5 Traffic Safety

Accident data for the study area intersections were obtained from the Seattle Transportation Department (SEATRAN). **Table 3.12-2** summarizes the most current, complete set of 5-year accident data history available, from January 1997 through October 2001.

Table 3.12-2
Accident Summary - (1997 to 2001)

Location	1997	1998	1999	2000	2001	Five Year Total	Annual Average
NE 70th Street/35th Ave NE			-	2	1	3	0.6
NE 70th Street/Sand Point Way NE			1	2	2	5	1.0
NE 75th Street/35th Ave NE	5	8	5	4	6	28	5.8
NE 95th Street/35th Ave NE	4	2	2	1	1	10	2.1
NE 65th Street/Sand Point Way NE	2	1	2	1	2	8	1.7
NE 45th Street/Union Bay Place	10	7	3	6	4	30	6.21

SEATRAN typically considers an intersection to potentially be a high-accident location if it is signalized and has 10 or more accidents per year or if it is unsignalized and has 5 or more accidents per year. Based on this general guideline, the NE 75th Street/35th Avenue NE intersection and the NE 45th Street/Union Bay Place intersection would be considered high accident locations. The majority of the accidents at the NE 75th Street/35th Avenue NE intersection were left turning accidents or right angle accidents. This intersection has permissive left turns requiring drivers to yield to on coming traffic before making a left turn.

3.12.2.6 Transit Service

King County Metro provides transit service to the Park (and indirectly to the project site) via Routes 74 and 75. Along Sand Point Way NE the nearest transit stops (three northbound and three southbound) are located approximately 1/8 mile from the western edge of the project site. Route 74 provides service between Sand Point, the University District and Queen Anne via Fremont, with headways of approximately 30 minutes throughout the day. Route 74 also provides limited express service between northern Seattle and Downtown during the morning and evening commute hours. Route 75 serves Northgate and Ballard with 15- to 20-minute headways in the peak morning and evening commute times and 30-minute headways in the mid-day off-peak times.

3.12.2.7 Non-Motorized Facilities

The Burke Gilman Trail, which parallels the western edge of the project site on the opposite (west) side of Sand Point Way, is the primary non-motorized facility in the study area. Crosswalks exist where the trail crosses NE 65th, NE 70th, NE 77th Streets, and Inverness Drive. A sidewalk is also provided on the east side of Sand Point Way NE, adjacent to the Sand Point Magnuson Park frontage, with a sidewalk

connection to the trail. There are no pedestrian facilities on the west side of Sand Point Way NE, creating vehicle conflicts for pedestrians and bicyclists. No sidewalks exist on the east side of Sand Point Way NE from NE 74th Street to approximately NE 77th Street. Potential pedestrian conflicts exist due to on-street parking.

Internal sidewalks are limited to the western and central portions of the park, primarily in front of buildings within the historic Community Campus area. No pedestrian facilities (sidewalks) are provided along Sportsfield Drive, along the roadway to the north field parking, along NE 65th to the boat launch area, nor along the roadway connection to the North Shore Recreation Area. Several trails exist within the park, including recently constructed (in 2001) trails such as the Cross Park Trail and former airfield service roads such as the Lake Promenade.

There are no designated bicycle lanes or paths on the project site. Bicycles must share the roadway with motorized vehicles. Currently, bicycle racks are provided at the exercise station near Promontory Point, on the west side of Building 47, at both the north and south sides of Building 30, in front of Building 406 and at the southeast corner of Building 5.

3.12.2.8 Parking

The parking capacity within the boundaries of the park is approximately 3,000 vehicles. Of those, nearly two-thirds are in parking lots with marked spaces and the remaining third are along roadways or in unmarked (unpainted) lots. The Sand Point Overlay District, an overlay to the underlying zoning controls, specifically states that the required parking supply for any use within the park may be provided anywhere within the Overlay District, including on public rights-of-way.[3]

Utilization of the on-site parking supply was measured in August of 2001, and reflects generally higher summer-season use of the park. During the week, peak utilization occurred at around 1:00 pm when 723 parked vehicles were counted; approximately one-fourth of the parking supply was occupied[4]. On a Saturday, peak parking also occurred around 1:00 pm when approximately 16 percent of the parking supply was occupied.

In 2000 and 2001, approximately 75 special events were hosted at the park throughout the year. The majority of these events do not have distinct short-term activity peaks, but rather several hours of in-and-out traffic flows by attendees. At these times, parking demand in certain areas of the park can exceed the supply in those areas closest to the event, with event visitors parking in other areas of the park. On rare occasions (approximately one or two times per year) excess demand from events results in parking spillover into neighborhoods along Sand Point Way NE. Though the parking supply on-site is adequate to meet site-generated parking demand, even during special events, the walking distance and inefficient internal roadway and pedestrian connections lead to underutilization of some of the on-site parking supply. Park staff is currently reviewing management of the on-site parking supply and special events to make better use of the on-site parking supply, particularly during special events. Parking patterns at the park boat launch during peak seasonal conditions (summer and early fall) are also under review.

[3] SMC 23.72.012.

[4] This included 350 vehicles parked near Building 193 that were associated with the Children's Hospital shuttle. As noted in a previous footnote, Children's Hospital temporarily leased this space during construction of new facilities at Children's Hospital main campus.

3.12.3 2007 No Action Alternative

To properly evaluate the impacts associated with the proposed action, it is first necessary to assess the future without-project conditions or no action alternative in the area. After describing these conditions, project-generated impacts are identified by comparing future without- and with-project conditions.

3.12.3.1 Traffic Volumes

Weekday PM peak hour traffic volumes generated by "pipeline" projects were added to existing peak hour volumes in order to project future No-Build PM peak hour volumes. "Pipeline" projects are defined as proposed off-site developments, of such a size and location as to potentially add noticeable new traffic within the study area, that have applied for permits and are anticipated to be completed before the development of the proposed project. Traffic associated with the following proposed "pipeline" projects were incorporated into the study:

- Pre-approved Sand Point Magnuson Park Redevelopment
- University of Washington Radford Court Married Student Housing
- Children's Hospital & Regional Medical Center Master Plan
- Children's Hospital Sand Point Office
- University Village Expansion

Additionally, development and reuse projects within the boundaries of the park that are anticipated to occur before 2007 are also taken into account. This includes development of the North Shore Recreation Area, development of the Community Gardens, new or changed occupancy of several buildings on campus and construction of a new building that will provide transitional housing. Reuse plans and new facilities were described in the October 1996 FEIS. That EIS was programmatic in nature. To the extent possible, park facility uses were updated (through discussions with Sand Point Magnuson Park staff) to reflect the latest known type of occupancy anticipated for 2007 conditions. In the case of buildings that were just partially occupied in 2000 during the period that intersection counts were taken, an increase in weekday PM peak hour trips was estimated to account for that portion of the ultimate land use that was at the time (fall 2000) unoccupied. Those trips for future occupancy of other Sand Point Park facilities were assumed for the future No Build condition and added into the intersection volumes for 2007. Details of the trip generation for those portions of the park that were and are not fully redeveloped are provided in **Appendix D**.

Construction of pending and future projects under the existing Sand Point Reuse Plan would generate temporary construction-related traffic and parking impacts in the vicinity of the project site (City of Seattle, 1996). Most of the projects involve improvements to existing buildings, in which case expected construction impacts are minimal. Those projects that involve the removal of buildings or the hauling of soils, either to or away from the site, will generate additional traffic within and near Sand Point Magnuson Park.

Figure 3.12-3 summarizes future 2007 No Build (without-project) traffic volumes.

Figure 3.12-3
2007 No-Build (Without Project) Traffic Volumes

In addition to "pipeline" traffic an annual growth rate was applied to existing volumes at study intersections to account for any other growth in traffic that may occur in the area. A growth rate of 2 percent per year was applied to the PM peak hour volumes. This rate is based on growth in the study area over the past 3 years, as indicated by Seattle Department of Transportation traffic volume data.

3.12.3.2 Planned Improvements

There are two planned roadway improvement projects that will increase capacity at study area intersections. These improvements are anticipated to be complete before the horizon year for this study of 2007. Therefore, the following improvements were incorporated into the analysis for the No Build and the proposed action conditions:

- An additional southbound left-turn lane on the Union Bay Place approach will be added to the NE 45th Street/Union Bay Place intersection, as mitigation for the University Village expansion.
- A new signal at 70th Street/Sand Point Way NE will be provided as mitigation for the Children's Hospital office development at that location.
- A sidewalk will be built along the Park Point Condominium property and the new Children's Hospital office building, to provide pedestrian access on the west side of Sand Point Way between NE 65th Street and NE 70th Street.

3.12.3.3 Intersection Operations

Weekday PM peak hour levels of service were calculated at study intersections for future No Action (without project) conditions in the horizon year of 2007. The calculations for the No Action condition incorporates the anticipated increased in future traffic volumes and future improvements or changes that are anticipated to be incorporated by the year 2007. The results of these calculations are shown in **Table 3.12-3**, including intersection levels of service and average delays.

Table 3.12-3
No-Action Condition Levels of Service

	No Action Conditions		
	LOS[1]	Delay[2]	V/C[3]
PM Peak Hour			
NE 65th Street/Sand Point Way NE	B	16.8	0.88
NE 70th Street/Sand Point Way NE	B	13.6	0.83
NE 95th Street/Sand Point Way NE	F	>50	n/a
NE 65th Street/35th Ave NE	D	41.7	1.02
NE 70th Street/35th Ave NE	B	10.3	0.75
NE 74th Street/Sand Point Way NE	B	14.3	0.74
NE 75th Street/35th Ave NE	F	96.9	1.25
NE 95th Street/35th Ave NE	B	11.7	0.66
NE 45th Street/Union Bay Place	F	150.9	1.54

1. Level of Service
2. Delay in seconds per vehicle
3. Volume to capacity ratio (not applicable for unsignalized intersection)

As shown in the table, except for the NE 45th Street/Union Bay Place, NE 95th Street/Sand Point Way NE and NE 75th Street/Sand Point Way NE intersections, the study area intersections currently operate at LOS B or better during the PM peak hour. The LOS B conditions indicate that adequate capacity exists at the intersections. The NE 45th Street/Union Bay Place intersection currently operates at LOS F during the PM peak hour. The LOS F condition indicates congestion and more lengthy delays during the peak hours. The intersection of NE 95th Street/ Sand Point Way NE is expected to operate at LOS F by 2007 No Action conditions, due to the increase in traffic volumes from background traffic growth and pipeline volumes. This intersection is currently unsignalized and there are no plans to signalize it in the future. The intersection of NE 75th Street/35th Avenue NE operates at LOS C in existing conditions. The intersection degrades to LOS F in the No Action condition due to the increased traffic growth in the future. Level-of-service worksheets are provided in **Appendix D**.

3.12.3.4 Queuing Analysis

An additional southbound left-turn lane on the Union Bay Place approach will be added to the Sand Point Way NE/Union Bay Place intersection by 2007. This will be provided as mitigation for the University Village project. The addition of this left-turn lane will improve queues along this leg of the intersection. It is expected that queues along Union Bay Place will extend approximately a maximum of 250 feet, a decrease in approximately 200 feet from the existing PM peak hour queues. However, the southbound left-turn queue on this leg of the intersection may extend past the available storage capacity. The exact proposed storage capacity of the proposed improvements on this leg of the intersection is not known at this time. The eastbound left-turn queues on NE 45th Place are expected to increase 32 feet from the existing PM peak hour, extending approximately 320 feet. The existing available storage capacity is approximately 70 feet.

Additionally, the southbound left-turn queue at the intersection of NE 65th Street/Sand P Point Way is expected to exceed the available capacity by the 2007 No Build. The existing capacity of the southbound left-turn is approximately 60 feet. The southbound left-turn queue is expected to extend approximately 185 feet from the stop bar.

3.12.3.5 Transit Service

King County Metro's Six Year Transit Development Plan for 2002-2007 sets forth objectives and strategies for transit, paratransit, rideshare services and supporting capital facilities in King County, and will establish the policy basis on which annual operating and capital program decisions will be made. There were no transit service changes outlined or documented in this plan for the Sand Point area, so service is anticipated to remain as it currently exists at the site. The new signal at Sand Point Way/NE 70th Street will include a protected pedestrian crossing of Sand Point Way. This will help accommodate pedestrians utilizing transit service on the west side of Sand Point Way NE.

3.12.4 Impacts of the Proposed Action

This section describes the expected future conditions in the vicinity of the project site with the proposed action. The conditions addressed include traffic volumes, planned improvements, parking, transit, non-motorized facilities, and operation of the study area intersections.

3.12.4.1 Proposed Action Description

All components of the proposed action are described in detail in **Section 2.2** of this EIS. **Section 3.12.4** describes the key elements related to vehicle trip generation. In general, the proposed action includes:

- 4 natural-grass fields with no lighting (primarily for soccer)
- 6 all-weather, synthetic-surfaced fields with lighting (5 primarily for soccer and 1 for rugby)
- 5 all-weather, synthetic-surfaced baseball/softball fields with lighting
- expanded/enhanced wetland/habitat area of 65 acres (includes the removal of the existing interior parking lot and access road)
- vehicle and pedestrian circulation routes

3.12.4.2 Construction Impacts

Construction-related traffic impacts from the proposed action would occur in varying degrees throughout the construction process. These impacts would primarily occur within the project site, but could be noticeable elsewhere within the park and off-site on local streets on an intermittent basis. The primary sources of construction-related traffic impacts would be construction workers traveling to and from the job site, deliveries of construction supplies and equipment, and hauling of materials (such as soil and other aggregate products, construction and demolition waste, etc.) that need to be imported to or exported from the site. (It should be noted that soil excavated from the wetland construction areas would be used to the extent possible as fill material for the sports fields.)

It is anticipated that construction workers would arrive at the construction site before the AM peak traffic period on local area streets and depart the site prior to the PM peak period; construction work shifts typically begin by 7 AM and end by 4 PM, while the corresponding peak traffic periods typically occur an hour or so later. The number of workers at the project site at any one time would vary depending upon the nature and construction phase of the project.

The presence of a temporary construction work force would also increase the demand for on-site parking. It is anticipated that temporary parking lots would be established near key locations of construction activity to address this demand; combined with the existing on-site parking supply, which is typically under-utilized on weekdays, there should be ample on-site parking supply to accommodate this temporary increase in demand without adversely affecting parking use by park visitors.

The demolition of selected existing buildings on the project site and subsequent removal of building materials would represent a primary potential construction-related traffic impact of the project. (It should be noted that this activity would occur with or without the proposed project, however, as explained in **Section 2.4**.) The largest building slated for demolition and removal is Building 193, the former Navy Commissary, which is one of the largest structures on the Sand Point site. This activity would require hauling of demolition materials by truck on adjacent roads for the duration of the demolition activity, which would likely be several months. In addition, plans for construction of the sports fields indicate that approximately 60,000 cubic yards of sub-base fill materials (sand and gravel) for the sports fields would need to be delivered to the project site. This project need represents a considerable level of truck traffic to and from the project site over a period of several years. Truck traffic associated with building demolition and fill material hauling would be noticeable on park roads and on selected local streets near Sand Point Magnuson Park, and could disrupt normal operation of the park entrances.

In conjunction with the Sand Point Reuse Plan, the Department of Parks and Recreation has employed a Construction Management Plan (City of Seattle, 1998) to guide project activities at Sand Point Magnuson Park. This plan specifies procedures for construction traffic and parking that would be applicable to the proposed action, and would serve to limit the potential traffic and parking impacts from project construction activity. Prior to the start of construction for this project the CMP will likely be updated to current conditions.

3.12.4.3 Weekday PM Peak Hour Trip Generation

Standard trip generation rates from the ITE Trip Generation Manual do not accurately address the unique land uses of this proposed project. To calculate trip generation for the proposed sports fields and wetland/habitat complex, information from a recent study Transpo conducted for a King County regional park and field scheduling information from the Seattle Department of Parks and Recreation were used.

The King County Regional Park study involved many uses similar to the proposed project. Both projects include similarly scheduled ball fields and also incorporate a trail system. Trip generation for the King County Regional Park study was based on the existing trip generation characteristics at Fort Dent Park in Tukwila and the Red Town Trailhead at the Cougar Mountain Regional Wildland Park near Issaquah. Fort Dent has 4 baseball fields and 5 soccer fields that have lighting and would be scheduled similarly to the proposed Sand Point Magnuson Park fields. The Red Town Trailhead provides pedestrian and hiking trails through the park's wildland nature areas.

For the King County Regional Park study, daily (24-hour) traffic volumes were collected at the Fort Dent Park entrance/exit between Tuesday, September 15, 1998 and Sunday, September 20, 1998. Although both practices and games generate vehicular traffic, games generate consistently more traffic than practices. Therefore, peak hour trip rates, per field, were established for both scheduled soccer and softball (or baseball) games during an average weekday. These rates were based on hourly traffic volumes collected at the park's entrance/exit and the scheduled game times. The weekday and weekend peak hour corresponds with the hour that captures primarily outbound trips associated with the completion of one game and primarily inbound trips associated with the next scheduled game.

Based on the traffic counts, a weekday soccer game generated approximately 70 trips (half inbound/half outbound). Similarly, a weekday softball or baseball game generated approximately 60 trips (also half inbound/half outbound). The bulk of these trips occur within the half hour before or after the scheduled time for the games. Fields are currently scheduled for games on weekdays beginning at 5:00 PM. This pattern is not anticipated to change. Therefore, field-related trips during the weekday PM peak hour of adjacent streets (4:30-5:30) would be primarily inbound and would be approximately half the number of total trips generated for a weekday game. Therefore, to be conservatively high, it is estimated that a soccer field generates approximately 35 trips, primarily inbound, during the weekday PM peak hour of adjacent streets and a softball or baseball field generates approximately 30 trips, primarily inbound, during the same hour. These rates were compared with peak hour rates for soccer and/or ball fields published in the *Houghton Field Expansion Traffic Impact Study* (Parsons Brinckerhoff, 1997), and the *Transportation Analysis of Cromwell Park Belfield* (The Transpo Group, 1997). Trip rates published in these reports were slightly lower than the rates estimated for the proposed project. These rates were also compared with information provided by the Seattle Department of Parks and Recreation about existing

and future schedules and attendance. The Seattle parks information also supported a slightly lower rate, which also suggests the present trip generation analysis is conservative.

Table 3.12-4 illustrates weekday PM peak and weekend peak hour trip generation rates for the new athletic fields of the proposed action.

The area devoted to the wetland/habitat complex currently provides open space for unstructured recreation. The modifications proposed to this area would not significantly increase the area available to public use. However, the provision of the new trail system and educational resources would attract new visitors or visitors currently focusing on other areas of the park, such as the beach area. It was assumed that the newly renovated trail system would generate additional trips over the existing use. For conservative trip generation purposes it was assumed that the renovation would be the use equivalent of a new trail system.

Table 3.12-4
Trip Generation Rates for Field Use

Field Use	Weekday PM Pk. Hr.
All-Weather Field (Soccer, Rugby, Ultimate Frisbee)[1]	35 trips/field
Ballfield (Softball or Baseball)[2]	30 trips/field
Trail System[3]	20 trips/system

1. *All-Weather Fields are anticipated to be used by several uses including soccer, rugby, and ultimate Frisbee. It is anticipated that the soccer use would be the heaviest user of these fields and would also generate similar trips as the other uses if not more. Therefore, the trip generation results for the fields are mainly based on a soccer use but would be similar to that of other planned uses. Peak hour trip rates for soccer games are based on traffic volumes generated by scheduled games at Fort Dent Park (Tukwila) between Tuesday, September 15, 1998 and Sunday, September 20, 1998.*
2. *Peak hour trip rates for softball or baseball games are based on traffic volumes generated by scheduled games at Fort Dent Park (Tukwila) between Tuesday, September 15, 1998 and Sunday, September 20, 1998.*
3. *Peak hour trip generation for an unprogrammed trail system is based on traffic volumes generated by the Red Town Trailhead (Cougar Mountain Regional Wildland Park) between Wednesday, September 16, 1998 and Sunday, September 20, 1998.*

Park-generated traffic volumes were estimated based on the peak hour trip rates illustrated in **Table 3.12-4** and the anticipated number of sports fields for the proposed action. As a conservative measure, it was assumed that **all** fields would be scheduled for use, beginning at 5:00 PM. In reality, this is not likely to occur often during the year. Peak hour trip generation estimates for the proposed action are provided in **Table 3.12-5**.

Table 3.12-5
Weekday Peak Hour Trip Generation Estimates

Land Use	Trip Rate	Proposed Action Quantity	Proposed Action Trips (in/out)
Proposed Action			
Soccer/Rugby Fields	35/field	10	350 *(310/40)*
Baseball Fields	30/field	5	150 *(135/15)*
Trail System	20/system	1	20 *(10/10)*
Sub-Total			520 *(455/65)*
Existing to take credit for			
Soccer/Rugby Fields	35/field	3.5	123 *(109/14)*
Baseball Fields	30/field	3	90 *(81/9)*
Sub-Total			213 *(190/23)*
Total Net New Trips			**307 *(266/42)***

Some of the existing soccer and baseball fields on the project site overlap each other and cannot be used simultaneously. Therefore, an equivalent factor was derived for the soccer fields that assume each overlapping field was the equivalent of one half of a full non-overlapping field. Therefore, in considering trip generation the soccer fields do not total a whole number due to the overlapping with the baseball fields.

The majority of the sports field trips would be entering the site during the PM peak hour, because this is when games and practices are typically scheduled to begin, with none or few ending during this time.

3.12.4.4 Trip Distribution and Assignment

Project trips were distributed to the study area street system based on existing traffic volumes and travel patterns in the area. The resulting distribution of project trips is:

40 percent west on NE 95th Street, NE 70th Street, and NE 65th Street
30 percent south on Sand Point Way NE
30 percent north on Sand Point Way NE

Figure 3.12-4 summarizes the detailed trip distribution patterns for the PM peak hour. **Figure 3.12-5** shows the PM peak hour trip assignment for project-generated traffic at the study intersections based on the above distribution.

3.12.4.5 Weekday PM Peak Hour Traffic Volumes with Proposed Action

The net new weekday PM peak hour vehicle trips generated by the proposed action were added to the 2007 No-Build alternative to develop the 2007 Proposed Action volumes. These resulting volumes are shown in **Figure 3.12-6.**

Figure 3.12-4
Project Trip Distribution

Figure 3.12-5
PM Peak-Hour Project Trip Assignment

Figure 3.12-6
2007 Proposed Action (With Project) Traffic Volumes

3.12.4.6 Traffic Volume Impacts

Table 3.12-6 summarizes the proportional increases in PM peak hour traffic volumes attributable to the project at the study intersections. The largest percent increase would occur at nearby intersections on Sand Point Way NE at NE 95th Street, NE 70th Street, NE 74th Street, and NE 65th Street, where the project would increase peak hour traffic volumes by approximately 4 to 7 percent. Increases at other intersections in the study area would be less than 3 percent.

Table 3.12-6
Traffic Volume Impacts

	2007 No-Build	2007 Proposed Action	Proposed Action Increase
Intersection			
NE 70th Street/Sand Point Way NE	2540	2648	4.3%
NE 65th Street/Sand Point Way NE	2840	2963	4.3%
NE 95th Street/Sand Point Way NE	1885	1961	3.9%
NE 65th Street/35th Ave NE	2245	2275	1.3%
NE 70th Street/35th Ave NE	1860	1906	2.5%
NE 74th Street/Sand Point Way NE	2515	2699	7.3%
NE 75th Street/35th Ave NE	3145	3223	2.5%
NE 95th Street/35th Ave NE	2545	2623	3.1%
NE 45th Street/Union Bay Place	5330	5407	1.4%

As shown in Table 3.12-6, traffic from the proposed development is expected to constitute approximately 1 to 7 percent of the total entering traffic during the PM peak hour at study area intersections beyond the immediate vicinity of the site. Traffic volumes can fluctuate on a daily basis by 5 percent or more, due to factors such as seasonal changes and weather conditions. The results of the analysis suggest the proposed development would primarily fall within the range of daily volume fluctuations, thus impacts would likely be unnoticeable to the average driver.

3.12.4.7 Weekday PM Peak Hour Intersection Operations

Based on future with-project traffic volumes, peak hour levels of service were calculated at study intersections for the proposed action. These calculations used the same intersection variables (number of lanes, traffic control, etc.) as were used in evaluating future No-Build conditions. **Table 3.12-7** illustrates the results of these calculations along with the No-Build results for comparison.

As shown in the table, the study area intersections are anticipated to operate at LOS D or better except for three intersections. The NE 45th Street/Union Bay Place, NE 95th Street/Sand Point Way NE and NE 75th Street/35th Avenue NE intersections are anticipated to operate at LOS F conditions. With the addition of the project volumes, level of service remains unchanged at all of the intersections except for two. The intersection of NE 65th Street/Sand Point Way NE and NE 70th Street/Sand Point Way NE are adjacent to the project site and degrade from LOS B to LOS C. This is not a considered a significant impact, as the

intersections still would operate well at LOS C. Level-of-service worksheets are provided in **Appendix D**.

Table 3.12-7
Future Proposed Action (With-Project) Levels of Service

	No Action			Proposed Action		
	LOS[1]	Delay[2]	V/C[3]	LOS[1]	Delay[2]	V/C[3]
Intersection						
NE 65th Street/Sand Point Way NE	B	16.8	0.88	C	34.6	0.89
NE 70th Street/Sand Point Way NE	B	13.6	0.83	C	20.5	0.90
NE 95th Street/Sand Point Way NE	F	>50	n/a	F	>50	n/a
NE 65th Street/35th Ave NE	D	41.7	1.02	D	46.5	1.03
NE 70th Street/35th Ave NE	B	10.3	0.75	B	14.7	0.82
NE 74th Street/Sand Point Way NE	B	14.3	0.74	B	17.4	0.80
NE 75th Street/35th Ave NE	F	96.9	1.25	F	109.2	1.40
NE 95th Street/35th Ave NE	B	11.7	0.66	B	13.9	0.69
NE 45th Street/Union Bay Place	F	150.9	1.54	F	154.5	1.56

1. Level of Service
2. Delay in seconds per vehicle
3. Volume to capacity ratio (not applicable for unsignalized intersection)

3.12.4.8 Queuing Analysis

Under the 2007 Proposed Action condition, the largest increase in queues is expected at the westbound approach at the intersection of NE 65th Street/Sand Point Way. This queue is expected to increase by approximately 100 feet, or four vehicles. There is adequate storage along the east leg of NE 65th Street to accommodate this queue. The southbound left-turn queue at this intersection is expected to increase by approximately 2 vehicles, to approximately 230 feet, under the 2007 Proposed Action, continuing to extend approximately 170 feet beyond the available storage capacity and into the inner southbound through lane, which might require some of the traffic in the inner southbound through lane to shift into the westernmost through lane to clear the intersection.

At the intersection of NE 45th Place/Union Bay Place, queues are expected to increase by less than one vehicle. The eastbound left-turn queue is not expected to experience an increase in queuing, however, it is still expected to extend beyond the available storage capacity, as in the 2007 No Build. The southbound left-turn queue on Union Bay Place is expected to increase by less than one vehicle during the 2007 Proposed Action.

3.12.4.9 Daily Trip Generation

In addition to peak hour trip generation, daily trip generation also was estimated. These estimates are based on the number of trips generated per programmed game and the anticipated number of games scheduled per weekday. The numbers of soccer, softball and/or baseball games per day are estimates for the maximum amount of games that could be scheduled for a typical weekday evening. Games are typically scheduled to start around 5:00 PM and field lighting is only provided until 11:00 PM. On

average, a typical soccer event is scheduled for approximately 2 hours and an average baseball/softball event will last 1.5 hours. Based on scheduling methods in the local area, it was assumed that lighted soccer fields would have 3 games scheduled per weekday and baseball would have 4 games scheduled per weekday. For non-lighted fields, it was assumed that soccer fields would have 2 games per weekday and baseball would have 3 games per weekday. The number of events would vary greatly throughout the year based on the seasonality of each sport, but these assumptions give an estimate for a worse case scenario.

Daily trip generation for the park's trail system is based on the existing number trips generated by the Red Town Trailhead on an average weekday (approximately 260 trips, 130 inbound/130 outbound).

Based on the assumptions outlined above, daily trip generation for the proposed action is estimated to total 3,280 daily trips, of which 2,260 would be net new trips.

3.12.4.10 Transit Service

The proposed action does not include changes in transit service. The Transit Division of King County Metro would determine any future changes in transit service with the project, based on their evaluation of need. It is anticipated that project-related demand for transit service could be accommodated without changes to the existing transit system.

3.12.4.11 Non-Motorized Facilities

A pedestrian boulevard would be established along the north side of NE 65th Street and along Sportsfield Drive. The pedestrian boulevards would be separated from the road by a landscaped buffer. The parking areas would be connected to the athletic fields and the cross-park trail by an 8-foot wide asphalt trail. Another 12-foot wide trail would follow the boundary between the athletic facilities and the wetland/habitat complex. The cross-park trail would provide connection between the beach area and parking in the central area of the park. Additional secondary pedestrian trails would be located within the wetland/habitat complex.

3.12.4.12 Parking

The proposed action would modify the existing parking supply in the following ways:

- Approximately 580 parking spaces located near the Commissary and Exchange facilities (Building 193) would be eliminated (as will that building). This parking lot recently provided temporary parking to employees of Children's Hospital for the duration of a construction project on the main hospital campus that has since ended. Long-term parking at this lot is not anticipated to continue into the period of construction of the proposed action.
- Beach Drive would be reconfigured to accommodate approximately 34 angled parking spaces, eliminating parallel parking along the drive. The Kite Hill Parking Lot would also be reconfigured from 73 to approximately 90 parking spaces. Currently, up to 170 vehicles can be accommodated in parallel parking along both sides of Beach Drive. During August 2001 parking utilization counts a maximum of 95 vehicles were parked on Beach Drive and a maximum of 57 vehicles were parked in the Kite Hill lot.
- The north ball-field parking lot and related access roadway, which currently provides on-street parking, would be eliminated. This would result in the loss of approximately 140 spaces in the

lot and parking for up to 160 vehicles along the roadway. During August 2001 parking utilization counts, a maximum of 24 vehicles were observed in the north ball-field parking lot and none along the roadway.

- The approximately 100 spaces on the south side of the existing Sand Point ball fields would be eliminated.
- New parking lots would be established at the south end of the sports fields (265), along Sportsfield Drive (209) and near the north end of the fields (158). The plans also provide for a pick-up/drop-off location at the south fields lot. This space would accommodate school buses and other buses that may be serving educational trips to the wetlands feature.

Up to 35 vehicles per soccer field and 30 vehicles per baseball field would require parking, for a total of 500 vehicles for the 15 fields, if all are in use at the same time, with more for short periods of time when games might overlap. It is estimated that up to 50 people at one time may be using the wetlands trails[5], generating the need for parking for 20-30 vehicles. This results in a peak demand for the proposed action of 530 vehicles, plus some additional for game overlap. The currently underutilized central parking lot (the North Sand Point lot) could accommodate the additional parking demand generated by occasions when all fields are scheduled and overlap of parking demand between games might occur.

Elimination of the current parallel parking along Beach Drive would create a negative impact during peak-use periods of the summer season when visitation to the beach area is highest. However, the reduction in parking supply near the beach area could be offset somewhat through use of the cross-park trail connecting the beach area with the central sector of the park, where there is a significant parking supply that is currently underutilized. Additionally, the new South Fields parking lot could help serve visitors planning to use both the wetland/habitat and beach areas. As noted previously, the parking supply in the park as a whole would remain ample to meet overall park demand, but parking near the beach area might be in short supply on occasion. This might be especially problematic for beach visitors who are burdened with picnic and personal recreation equipment.

Even with the net loss of parking spaces within the project site, the park would have adequate parking to serve all on-site demand. With the exception of a few special events, peak parking demand for all park activities would rarely exceed 1,600 parking spaces. Even with the project modifications to parking supply resulting in a net loss of approximately 790 parking spaces, the total park supply would be at least 2,250 parking spaces (not including new spaces that would be provided through other projects at the park). Park staff is currently reviewing basic concepts for managing the on-site parking to better meet the needs of various users. Optional parking program elements include limiting overlap scheduling of special events, signing and public information, special events management and optional internal shuttle services, and assignment and restriction of parking spaces, where necessary.

3.12.4.13 Transportation Concurrency

The City has implemented a Transportation Concurrency Project Review System to comply with one of the requirements of the Washington State Growth Management Act (GMA). The system as described in the DCLU's Draft Directors Rule 4-95 and the City's Land Use and Zoning Code, is designed to provide a mechanism that would determine whether adequate transportation facilities would be available

[5] Based on conversations with The Berger Partnership staff and observations at Red Town Trailhead.

"concurrent" with proposed development projects. Of the 30 total screenlines identified by the City, 4 are within the potential influence area of project traffic.

The "South of NE 80th Street" (#6.15) and the "East of I-5" (#13.13) screenlines are closest to the project site. The project trip distribution shown in **Figure 3.12-4** was utilized to estimate project impacts to all screenlines evaluated. The analysis (summarized in **Table 3.12-8)** indicates that under cumulative traffic volume conditions, the screenlines would have volume-to-capacity ratios less than the LOS standard. Therefore, the proposed project would meet the concurrency requirements established by Director's Rule 4-99, approved January 3, 2000. The rule cites traffic volume data collected in 1998. As of this writing, those volumes had not been updated. However, the actual growth in traffic volumes from 1998 to the present would not cause the volume/capacity standard to be exceeded, even with project volumes.

Table 3.12-8
Concurrency Analysis

SL #[1]	Location	Direction[2]	Capacity	1998 Volume	Project Traffic	V/C Ratio[3] (with project)	LOS Standard
13.13	East of I-5	EB	6,760	3,710	107	0.56	1.00
	NE Pacific St to NE	WB	6,760	4,460	13	0.66	1.00
	Ravenna Blvd						
6.15	South of NE 80th	NB	4,300	2640	10	0.62	1.00
	20th Ave NE to Sand	SB	4,300	1580	66	0.38	1.00
	Point Way NE						

1. SL = Screen Line
2. Direction, NB = Northbound, SB = Southbound, EB = Eastbound, WB = Westbound
3. v/c = volume-to-capacity

3.12.5 Impacts of the Lesser-Capacity Alternative

This section describes the expected future conditions in the vicinity of the project site including the traffic volumes, planned improvements, parking, transit, non-motorized facilities, and operational analyses of the study area intersections, under the lesser-capacity alternative.

3.12.5.1 Lesser-Capacity Alternative Description

The components of the Lesser-Capacity Alternative are described in detail in **Section 2.3** of this EIS. **Section 3.12.5.3** describes the key elements of this alternative with respect to vehicle trip generation. In general, the lesser-capacity alternative includes:

- 7 natural-grass fields with no lighting (7 primarily for soccer and one for rugby)
- 1 soccer field with synthetic turf and lighting
- 2 baseball/softball fields with synthetic turf and lighting
- a wetland/habitat complex (similar to the proposed action, but somewhat less extensive)

The lesser-capacity alternative includes almost the same number of sports fields as the proposed action; the difference between the alternatives is primarily related to field surface composition and lighting.

Because the traffic analysis is based on peak conditions and determined trip generation under the assumption that all of the fields would be in use at the same time for both alternatives, the field surface and lighting factors would not cause a difference in trip generation during the weekday PM peak hour. This would be the case during the non-winter months when there is still enough light to schedule games during the PM peak hour of adjacent street traffic (1 hour between 4:00 – 6:00 PM). The proposed action includes more fields with synthetic, all-weather surfaces and lighting, allowing use during dark hours and on a more year-round basis. For purposes of this analysis, trip generation for the lesser-capacity alternative during the PM peak hour is anticipated to be the same as for the proposed action: during the peak hour of adjacent streets, 4:30-5:30 PM on weekdays, it was assumed that the same number of fields (15 total) could be scheduled for play. Because the lesser-capacity alternative was revised for the Final EIS to eliminate one of the proposed baseball/softball fields, this overstates slightly the trip generation for the lesser-capacity alternative. The magnitude of the change was not considered to be sufficient to warrant re-running the traffic analysis for this alternative, however.

The open space and wetland components of each alternative have similar attributes with respect to traffic and parking, and there would be no significant trip generation differences between the alternatives.

3.12.5.2 Construction Impacts

Construction impacts from the lesser-capacity alternative would be similar to those for the proposed action. The number of construction workers and the overall level of construction activity would be about the same or slightly less. Slightly fewer truck trips would likely be required, because the extent of grading and site modifications are somewhat less than the proposed alternative and the volume of fill material needed for sports fields would be slightly less. The reduced capacity alternative still includes the demolition and removal of Building 193 and several smaller structures, which would be potentially a large producer of truck trips, depending on the disposition of building materials from the demolished building.

3.12.5.3 Weekday PM Peak Hour Trip Generation

Because both of the action alternatives are anticipated to generate the same amount of peak hour traffic, it is estimated that the proposed sports fields and wetland/habitat complex for the lesser-capacity alternative would generate approximately 307 net new trips (266 entering/42 exiting) during the weekday PM peak hour.

3.12.5.4 Trip Distribution and Assignment

Trip distribution and assignment of project trips for the lesser-capacity alternative are the same as for the proposed action (see **Figures 3.12-4 and 3.12-5**).

3.12.5.5 Weekday PM Peak Hour Traffic Volumes

Traffic volumes for the lesser-capacity alternative are the same as for the proposed action (see **Figure 3.12-6**).

3.12.5.6 Traffic Volume Impacts for the Weekday PM Peak Hour

Traffic volume impacts for the weekday PM peak hour for the lesser-capacity alternative are the same as for the proposed action (see **Table 3.12-6**).

3.12.5.7 Weekday PM Peak Hour Intersection Operations

Weekday PM peak hour intersection operations for the lesser-capacity alternative are the same as for the proposed action (see **Table 3.12-7**).

3.12.5.8 Daily Trip Generation

Daily trip generation for the lesser-capacity alternative would vary slightly from the proposed action. Because the lesser-capacity alternative includes fewer all-weather and lighted fields, the sports field complex could accommodate fewer games per day.

Based on the same assumptions outlined for the analysis of the proposed action, daily trip generation for the lesser-capacity alternative is estimated to total 3,000 trips, of which 1,970 would be net new trips. This compares to 2,260 estimated net new daily trips for the proposed action.

3.12.5.9 Transit Service

The lesser-capacity alternative does not include changes in transit service. The Transit Division of King County Metro would determine any future changes in transit service with the project, based on their evaluation of need. It is anticipated that project-related demand for transit service could be accommodated without changes to the existing transit system.

3.12.5.10 Non-Motorized Facilities

The lesser-capacity alternative includes the same types of non-motorized traffic facilities (primary and secondary pedestrian ways, a cross-country trail, a cross-park trail and a bikeway) as the proposed action. There would be minor differences between the alternatives in the length and number of trail connections, with the lesser-capacity alternative having slightly less mileage of primary and secondary pedestrian ways.

3.12.5.11 Parking

The lesser-capacity alternative would modify the existing parking supply on the project site in the following ways:

- Approximately 580 parking spaces located near the Commissary and Exchange facilities would be eliminated (as would that building).
- The Kite Hill parking lot would remain in its existing configuration, with parking capacity of 73 spaces.

- Beach Drive would be reconfigured to eliminate the parallel parking on both sides (approximately capacity for 170 vehicles). This would be replaced with approximately 34 angled parking spaces on the east (Lake) side of the road.
- Unlike the proposed action, the existing sports meadow parking lot (143 spaces) and related access roadway (accommodating approximately 160 vehicles) would be retained.
- The approximately 100 spaces on the south side of the existing Sand Point Fields would be eliminated.
- New parking lots would be established at the south end of the sports fields (265 spaces), and along Sportsfield Drive (209 spaces). The plans also provide for a pick-up/drop-off location at the South Fields lot. This space would accommodate school buses and other buses that might be serving educational trips to the wetlands/habitat complex.
- Unlike the proposed action, a new North Fields parking lot would not be developed and the existing parking lot west of the Junior League of Seattle Playground (the North Sand Point lot) would be reconfigured from approximately 330 parking spaces to 185 spaces.

Peak parking associated with the athletic fields is assumed to be the same for both alternatives (530 vehicles plus some additional for game overlap). Due primarily to the differences in the retained sports meadow parking lot and the access drive to this lot, the lesser-capacity alternative has approximately 80 more spaces than the proposed action, even with the reduced capacity of the lot west of the Junior League of Seattle Playground. As is the case with the proposed action, this currently underutilized central parking lot could accommodate the additional parking demand generated by occasions when all fields are scheduled and overlap of parking demand between games might occur.

As with the proposed action, the elimination of parking along Beach Drive would create a negative impact during peak-use periods of the summer season. Again, however, the reduction in parking supply near the beach area could be offset somewhat through use of the cross-park trail connecting the beach area with the underused parking supply north of the sports fields. Additionally, the new South Fields parking lot could help serve visitors using both the wetland and beach areas. As noted, the parking supply in the park as a whole would be ample, but parking near the beach area may be in short supply on occasion. This might be especially problematic for beach visitors who are burdened with picnic and personal recreation equipment.

Even with the net loss of parking spaces within the project site, the park would have adequate parking supply to serve all on-site demand. With the exception of a few special events, peak demand for all park activities would rarely exceed 1,600 parking spaces. Even with the modifications to parking supply resulting in a net loss of approximately 710 parking spaces, the remaining total parking supply within Sand Point Magnuson Park would be approximately 2,330 parking spaces.

3.12.5.12 Transportation Concurrency

As the pm peak hour trip generation would not substantially change with the lesser-capacity alternative, the concurrency analysis for this alternative does not differ significantly from that provided in **Section 3.12.4.13**. The lesser-capacity alternative would meet concurrency requirements as established by DCLU Director's Rule 4-99.

3.12.6 Mitigation

This section of the transportation analysis identifies mitigating measures that would offset or reduce the potential transportation impacts of the proposed project.

3.12.6.1 Construction

A project-specific construction traffic plan for workers and truck deliveries/routes would be prepared, based on the guidance of the Sand Point Construction Management Plan, to minimize disruption to traffic flow on adjacent streets and roadways. This plan would consider the need for special signage, flaggers, route definitions, flow of vehicles, parking and pedestrians during construction and street cleaning. The plan would specify truck hauling routes and hours of construction activity.

3.12.6.2 Off-Site Intersections

Two study intersections would have poor operating levels of service with or without the effects of the proposed action. Because these operating conditions would not be caused by the project, no significant adverse traffic impacts would be attributable to the project and no mitigation is proposed for these locations.

3.12.6.3 Parking

The improved signage and pedestrian connections that are incorporated into the plan would help mitigate internal circulation and parking issues. Alternate parking locations within the park should be well marked to minimize or eliminate spillover parking from sports field events into adjacent neighborhoods. As noted, both the proposed action and the lesser-capacity alternative would result in a net loss of parking in the beach area, primarily due to eliminating parallel parking along Beach Drive. Adequate parking would be available for those park users visiting the beach, but they might need to park in other on-site lots and use pedestrian ways to reach the beach area at peak-use times. In order to accommodate those who wish to picnic at the beach but might have to walk from centralized parking, a few of the parking spaces located in the Kite Hill/Beach Drive parking lot should be limited for loading and unloading (10 minutes maximum). Beach and picnic gear could be unloaded/loaded before the vehicle is moved to/from parking elsewhere at the beach. In addition, a bus turnaround to be included in the reconfigured parking lot would allow organized groups using the beach to be bused to the site. Park staff could also provide variable signage along NE 65th Street, west of Sportsfield Drive that would inform beach visitors if parking at the beach lot is full and redirect them to other parking areas, where additional signage would direct them to the cross-park trail or cross-country trail.

To help with vehicular circulation throughout the park, the park should continue to pursue an additional access to Sand Point Way NE either near or at the NOAA access. Operational analysis indicates that the existing park entrances operate at acceptable levels during typical weekday PM peak hours of adjacent traffic, so the additional access is not critical. However, the additional access would prove especially helpful in processing vehicles on and off the site for special, large-attendance events using the community campus area of the park.

3.12.7 Cumulative Impacts

The Sand Point Reuse Plan adopted by the City in 1997 involves redevelopment of other areas on the Sand Point property that could contribute to an increase in usage of the overall site beyond that identified in this EIS. These projects could produce increased construction activity and related impacts associated with this redevelopment, and increased traffic both on- and off-site. Traffic generated by these other redevelopment activities was included in the analysis of 2007 operations for all alternatives, as was traffic expected from planned off-site developments that could affect the local street network. Therefore, the impact analysis for the alternatives includes the cumulative impacts of planned redevelopment on the entire Sand Point site and planned development in the surrounding community. As discussed in **Section 3.7.1**, the proposed action is not expected to promote significant off-site development or redevelopment that would generate additional future traffic, and thereby contribute to cumulative traffic impacts.

3.12.8 Significant Unavoidable Adverse Impacts

Development under the proposed action would result in unavoidable short-term construction impacts resulting from increased traffic related to construction worker vehicle trips, delivery of construction supplies and equipment, removal of demolition waste, and delivery of fill material needed for sports field construction. With procedures and limits prescribed through a project-specific construction management plan, these intermittent construction-related impacts would likely not be considered significant. No significant unavoidable adverse impacts to transportation facilities or traffic conditions have been identified for the operating period of the proposed action or the lesser-capacity alternative.

3.13 PUBLIC SERVICES AND UTILITIES

3.13.1 Affected Environment

3.13.1.1 Police, Fire and Emergency Medical Services

The North Precinct of the Seattle Police Department (SPD), with jurisdiction over all of Seattle north of the Lake Washington Ship Canal, provides police protection for Sand Point Magnuson Park and the project site. The Sand Point area is within the "U" sector designated by the Police Department, which covers the areas from Union Bay and Lake Union north to N.E. 85th Street, and from Aurora Avenue N. east to Lake Washington. Between five and nine squad cars are generally on patrol in the U sector, depending on the time of day and day of week. Services provided by the North Precinct include patrol, traffic control and investigation.

The Seattle Fire Department currently provides fire and emergency medical service to Sand Point Magnuson Park. Fire Stations 38 and 40 are the closest stations to the park.

3.13.1.2 Sanitary Sewer Service

The Sand Point site is served by a sanitary sewer system operated the City of Seattle. It is comprised of gravity lines that supply a series of mechanically-pumped lift stations that discharge into the City-operated main on Sand Point Way. During the Sand Point reuse planning process, the existing sewer mains and side sewers on the former naval station property were reported to be in poor condition (City of Seattle, 1996 and 1997). Specific problems identified included pipes that were cracked, broken, and sagging in many places, with poor joints resulting in considerable groundwater infiltration, as well as root intrusion and grease. Following the transfer of the property to the City, the Department of Parks and Recreation contracted a substantial upgrade of the onsite sewer systems that was completed in 1999.

3.13.1.3 Storm Sewer Service

The Sand Point site is served by an existing storm drain system comprised of a series of lines ranging from 4-inch collectors to 30-inch pipe for major trunk lines. Many of these lines originate on Sand Point Way and drain toward Lake Washington, collecting water from roof drains, sports fields, and paved areas. A number of existing storm drain interceptor lines cross through portions of the 153-acre project site, as do two storm drain trunk lines (see Figure DR-6 in **Appendix B**). Stormwater from the Sand Point site discharges to Lake Washington at approximately seven locations along the shoreline of the peninsula. Most of these locations are elsewhere on the peninsula, such as at Pontiac Bay near the northwestern corner of the park, although three drain lines appear to discharge to the lake near the beach area within the general limits of the project site. During the mid-1990s, many of the drain lines were reported to be deteriorating and no longer functioning as designed (City of Seattle, 1996 and 1997). Runoff ponding on the existing sports fields is a common seasonal occurrence, and can be interpreted as indicative of the functioning of the existing stormwater system.

3.13.1.4 Water Supply System

The Water Services division of Seattle Public Utilities supplies domestic water to Sand Point Magnuson Park. A water distribution system was developed on the Sand Point site several decades ago to serve the former naval station. Documents prepared in conjunction with the Sand Point Reuse Project noted that the existing water system consisted of old, mostly unlined cast-iron pipe with lead joints (City of Seattle, 1996 and 1997). These reports also indicated that the existing fire hydrants were in need of upgrading, water quality cross-connection issues might exist, leaks and system failures were common, and there might be unknown connections with adjoining water systems. Following the transfer of the property to the City, however, a new water system servicing the community campus area of the park was built in 1999. It is assumed that the new system resolved many of the problems cited in the previous reports.

3.13.1.5 Electrical System

As with other components of the original infrastructure, the existing underground electrical system at the Sand Point site was functional for previous uses but is dated and assumed to be inconsistent with the City's current codes (City of Seattle, 1996 and 1997). As a result, much of the system may need to be replaced with upgraded facilities designed to meet current standards. Once this is accomplished, Seattle City Light will presumably accept ownership and maintenance responsibilities for the electric distribution system serving Sand Point Magnuson Park.

3.13.2 Environmental Impacts of the Proposed Action

3.13.2.1 Police, Fire and Emergency Medical Services

Construction activity for the proposed project should have minimal impact on existing police, fire and emergency medical services. Construction vehicle traffic to and from the project site might generate the occasional need for traffic control services from the Seattle Police Department. On-the-job accidents also might result in infrequent calls for emergency medical response.

The proposed action would generate a substantial increase in the overall number of visitors using the park (see **Section 3.10 Recreation** for additional discussion), as well as an increase in the hours of the day when large numbers of visitors are present. Most of the change in visitor use patterns would result from the expansion of sports field capacity and use, which would likely create some level of increased demand for police and emergency medical services. The increased sports field use could be expected to result in a corresponding increase in the number of sports injuries, which would translate into a greater frequency of Medic One responses to Sand Point Magnuson Park. With the increased use of the park, particularly during evening hours, SPD officers would likely experience an increase in responses to incidents and be inclined to increase the frequency of police patrols in the park. While the proposed action would gradually increase demand from the park for police and emergency medical services, it is expected that this change would not be significant relative to the existing capacity of the service providers. Therefore, current levels of police and emergency medical service would not likely be diminished and the project should not create a need for additional emergency service staff and/or equipment.

Several review comments on the Draft EIS suggested that public safety might actually be decreased under the proposed action, with the operation of lighted sports fields into late evening hours and a large number

of sports field users present at those times. The Department of Parks and Recreation does not expect this to be a significant adverse consequence of the proposed action. As indicated above, the sports field complex would be a well-known center of late-evening activity and would be expected to draw an increased frequency of police patrols. In addition, the Department has adopted and enforces a sports participation policy (SMC 18.12.040) that would help to minimize problem behavior at the sports fields. A purpose of the policy is to establish the Department's "standard expectation of behavior with regards to noise, clean-up, litter, parking and respect for neighbors who live in close proximity to the sports fields." The participation policy requires sports organizations using Department facilities to certify that they have established and abide by the Sports Code of Conduct that governs the behavior of participants, officials, administrative staff, coaches and spectators. The policy clearly identifies the behavior expectations, and types of behavior that are not accepted. Sports organizations that are determined to be out of compliance with the Code of Conduct can be denied permission to use Department facilities, or subjected to other appropriate action. The participation policy provides clear incentive to sports organizations to police their own members and ensure that their behavior at Department facilities is acceptable.

3.13.2.2 Sanitary Sewer System

The proposed action would require sanitary sewer connections for the new restroom and concession facilities. Sanitary sewer service for the five new buildings would be provided by extending service laterals from existing sewer lines to the buildings. There is an existing sanitary sewer system and force main (with lift station) that services the existing sports meadow and beach area restroom buildings. The sanitary sewer system east and upstream of the lift station is also the proposed location for the Beach Drive Pond; therefore, a portion of this sewer system would be relocated and the lift station would be reconstructed as part of the proposed action.

The wastewater load from the new facilities would be small, and connecting these facilities to the existing sewer system would not require major reconstruction. Therefore, the impact of the project on the sewer system infrastructure and capacity is expected to be negligible.

3.13.2.3 Storm Sewer Service

The proposed action includes an integrated drainage system for the project site that incorporates a combination of water quantity and water quality features (please refer to **Sections 2.4 and 3.2** for more detailed discussions of existing and post-construction storm drainage facilities). The proposed system would meet the drainage needs of the sports field complex and the hydrologic and water quality needs of the wetland/habitat complex. The project drainage system would also provide water quantity and quality treatment for stormwater runoff from off-site contributing areas that drains through the project site. Based on the expected post-construction drainage conditions, the proposed action would improve both stormwater quantity and quality control and would thereby have a positive impact on the project site.

As indicated previously, existing storm sewer facilities on the project site are expected to be deteriorating and no longer functioning as designed. With development of the drainage system included in the proposed action, the existing storm drain lines would no longer be needed. Consequently, existing storm sewer facilities encountered during project construction would be removed as part of the project.

3.13.2.4 Water Supply System

Water supply for building services and fire protection would be provided by extending services from the existing water line network on the Sand Point site. New service connections for the five new buildings and field irrigation systems would be constructed to the new water supply system built in 1999. Existing water lines that are located where new wetland/habitat complex facilities and sports fields/courts are to be located would either be removed or relocated.

Water consumption for use and maintenance of the facilities included in the proposed action would not likely be significantly more than present levels (see **Section 3.5 Energy and Natural Resources**). The greatest potential for increased water consumption under the proposed action would be from irrigation of natural-turf fields and new landscaping. While turf irrigation needs would include the expanded sports meadow, the total turf area would decrease by 6.6 acres because the existing grass Sand Point fields would be replaced with artificial-turf fields. Park lawn and landscaped area would increase by 1.4 acre under the proposed action and would contribute to total water consumption with the project. Water usage for new restrooms, drinking fountains and concession facilities would represent a minor increase in long-term water consumption on the site. Irrigation would be needed on a temporary basis for selected vegetative communities in the wetland/habitat complex. This irrigation would cease after the subject plants became established, which would likely occur within 5 years after development.

3.13.2.5 Electrical System

The proposed action would require electrical service for concessions and restrooms, as well as for the sports field and ancillary lighting systems. Improvement of the existing electrical system serving Sand Point Magnuson Park is an identified need that is expected to be accomplished by the time the proposed action is implemented. Electrical system connections to serve the proposed facilities would be designed and constructed for compatibility system serving the park, and there would be no adverse impact to the existing system. (Electricity consumption is discussed in **Section 3.5 Energy and Natural Resources**.)

3.13.3 Impacts of the Alternatives

3.13.3.1 Lesser-Capacity Alternative

Under the lesser-capacity alternative, park usage would increase substantially over present levels, although to a considerably lesser degree than for the proposed action; this alternative would provide approximately half of the increased sports field capacity of the proposed action. The increased use would have similar effects on the demand for police and emergency medical services and could result in increased response frequency and police patrols. As with the proposed action, current levels of police and emergency medical services would not likely be diminished and the lesser-capacity alternative for the project should not create a need for additional emergency service staff and/or equipment.

Actions and impacts associated with utility systems for the lesser-capacity alternative would be essentially the same as those described in **Section 3.13.2** for the proposed action. The new restroom and concession buildings would connect to the sanitary sewer and water supply systems that were refurbished or replaced in 1999. Water consumption for the lesser-capacity alternative would actually be somewhat higher than for the proposed action, because the former includes a larger area of natural-turf sports fields

(approximately 10 fields, compared to 3 to 4 fields for the proposed action). The difference does not represent a major change from the existing area of natural turf, which would increase by 4.6 acres with the lesser-capacity alternative. The lesser-capacity alternative includes virtually the same stormwater drainage features as the proposed action, and would likewise result in improved drainage conditions on the project site. As with the proposed action, the lesser-capacity alternative incorporates provisions to meet all utility needs and would create negligible impacts on existing utility systems.

3.13.3.2 No Action Alternative

Under the no action alternative, future public service and utility conditions on the project site would likely change little from present conditions. Demand for emergency services would not be affected by the development of major new park facilities, but would likely increase gradually as population growth led to increased park use. Future maintenance actions on the project site would not create the need for new sanitary sewer and water supply connections. Improvements to the electrical system serving Sand Point Magnuson Park would presumably still be needed, primarily to serve the current and pending uses in the community campus area. Stormwater drainage systems and conditions would continue generally as at present, with poor overall drainage and a lack of water quantity and quality control measures.

3.13.4 Cumulative Impacts

The proposed action or the lesser-capacity alternative would not be expected to result in a significant impact on emergency services. Similarly, the pending and planned Sand Point activities addressed in the Sand Point Reuse Plan would not create significant impacts on police, fire or emergency medical services (City of Seattle, 1996). The combined effects of the drainage, wetland/habitat and sports fields/courts project and the other projects on the Sand Point site would still represent small incremental changes in service demand and the ability of providers to deliver these services. There are no planned activities or developments in the community surrounding Sand Point Magnuson Park that would produce significant changes in demands for emergency services. Therefore, there does not appear to be a potential for cumulative impacts on emergency services associated with the proposed project.

Utility systems serving the Sand Point site are largely self-contained and have been or will be updated to meet contemporary needs and standards. Provisions for utility service are incorporated into the proposed action and lesser-capacity alternative, and either alternative would have negligible impacts on existing utility systems. There is no potential for cumulative public utility impacts associated with the proposal.

3.13.5 Mitigation Measures

No significant impacts on public services or utility systems have been identified for the proposed action or the lesser-capacity alternative. Therefore, no mitigation measures have been proposed.

3.13.6 Significant Unavoidable Adverse Impacts

The proposed action and the lesser-capacity alternative would have minor needs for utility service and would create a minor, unavoidable increase in the demand for emergency services, but impacts in both categories are expected to be insignificant.

Chapter 4

Responses to Draft EIS Issues

4. RESPONSES TO DRAFT EIS ISSUES

The Seattle Department of Parks and Recreation issued the Sand Point Magnuson Park Drainage, Wetland/Habitat Complex and Sports Fields/Courts Project Draft EIS on January 3, 2002. The formal review period for public and agency comment on the Draft EIS closed on February 28, 2002. All comments on the Draft EIS received by the close of business on February 28 were considered in the preparation of the Final EIS.

Written comments on the Draft EIS were received in letter form and by electronic mail. Verbal comments were submitted primarily as testimony at a public hearing held on February 4, 2002 at the Sand Point Community Activity Center. Department of Parks and Recreation staff also documented a few verbal comments submitted by telephone; these records were included with the written comments.

Written and telephone comment records were sorted into three categories, based on whether the source of the comments was a public agency, an organization or an individual. All comment records within each category were assigned a letter code (A, O or I), arranged in alphabetical order and numbered sequentially in that order. Based on the number of comment records in each category, the comment record identifiers ranged from A1 to A9 for agency comments, O1 through O17 for organization comments, and I1 through I373 for individual comments. Verbal testimony provided at the public hearings was recorded and documented in a written transcript of each hearing. Testimony statements from the 55 speakers at the hearing were labeled T1 through T55. **Table 4-1** provides a list of all written comment records and testimony statements by source.

The EIS preparers reviewed all comment letters and hearing statements. Specific passages from the letters and testimony that constituted comments on the Draft EIS were marked with vertical bars in the margin of the letter or statement, and all comments within a letter or statement were numbered sequentially. Individual comments were grouped into issue categories based on the nature of the subject matter and the section of the Draft EIS the comment addressed. Through the review and categorization of the comment contents, the EIS preparers established 16 substantive issue categories and identified discrete issues within each category. Comments that represented the same or very similar thoughts were then assigned to individual issues within the respective categories, and alphanumeric issue identifiers were marked alongside each comment. Comments that expressed support for or opposition to the proposed action or some component of the proposal, but did not address the substance of the Draft EIS (alternatives, impact issues or mitigation), were assigned to an additional category as non-substantive issues.

This chapter of the Final EIS presents responses to the substantive issues raised in the public and agency review comments on the Draft EIS. Overall, there are 73 individual issues identified within the 16 issue categories. **Table 4-2** lists all of the issues that were identified from the Draft EIS review comments. The first column in the table identifies the alphanumeric code assigned to each issue; for example, the issue coded SEPA 1 is the first issue identified among those addressing the overall SEPA process, as documented in the Draft EIS. The second column of the table is a summary statement of the issue. In some cases this statement is rather brief, while in others there are multiple discrete aspects of an issue that are noted in the table. The third column in **Table 4-2** lists all of the comments that were interpreted as representing the respective substantive issue. Only the comment record identification code (e.g., I2) is listed for comment records that addressed only non-substantive issues (support or opposition comments).

The text following **Table 4-2** provides the responses to the substantive issues, organized by category as shown in the table. For each issue there is a brief narrative summarizing the issue and the range of comments addressing that issue, a listing of the applicable comments for that issue, and the complete response to the issue. Subheadings are used where necessary in the responses to indicate material addressing a specific aspect of an issue.

Copies of all of the written comment records that contain substantive comments on the Draft EIS (i.e., those addressing the alternatives, specific impact issues and/or mitigation) and the testimony statements are included in **Appendix F**. These copies include the markings that identify the comment record, the comment numbers and the issue codes. Comment records that included substantive comments are denoted with an asterisk (*) in **Table 4-1**. Comment records that contain only non-substantive comments (i.e., those expressing support for or opposition to the proposed action or some element of it) are not reproduced in **Appendix F;** these comment records are available for viewing at the Sand Point Magnuson Park Division office, and copies will be provided on request. For cross-referencing purposes, **Tables 4-1** and **4-2** are repeated as **Tables F1** and **F2** in the appendix, to provide a complete list all of the sources submitted as Draft EIS review input.

Table 4-1
Draft EIS Comment Log

1. Comments from Agencies

Comment Record ID	Agency	Representative	Date of Record	No. of Comments
A1*	King County Department of Parks and Recreation, Active Sports and Youth Recreation Commission	T J Davis	2/28/02	3
A2*	Puget Sound Clean Air Agency	T Hudson	1/16/05	3
A3*	Seattle Design Commission	D Royse	2/28/02	1
A4*	Seattle Public Utilities	J Smith/N Lucas	2/28/02	16
A5*	SeaTran (Seattle Transportation Department)	B Staadecker	2/28/02	2
A6*	US Army Corps of Engineers	J Martin	2/4/02	2
A7*	US Environmental Protection Agency	J Cabreza	2/1/02	10
A8*	Washington Department of Ecology	R Inman	2/26/02	1
A9*	Washington Office of Community Development, OAHP	G Griffith	2/19/02	1

2. Comments from Organizations

Comment Record ID	Organization	Representative	Date of Record	No. of Comments
O1**	Audubon Washington	B Nowlan	2/28/02	6
O2*	Citizens for Wildlife and Neighborhoods	D Ancona	2/28/02	19
O3*	Friends of Athletic Fields	P Lukevich et al.	2/4/02	3
O4*	Friends of Youth	J H Finck	1/31/02	1
O5*	Friends of Youth, Harmony House	J Lucas	2/28/02	1
O6*	Hawthorne Hills Community Council	B Miller	2/27/02	2
O7*	Magnuson Environmental Stewardship Alliance	L Ferguson	2/27/02	7
O8*	Northeast District Council	J Simpkins & J Hale	1/15/02	5
O9*	Northeast Seattle Little League	C Fukushima	2/27/02	1
O10*	Parkpoint Condominium Association	M Sullivan	2/25/02	6
O11*	Ravenna Bryant Community Association	N Merati	2/27/02	4
O12*	Sand Point Community Housing Association	G Eckerman	2/6/02	6
O13*	Sand Point Community Housing Association	J Dickerman	2/28/02	8
O14*	Sand Point Community Liason Committie	J Williams	2/25/02	11
O15*	Seattle Audubon Society	L Braden & M Skumanich	2/28/02	35
O16*	Seattle Residents for Fair Field Lighting	R Barton	2/28/02	8
O17*	Windermere North Community Association	M Fenton	2/28/02	6

* Denotes comment records copied in **Appendix F**.

Table 4-1
Draft EIS Comment Log (cont'd)

3. Comments from Individuals

Comment Record ID	Individual	Date of Record	No. of Comments
I1*	Abson, Kim Gittere	2/23/02	1
I2	Agel, Julie	2/28/02	1
I3	Agnew, Meg	2/13/02	1
I4	Alderman, Beth W	2/13/02	1
I5*	Alexander, Jean L	2/25/02	5
I6	Alexander, Johanna	2/27/02	1
I7	Alexander, Keith	2/20/02	1
I8	Alexander, William	2/27/02	1
I9	Alvarez, Roberto	2/7/02	1
I10	Alvord, Rick	2/13/02	1
I11	Anderson, Doug	2/6/02	1
I12*	Anderson, Jeanne	2/17/02	5
I13	Anderson, John	2/13/02	1
I14	Andrus, Joel	2/13/02	1
I15	Arbios, Bob	2/20/02	1
I16	Argens, Jeff	2/13/02	1
I17	Arvey, Richard & Evelyn	2/26/02	1
I18	Backus, Carol & Ned	2/12/02	3
I19	Bagley, Meridith	2/26/02	2
I20	Baker, Shelly	2/26/02	2
I21	Balogh, Jessica R	2/27/02	1
I22	Banse, Liz	1/23/02	1
I23	Bauer, William	2/27/02	1
I24	Beaver, Margaret	2/24/02	1
I25	Benner, Jay	2/19/02	1
I26	Bingaman, Gariann	2/28/02	1
I27	Bishop, Jill	2/27/02	1
I28	Blau, Herbert	2/8/02	1
I29	Blukis, Andrea	2/13/02	1
I30	Boelter, Allison	2/25/02	1
I31	Borisch, Mary	2/14/02	1
I32	Bowen, Bryan	2/27/02	1
I33	Bowman, Stephanie	2/27/02	2
I34	Bracht, Dana	2/27/02	2
I35	Brackhan, Kimberly	2/26/02	2
I36*	Brady, Ed	2/26/02	2
I37*	Bragg, Janice & Kirby, Robert	2/26/02	12
I38	Branam, Aron	2/28/02	1
I39	Brennan, Steve	2/15/02	2
I40	Brillhart, Kimberly & Lee	2/25/02	1
I41*	Brown, R A	2/28/02	4
I42	Brown, Suzanne	2/20/02	1
I43	Bruce, Karen	2/17/02	1

Table 4-1
Draft EIS Comment Log (cont'd)

Comment Record ID	Individual	Date of Record	No. of Comments
I44*	Brundrett, Peter & Lemaitre, Rozenn	2/26/02	9
I45	Buehrens, Paul	2/11/02	3
I46	Bush, Kristen	2/11/02	4
I47	Bush, Stephen	2/14/02	2
I48	Butler, Henry & Olga	2/20/02	1
I49	Callaghan, Rommie	2/13/02	1
I50	Carney, Mike	2/13/02	1
I51*	Carpenter, Alan & Leslie	2/28/02	10
I52	Carr, Francine & Robb	2/17/02	1
I53	Cartano, Maureen	2/6/02	1
I54	Chaffee, Anthony	2/28/02	1
I55	Chaffee, Livingston	2/14/02	1
I56*	Chetrick, Diane	2/28/02	1
I57	Cholvin, Valerie	2/28/02	1
I58	Christakis, Dimitri	1/28/02	1
I59	Claeys, Tom	2/6/02	1
I60	Cloutier, Janet	2/28/02	2
I61*	Cone, Kristopher & Patricia	2/3/02	6
I62	Cone, Stephanie	2/10/02	1
I63*	Conlon, Joan Catoni	2/6/02	3
I64	Cook, Brent	2/26/02	2
I65	Couglin, Kerry	2/27/02	1
I66	Crudo, Rick	2/8/02	1
I67*	Cutler, Ben	1/27/02	6
I68*	Dahl, Gail	2/6/02	8
I69*	Dahl, Peter	2/9/02	2
I70	Davis, Kate	2/13/02	1
I71	Davis, Tania M	2/28/02	1
I72*	d'Hondt, Mary-Thadia	2/5/02	5
I73	DiLanzo, Suzanne	2/15/02	1
I74	Dixon, Andrea	2/28/02	1
I75	Drackert, Amy	2/27/02	2
I76	Ducey, Hannah	2/27/02	1
I77	Ducey, Mike	2/27/02	1
I78	Duncan, Richard	2/18/02	1
I79*	Dwiggins, Pam	2/1/02	6
I80*	Eberhardt, Christian	2/12/02	3
I81	Erdman, Eric	2/13/02	1
I82	Evans, Joe	2/18/02	4
I83	Ewen, Robert	2/13/02	1
I84	Fallon, Gary	2/6/02	1
I85*	Farley, Kimberly	2/24/02	19
I86	Farmer, Bill & Laurie	2/26/02	1
I87	Felker, Bradford	2/15/02	1
I88	Finn, Steve	2/25/02	1
I89*	Firestone, Bruce	1/24/02	3

Table 4-1
Draft EIS Comment Log (cont'd)

Comment Record ID	Individual	Date of Record	No. of Comments
I90	Fleagle, Robert	2/7/02	1
I91	Flenniken, Kathleen	2/13/02	1
I92	Flynn, Chad	2/13/02	1
I93	Forfylow, Dana	2/14/02	3
I94	Forrest, Judith	2/15/02	1
I95*	Frederick, Hans	2/28/02	5
I96	Freeman, Scott	2/5/02	1
I97	French, Jason	2/7/02	1
I98	Friedrich, Susie & Alex	2/19/02	1
I99*	Friel, Patrick	2/9/02	1
I100	Fukushimas The	2/28/02	1
I101	Gabella, Daminique	2/20/02	1
I102	Gagliardo, Jill	2/15/02	3
I103*	Gahringer, Betty	1/29/02	1
I104*	Gamble, Gaile	2/24/02	1
I105*	Gardow, Kathryn	2/21/02	1
I106*	Garrett, Alden	2/28/02	1
I107*	Gerber, Lane & Joanna	2/16/02	1
I108	Giampietro, Joseph	2/6/02	1
I109	Gilbertson, Debra	2/12/02	1
I110	Giles, Tony	2/19/02	1
I111	Godfrey, Debra	2/14/02	1
I112	Goeltz, Ben	2/13/02	1
I113	Gorman, Gloria	1/29/02	1
I114	Gotz, Paul	2/6/02	1
I115	Gray, Lee	2/19/02	1
I116	Green, Rick & Lisa	2/3/02	1
I117	Guttorp, Peter	2/13/02	1
I118	Hampsch, Bess	2/14/02	4
I119*	Hance, Judith	1/29/02	3
I120	Hanson, Brian	2/6/02	1
I121*	Hashimoto, David	N.D.	7
I122*	Hashimoto, Molly	2/6/02	5
I123	Havkins, Sabina	2/23/02	1
I124	Haynes, Chris	2/14/02	2
I125	Hegarty, Pat	2/4/02	1
I126	Helman, Jon	2/13/02	2
I127	Hendricks, Andy	2/11/02	1
I128	Hennessey, James	2/6/02	1
I129	Heritage, Doris Brown	2/21/02	1
I130*	Hill, Loren	2/28/02	1
I131	Hoekstra, Gale	2/13/02	1
I132	Hoffman, Harry	2/6/02	1
I133	Holme, Terry	2/10/02	1
I134	Hongladarom, Jon	2/21/02	1
I135	Hopkins, Teresa	2/25/02	1

Table 4-1
Draft EIS Comment Log (cont'd)

Comment Record ID	Individual	Date of Record	No. of Comments
I136	Howland, Amy	2/15/02	3
I137	Hudson, Gail	2/6/02	1
I138	Hughes, James	2/13/02	1
I139	Iannucci, Nancy	2/13/02	1
I140	Ingman, Robert	2/6/02	1
I141	Jacobson, Michael	2/19/02	1
I142	Jager, Steve	2/6/02	1
I143	Johnsen, Janice & Jim	2/3/02	1
I144	Johnson, Jamarr	2/15/02	1
I145	Johnson, Jeff	2/28/02	1
I146*	Jones, Ron	2/4/02	6
I147	Kalitzki, Judi	2/12/02	1
I148*	Keller, Susanne & Williams, Allen	2/4/02	2
I149*	Kelly, Tom	2/26/02	7
I150	Kennedy, Stacie	2/19/02	2
I151	Kirk, Elizabeth	2/14/02	2
I152	-- (number skipped)	--	--
I153	Kliman, Jed	2/16/02	1
I154	Koga, Kevin	2/7/02	1
I155*	Korg, Jacob	2/5/02	7
I156	Kotler, Lou & Levy, Phyllis	2/7/02	1
I157	Krakauer, Wendy	2/5/02	1
I158	Kraybill, Ken	2/3/02	1
I159*	Kupor, Bob	1/29/02	1
I160	Kurland, Brenda	2/15/02	1
I161	Lamb, Jane	2/27/02	1
I162	Landicho, Helen	2/6/02	1
I163*	Lang, Susan	2/15/02	1
I164	Lansdaal, Michael T	2/28/02	1
I165	Larson, Dan	2/17/02	1
I166*	Lasley, Mary	2/27/02	4
I167*	Lasley, Scott	2/25/02	See I166
I168	Latimer, Stephen	2/6/02	1
I169	Lauren, Rob	2/14/02	2
I170	Lawson, Debbie	2/13/02	1
I171	Leehr, Jon	2/15/02	1
I172*	Lennartz, Ann	2/28/02	3
I173*	Lester, Anne	2/28/02	3
I174	Levy, Phyllis	2/7/02	1
I175	Lewis, Dominique	2/28/02	1
I176*	Li, Mary & Joseph	2/4/02	1
I177*	Libby, H K	2/11/02	1
I178	Lin, Elizabeth	2/8/02	1
I179	Locke, Lynda	2/15/02	1
I180	Lockridge, Pat	2/27/02	2
I181	Longton, Gary	2/27/02	1

Table 4-1
Draft EIS Comment Log (cont'd)

Comment Record ID	Individual	Date of Record	No. of Comments
I182	Loudenback, Shawn	2/28/02	1
I183	Lubov, Maggi	2/17/02	1
I184	Lyons, Richard	2/7/02	1
I185*	Madden, L James	2/14/02	1
I186	Magee, Dave	2/8/02	1
I187	Manasse, Geoff	2/12/02	1
I188*	Manos, Janet	2/25/02	4
I189*	Manos, Nancy	2/25/02	See I188
I190	Marks, Michael	2/14/02	2
I191	Martin, Jon	2/27/02	1
I192	Martin, Michael	2/20/02	1
I193*	Martynowych, Denis	2/18/02	5
I194	Maxwell, Jeff D	2/13/02	1
I195	McCallum, Chris	2/28/02	1
I196	McDonald, Jennifer	2/25/02	1
I197*	McDonald, Judy Manos	2/25/02	See I188
I198	Merrihew, Alan K	2/14/02	1
I199	Mesenbrink, Susan	2/13/02	1
I200	Michel, Mariana	2/26/02	1
I201	Miele, Katie	2/15/02	2
I202	Millan, Ted	2/14/02	1
I203	Millard, Steven	2/13/02	1
I204*	Miller, Alan K	2/16/02	1
I205*	Miller, Bonnie	2/27/02	4
I206	Miller, David C	2/5/02	1
I207	Mishler, Meagan	2/28/02	1
I208	Moore, Aaron	2/14/02	1
I209*	Morgan, Kate	2/24/02	19
I210	Moriarty, Jim	2/6/02	1
I211	Mucciarone, John	2/6/02	1
I212	Mulberg, Ronald C	2/13/02	1
I213	Muller, Eric	2/17/02	1
I214	Munske, Randal D	2/19/02	1
I215*	Murray, Bill	2/11/02	5
I216	Myers, George	2/13/02	1
I217	Narby, Timothy	2/13/02	1
I218	Nash, Jeremy	2/28/02	1
I219	Nash, Lawrence	2/28/02	1
I220*	Nelson, Elizabeth	2/15/02	3
I221*	Nemitz, Marsha	1/28/02	9
I222	Nevers, Barbara	2/13/02	1
I223	Nichols, Nancy F	2/13/02	1
I224	Nielsen, Louis	2/12/02	1
I225	Nolin, Jessica	2/27/02	2
I226	Nolkamper, Jennifer	2/14/02	1
I227	Noonan, Shiela B	2/14/02	1

Table 4-1
Draft EIS Comment Log (cont'd)

Comment Record ID	Individual	Date of Record	No. of Comments
I228	Nordhoff, Chuck	2/6/02	2
I229*	Novotny, Patricia	2/13/02	1
I230	O'Brien, Debi	2/15/02	1
I231	Ochi, Rex & Placida	1/21/02	1
I232*	Okigwe, Carla	1/29/02	4
I233	Osborne, William	2/13/02	1
I234	Paden, Jeff	2/7/02	1
I235	Parish, Craig "Wags"	2/14/02	2
I236	Parker, Micah	2/9/02	1
I237	Parker, R Wayne	2/15/02	1
I238	Parks , Josh	2/6/02	2
I239	Patterson, Russell H	2/13/02	1
I240	Pelkey, Shannon	2/11/02	1
I241	Pelton, David	2/22/02	1
I242	Pennington, Robyn	2/14/02	2
I243	Perko, Andrew	2/28/02	1
I244	Pfeiffer, Natasha	2/14/02	3
I245	Phillips, Debby	2/13/02	1
I246	Phillips, John & Debby	2/13/02	1
I247	Phillips, Kevin	2/15/02	1
I248*	Phillips, Richard O	2/20/02	1
I249	Pigott, Kelly	2/5/02	1
I250	Ramey, Jodie	2/19/02	2
I251	Ramsey, Jason	2/15/02	2
I252	Read, Tracy	2/13/02	1
I253*	Reed, Kristine	2/2/02	4
I254*	Rench, Bob	2/28/02	7
I255	Renkert, David	2/15/02	1
I256	Richards, Russ	2/20/02	1
I257	Riday, Rick & Lani	2/28/02	1
I258*	Robbins, Jeff	2/28/02	1
I259*	Roberts, Myrna	2/27/02	4
I260*	Rose-Leigh, Rob & Barbara	2/20/02	2
I261*	Rosenberg, Robert & Fein, Jane	1/27/02	1
I262*	Rost, Liza	2/25/02	1
I263	Rothrock, Stephen	2/7/02	1
I264	Roy, Hilary M	2/27/02	2
I265	Roy, Monica	2/28/02	1
I266*	Russell, Diana	2/24/02	11
I267	Sampson, Dick & Marge	2/24/02	1
I268*	Sandall,Marilyn	2/28/02	11
I269*	Sandell, Claire et al.	2/24/02	1
I270	Sarbach, Mark	2/13/02	2
I271	Sauvage, John	2/7/02	1
I272	Schaal, Deborah	2/14/02	4
I273*	Schellenberg, Evelyn	1/30/02	2

Table 4-1
Draft EIS Comment Log (cont'd)

Comment Record ID	Individual	Date of Record	No. of Comments
I274	Schoener, Matt	2/28/02	1
I275	Schollaert, Tony	2/14/02	2
I276	Schulze, Travis	2/14/02	4
I277	Schwartz, Jay	2/6/02	1
I278	Sears, Gena	2/13/02	1
I279	Sharp, Douglas F	2/14/02	1
I280*	Sherman, Cathy Manos	2/25/02	See I188
I281*	Sherman, Helen L	2/27/02	4
I282*	Sherman-Peterson, Ron & Deejah	2/26/02	3
I283	Shickich, Joe	2/6/02	1
I284*	Shimada, Justin & Fay	2/25/02	4
I285*	Shives, Fletcher G	2/28/02	12
I286	Shores, Clell	2/27/02	1
I287	Sibley, Randy	2/9/02	1
I288*	Sienkiewicz, Joan & Chuck	2/21/02	5
I289	Sigley, Robert	2/13/02	1
I290	Simpson, Rob	2/16/02	1
I291	Siscel, Paul	2/14/02	1
I292*	Skaar, Al	2/14/02	13
I293	Smalley, Royal	2/27/02	1
I294	Smith, Carol	2/6/02	1
I295	Smith, Marina L	2/28/02	1
I296*	Smith, Maureen	2/27/02	5
I297*	Smith, Scott	2/27/02	2
I298	Sommerville, Andrew	2/13/02	1
I299*	Sorensen, Cheryll	2/7/02	6
I300	Sorensen, Tyra	2/15/02	1
I301*	Spelman, Francis	2/28/02	5
I302*	Spelman, Kay D	2/28/02	See I301
I303	Sporleder, Jennifer L	2/14/02	4
I304	Squires, Randy	2/14/02	1
I305	Stamm, Andrea	2/14/02	3
I306	Stein, Alex	2/14/02	1
I307*	Stein, Eugene	2/22/02	5
I308*	Stemp, Ralph	1/22/02	1
I309*	Stevens, Alexander	1/29/02	4
I310	Stevenson, Pete	2/26/02	2
I311*	Stewart, Carol	1/18/02	3
I312	Stodden, David	2/6/02	1
I313	Storch, Laila	2/28/02	1
I314	Strauss, Bob	2/8/02	1
I315	Strom, Alex	2/14/02	4
I316*	Swedberg, Nicole	2/6/02	2
I317*	Swedberg, Steven	2/7/02	2
I318	Symington, Allen E	1/31/02	1
I319	Takagi, Mark	2/7/02	1

Table 4-1
Draft EIS Comment Log (cont'd)

Comment Record ID	Individual	Date of Record	No. of Comments
I320	Taniguchi, Diane F	2/28/02	1
I321	Tanner, Jen	2/15/02	6
I322	Tax, Brian	2/13/02	3
I323	Taylor, Mac	2/7/02	1
I324	Terhaar, Paula	2/12/02	1
I325	Tetler, Jen	2/19/02	3
I326	Thomas, Wendy	2/6/02	1
I327	Thomassen, Scott	2/24/02	1
I328*	Thompson, Vance	2/10/02	3
I329	Thornley, Rodney	2/6/02	1
I330	Timpe	2/9/02	1
I331	Tonkovich, Jerry & Debbie	2/16/02	1
I332	Toth, Elizabeth	2/4/02	1
I333*	Trafford, Claudine	2/4/02	18
I334*	Tremaine, Dorian	2/27/02	9
I335	Tsuchiya, Ami	2/15/02	2
I336	Tuesley, Bruce	2/6/02	1
I337*	Tulchinsky, Mrs.	2/4/02	3
I338*	Turnbull,John	1/10/02	2
I339	Turton, Tricia	2/14/02	1
I340	Twohey, Sean	2/13/02	3
I341	Ursino, Tony	2/27/02	1
I342*	Vanderwilt, William & Catherine	2/13/02	5
I343*	Van Horn, M Lee	2/20/02	4
I344	Van Vuren, Karen	2/25/02	1
I345	Vaughan, Tom V	2/25/02	1
I346	Veatch, Sarah	2/28/02	1
I347*	Verrilli, John	2/10/02	1
I348	Vick, Cynthia	2/28/02	1
I349	Wacker, Paul	2/12/02	1
I350	Wagner, Nick	2/25/02	1
I351	Walker, Gabriele	2/27/02	2
I352	Walker, Suzanne	2/28/02	1
I353	Walser, John	2/6/02	1
I354*	Wan, Y L	2/27/02	4
I355	Wass, Greg	2/21/02	1
I356*	Weaver, Neale	1/31/02	2
I357*	Webb, Eugene	2/24/02	4
I358*	Webb, Marilyn D	2/24/02	3
I359	Weiler, Jason	2/19/02	1
I360	Weinburg, Lucy	2/14/02	1
I361	Weiss, Marge	2/4/02	1
I362	Whalen, Jason	2/5/02	3
I363	Whatley, Linda & Tony	2/7/02	1
I364	Whitehead, Kenia	2/13/02	3
I365	Whitman, Heidi	2/14/02	1

Table 4-1
Draft EIS Comment Log (cont'd)

Comment Record ID	Individual	Date of Record	No. of Comments
I366*	Whitmann, Edward & Gwendolene	1/31/02	2
I367*	Wolman, Alec & Yvonne	2/28/02	6
I368	Woodman, Mike	2/14/02	1
I369	Wright, Robert E	2/13/02	1
I370	Wyatt, Jenny	2/6/02	1
I371	Ziebarth, Scott A	2/27/02	1
I372	Zieve, Peter	2/13/02	1
I373*	Ziker, Barry	2/15/02	2

4. Testimony Comments

Comment Record ID	Speaker	Affiliation	No. of Comments
T1*	Stevens, Alex		4
T2*	Lucas, Bob		6
T3*	Simpkins, Jim		See O8
T4*	Santos, Bob		2
T5*	Barton, Renee		7
T6*	Hashimoto, Molly		See I122
T7*	Dahl, Gail		See I68
T8*	Curl, Herbert Jr.		5
T9*	Hashimoto, David		See I121
T10*	Braden, Lauren		See O15
T11*	Sandall, Marilyn		6
T12*	Brundred, Peter (Brundrett)		3
T13*	Ruh, Gordon		7
T14*	Williams, Jeanette		2
T15*	Tremaine, Dorian		6
T16*	Thompson, Vance		4
T17*	Shives, Fletcher		5
T18*	Cranshaw, Aquilla		4
T19*	Seet, Denika		3
T20*	Eckerman, Greg		See O12
T21*	Dahl, Peter		1
T22*	Swedberg, Nicole		See I316
T23*	Kroening, Nancy		9
T24*	Mesenbrink, Susan		4
T25*	Fenton, Theresa		6
T26*	Skaar, Al		3
T27*	Kelly, Tom		See I149
T28*	Cope, Karly		5
T29*	Russell, Diana		See I266
T30*	Welch, Cheryl		1
T31*	Kuper, Sara		2
T32*	Lee, Sharon		4
T33*	Alexander, Jean		2

Table 4-1
Draft EIS Comment Log (cont'd)

Comment Record ID	Speaker	Affiliation	No. of Comments
T34*	Lester, Anne		1
T35*	Boelter, Allison		3
T36*	Shepherd, Judy		1
T37*	Murray, Bill		2
T38*	Stuvey, Eric		3
T39*	Lundgren, Stephan		2
T40*	Carpenter, Alan		See I151
T41*	Martin, Michael		6
T42*	Stevens, Jane		3
T43*	Schulkin, Susan		3
T44*	Miller, Bonnie		7
T45*	Gerber, Lane		9
T46*	Lloyd, Kate		5
T47*	Teshima, Joyce		4
T48*	Barton, Justine		3
T49*	Arp, Gwen		2
T50*	Wells, Kim		2
T51*	Lodge, Mark		3
T52*	Thompson, Alexa		3
T53*	Welch, Sheryl		See T30
T54*	Jones, Bodil		1
T55*	Arp, Benjamin		5

Table 4-2
Issues Based on Draft EIS Comments

Issue Code	Summary of Issue	Applicable Comments
	PROGRAMMATIC/POLICY ISSUES	
SEPA	**SEPA/EIS Process & Scope**	
1.	Off-site alternative/alternative sites – whether the Draft EIS included or should have included evaluation of an off-site alternative, as required under SEPA for public projects.	O2-2, O7-7, O13-8 I44-8, I51-6, I68-6, I85-15, I121-3, I155-6, I193-1, I209-11, I209-19, I221-8, I254-2, I266-4, I266-10, I266-11, I268-11, I285-3, I288-1, I292-2, I292-8, I296-5, I333-4, I333-7 T17-3, T41-3, T44-7
2.	Definition of EIS alternatives – primarily, whether the lesser-capacity alternative evaluated in the Draft EIS met the SEPA definition of an alternative.	O2-3, O7-7 I51-5, I85-1, I85-13, I149-1, I163-1, I266-5, I285-4, I333-8 T17-4, T32-3, T35-2, T42-3, T44-1, T51-1, T55-2
3.	Alternatives not evaluated in the Draft EIS - why were other action alternatives not evaluated in the Draft EIS? Specific suggestions included alternatives with all natural turf instead of artificial turf; alternatives without lighting, or with significantly reduced lighting; alternatives changed to reduce impacts; reduced numbers of fields; and leaving the park as natural as possible while maintaining multiple use.	O2-1, O2-4, O8-5, O10-3, O12-6, O13-3, O14-2, O14-3, O15-32, O16-4 I5-3, I12-4, I37-7, I51-1, I56-1, I79-6, I85-14, I89-3, I99-1, I149-5, I155-6, I173-3, I177-1, I188-1, I193-5, I209-13, I209-19, I259-3, I266-5, I266-10, I268-11, I292-13, I299-6, I307-2, I334-9, I342-5, I367-5 T11-5, T13-1, T15-4, T23-1, T41-3, T41-4, T42-3, T45-1, T46-1, T47-2, T49-2
4.	Adequacy of the Draft EIS – an issue represented by comments that a Supplemental EIS should be prepared, that the current DEIS is inadequate and/or justifies the plan rather than analyzes it, or that there should be equal treatment of alternatives.	A6-1 O2-19, O13-2, O14-11 I41-1, I44-1, I80-3, I155-1, I188-3, I209-1, I209-10, I254-7, I285-1 T25-5, T25-6, T31-1, T32-1, T41-1, T41-2, T51-2, T55-4
5.	Sufficiency of EIS scope with respect to other Sand Point Magnuson Park projects – comments maintaining that environmental analysis of multiple projects at Sand Point Magnuson Park is being piece-mealed, that this EIS should be a comprehensive review of all projects proposed for the park.	O6-2, O7-6, O14-1, O15-2, O15-11, O15-20, O17-5 I12-1, I68-5, I85-5, I209-7, I209-12, I220-1, I221-6, I232-1, I266-7, I268-8, I268-10, I285-8 T5-5, T8-4, T15-2, T17-1, T44-6, T55-5
6.	EIS scope with respect to economic impacts – comments that the EIS should analyze impacts of the sports field lights on surrounding property values, and the financial impact of injuries and lawsuits due to use of artificial turf.	O10-2, O10-6 I12-4, I67-6, I72-5, I146-5, I266-9, I284-1, I292-7, I337-3, I354-4, I357-4, I358-3 T2-4, T37-1, T52-2
7.	EIS scope with respect to quality of life impacts – comments that quality of life concerns and/or that social/cultural impacts were not addressed in the DEIS.	O13-1 I67-5, I72-4, I79-1, I89-1, I188-4, I292-6, I292-7, I354-4
8.	Sufficiency of mitigation measures – comments that mitigation measures identified in the Draft EIS were not sufficient to address the impacts, or general or specific comments for more mitigation.	O13-3 I209-16, I221-7, I268-9 T11-5

Table 4-2 (cont'd)

Issue Code	Summary of Issue	Applicable Comments
	PROGRAMMATIC/POLICY ISSUES	
SEPA	**SEPA/EIS Process & Scope (continued)**	
9.	Necessary permits for the proposed action – a question whether the project would need a permit under Section 404 of the Clean Water Act.	O15-8
10.	Implementation of a City light restriction ordinance – comments that the City would be contributing to light pollution and/or should implement a light restriction ordinance.	O2-17 I121-4, I188-4, I209-18
11.	Allocation of City funds – comments criticizing the City's proposal to earmark $12 million for the park instead of using it for other purposes, or expressing concern over the financial ability to maintain the project.	O2-14 I44-9, I146-1, I166-4, I176-1, I215-5, I259-4, I292-12, I307-5, I333-5, I333-12, I333-17 T18-3, T45-7
12.	Consistency of proposed uses with terms of the Navy transfer of the property to the City, or with the content of prior EISs addressing the transfer.	I51-9, I285-9 T32-4
13.	Lead agency/NEPA jurisdiction over the project – comments pertinent to the question of why the EIS was not a NEPA document with the Corps of Engineers as lead agency.	A6-2 I85-2
14.	Sufficiency of agency coordination and participation, particularly by federal and state resource agencies, in the SEPA process.	I85-8
15.	Sufficiency of public notice and opportunity for input – comments regarding public notification of the EIS meetings, whether public input would be ignored, requests for records and an extension of the comment period, or the availability of DEIS copies for review.	I85-9, I282-2, I285-2 T23-5
16.	Documentation of baseline environmental conditions – comments critical of the DEIS mapping of baseline conditions.	I85-10, I85-12, I85-16
17.	Approval process and timing for related park plans – comments questioning the relationship between this proposal and the Joint Athletic Facilities Development Program, or the vegetation management plan for the park.	I328-1, I328-3 T13-6, T16-3, T39-2, T45-8
PD	**Project Description**	
1.	Sufficiency of information on construction phasing – a variety of comments relating to the phasing of project construction. This category also includes questions about funding availability relative to the phasing plan, or the timing of specific construction activities.	O15-10, O15-19 I37-6, I172-1, I205-2, I209-17, I308-1 T8-2
2.	Suitability of proposed fill soil – comments questioning whether the soil mixture proposed for landscaping and fields was consistent with standards, or whether on-site material was suitable for subgrade use .	A4-1 O15-9, O15-21

Table 4-2 (cont'd)

Issue Code	Summary of Issue	Applicable Comments
	PROGRAMMATIC/POLICY ISSUES	
PD	**Project Description (continued)**	
3.	Size, shape and function of the proposed marshy ponds – comments about the geometry of the marshy pools proposed for an area of the wetland/habitat complex.	A7-10 O15-13
4.	Level of detail on landscaping, irrigation and planting plans –requests for more details about the irrigation system, planting plans for landscaping and wetlands, use of native species, etc.	A4-2, A4-3, A7-8 O1-3, O7-3, O15-3, O15-6, O15-13, O15-18 I85-18, I172-2, I205-1, I268-1, I268-4 T8-3, T44-5
5.	Level of information on plans for sports fields – comments primarily relating to the proposed field surfaces, including questions about how the selection of artificial-turf fields was made, whether life cycle costs were evaluated, field size, field availability for specific uses, and how to dispose of worn-out artificial turf.	A1-1, A4-8 I37-8, I95-3, I334-7
6.	Wetland design and characteristics – comments about treatment of specific habitat features for the wetland and upland habitats, and the proposed lagoon location.	A7-9 I36-1
7.	Type of fill material for site construction – comments questioning the use of existing on-site crushed paving materials as fill for the sports fields, or the consequences of that use.	O7-5 I334-5 T5-6
8.	Provisions for bicycles and pedestrians in park transportation plan – comments addressing a need to include bicycles and pedestrians in the Park transportation plan, to separate bicycles from pedestrian on trails for safety, or similar concerns.	O14-5, O14-6 I95-5, I173-1, I261-1 T14-1
9.	Selection/description of elements of the lighting system – various specific issues relating to the sports field lighting component of the proposed action. This category includes comments about the appropriate lighting standard, site-specific location of light fixtures, use of 1500W lamps, use of lighting systems with variable brightness levels, and types of lighting technologies.	O3-3, O6-1, O11-3, O15-31, O16-2, O16-3 I204-1, I281-4, I309-2, I316-2 T5-4
10.	Requested changes or additions to the proposed action – a wide range of comments about various elements of the proposal or suggested additions, such as restaurants, playgrounds, bikeways and in-line skating facilities.	I104-1, I105-1, I106-1, I130-1, I185-1, I232-2, I258-1, I338-1, I347-1, I366-2
11.	Comparison to lighting system at Safeco Field – comments comparing lighting for the proposed project to Safeco Field (the Seattle major-league baseball stadium).	I328-2 T16-1, T23-8

Table 4-2 (cont'd)

Issue Code	Summary of Issue	Applicable Comments
	ELEMENT/RESOURCE ISSUES	
GEO	**Earth**	
1.	Potential for soil contamination on the project site - and need for soil and groundwater sampling.	A8-1
2.	Description of landscaping impacts.	A4-5
AQ	**Air Quality**	
1.	Barge transport for site fill material - to decrease noise and air quality impacts.	A2-1
2.	Demolition requirements relative to asbestos.	A2-2
3.	Control of dust emissions from construction.	A2-3
WTR	**Water**	
1.	Impacts of project water consumption - how much would be used for irrigation, bathrooms, fodd facilities, pool, etc.	A4-4, A4-6, A4-10, A4-16
2.	Use of chemicals to clean fields - and need to treat runoff.	A4-9, A4-12
3.	Measures to promote water quality, waste reduction and conservation.	A4-11, A4-13
4.	Need for monitoring of stormwater runoff and related comments on treatment needs.	A7-5, A7-7 O1-4, O7-6, O15-11, O15-13 I12-3, I37-5, I61-4, I85-7, I209-9, I268-10, I334-4 T23-7
5.	Impervious surface acreage data - clarity and consistency of numbers used throughout the document.	A7-6 I85-11, I85-19
6.	Basis and feasibility of the site drainage design.	A4-14 O15-12 T5-7
7.	Water levels in the proposed lagoon.	O15-15
WET	**Plants and Wetlands**	
1.	Post-construction monitoring of wetland/habitat creation - and maintenance to fix anything that is not working.	O1-2, O15-1, O15-25 I37-3, I122-1, I172-3, I268-5 T8-5
2.	Sufficiency of information on mitigation for wetland impacts - comments on wetland delineation, mitigation for net loss of wetlands, gain of manmade habitat but loss in wild habitat, or expanding sports meadow area.	A7-1 O1-6 I37-2, I85-3, I85-6, I85-17, I95-2, I220-2 T44-4, T46-4
3.	Human disturbance and related impacts to wetlands.	A7-2 O1-1, O15-23 I146-4, I148-1, I209-9, I285-11, I333-3, I334-6
4.	Need for herbicide use on athletic fields.	A7-4
5.	Clarity of some species identifications.	O15-22
6.	Need for amendment of disturbed wetland soil.	A4-14
7.	Location of sports fields relative to wetland area.	I36-2

Table 4-2 (cont'd)

Issue Code	Summary of Issue	Applicable Comments
	ELEMENT/RESOURCE ISSUES	
WDLF	**Wildlife/Fish**	
1.	Impacts of lighting/human disturbance on wildlife - comments about need for more analysis in the EIS, many species affected, or adequacy of mitigation offered.	A7-3 O1-5, O2-15, O2-16, O7-1, O8-2, O14-8, O15-7, O15-14, O15-17, O15-26, O15-27, O15-29, O15-33, O16-1, O16-5, O17-2 I37-9, I41-2, I61-3, I67-4, I68-1, I103-1, I119-3, I122-3, I146-3, I148-1, I149-3, I193-4, I209-5, I215-1, I215-4, I221-1, I221-2, I221-4, I229-1, I254-6, I266-1, I266-8, I268-2, I282-1, I284-3, I288-4, I296-3, I299-2, I301-4, I309-2, I309-4, I311-3, I333-2, I333-13, I333-18, I334-6, I342-3, I356-2, I367-4 T1-3, T5-1, T11-2, T11-3, T13-3, T13-7, T15-3, T15-6, T23-2, T28-2, T33-2, T43-3, T45-5, T46-3
2.	Displacement of existing wildlife.	O2-18 I12-5, I334-8
3.	Characteristics of on-site trails.	O7-2, O15-16
4.	Effect on designation of park as an environmentally critical area for wildlife.	O15-4
5.	Control of user behavior/enforcement of park rules.	O15-24 I149-6
6.	Impact of lagoon on fisheries in area - comments about impact to the lake bottom, summer water temperatures and predation.	I12-2, I37-4, I285-12
7.	Information on endangered species and ESA compliance.	I85-4
8.	Construction impacts on frogs.	I122-4
ENR	**Energy and Natural Resources**	
1.	Electric energy and water consumption - comments that power and water consumption were not adequately addressed in the EIS, or that the project would be a waste of energy.	A4-15 O14-9, O15-30 I37-11, I44-4, I51-3, I51-10, I149-4, I176-1, I188-4, I209-18, I273-2 T14-2, T44-2
NOI	**Noise**	
1.	Operational noise from use of fields - a variety of comments about noise readings in surrounding neighborhoods, the hillside acting as an amphitheater, noise levels at night, noise impacts to on-site residents, and documentation of past noise complaints.	O2-10, O2-11, O8-4, O12-3, O13-5, O14-10, O16-7, O17-4 I44-6, I61-5, I68-2, I68-8, I69-2, I79-3, I79-4, I80-1, I121-5, I121-7, I148-1, I149-7, I155-4, I176-1, I193-3, I209-3, I209-14, I215-1, I215-4, I221-4, I232-4, I248-1, I253-2, I24-5, I259-2, I260-2, I266-3, I266-8, I268-6, I269-1, I285-10, I292-10, I296-2, I299-4, I301-2, I307-4, I311-2, I316-1, I333-11, I333-16, I334-1, I337-2, I343-2, I354-1, I367-5, I373-1 T2-2, T2-6, T13-4, T18-4, T19-3, T21-1, T23-4, T24-3, T26-1, T38-1, T41-5, T42-1, T43-2, T44-3, T45-4, T47-4

Table 4-2 (cont'd)

Issue Code	Summary of Issue	Applicable Comments
	ELEMENT/RESOURCE ISSUES	
NOI	**Noise (continued)**	
2.	Provisions of and compliance with City Noise ordinance.	O2-12 I51-4, I51-8, I209-2, I292-11
3.	Treatment of impacts from construction noise.	O2-13 I301-3 T4-2, T24-1
4.	Adequacy of mitigation for noise impacts.	O12-4, O13-6 I221-5, I268-7
LU	**Land Use**	
1.	Consistency with park designation as an environmentally critical area.	O15-4
AES	**Aesthetics**	
1.	Impacts on views of the lake and Magnuson Park.	I5-1, I37-10, I37-12, I44-7, I61-1, I67-2, I281-3, I284-4, I357-3, I358-2 T12-3, T28-4, T43-1, T46-2
L&G	**Light & Glare**	
1.	Methodology used to assess light and glare impacts - comments about specific factorsd or measures used to assess impacts, or need to consider visual perception of light, especially at night.	O2-6, O2-7, O2-8 I51-2, I51-7, I121-1, I209-4, I209-15, I285-6, I317-2 T13-5, T16-4, T17-5, T25-2, T25-4, T55-1
2.	Characterization or acceptability of light and glare impacts - comments objecting to the Draft EIS description of light and glare impacts or conclusions on impact significance, objecting to the proposed hours of operation, or stating that the impacts would be unacceptable.	O2-5, O4-1, O5-1, O8-3, O10-4, O12-1, O12-2, O12-6, O13-4, O14-7, O16-4, O16-6, O17-2 I1-1, I5-2, I5-5, I41-3, I44-3, I61-2, I61-2, I67-3, I68-4, I68-7, I69-1, I72-2, I79-2, I79-5, I80-2, I107-1, I119-1, I121-2, I121-6, I146-2, I146-6, I148-2, I149-2, I155-3, I159-1, I166-1, I173-2, I177-1, I188-2, I193-2, I205-4, I209-6, I209-14, I215-1, I215-4, I220-3, I221-1, I221-3, I221-9, I232-3, I248-1, I253-1, I254-1, I254-3, I258-1, I259-2, I260-2, I262-1, I266-2, I266-6, I266-8, I268-3, I269-1, I273-1, I281-1, I282-1, I284-2, I285-5, I285-7, I288-3, I288-5, I292-1, I292-5, I292-9, I296-4, I297-1, I297-2, I299-1, I301-1, I307-1, I307-3, I309-3, I317-1, I333-1, I333-9, I333-15, I334-1, I342-2, I342-4, I343-3, I354-3, I356-1, I357-1, I358-1, I366-1, I367-1, I367-2, I367-3, I373-1 T1-2, T1-4, T2-3, T4-1, T5-2, T11-6, T12-2, T13-2, T13-4, T13-7, T18-1, T19-1, T25-3, T25-5, T26-2, T28-1, T28-3, T30-1, T33-1, T34-1, T35-1, T38-2, T41-6, T42-2, T43-1, T45-2, T45-9, T46-2, T47-1, T47-3, T48-1, T48-2, T55-1
3.	Consideration of cumulative light and glare impacts.	O15-28 I205-3, I209-7, I266-7, I268-8, I285-8 T11-4, T15-2, T16-2, T17-2, T39-1

Table 4-2 (cont'd)

Issue Code	Summary of Issue	Applicable Comments
	ELEMENT/RESOURCE ISSUES	
REC	**Recreation**	
1.	Consideration of passive recreation uses and users.	O14-4 I334-2
2.	Scheduling and allocation of time on sports fields - concerns that people living around the park could not use the fields spontaneously.	O17-6 I5-4, I41-4, I166-2, I292-4 T5-3
CUL	**Historic & Cultural Preservation**	
1.	"Level C" review and consultation for demolition of Building 15 (Hobby Shop).	A9-1
TRAN	**Transportation**	
1.	Analysis of impacts to traffic outside of the park - including comments about including additional intersections in the analysis, increased traffic congestion/delays, traffic impacts/volumes being understated, or off-site traffic safety.	A5-1 O2-9, O8-4, O11-1, O15-34, O17-3 I44-5, I63-1, I68-3, I72-3, I122-2, I148-1, I155-2, I176-1, I209-8, I221-7, I248-1, I253-3, I254-4, I258-1, I259-2, I260-2, I269-1, I281-2, I288-2, I296-1, I299-3, I307-4, I333-10, I334-1, I334-3, I337-1, I338-2, I343-2, I354-2, I357-2, I367-5, I373-1 T2-2, T2-5, T12-1, T15-5, T18-4, T19-2, T23-3, T24-2, T24-3, T44-6, T45-3, T46-5
2.	Analysis of impacts to traffic and circulation inside the park - primarily comments about pedestrian access and safety needs in the park.	A5-2 O12-5, O13-7 I253-4
3.	Effects on seasonal parking demands.	I282-3
4.	Promotion of private vehicle use - comments about need for transit access or improvements, or treatment of public transportation in the EIS.	O15-35 I209-8
PSU	**Public Services & Utilities**	
1.	Effects on public safety - concerns about crime and public safety with late night use of lighted fields.	O10-1, O10-5 I155-5, I176-1, I299-5, I373-1 T24-4

Table 4-2 (cont'd)

Issue Code	Summary of Issue	Applicable Comments
	NON-SUBSTANTIVE COMMENTS	
S/O	**Support/Opposition for the Proposal**	
1.	Support for lighted sports fields - comments indicating support for the field complex, for operating the lights until 11 PM, and/or for 11 lighted fields rather than 7 (as in the lesser-capacity alternative).	A1-2, A1-3 O3-1, O3-2, O9-1 I95-1, I95-4 Individual Comment Records I2, I3, I4, 16, I7, I8, I9, I10, I11, I13, I14, I16, I17, I18, I19, I20, I21, I22, I23, I24, I25, I26, I27, I29, I31, 132, I33, I34, I35, I38, 139, I40, I42, I43, I45, I46, I47, I49, I50, I52, I53, I54, I55, I59, I60, I62, I64, I65, I66, I70, I71, I73, I74, I75, I77, I78, I82, I83, I84, I86, I87, I88, I90, I91, I92, I93, I94, I96, I97, I98, I100, I101, I102, I108, I109, I110, I111, I112, I114, I115, I116, I117, I118, I120, I123, I124, 1125, I126, I127, I128, I129, I131, I132, I133, I134, I135, I136, I137, I138, I139, I140, I141, I142, I143, I144, I145, I147, I150, I151, I153, I154, I156, I157, I158, I160, I161, I162, I163, I164, I165, I168, I169, I170, I171, I174, I175, I178, I179, I180, I181, I182, I183, I184, I186, I187, I190, I191, I195, I198, I200, I201, I202, I203, I206, I207, I208, I210, I211, I212, I213, I216, I217, I218, I219, I222, I223, I224, I225, I226, I227, I228, I230, I233, I234, I235, I236, I237, I238, I239, I240, I241, I242, I243, I244, I245, I246, I247, I249, I250, I251, 1252, I255, I256, I257, I263, 1264, I265, I267, I270, I271, I272, I274, I275, I276, I277, I278, I279, I283, I286, I287, I289, I290, I291, I293, I294, I295, I298, I300, I303, I304, I305, I306, I310, I312, I314, I315, I318, I319, I320, I321, I322, I323, I324, I325, I326, I327, I331, 1335, I336, I339, I340, I341, I344, I345, I346, I348, I349, I350, I351, I352, I353, I355, I359, I360, I361, I362, I363, I364, I365, I368, I369, I370, I371, 1372
2.	Support for wetland creation/restoration - comments indicating support for the wetland/habitat complex, features such as the education shelter, or general support for green space.	O7-4, O11-4, O15-5 I89-2, I258-1 T8-1, T23-6, T51-3
3.	Support for the lesser-capacity alternative.	O11-2 I231-1, I373-2

Table 4-2 (cont'd)

Issue Code	Summary of Issue	Applicable Comments
	NON-SUBSTANTIVE COMMENTS	
S/O	**Support/Opposition for the Proposal (continued)**	
4.	Opposition to the proposed action - comments objecting to the proposal in general or to various parts of the proposal, primarily lighted sports fields.	O8-1, O16-8, O17-1 I37-1, I44-2, I61-6, I63-3, I67-1, I72-1, I119-2, I155-7, I166-3, I209-18, I215-2, I215-3, I248-1, I259-1, I260-1, I266-11, I269-1, I292-3, I301-5, I333-6, I333-14, I342-1, I343-1, I367-6 T1-1, T2-1, T11-1, T18-2, T23-9, T25-1, T26-3, T28-5, T31-4, T32-2, T35-3, T37-2, T38-3, T48-3, T49-1, T50-1, T52-1, T52-3, T54-1, T55-3, T55-4 Individual Comment Records I15, I28, I30, I48, I57, I58, I99, I113, I192, I199, I214, I313, 1332
5.	Support for the no action alternative.	I122-5, I311-1, I343-4 T15-1

4.1 PROGRAMMATIC/POLICY ISSUES

4.1.1 SEPA/EIS Process and Scope (SEPA)

Issue SEPA 1: Off-site alternative/alternative sites

Issue: A number of comments raised the issue that an off-site alternative was not analyzed in the Draft EIS for this project. Numerous comments stated that this project is classified as a "public" project, and, therefore, the Department of Parks and Recreation is required by SEPA to evaluate an off-site alternative in the EIS. Most of the comments in this category reflected concerns over impacts to the surrounding neighborhoods.

Applicable Comments: O2-2, O7-7, O8-5, O13-8, I44-8, I51-6, I68-6, I85-15, I121-3, I155-6, I193-1, I209-11, I209-19, I221-8, I254-2, I266-4, I266-10, I266-11, I268-11, I285-3, I288-1, I292-2, I292-8, I296-5, I333-4, I333-7, T17-3, T41-3, T44-7

Response:

The Draft EIS did address the concept of alternative sites (i.e., an off-site alternative) in **Section 2.5 Alternatives Not Considered in Detail**. Specifically, **Section 2.5.4** (page 2-50 of the Draft EIS) indicated that alternative sites for the proposed action at Sand Point Magnuson Park were not evaluated in the EIS because the Department of Parks and Recreation was considering multiple sites for athletic field development throughout the City of Seattle under the Joint Athletic Fields Development Program. This level of consideration for an off-site alternative was and is fully consistent with SEPA requirements relative to alternatives.

The SEPA rules require the lead agency to describe and evaluate the proposed action and reasonable alternatives to that course of action (WAC 197-11-440(5). The rules indicate that reasonable alternatives shall include actions that could feasibly attain or approximate a proposal's objectives, but at a lower environmental cost or decreased level of environmental degradation, and provide that the EIS may indicate the reasons for eliminating alternatives from detailed study.

The Final EIS adopts the same approach to alternative sites, as the Department of Parks and Recreation still considers this to be an alternative that is not appropriate for detailed consideration in the EIS. The City's objectives for the proposed action are identified in **Section 1.3** of the EIS. Those objectives were established in Resolution 29249, adopting the Sand Point Physical Development Management Plan; Resolution 30063, adopting the Sand Point Magnuson Park Concept Design; and Resolution 30293, amending the Concept Design. The documents adopted by those resolutions identify general objectives for expanding recreational opportunities, enhancing open space and natural areas, demonstrating environmental sensitivity and improving accessibility at Sand Point Magnuson park, and describe how those objectives are to be met. Resolution 30063 specifically identifies objectives for development of 11 lighted sports fields with synthetic turf and 4 fields with natural grass.

Section 2.5.4 has been expanded in the Final EIS to provide a more detailed discussion of the Department's reasoning on this issue. In summary, the Department does not believe that there are alternative comparable sites available that could accommodate and meet the objectives of the proposed action and do so at lower environmental cost. In addition, any sites that might otherwise be plausible

candidate locations for large-scale sports field development are already identified through the JAFDP as sites proposed for lighted sports fields, so there do not appear to be available sites that could substitute for Sand Point Magnuson Park and avoid the types of neighborhood impacts associated with the proposed action.

Issue SEPA 2: Definition of EIS alternatives

Issue: A number of comments disagreed with the definition of the alternatives evaluated in detail in the Draft EIS, primarily with respect to the lesser-capacity alternative. In general, these comments raised the issue that the lesser-capacity alternative did not meet the SEPA definition of an alternative that can be analyzed in the EIS. These commenters typically did not think that the lesser-capacity alternative was different enough from the proposed action in terms of its scope or ability to reduce environmental impacts.

Applicable Comments: O2-3, O7-7, I51-5, I85-1, I85-13, I149-1, I163-1, I266-5, I285-4, I333-8, T17-4, T32-3, T35-2, T42-3, T44-1, T51-1, T55-2

Response:

A purpose of an EIS is to evaluate the significant environmental impacts of the proposed action and other "reasonable alternatives" (WAC 197-11-400 (2)). The SEPA rules define a "reasonable alternative" as one that could feasibly attain or approximate the proposal's objectives but at a lower environmental cost or decreased level of environmental degradation (WAC 197-11-440 (5)(b), 197-11-786). An EIS is not required to examine every possible alternative; the word "reasonable" is intended to limit both the number and range of alternatives as well as the amount of detailed analysis for each alternative WAC 197-11-440 (5)(b)(i)).

The lesser-capacity alternative analyzed in the Draft EIS represented a project plan that would reasonably approximate the objectives for the proposal (specifically, the objective to provide a large increase in sports field capacity at Sand Point Magnuson Park), but would result in lower environmental impacts for several elements of the environment. Based on the total number of fields and the number of fields with synthetic turf and lighting systems, the original lesser-capacity alternative was estimated to provide about three-quarters of the field capacity increase represented by the proposed action. Because 7 of these fields would be lighted, compared to 11 fields under the proposed action, this configuration of the lesser-capacity alternative would have resulted in reduced human disturbance impacts to the wetland/habitat complex and reduced lighting and noise impacts for nearby residents. The SEPA rules do not require that alternatives produce no impacts, that all impacts be lower, or that all conditions (e.g., habitat) be the same for all alternatives. Given that a purpose of an EIS is to disclose environmental effects and to permit a reasoned choice among alternative courses of action, the Draft EIS configuration of the lesser-capacity alternative would seem to facilitate this consideration.

In response to the Draft EIS review comments on this issue, however, the Department elected to revise the lesser-capacity alternative for the Final EIS. The plan for the lesser-capacity alternative that is evaluated in the Final EIS is described in **Section 2.3**. In summary, the primary changes to this alternative were to eliminate one of the baseball/softball fields located adjacent to the wetland/habitat complex, shift the locations of two soccer fields farther away from the wetland/habitat complex, and change the plans for four other fields from synthetic turf and lights to natural turf and no lights.

Consequently, the revised lesser-capacity alternative includes only three fields with synthetic surfaces and lighting systems. As documented in the impact analyses presented in the Final EIS, this configuration would considerably reduce the lighting and operational noise impacts for nearby residents, would considerably increase the buffer area between the sports fields and the wetland/habitat complex, and would eliminate the generation of spill light from the sports fields within the wetland/habitat complex. The Department estimates that this configuration for the lesser-capacity alternative would provide about half as much increased sports field capacity as the proposed action. The Seattle City Council will need to evaluate whether this reduction in field capacity reasonably approximates the objectives for the proposal, and whether it is sufficiently consistent with the objectives for Sand Point Magnuson Park that are identified in the Reuse Plan, the Sand Point Physical Development Plan and the Magnuson Park Concept Design.

Issue SEPA 3: Alternatives not evaluated in the Draft EIS

Issue: Numerous comments directly or indirectly raised the issue of addressing additional alternatives in the Draft EIS. Some commenters wanted detailed consideration of alternatives with only natural-turf sports fields instead of primarily fields with artificial turf, with no or significantly reduced lighting, and with more natural or undeveloped open space, among other things. Other comments argued that in the process of creating the proposed action and alternatives, changes should have been made to the proposal along the way to further reduce potential impacts to the built and natural environment.

Applicable Comments: O2-1, O2-4, O8-5, O10-3, O12-6, O13-3, O14-2, O14-3, O15-32, O16-4, I5-3, I12-4, I37-7, I51-1, I56-1, I79-6, I85-14, I89-3, I99-1, I149-5, I155-6, I173-3, I177-1, I188-1, I193-5, I209-13, I209-19, I259-3, I266-5, I266-10, I268-11, I292-13, I299-6, I307-2, I334-9, I342-5, I367-5, T11-5, T13-1, T15-4, T23-1, T41-3, T41-4, T42-3, T45-1, T46-1, T47-2, T49-2

Response:

As indicated in the previous response, a purpose of an EIS is to evaluate the significant environmental impacts of the proposed action and other "reasonable alternatives" (WAC 197-11-400 (2)). An EIS is not required to examine every possible alternative; the word "reasonable" is intended to limit both the number and range of alternatives as well as the amount of detailed analysis for each alternative WAC 197-11-440 (5)(b)(i)).

The Draft and Final EIS both evaluate two alternatives to the proposed action: a lesser-capacity alternative with a similar number of sports fields and a similar acreage of wetland/habitat complex; and no action. Pursuant to the SEPA rules, this is believed to be a reasonable number and range of alternatives to permit comparative evaluation to the proposal. These alternatives are consistent with the Department's objectives of providing a large increase in sports field capacity and habitat value and diversity, in response to direction established through many years of planning for Sand Point Magnuson Park. They also allow decision makers to consider the effects and trade-offs associated with a different sports field configuration, and with a non-development plan for the project site. As discussed in the response to issue SEPA 2, the lesser-capacity alternative (particularly the configuration evaluated in the Final EIS) would result in considerably lower environmental impacts for several elements of the environment, and would therefore comply with the requirements for a reasonable alternative.

The Draft EIS also described a number of other possible alternatives that were considered but not evaluated in detail (see **Section 2.5**, pages 2-49 and 2-50). These included suggestions offered during the scoping process for the EIS and the previous years of planning for Sand Point Magnuson Park, which generally addressed (1) expanded (or decreased) sports field capacity; (2) expanded (or decreased wetland/habitat area; or (3) sports field configurations with no synthetic surfaces or lighting systems. Consistent with the SEPA rules, the Draft EIS described the reasons these suggestions were not evaluated in detail. Those reasons generally involved inconsistency with the objectives identified by the City Council and the Department with respect to desired sports field capacity, inconsistency with established planning direction for Sand Point Magnuson Park, and inconsistency with the City Council's determination that lights and synthetic surfaces are needed to provide sufficient sports field capacity and year-round play. The Final EIS maintains the same position with respect to detailed evaluation of other action alternatives. Please refer to **Section 2.5** for further information.

Some comments in this issue category were rather general statements of opinion that the alternatives evaluated are flawed or not acceptable. Comments of this nature do not comply with the direction in the SEPA rules that comments shall be as specific as possible (WAC 197-11-550), and do not provide a basis for a substantive response.

With respect to the level of treatment provided for each alternative, the Department believes that both the Draft and Final EIS are consistent with required practice. The SEPA rules require that an EIS "devote sufficiently detailed analysis to each reasonable alternative to permit a comparative evaluation of the alternatives including the proposed action. The amount of space devoted to each alternative may vary (WAC 197-11-440 (5)(c)(v)). The Draft and Final EIS both provide a sufficient amount and detail of information to permit a comparative evaluation among alternatives. The description of the lesser-capacity alternative presented in **Section 2.3** focused on the *differences* between that alternative and the proposed action; no point would be served in repeating the characteristics of each alternative that are similar or the same. Likewise, the impact results for the lesser-capacity and no action alternatives were generally derived and described in comparison to the impacts already identified for the proposed action, allowing a more condensed discussion for the impacts of the alternatives. The rules do not require that the alternatives be evaluated at precisely the same level of detail or be allocated the same volume of discussion.

Issue SEPA 4: Adequacy of the Draft EIS

Issue: Numerous comments stated that the Draft EIS should be considered inadequate. Many of these comments claimed the document justified rather than analyzed the significant impacts associated with the proposed action and alternatives. Other comments stated that impacts associated with the project were not thoroughly analyzed, if mentioned at all. Many comments stated that a Supplemental Draft EIS should be prepared to correct the inadequacies of the Draft EIS.

Applicable Comments: A6-1, O2-19, O13-2, O14-11, I41-1, I44-1, I80-3, I155-1, I188-3, I209-1, I209-10, I254-7, I285-1, T25-5, T25-6, T31-1, T32-1, T41-1, T41-2, T51-2, T55-4

Response:

A number of the comments in this issue category are general statements or assertions that the EIS level of detail is insufficient, that various types of impacts were ignored, or that the analysis of some impacts is

vague or inadequate. Others were clearly based on disagreement with certain impact conclusions presented in the Draft EIS, although specific support for the disagreement was not provided in the comment. Many of the comments in this group were introductory or concluding statements that may or may not have been supported by specific information presented in other comments contained in the same comment record. Comments of this nature do not comply with the direction in the SEPA rules that comments shall be as specific as possible (WAC 197-11-550), and do not provide a basis for a substantive response.

A common theme among several of the comments in this category was that the Draft EIS ignored or did not provide sufficient weight to impacts of the proposal on the neighborhoods surrounding Sand Point Magnuson Park. The Draft EIS clearly provided a large amount of information on the impacts of the project, and addressed all of the issues identified in scoping. The Department believes that the Draft EIS (and the Final EIS) thoroughly and fairly addressed all impacts wherever they would occur, including within the surrounding neighborhoods, and did not limit the investigation to just the Sand Point Magnuson Park site.

The SEPA rules provide that a supplemental EIS shall be prepared as an addition to either a draft or final EIS if (a) there are substantial changes to a proposal, so that the proposal is likely to have significant adverse impacts; or (b) there is significant new information indicating, or on, a proposal's significant adverse environmental impacts (WAC 197-11-405). Some of the impact analyses presented in the Draft EIS, particularly for noise, light and glare and transportation, have been modified for the Final EIS to include additional information and/or to clarify information contained in the Draft EIS. While this information should add to reader understanding of the impacts and the tradeoffs associated with the proposal, it does not identify significant new impacts that were not already disclosed in the Draft EIS and it does not lead to substantially different conclusions about the level of the impacts previously identified. Therefore, the conditions under which a supplemental EIS is appropriate do not apply, and there is no need for the Department to issue a supplemental Draft EIS before completing the SEPA process for this proposal.

Issue SEPA 5: Sufficiency of EIS scope with respect to other Sand Point Magnuson Park projects

Issue: A number of comments criticized the scope of the actions evaluated in the Draft EIS as being too narrow, maintaining that it should have included other projects proposed for Sand Point Magnuson Park in addition to the drainage, wetland/habitat and sports field/courts project. Some of these comments specifically charged the Department of Parks and Recreation with "piece-mealing," or segmentation, i.e., treating all of the different projects planned for Sand Point Magnuson Park as separate actions to avoid comprehensive analysis of environmental impacts for the entire site. Several comments noted that this type of approach to environmental review is not allowed under SEPA, that if multiple projects planned for an area are related or all part of one proposal, they cannot be broken down into smaller projects to avoid an analysis of cumulative impacts associated with the proposals.

Applicable Comments: O6-2, O7-6, O14-1, O15-2, O15-11, O15-20, O17-5, I12-1, I68-5, I85-5, I209-7, I209-12, I220-1, I221-6, I232-1, I266-7, I268-8, I268-10, I285-8, T5-5, T8-4, T15-2, T17-1, T44-6, T55-5

Response:

The SEPA rules provide direction for determining when proposals may be considered independently or in conjunction with other proposals. The rule states:

> "Proposals or parts of proposals that are related to each other closely enough to be, in effect, a single course of action shall be evaluated in the same environmental document… Proposals or parts of proposals are closely related, and shall be discussed in the same environmental document, if they: (i) cannot or will not proceed unless the other proposals (or parts of proposals) are implemented simultaneously with them; or (ii) are interdependent parts of a larger proposal and depend on the larger proposal as their justification or for their implementation (WAC 197-11-060 (3)(b)).

"Similar actions" may be, but are not required to be, evaluated in the same environmental document (WAC 197-11-(3)(c)(i)). The rule repeats three times that this provision is optional.

The primary purpose behind the SEPA rules regarding segmentation is to avoid dividing proposals into smaller parts that may either escape environmental review entirely or make it difficult or impossible to evaluate cumulative impacts. Neither of these conditions applies to the Drainage, Wetland/Habitat Complex and Sports Fields/Courts Project and the other pending actions at Sand Point Magnuson Park. An EIS has been prepared for this project, and separate SEPA reviews have been conducted for other on-site projects that are sufficiently far along in the planning process, such as the Off-Leash Area, the North Shore Recreation Area and the Community Garden. The current EIS identifies the status of the other planned actions pending on the Sand Point Magnuson Park site (see **Section 2.6** of the Draft and Final EIS) and considers the potential combined effects of multiple projects in the evaluation of cumulative impacts presented for each element of the environment.

While the Department had the option of combining the environmental review for the current project and other proposed actions for the site, it did not elect to follow this approach. The primary reason for this decision is because the various actions proposed for different areas of the Sand Point Magnuson Park site are independent proposals that are being defined through separate planning processes on separate schedules, and that are appropriately reviewed through separate SEPA processes. The improvements under consideration for the North Shore Recreation Area, Community Garden, Off-Leash Area, Promontory Point, Community Campus, Tennis Center and Magnuson Boat Launch would all be supported by project-specific funding sources that are unrelated to and independent of the funding for the Drainage, Wetland/Habitat Complex and Sports Fields/Courts Project. The Tennis Center, for example, could be funded and developed regardless of whether the proposed sports fields and courts are developed, and vice versa. None of the various actions contemplated for the Sand Point Magnuson Park site must be implemented simultaneously with one or more of the other actions. While all of the subject actions were included to some degree in the scope of the Reuse Plan EIS, none are interdependent parts of a larger proposal that require the larger proposal as justification for their implementation. Therefore, these actions constitute similar actions but not interdependent actions, and it is not necessary to cover fully all of these actions within the same environmental document. The intent of the SEPA regulations is met as long as all of the actions are subject to environmental review and the potential for cumulative impacts is appropriately disclosed; the Department has met this intent for the Sand Point Magnuson Park actions.

Issue SEPA 6: EIS scope with respect to economic impacts

Issue: Some comments raised the issue of the economic impact that the proposed project, specifically the lighted sports field component, could have on property values in the surrounding neighborhoods. Most of these comments stated that an analysis of these effects should be included in the Draft EIS. Comments stated that existing on-site views contributed significantly to the value of the properties and that these views would be degraded with installation of the lighted fields, thereby diminishing surrounding property values. Other comments suggested that an evaluation of the financial impact of sports injuries and associated lawsuits due to the use of artificial turf on the playing fields should also be included in the Draft EIS.

Applicable Comments: O10-2, O10-6, I12-4, I67-6, I72-5, I146-5, I266-9, I284-1, I292-7, I337-3, I354-4, I357-4, I358-3, T2-4, T37-1, T52-2

Response:

The SEPA rules (WAC 197-11-448) do not require agencies to address concerns such as property values and taxes in an EIS, because the statute and the rules envision general welfare, social, economic and other considerations as factors decision makers would evaluate *apart from* the environmental impacts addressed in an EIS. Property values, taxes and prospective legal costs clearly fall within the realm of "social policy analysis (such as fiscal and welfare policies…," which is specifically identified in WAC 197-11-448 (3) as an example of information not required to be discussed in an EIS. Moreover, appellate court decisions have consistently affirmed that economic considerations, including impacts on property values, are beyond the zone of interest encompassed by SEPA. While it would be proper for the Seattle City Council to consider issues such as economic impacts to property values in their deliberations over project approval, but it is not necessary or required to do so in the project EIS. This issue is properly considered beyond the scope of the subject EIS, and the Final EIS has not been modified to include an assessment of potential economic and financial effects.

Issue SEPA 7: EIS scope with respect to quality of life impacts

Issue: A few comments raised the issue that the quality of life for on-site as well as off-site residents would be adversely affected by the project, and stated this subject should be analyzed in the Draft EIS.

Applicable Comments: O13-1, I67-5, I72-4, I79-1, I89-1, I188-4, I292-6, I292-7, I354-4

Response:

The elements of the environment under SEPA are identified at WAC 197-11-444; this listing includes no mention of "quality of life" or any equivalent term. As noted previously in the response to issue SEPA 6, WAC 197-11-448 specifically identifies economic and financial considerations and social policy analysis as factors that need not be addressed in EISs. Based on the specific exclusion of social policy analysis in 448 (3), Draft EIS comments that relate to potential or perceived quality of life impacts are appropriately classified as issues beyond the required coverage of SEPA. These factors may be considered by decision makers *along with* information on environmental impacts, but they do not involve *environmental* impacts and do not need to be included in the EIS. It should also be noted that several of the comments in this

issue group reflect the belief that more tangible effects associated with light and glare, noise and/or traffic would be sources of diminished quality of life, and that these impact issues are addressed in detail in the Draft and Final EIS.

Issue SEPA 8: Sufficiency of mitigation measures

Issue: Several comments asserted that the Draft EIS did not propose or identify mitigation sufficient to address the impacts associated with the project. Two comments in this group claimed there was not adequate mitigation for a group of multiple impact types, specifically "traffic, noise and people." One comment requested a sufficient buffer zone as mitigation for noise, traffic, parking and visual blight. One comment made the blanket statement that the DEIS did not address mitigation issues, followed by specific reference to plantings to block noise and glare and scaling down the lighting standards for the sports fields. One comment expressed the general need for additional mitigation measures under each element in the document.

Applicable Comments: O13-3, I209-16, I221-7, I268-9, T11-5

Response:

"Mitigation" is defined in SEPA to mean:

(1) *avoiding* an impact altogether by not taking an action or parts of an action;
(2) *minimizing* impacts by limiting the degree or magnitude of the action and its implementation, by using appropriate technology or by taking affirmative steps to avoid or reduce impacts;
(3) *rectifying* the impact by repairing, rehabilitating or restoring the effected environment;
(4) *reducing* or eliminating the impact over time by preservation and maintenance operations during the life of the action;
(5) *compensating* for the impact by replacing, enhancing or providing substitute resources or environments; *and/or*
(6) *monitoring* the impact and taking appropriate corrective measures (WAC 197-11-768, emphasis added).

SEPA does not prioritize the listed approaches to mitigation or require that they be applied in any specific sequence. It is the responsibility of the decision maker to determine reasonable and appropriate mitigation in a given situation, pursuant to guidance contained in the rules (WAC 197-11-660). The Draft EIS identified mitigation measures that are incorporated in the proposal (i.e., already committed to by the applicant) and/or additional measures that are recommended for further consideration for every instance in which significant environmental impacts were identified. Consistent with the SEPA rules (WAC 197-11-440 (6)(c)(iii), these two categories of mitigation are distinguished in the text of each section of the Draft EIS. The approach followed in the Draft EIS, which is commonly accepted SEPA practice, is to identify a full range of measures that may be considered by the decision maker to mitigate the impacts of the proposal. As part of its review of the proposed action, and pursuant to its substantive authority under SEPA, the Seattle City Council will determine and specify which mitigation measures to require as conditions of approval of the project(WAC 197-11-660).

The Draft (and Final) EIS identified significant impacts relating to noise and light and glare. Proposed and/or potential mitigation measures related to each type of impact were identified in the document, and

the discussion of mitigation for these impacts has been refined in the Final EIS. The transportation analysis did not result in the identification of significant traffic or parking impacts, so no mitigation measures for these topics are identified. While the relationship to existing land use plans and to estimated population is an element of the environment identified in the SEPA rules (WAC 197-11-444), an increase in "people" itself does not constitute an adverse environmental impact under SEPA. To the extent that more people on the project site would result in more traffic and noise, those dimensions of the increase in people are already addressed in the EIS.

Issue SEPA 9: Necessary permits for the proposed action

Issue: One comment questioned whether the project would require a permit under Section 404 of the Clean Water Act.

Applicable Comments: O15-8

Response:

Agencies with jurisdiction over the proposed project and permits that may be required are described in the Fact Sheet located at the front of the EIS. As discussed in **Section 3.3.5**, the regulatory requirements for wetland compensation on the proposed project are unknown until project-specific permit applications and subsequent discussions with resource and regulatory agencies take place. However, it is assumed that an individual permit under Section 404 of the Clean Water Act, as administered by the US Army Corps of Engineers, would be required. It is also assumed that a Shoreline Permit from the City of Seattle, an Hydraulic Permit Application from the Washington Department of Fish and Wildlife, and a City of Seattle Environmentally Sensitive Areas review and grading permit would all be required. The purpose of the EIS is to identify probable adverse impacts from the proposed projects; the purpose of the permit applications is to assure that each regulatory agency has sufficiently detailed information from which to determine if the proposed project meets the framework of their legal requirements. Most of the city, state and federal permit processes incorporate an element of public notice to seek public input and comment prior to denying or approving with conditions a specific permit application.

Issue SEPA 10: Implementation of a City light restriction ordinance

Issue: A few comments assert that, with the development of lighted fields at Sand Point Magnuson Park, the City would be contributing to light pollution in the surrounding areas and the city as a whole, and/or to increased electricity use. All of these comments suggested implementing a light restriction ordinance, as have other cities or government entities across the country, while two (nearly identical) comments identified specific communities with more restrictive lighting ordinances.

Applicable Comments: O2-17, I121-4, I188-4, I209-18

Response:

It is unclear from the full text of these comments specifically what steps the reviewers believe the City of Seattle should take with respect to lighting. Two of the comments in this group appear to be oriented toward light pollution and to ordinances regulating light fixtures, lighting levels and light trespass. The

Department of Parks and Recreation already has adopted a standard regulating spill light from City park facilities that might occur as light trespass on adjacent residential properties to 0.8 foot-candles at the property line; this standard is discussed in detail in **Section 3.9**. The City also conducted a ballfield lighting study to provide specific guidance on sports field lighting, and has adopted both a use and scheduling policy and lighting design guidelines to help minimize the impacts of sports field use on neighboring residents.

The other two comments in this group appear to be oriented toward electricity consumption and energy conservation. The City has already adopted a variety of policies and programs to encourage energy conservation on a general basis. The plans for the proposed action also include design and operational measures to minimize the consumption of electricity, given that a number of sports fields would be used after daylight hours to meet the objectives for the proposed action. In this instance, there is a tradeoff between the City's desire to promote energy conservation and the desire to accommodate growing demand for sports field capacity.

With respect to either facet of this issue, the Department believes that application of the existing City policies and programs is sufficient for design and mitigation of the proposed action. Any further consideration of the need for additional ordinances relating to light trespass or energy consumption would be unrelated to and beyond the scope of this EIS.

Issue SEPA 11: Allocation of City funds

Issue: Several comments questioned the cost of the proposed action or the appropriateness of expending a large amount of City funding on the elements included in the proposed action. For example, one comment asserted the City is proposing to use $12 million of taxpayer money to fund development of the park when there are many other issues in the city (e.g., transportation/transit issues) that need to be addressed and should have higher priority. Several comments noted difficulties in maintaining City parks at suitable levels and recent proposals to close King County parks, and wondered how the City would be able to afford maintenance of the proposed project.

Applicable Comments: O2-14, I44-9, I146-1, I166-4, I176-1, I215-5, I259-4, I292-12, I307-5, I333-5, I333-12, I333-17, T18-3, T45-7

Response:

Issues relating to how the City chooses to spend City funds and whether the City could afford to maintain the proposed facilities fall within the realm of "general welfare, social, economic and other requirements" that SEPA contemplates would be taken into account in making final decisions on proposals, but that need not be evaluated in an EIS. This issue is beyond the scope of the EIS and, consistent with the SEPA rules, is not addressed in the content of the Draft or the Final EIS.

Issue SEPA 12: Consistency of proposed uses with terms of Navy transfer and EIS

Issue: Three comments raised issues related to the transfer of the Sand Point property from the Navy to the City, and the environmental documentation associated with that transfer. One comment stated that the uses identified in the proposed action are not consistent with the terms of the property transfer or the uses analyzed in the federal EIS for the transfer, and that the Navy must therefore

re-analyze the transfer. Another comment maintained that the previous EIS dismissed consideration of lights on the basis that no bright lights would be installed at Magnuson Park.

Applicable Comments: I51-9, I285-9, T32-4

Response:

These comments are lacking somewhat in the specificity needed to provide thorough and completely accurate response. The first comment did not identify in what respects the proposed uses were considered to be inconsistent with the terms of the property transfer. As described in **Section 2.1** of the EIS, however, the federal government requested the City take the lead in developing a plan for reuse of the property; that request resulted in the City's Reuse Plan EIS, the Sand Point Physical Development Management Plan and the Magnuson Park Concept Design, all of which are consistent with and reflected by the components of the proposed action. The Department is not aware of any inconsistency between the terms of the property transfer, which was executed after the Reuse Plan was finalized, and the proposed action.

The second comment appears to be incorrect concerning coverage of lighting in the "previous EIS for the transfer of the Naval Station to the City," assuming this reference is to the City's 1996 Reuse Plan EIS. That document does not state that "there would be no bright lights installed at Magnuson Park." To the contrary, the 1996 EIS indicates that lights would remain or be installed on and outside of buildings according to the safety and security needs of future occupants, that street lights would meet City standards, and that exterior lighting would be shielded or directed to reduce spillover to adjacent properties.

Issue SEPA 13: Lead agency/NEPA jurisdiction over the environmental review process

Issue: One comment questioned why the EIS was not a NEPA (National Environmental Policy Act) document with the US Army Corps of Engineers (a federal agency) as the lead agency. The comment maintained that the Corps would need to issue a wetland permit because of the scope of the anticipated wetland impacts, that the permit would constitute a major federal action and that a NEPA EIS would be required. Consequently, the environmental document should be a NEPA/SEPA EIS with the Corps as the lead federal agency.

Applicable Comments: A6-2, I85-2

Response:

The proposed action that is ready for environmental review at this time is the City's proposal to implement the proposed project, pursuant to the planning direction established by several previous City decisions. Therefore, the City (represented by the Department of Parks and Recreation) is the project proponent, SEPA is the only environmental review statute for which compliance is needed at this time, and the Department is the appropriate lead agency. The City has not yet prepared or filed an application to the Corps for a Section 404 permit under the federal Clean Water Act, because the City does not yet have the detailed planning information needed to support such an application, so there is no federal action pending at this time for which NEPA compliance would be needed. The Corps would need to document compliance with NEPA if and when the City does file a Section 404 permit application. The Draft EIS

review input from the Corps concurred with this approach, as the agency indicated it would "review the project at the 404 stage" (Comment A6-2).

Issue SEPA 14: Sufficiency of agency coordination and participation

Issue: One comment maintained that insufficient agency coordination and participation, as required under SEPA, had been conducted in support of this project.

Applicable Comments: I85-8

Response:

The comment correctly notes that SEPA requires the responsible official to consult with and obtain the comments of any public agency that has jurisdiction by law or special expertise with respect to any environmental impact involved. This guidance from the SEPA statute is carried through the provisions of the SEPA rules addressing scoping (WAC 197-11-360 and 408) and issuance of DEIS (WAC 197-11-455). The Department of Parks and Recreation complied fully with these SEPA requirements in conducting the SEPA process for this proposed action.

The Department circulated the Determination of Significance/scoping notice for the proposed action in August 2001 in full compliance with the respective notification requirements. The DS/scoping notice was sent to 13 federal agencies, 3 tribal entities and 12 state agencies, including all of the resource agencies referenced in the comment. None of these agencies submitted written comments on the scope of the EIS during the required scoping period, provided verbal comments at either of the two public scoping meetings held in September 2001, or indicated an interest in participating in the SEPA review as an agency with jurisdiction or expertise.

Similarly, the Department distributed the Draft EIS to the rather long list of federal, tribal, state and local government entities identified in Chapter 6 of the Draft EIS, again including all of the resource agencies referenced in the comment. In response, the Department received brief comments from the US Army Corps of Engineers and the Washington Department of Ecology among the referenced agencies. The Corps response (comment record A6) indicated that the Draft EIS was a very good draft document and that the agency would review the project at the Section 404 permit stage. The Ecology response (comment record A8) included one comment addressing the need to check for possible soil contamination on the site of the former Navy Commissary.

In summary, the SEPA provisions regarding agency coordination require the lead agency to provide other agencies with the *opportunity* to provide comments and to participate in the process, but they do not require the lead agency to *ensure* or *enforce* the participation of resource agencies. The Department made every reasonable effort to provide those opportunities at the appropriate points in the process, and cannot be held responsible for lack of action by other parties.

Despite the limited formal participation by resource agencies in the scoping and Draft EIS review processes, there was informal involvement of resource agency staff at the technical level that is documented in the EIS. **Sections 3.3 and 3.4 (Plants/Wetlands and Animals and Fish)** of the Draft EIS specifically referenced consultation with resource staff from the Washington Department of Natural

Resources and the U.S. Fish and Wildlife Service, as well as fisheries experts from Seattle Public Utilities.

Issue SEPA 15: Sufficiency of public notice and opportunity for input

Issue: Several comments raised issues relating to the adequacy of public notice concerning project meetings and other opportunities for public input on the EIS, or to the openness of officials in considering public input. One comment claimed the Draft EIS documented a failure to get public input, as evidenced by the low turnout at the two public scoping meetings. Another comment stated that the writers' experience at neighborhood meetings conducted by city and school officials had convinced them that input from neighborhood residents is dismissed and that decisions had already been made. A third comment specifically criticized the Department for its response to a request for disclosure of certain Sand Point Magnuson Park records and for refusing to grant an extension of the EIS comment period. Other comments pertained to a stated inability to obtain copies of the EIS for review.

Applicable Comments: I85-9, I282-2, I285-2, T23-5

Response:

The Department of Parks and Recreation has made extensive efforts to make the SEPA process for this EIS open, accessible, informative and responsive. **Chapter 5** of the Final EIS (Chapter 4 in the Draft EIS provides a summary of the opportunities for public comment on the EIS and the results of those opportunities. That material demonstrates that Comment I85-9 is in error in several respects. The comment maintains that the notice of the scoping meetings must have been terribly ineffective, in view of the low turnout. The process for providing public input in determining the scope of the EIS was in fact well advertised; the DS/scoping notice was distributed to approximately 60 agencies at all levels of government, more than 30 community organizations, 8 libraries and 5 newspapers. **Section 4.1.1** of the Draft EIS stated that the Department advertised the meetings in local newspapers (as is required under SEPA), in the Sand Point Magnuson Park newsletter, and by *direct mail invitation to 15,000 households* in the general vicinity of the park. Comment I85-9 also claims that there was no mention of how many comments were received by mail, but **Section 4.1.1** of the Draft EIS also indicated that 14 letters were received in response to the scoping notice. The same comment criticizes the attendance at public meetings on October 8, 2001 (the first lighting demonstration) and October 22, 2001 (a community issues meeting), yet fails to note that these were *additional* opportunities for public input beyond those provided during the formal scoping period, or that the Department arranged a second lighting demonstration.

Comment I282-2, which refers to unspecified meetings with "city and school officials" and the general dismissal of input from neighborhood residents, appears to reflect a personal belief about local decision processes in general. The comment is not specific to the Department of Parks and Recreation or to this EIS process, and does not provide the basis for a direct response.

Comment I285-2 refers to a request for disclosure of records concerning past public complaints about noise and light from Sand Point Magnuson Park, and cites the timing of the response to that request as grounds for an extension of the Draft EIS comment period. The Department provided a letter response to the request explaining why it was not necessary or appropriate to extend the EIS comment period (because the comment period was already set at 56 days, when the SEPA rules provide for an optional 15-

day extension of the standard 30-day review period, or 45 days total). The records at issue are discussed in other comments in record I285, and are addressed in the Final EIS. With respect to future opportunities for input on the proposal, it must be noted that issuance of a Final EIS does not constitute a decision on a proposal. Agencies may take no action to implement a proposal for at least 7 days after release of a Final EIS, which effectively provides another chance for interested parties to submit comments on a proposal before implementation. The Seattle City Council will make the final decision on the current proposal through an open, public process that will provide additional opportunity for citizen input.

A few comments offered at the Draft EIS public hearing noted difficulty in obtaining copies of the Draft EIS for review. The notice of availability for the Draft EIS was widely publicized in accordance with SEPA regulations, including publication in local newspapers, and explained where copies of the Draft EIS would be available for viewing. Copies of the Draft EIS were distributed to over 40 community organizations and 8 libraries, including the Seattle Public Library branches closest to the project site. The notice of availability also indicated that copies of the Draft EIS could be reviewed at the Sand Point Magnuson Park offices at 7400 Sand Point Way NE.

Issue SEPA 16: Documentation of baseline environmental conditions

Issue: Some comments argued that the EIS failed to sufficiently establish baseline environmental conditions upon which to base impact analysis. Three comments regarding the documentation of baseline conditions focused on mapping of the existing and proposed conditions of the entire park and the project site.

Applicable Comments: I85-10, I85-12, I85-16

Response:

Documentation of baseline conditions is not limited to mapping of the affected area; the Draft EIS provided extensive text, tabular and graphical documentation of baseline conditions for an appropriate geographic area, including distinctions among the project site, the remainder of the park and the surrounding area. The maps of existing and proposed conditions presented in the Draft EIS (e.g., Figure 2.1-2 and Figure 2.2-1, respectively) are quite complex as is; including shadow outlines of existing features on maps for the alternatives would be confusing and not highly legible. Figures 1.1-2 and 2.1-1 clearly showed the boundary for the entire park, as well as key landmarks and built environment features. Graphics such as Figures 2.1-2 and 2.2-1 include sufficient physical and constructed features that the reader should be able to register these project-site maps to the remainder of the park.

Comment I85-12 offers several criticisms of Figure 2.1-2. This figure presents existing conditions for the 153-acre project site, and is not intended or does not need to show conditions for the entire park. Locations of historic district features are well documented in **Section 3.11**. The list in question on page 2-4 of the Draft EIS is for features within the entire park, so it is to be expected that not all of these features would be present on Figure 2.1-2. Comment I85-12 is incorrect with respect to the boat launch, as both the lines for this feature and a corresponding label are clearly present in the lower right-hand corner of Figure 2.1-2.

Issue SEPA 17: Approval process and timing for related park plans

Issue: One comment letter argued that approving the Joint Athletic Fields Development Program (JAFDP) before impact analysis is complete on the Sand Point Magnuson Park project is contrary to SEPA. The comment letter stated further that fast-tracking of an incomplete JAFDP prior to implementing provisions needed to protect nearby neighborhoods from irreversible environmental impacts (e.g., glaring lights until 11 PM, noise, traffic congestion), is wrong. Similar concerns were raised in several testimony comments. One comment also argued that the Vegetation Management Plan (VMP) that is referred to in the Draft EIS was not available for review during the EIS comment period along with the EIS.

Applicable Comments: I328-1, I328-3, T13-6, T16-3, T39-2, T45-8

Response:

In general, concerns about the decision process for the Joint Athletic Fields Development Program are beyond the scope of the Drainage, Wetland/Habitat Complex and Sports Fields/Courts Project EIS and cannot be resolved through this EIS process. The JAFDP is a joint program between the City of Seattle and the Seattle School District. When the 2002 update to the JAFDP is completed it will presumably be adopted by the Seattle City Council, which will also make the final decision on the proposed project. While the proposed action for Sand Point Magnuson Park is identified in the draft JAFDP update as a priority action, final approval of the project does not depend on final approval of the JAFDP and vice versa. The JAFDP identifies several sports field projects that are currently underway or are active proposals for which funding sources have been identified. Neighborhood concerns over sports field development and operation have received extensive consideration in the deliberations to date on the JAFDP update, and it is evident that adoption of the JAFDP would occur only with concurrent adoption of policies responsive to those concerns. For example, on April 25, 2002 the Board of Park Commissioners recommended approval of a sports participation policy, a field use and scheduling policy and a set of lighting design guidelines, all of which include measures that are specifically responsive to neighbors' concerns over sports fields.

The Vegetation Management Plan (VMP) for Sand Point Magnuson Park was adopted in December 2001, prior to release of the Draft EIS for the subject project. The VMP was developed through a public process with many opportunities for citizen and community organization input, and the development and adoption of the plan were well publicized. Copies of the plan were distributed and were also available for review at the Sand Point Magnuson Park offices before, during and after the Draft EIS review period.

4.1.2 Project Description (PD)

Issue PD 1: Sufficiency of information on construction phasing

Issue: Several comments raised the issue of project phasing, stating that the EIS does not clearly identify when one phase ends and another starts, the milestones for success of each phase, the budget for each phase, the timing of wetland construction, etc. Other comments focused on the level of funding that would be available for each phase and what the City would do in the case that funding was not available for a particular phase.

Applicable Comments: O15-10, O15-19, I37-6, I172-1, I205-2, I209-17, I308-1, T8-2

Response:

The intent of the project phasing plan (described in **Section 2.2.12**) is to develop the most efficient sequence of construction for the project, given existing budget realities and projecting possible future budgets consisting of both public and private dollars. It is intended that Phases 1 and 2 would be constructed with funds already budgeted to Sand Point Magnuson Park. Phases 1 and 2 have been defined to reflect the highest priorities associated with the project, to assure those concerns are met with the existing funds. Based on these priorities and cost estimate information produced since the issuance of the Draft EIS, the phasing plan described in the Final EIS has been revised.

Implementation of subsequent phases would be determined by funding not yet budgeted, and as such, it is more difficult to predict the exact extent or timing of these subsequent phases. For this reason, the phases are designed so that they could be implemented independent of one and other, or, if possible, constructed at the same time or with overlapping schedules if funding allowed. In general, the proposed phasing plan is intended to provide a logical sequence for large scale construction activities on the site, while allowing the flexibility to add or remove smaller park elements as determined by funding status. Wetland/habitat complex and sports field development is to be balanced within these phasing plans to adequately account for funding designated for those respective areas, with some wetland/habitat and fields work being completed in all phases. Because the drainage design for the entire site is integral to the project, flowing from west to east, and the project would not be completed in one west-to-east phase, interim erosion, sediment control, and drainage elements would have to be implemented to allow the construction to be completed in phases.

Issue PD 2: Suitability of proposed fill soil

Issue: Some comments questioned whether the type of fill soil that is proposed for use as subgrade material for landscaping and sports fields is consistent with published standards. Other comments wanted to know if the City had an alternative plan in case the on-site soil material was determined to be unsuitable for use as subgrade material.

Applicable Comments: A4-1, O15-9, O15-21

Response:

One comment questioned whether the soil to be used for the natural-turf athletic fields would employ a sand/organic material ratio consistent with the recommendations of Washington State University agronomists. The proposed soil mix for the natural turf sport fields (see **Section 2.2.2**) contains 85 to 90 percent clean sand and 10 to 15 percent organic material. There are no official standards for natural-turf athletic field construction, although there are published guidelines and recommendations. These include the publication PNW 0240, "Construction and Maintenance of Natural Grass Athletic Fields." The U>S> Golf Association specifications for golf green construction have also been applied to sports fields in some instances. The materials proposed for the field base and root zone are consistent with the above guidelines.

The hydrogeologic report for the Magnuson Park Wetlands, dated September 22, 2000, indicates that AMEC Environmental, Inc. (previously AGRA) did not encounter peat in soil borings until reaching a depth that is below the depth of the proposed soil excavations. The log for soil boring B-4 indicates peat was encountered at a depth of roughly 5 feet. However, no site grading is proposed in this area. In addition, the log for soil boring B-5, where the deepest earthwork excavations are proposed, has no record of encountering peat. Most of the proposed earthwork excavations for this project are less than 5 feet deep. Most of the peat soils documented in the hydrogeologic report begin at a depth of roughly 9to 10 feet. The Beach Drive Pond and Lagoon excavations would reach a depth of 10 feet. However, these ponds are located near soil boring B-5, where no peat was encountered as noted above.

As a result of the soil boring information provided in the hydrogeologic report, it appears the majority of the soil to be excavated would be acceptable as fill material for the sports fields. Based on the proposed grading plans and the known locations of peat on the site, the likelihood of encountering peat during project excavation is considered low. Should soils unacceptable for sports field subgrade be encountered, they would be used as fill in areas with less stringent compaction and settlement requirements or would be removed from the site. It is not anticipated that excessive amounts of unacceptable subgrade materials would be encountered during construction of this project.

Issue PD 3: Size, shape and function of the proposed marshy ponds

Issue: Some comments on the Draft EIS questioned the location, shape and size of the marshy ponds proposed for the western part of the wetland habitat complex. These comments objected to the regular, rectangular shape of these ponds and wondered whether they could function as proposed with more natural shapes.

Applicable Comments: A7-10, O15-13

Response:

The ponds in question are "marshy pools" (see **Section 2.2.5**) intended to provide emergent marsh and mudflat habitat. The pools would not serve as stormwater ponds. The shape of the pools reflects an aesthetic function. The patterns and grading of the western portion of the marsh ponds are designed to evoke the geometry of the site's prior role as a Naval Air Station. The westernmost ponds are located within a grid that parallels the original airstrip alignment, evolving to more organic forms as the ponds near the center of the wetland/habitat complex. This aesthetic is a reflection of one of the "design principles" that guided the project, to create a diverse wetland/habitat complex while acknowledging the site's urban setting and history.

Issue PD 4: Level of detail on landscaping, irrigation and planting plans

Issue: Numerous comments stated a desire for additional information concerning the landscaping and irrigation system plans, planting plans for overall site landscaping and the wetland areas, and the types of vegetation that would be used for upland and wetland habitat plantings on the site. One comment stated there was a need for large trees to provide perches for raptors.

Applicable Comments: A4-2, A4-3, A7-8, O1-3, O7-3, O15-3, O15-6, O15-13, O15-18, I85-18, I172-2, I205-1, I268-1, I268-4, T8-3, T44-5

Response:

The level of detail on landscaping, irrigation and planting plans provided in the EIS is customary and appropriate for a project at this stage of the planning process. As is customary, additional detail would be developed following approval of the proposal and subsequent preparation of construction plans for the respective phases of the project. However, **Appendix C** has been modified for the Final EIS to include planting recommendations developed in planning for the wetland/habitat complex.

The project plans are intended to minimize the use of irrigation systems, proposing to irrigate only those areas that would require regular watering to remain functional (sports fields) and areas of planting that would require an establishment period. Areas of the project to be irrigated include the natural turf-sports fields, limited areas of "park, lawn and planting" (per sketch sk-3.0, **Appendix A**), "mixed forest" of the wetland/habitat complex (Project Development Plans, **Appendix A**) and "upland planting" of the wetland/habitat complex. The irrigation systems would be designed by a qualified irrigation designer to meet all park specifications and requirements. There would be two types of systems used. All areas with the exception of the upland forest should be irrigated with a fully automatic irrigation system with central controls to manage timing of watering and to respond to weather conditions. The upland forest areas would be manually irrigated with a system limited to a mainline with quick couplers at approximately every 150 feet throughout the upland planting areas. The intention of irrigation in planting areas is that it be used only during the plant establishment period, reducing the levels of irrigation over successive years until no irrigation is required.

Planting associated with the project is to be predominately native vegetation. The use of native plantings would include species from Washington, Oregon, British Columbia and Northern California that are hardy in the local Sand Point environment and named varieties of native species. The use of existing site vegetation is to be maximized where possible and appropriate. A variety of native trees and shrubs would be planted to support new upland habitats and create diverse seasonal and year-round wetland habitats. These trees and shrubs would be chosen to reflect and enhance existing vegetation, respond to hydrologic conditions and create new environments. During design development and preparation of construction documents, specific plants, locations and sized would be determined.

Issue PD 5: Level of information on plans for sports fields

Issue: A number of comments cited a desire for additional information on how the decision for artificial and natural turf fields was made, whether the life cycle costs of each were evaluated before the decision was made, and where used artificial turf would be disposed of in 10 years when it wears out. Other comments wanted information on how the various fields were sized and were seeking reassurance that soccer fields would accommodate ultimate Frisbee games as well.

Applicable Comments: A1-1, A4-8, I37-8, I95-3, I334-7

Response:

The process and reasons for selecting synthetic field surfaces for the proposed sports fields are discussed at several locations in the EIS. **Section 2.1.1** reviews the history of the planning process related to the

proposal, through which the Department of Parks and Recreation and/or the Seattle City Council established direction for both synthetic surfaces and field lighting systems. **Section 2.5.3** summarizes the City Council's reasoning for use of synthetic surfaces on some sports fields, as a necessary action to provide sufficient capacity in response to the growing demand for sports field use. The prior response to issue SEPA 3 addresses the same considerations of field surface and capacity.

In the Seattle climate, natural-turf sports fields cannot sustain regular use throughout the year; DPR management practice is to allow natural-turf fields to rest from November through February. Natural-turf fields also cannot sustain the level of use that would result with lighted evening play from March through October. A single natural-turf sports field without lights can support approximately 1,400 to 1,500 hours of scheduled play during an 8-month use season. A single synthetic-turf sports field with lights can accommodate over 3,200 hours of scheduled play in a 12-month period. Because synthetic-surfaced fields can accommodate such a higher level of use and because some fields must be available for year-round use, the City of Seattle has a policy preference for providing lighted, synthetic-turf fields where appropriate. Life-cycle costs were carefully considered in developing this policy.

The new generation of synthetic-turf materials has not yet gone through the first replacement cycle, so the extent to which these materials can be recycled is not clear. Traditional or earlier versions of synthetic-turf field systems were made with similar materials, and replacement of those surfaces typically resulted in disposal of the worn-out turf in a landfill. With present technology and industrial practices, it is possible that properly separating the synthetic-turf materials for recycling is not feasible. Given the historical rate of change in the field, however, it is not unreasonable to assume that some level of recycling for the proposed field surfaces would be feasible by the time they would need to be replaced, which would likely be in 15 to 20 years. To address the challenges of post-consumer recycling, the Carpet and Rug Institute (CRI) has assembled a committee of member representatives to rally industry expertise and resources to promote recycling. The committee will work toward perfecting a system for identifying carpet materials, to make sorting and separating of fiber and backing compounds much easier in the future. Many CRI companies are already using such an identification system, and the CRI committee will share technology that will accelerate the recycling of used carpet materials back into raw materials and the development of a "closed-loop" recycling system. The synthetic-turf systems under consideration use materials such as polyethylene, polypropylene and polyester cord fibers, similar to carpet materials, plus other materials such as geotextile fabric, silica sand and ground rubber. It should also be noted that the new generation of synthetic-turf systems incorporate a significant amount of previously recycled materials, such as the granular rubber material used as infill.

Several comments related to the sizes of the proposed fields. The dimensions for the proposed soccer fields are in accordance with the standards of FIFA, the international governing body for soccer. The runout areas between the soccer field sidelines and the limit of the turf surfacing are consistent those recommended by the NCAA for collegiate soccer play. Several of the synthetic-turf sports fields are sized to accommodate ultimate Frisbee games, and the field complex would be able to support five full-size ultimate Frisbee games and several reduced-size scenarios. In addition, the synthetic turf systems are proposed to include colored inlays to mark corners of the fields and allow for easy field set-up.

Issue PD 6: Wetland design characteristics and location

Issue: One comment stated a need for the proposal description to include boulders, brush piles, snags, and large woody debris in wetland habitats. The comment took the position that these items

should not be included as mitigation for wetland impacts, but as part of the proposal. Another comment questioned the location for the proposed lagoon.

Applicable Comments: A7-9, I36-1

Response:

Section 2.2.5 of the EIS provides a comprehensive, planning-level description of the wetland/habitat complex components that would be developed through the proposal. These habitat elements, and the specific structural and vegetative characteristics needed to make them functional, are included as a key element of the proposal and are not identified as mitigation. Discussion of mitigation measures in **Sections 3.3** and **3.4** explains that some of the habitat development would occur as mitigation for existing habitat displaced by the development components of the project, while the remainder would represent enhancement of existing habitats.

Plans for the wetland/habitat complex of the proposed action have been developed to an appropriate level of detail for this stage in the planning process. Additional design detail will be developed for the Section 404 permit application and site-specific construction plans. Habitat details such as placement of brush piles, snags, boulders and large woody debris can and will be incorporated at those subsequent planning stages. Additional site-specific detail will be provided through implementation of the Vegetation Management Plan for Sand Point Magnuson Park, which was adopted by the Seattle Parks Board on December 13, 2001. As an adopted City Plan, the City is obligated to carry out the provisions and guidance detailed in the VMP, just as it is required to carry out the provisions of any of its codes and plans. The VMP was written to address the existing conditions at Sand Point Magnuson Park. Although planning for the habitat/sportsfield complex project was underway, it was determined that it was more appropriate to write the VMP for existing conditions. However, the overall goals, objectives and policies described in Sections 2 and 4.2 of the VMP are appropriate for the park in existing conditions, and when/if the proposed action plan is initiated. The VMP will provide specific direction, beyond that described for the wetland/habitat complex in the EIS, that would apply to the types of habitat characteristics referenced above.

With respect to the location and merits of the lagoon proposal, **Section 2.2.5** of the EIS presents the rationale and objectives for this key feature of the wetland/habitat complex. In summary, the lagoon is intended to provide valuable near-shore aquatic habitat, a habitat resource that has declined markedly over the years within the lake Washington basin. The lagoon would displace relatively little shoreline land along the lake, and would actually increase the length of freshwater shoreline within the park.

Issue PD 7: Type of fill material for site construction

Issue: A few comments questioned the proposed use of crushed asphalt as fill/subgrade material for the athletic fields. One comment stated opposition to this use and instead favored the use of natural soil material from the wetland area. Two comments questioned the use of crushed paving material or asked what types of construction/demolition debris would be used as fill in construction of the project, and what pollution would be contained in runoff from this material.

Applicable Comments: O7-5, I334-5, T5-6

Response:

Although most of the soil excavated for the wetlands would be used as fill for the fields, it is much more moisture sensitive than crushed pavement or concrete. As a result, crushed pavement or concrete would provide a better structural fill. In addition, recycling crushed pavement or concrete for use as structural fill (subgrade material) for the fields would be more environmentally responsible than exporting the on-site material and importing structural fill.

The use of crushed pavement or concrete as structural fill for the fields should not have an adverse impact on the stormwater runoff from the fields. The proposed design of the fields includes a subdrainage system that would intercept and convey stormwater runoff toward the wetlands before the runoff infiltrates into the structural fill. Therefore, runoff to the wetlands would have generally traveled through the field section sands, not the structural fill below the field section.

Issue PD 8: Provisions for bicycles and pedestrians in park transportation plan

Issue: Several comments addressed the access and circulation elements of the proposal, primarily with respect to bicycles and pedestrians. One comment asserted that bicycles and pedestrians need to be included in the Park transportation plan, and that bicycles needed to obey all traffic safety laws and regulations. Other comments stated that bicycles and pedestrians need to be separated on the proposed trail system in the park for safety reasons. One comment requested the provision of safe bicycle access from the Burke Gilman Trail to the north end of Sand Point Magnuson Park.

Applicable Comments: O14-5, O14-6, I95-5, I173-1, I261-1, T14-1

Response:

Bicycles are an integral part of the project's pedestrian circulation/ trail system (**Section 2.2.7, Figure 2.2-3**). The design reinforces the role of bikes as an important component of the park transportation plan by strengthening connections to the Burke Gilman trail, particularly along NE 65th Street where a designated bikeway begins at the intersection with Sand Point Way and extends through the site, paralleling NE 65th Street and Beach Drive and ending at the swim beach. The design further addresses key circulation connections to be strengthened with adjacent uses in the park, to improve circulation for pedestrians, bikes and cars. Design of a full transportation plan for the entire park, incorporating bikes, is beyond the scope of the project being studied in this document.

The access and circulation plan for the project identifies trails as "pedestrian" and "bikeway," but these are not exclusive designations. This defines the intended use, but allows some crossover of the circulation system to facilitate sharing between multiple user groups, with pedestrians having right-of-way. The only trails that are intended exclusively for pedestrians are the secondary pedestrian ways, with physical obstructions preventing bike access.

Issue PD 9: Selection/description of elements of the proposed lighting system

Issue: A number of comments questioned the lighting standards and technology proposed for use in the project, and/or made requests to change the characteristics of portions of the lighting system proposed for the athletic fields. Specific aspects addressed by these comments included the use

of 1,500-watt bulbs; use of adjustable lighting systems that could be operated at variable brightness levels; technologies to shield lights and reduce glare; types of luminaires to be used; use of IESNA standards for lighting levels in exterior environments; and the use of full-cutoff fixtures.

Applicable Comments: O3-3, O6-1, O11-3, O15-31, O16-2, O16-3, I204-1, I281-4, I309-2, I316-2, T5-4

Response:

As discussed in **Section 2.2.9**, all of the athletic field lighting systems are proposed to meet Class IV lighting levels defined by the Illuminating Engineering Society of North America. The proposed levels meet the minimum requirements for safe play on the types of sports fields included in the proposal. The use of 1,500-watt lamps would not reduce the number of poles required for the project, and would only reduce the quantity of floodlights to 2/3 of what is currently proposed. The use of 1500-watt luminaires and fewer poles would also preclude the use of full-cutoff floodlights, which appears to be the type of luminaire preferred by the local community. The latest shielding technology for athletic field lighting systems would be utilized to minimize glare and skyglow. Full-cutoff luminaires would be used on 9 of the 11 lighted fields, while floodlights with extended external visors would be used on the two larger baseball fields. In summary, the proposed sports field lighting component of the proposal is already consistent with most of the suggestions in these comments, in that the proposal includes the best available technology to limit glare, spill light and skyglow. The proposal is also consistent with the lighting design guidelines adopted by the City of Seattle to limit lighting impacts on neighborhoods.

Issue PD 10: Requested changes or additions to the proposed action

Issue: Numerous comments requested additions or changes to various elements of the proposed project. Specific topics covered in these comments included provision of facilities for in-line skaters, including a covered indoor area; more bikeways; restaurants or food services; fenced playgrounds; more sports meadow fields; sidewalks; more trails; graphics used to describe the proposal; and fields for lacrosse.

Applicable Comments: I104-1, I105-1, I106-1, I130-1, I185-1, I232-2, I258-1, I338-1, I347-1, I366-2

Response:

In general, these comments addressed detailed design considerations that are beyond the scope of the EIS and the current level of planning for the project. These concerns and suggestions will be retained for reference in future design work on the project, and can be incorporated into designs for specific features as appropriate. The proposed action is consistent with the planning guidance for Sand Point Magnuson Park that the Seattle City Council has provided through several resolutions adopted in recent years.

Issue PD 11: Comparison to lighting system at Safeco Field

Issue: One comment letter stated that the lighting proposed for the athletic fields at Magnuson Park would be on the order of lighting used at Safeco Field, and provided a detailed tabular comparison of the two facilities.

Applicable Comments: I328-2, T16-1, T23-8

Response:

The intent of this comment appears to be to make a point about the magnitude of the lighting system proposed for the Sand Point Magnuson Park sports fields. The comment does not provide a specific context relative to the alternatives evaluated in the Draft EIS, lighting impact issues or mitigation measures, however, and does not provide an indication of the course of action preferred by the writer. Safeco Field and the proposed Sand Point Magnuson Park sports field complex both are/would be lighted athletic field facilities, but that is approximately the extent of their similarities. Based on the specificity and content of the comment, no further response to this comment can be provided.

4.2 ELEMENT/RESOURCE ISSUES

4.2.1 Earth (GEO)

Issue GEO 1: Potential for soil contamination on the project site

Issue: One comment stated that there is expected soil contamination on the project site. Therefore, the project should include soil and groundwater sampling to determine the level of clean up required for subsequent use of the site for recreation and wetland creation.

Applicable Comments: A8-1

Response:

According to the Washington Department of Ecology (DOE), some soil contamination is "expected" near the former Navy Commissary. This expectation is based on "folklore" that indicates items were buried in this vicinity, including vehicles, furniture, and garbage. The DOE also anticipates that contamination from the gas station (near Sportsfield Drive) has migrated to this area. If the Navy did not clean up the anticipated contamination in this area before vacating the site, soil and groundwater sampling would help determine the level of clean-up required, as discussed in the modified text for **Section 3.1.2**.

Issue GEO 2: Description of landscaping impacts

Issue: One comment stated that a description of landscaping impacts could be included in **Section 1.5.2** of the EIS.

Applicable Comments: A4-5

Response:

This comment specifically references the list of earth and water mitigation measures presented in **Section 1.5.2** of the Draft EIS. This is a summary listing of mitigation measures, in which a description of landscaping impacts would be improperly located. Impacts from landscaping and other construction activities for the project on earth and water resources are addressed in detail in **Sections 3.1** and **3.2** of the EIS.

4.2.2 Air Quality (AQ)

Issue AQ 1: Barge transport for site fill materials

Issue: One comment stated that barges should be used to transport materials to and from the construction site to decrease noise and air quality impacts. The use of barges would reduce the number of trucks using local roadways to bring materials to the construction site.

Applicable Comments: A2-1

Response:

This comment is consistent with and appears to be supportive of similar statements made in **Section 2.2.11** of the Draft and Final EIS. No further response is necessary.

Issue AQ 2: Demolition requirements relative to asbestos

Issue: One comment stated that asbestos surveys are required prior to demolition of any buildings on site. Buildings on site were constructed during the time period that asbestos was readily used in construction, therefore, buildings need to be surveyed and cleaned up during construction.

Applicable Comments: A2-2

Response:

The Department of Parks and Recreation appreciates this summary of survey and notification requirements for demolition activities. Demolition undertaken for the proposed action would comply fully with applicable laws and regulations.

Issue AQ 3: Control of dust emissions from construction

Issue: One comment indicated there was a need for measures to control dust emissions during construction, and identified several applicable measures.

Applicable Comments: A2-3

Response:

The Department of Parks and Recreation appreciates this summary of suggested dust control measures for construction activities. The list of mitigation measures in **Section 3.1.5** of the Final EIS has been edited to demonstrate consistency with the recommended measures.

4.2.3 Water (WTR)

Issue WTR 1: Impacts of project water consumption

Issue: One comment letter included several separate comments requesting information on the amount of water that would be necessary for irrigation of landscaping, and how much water would be consumed for overall site irrigation, restrooms in the park, food facilities, and the pools. Comments also stated that deduct meters and flow sensors should be installed on site.

Applicable Comments: A4-4, A4-6, A4-10, A4-16

Response:

The Final EIS, particularly **Section 3.5**, has been modified to provide more information on anticipated water consumption. Consideration of specific hardware such as deduct meters and flow sensors is a detailed design issue that is beyond the scope of this EIS. Comments A4-6 and A4-16 are somewhat vague as to what is expected to "adequately address the impacts of water consumption" and pay "special attention to" increased water use, so a more specific response is not possible. The reference to pools in comment A4-6 is unclear; there are no swimming pools in the proposed project, and the marshy pools in the wetland/habitat complex would be fed by drainage from the sports field complex.

Issue WTR 2: Use of chemicals to clean fields and need to treat runoff

Issue: One comment letter questioned whether chemicals would be used to clean the artificial-turf fields and whether the runoff from the fields would be pre-treated before entering wetland areas because of this use.

Applicable Comments: A4-9, A4-12

Response:

No chemicals are to be used to clean the synthetic-turf fields. Maintenance on the fields (discussed in **Section 2.2.13** of the EIS) would be limited to mechanical cleaning of the synthetic fields, including sweeping, blowing, vacuuming. The runoff from the synthetic surface fields is considered "clean" and would require no pretreatment before entering the wetland/habitat complex (see **Section 2.2.5**, Site Drainage Patterns).

Issue WTR 3: Measures to promote water quality, waste reduction and conservation

Issue: One comment noted that **Section 2.2.13** in the EIS did not address how operation and maintenance of the project would promote water quality, waste reduction and water conservation, while another comment in the same letter asked whether there were water re-use opportunities.

Applicable Comments: A4-11, A4-13

Response:

Proposed maintenance and operations are intended to minimize impact on water quality and water use, while maximizing the value of water on the site. Specific measures to promote those objectives would be developed when project-specific operation and maintenance plans are prepared.

Monitoring stations (to determine and track water quality, quantity, and temperature) are proposed to be located throughout the site. These stations would also operate as indicators of the effectiveness of upstream water quality facilities and the long-term maintenance requirements for the facilities.

The use of irrigation is to be minimized to reduce water use. Irrigation systems are to be limited to only those areas requiring regular water for continued operation (sports fields) and for areas of planting that would require an establishment period. Irrigation use in the latter areas would be reduced from year to year, and ultimately eliminated. A fully-automatic irrigation system with central controls to manage timing of watering and to respond to weather conditions, watering only when conditions warrant, would be used for the areas irrigated on a long-term basis. Regular maintenance of the natural-turf fields would reduce the extent of problems such as weeds, insects and disease, reducing needs for herbicides and pesticides. All water entering the project, either from off-site, as rain, or as irrigation runoff, is to be captured and reused as part of the flow-through wetland/habitat complex system that would move across the site from west to east, ultimately entering Lake Washington.

Issue WTR 4: Need for monitoring of stormwater runoff

Issue: Numerous comments stated that stormwater runoff to wetland areas should be monitored due to the presence of asphalt parking areas, herbicide and fertilizer use on athletic fields, and silt from construction areas among other things. Comments further stated that the proposed action should include the use of oil/water separators in the drainage system.

Applicable Comments: A7-5, A7-7, O1-4, O7-6, O15-11, O15-13, I12-3, I37-5, I61-4, I85-7, I209-9, I268-10, I334-4, T23-7

Response:

Several different types of water treatment facilities are included in the proposed action. These facilities range from "natural" (biofiltration swales and ponds) to "hard" (concrete treatment vaults with filters and/or oil/water separators). Monitoring stations (to determine and track water quality, quantity, and temperature) are proposed to be located throughout the site. These stations would also operate as indicators of the effectiveness of upstream water quality facilities and the long-term maintenance requirements for the facilities. See figure DR-7 of the Preliminary Storm Drainage Report (**Appendix B**) for potential water quality monitoring station locations.

Issue WTR 5: Impervious surface area data

Issue: A few comments requested clarification of the amount of impervious surface calculated for the project, indicating that different numbers were used throughout the EIS document. Comments requested information regarding what areas are included in the calculations of impervious

surfaces and also questioned whether or not the baseline conditions were accurately measured for this project.

Applicable Comments: A7-6, I85-11, I85-19

Response:

The Department of Parks and Recreation acknowledges that there were minor discrepancies in the figures cited for impervious surface area in different locations in the Draft EIS. This information has been checked and edited carefully for the Final EIS to attempt to ensure consistency.

The impervious surface area figures cited in the EIS refer only to area within the boundaries of the project site, and not to impervious surfaces elsewhere in Sand Point Magnuson Park (which would not be affected or would not change as a result of the proposed action). The boat launch area and adjacent parking lot are specifically not included in the impervious surface data presented in the EIS. Both the natural-turf and synthetic-turf sports fields are included in the pervious surface category, as these fields would be constructed to rapidly infiltrate precipitation.

Issue WTR 6: Basis and feasibility of the site drainage design

Issue: Two comments raised the issue of whether there is a scientific basis for the site drainage design, or whether the design is an experiment by project architects. Other comments questioned whether the design would work during periods of heavy rainfall.

Applicable Comments: A4-14, O15-12, T5-7

Response:

The site is engineered as documented in the Preliminary Storm Drainage Report (**Appendix B**). The project drainage plan was developed through standard professional practices using reliable input data and accepted scientific analysis tools. The site drainage system is designed to function effectively during both dry and wet periods. This means that although some of the wetlands are designed to dry out, others are designed to remain wet year-round. In addition, all the wetlands on site are designed to accept and release runoff from very large storm events with very small fluctuations in pond water surfaces. The Preliminary Storm Drainage Report provides the design support backup (calculations) for the capability of the drainage system.

Issue WTR 7: Water levels in the proposed lagoon

Issue: One comment asked about the maximum depth of the proposed lagoon and raised the issue of how the water level in the lagoon would be affected by fluctuations in water levels in Lake Washington.

Applicable Comments: O15-15

Response:

The lagoon would be hydraulically connected to Lake Washington. This means that the water surface elevation of the lagoon would be the same as the elevation as Lake Washington. In summer, the U.S. Army Corps of Engineers raises the water surface in Lake Washington to roughly an elevation of 19.0 feet (NAVD88 Datum). In winter, the Corps lowers the water surface to elevation 16.8 (NAVD88). The Corps makes this adjustment through operation of the Hiram M. Chittenden Locks. The site has been designed to drain to the lagoon during both summer and winter. Therefore, the outlet elevations for the upstream ponds (that drain to the lagoon) are above the summer elevation of 19.0 (NAVD88).

4.2.4 Plants/Wetlands (WET)

Issue WET 1: Post-construction monitoring of wetland/habitat creation

Issue: Several comments stated that there should be monitoring to determine whether the wetland creation for the project is a success; some noted a recent study published by King County indicated that approximately 90 percent of all created wetlands are not functioning as anticipated. Some of these comments said the proposal should include maintenance to correct any part of the wetland system that is not functioning as intended.

Applicable Comments: O1-2, O15-1, O15-25, I37-3, I122-1, I172-3, I268-5, T8-5

Response:

Monitoring of all habitat installations (upland and wetland) would be included as part of the project permit application process to the City of Seattle, the Washington State Department of Natural Resources, Washington State Department of Ecology and the U.S. Army Corps of Engineers. As outlined in the Draft EIS, permits from the City, State, and Federal government agencies would be required for any work in wetlands and/or shoreline habitats of the site. Monitoring plans would be designed and implemented with guidance from the regulatory agencies, and it is assumed that a 5 to 10 year monitoring period would be required for a project of this magnitude. As to the success of created wetlands, the studies from King County, Washington State Department of Ecology, and the National Academy of Sciences that identify the extent of failure have also identified the many causes of those failures, the three most common being: poor design, poor implementation (or no implementation, in some instances), and poor follow-up by the regulatory agencies. Often it is "mitigation" associated with private development permits that fail, as regulators do not track permit requirements, and the private development applicant often is not associated with a project once it is constructed and occupied. Sand Point Magnuson Park is a public facility with an informed, vocal, and strong advocacy community watching and "bird-dogging" the Park staff. It is expected that the stewardship element of that advocacy community, as well as graduate students from the University of Washington Restoration Ecology Network and K-12 private and public schools, would all be integrated into the ongoing implementation and monitoring program for the habitat enhancements proposed. In this situation, it is not expected that any identified failures of the enhancement actions would be left undocumented or unremedied.

Issue WET 2: Sufficiency of information on mitigation for wetland impacts

Issue: A number of comments asserted the need for additional information on wetland fill impacts and replacement ratios for these impacts. Comments also requested that a wetland delineation be completed and included in the EIS and that the mitigation for the net loss of existing wetlands be stated. Other comments questioned the assumption that creation of manmade wetlands is better than the existence of "wild" wetland habitat. Still other comments requested the expansion of the grass sports meadow into wetland areas, stating that the loss of wetland habitat would be minimal compared to the gain in recreational space for park users.

Applicable Comments: A7-1, O1-6, I37-2, I85-3, I85-6, I85-17, I95-2, I220-2, T44-4, T46-4

Response:

As noted in the response to issue WET 1, permit applications for the proposed project will include detailed plans, drawings to scale, topographic survey, detailed engineering analysis, planting plan layouts, monitoring requirements, quantifiable performance standards and locations of habitat components, construction sequencing, function assessments and monitoring requirements and, maintenance and contingency plans.

This project is not a 'typical' wetland impact project and wetland mitigation proposal. While there are wetland impacts associated with the placement of the sports fields, the proposed wetland enhancement and wetland creation elements are not proposed simply as compensatory mitigation for those impacts. Prior to the inclusion of the sports field component to the reuse plan for Sand Point Magnuson Park it was proposed to only provide habitat improvement throughout the entire eastern portion of the park. That work would have also required the same spectrum of permitting from the city, state and federal resource agencies as will the proposed action.

At the time of permit applications, Sand Point Magnuson Park staff and their representatives will coordinate with City of Seattle staff and staff of the U.S. Army Corps of Engineers to determine if a formal wetland delineation across the entire site will be required, or if, as is proposed, a 'worst case scenario' approach will be taken to calculate the majority of the existing habitat areas as wetland. This approach is currently being recommended to the City based on the highly disturbed nature of the soils and vegetation on the site, which makes typical delineation a severe challenge. Rather than spending public funds attempting to accurately delineate the intricate mosaic of wetland vs. upland meadow, a more pragmatic approach of simply designating broad areas as wetlands will be proposed to wetland regulatory staff of the City and the Corps. In this manner it is assumed that the permit application will adequately account for all existing wetland resources present on the site.

Because the scientific literature findings on the effects of sportsfield lighting on wildlife use is unclear, it will be recommended as part of the monitoring program for the various permit applications that monitoring of amphibian, invertebrate and wildlife use of the habitats within the park be included as part of the adaptive management plan for the park. It is known that monitoring of the proposed habitat areas will be required for both the state and federal permits the proposal would require. By including monitoring use of various habitats close to the lighting sources compared to 'control' habitats out of the glare of the light sources, the City can document effects, if any, of the sports field lighting on wildlife. Then appropriate contingency actions ranging from more effective shielding of the lights, changing the

use patterns and lighting patterns of the sports fields, or increasing artificial screening could be implemented as needed. Lack of definitive answers regarding lighting impacts in the scientific literature does not permit a conclusion that impacts would or would not occur. Only monitoring of onsite conditions after installation, and a commitment to identify and implement effective contingency actions, would adequately address those concerns.

Issue WET 3: Human disturbance and related impacts to wetlands

Issue: A number of comments cited the possibility for significant human disturbance and resulting impacts to wetland areas. Commenters wanted to know how the Parks Department is going to minimize disturbance to wetland areas.

Applicable Comments: A7-2, O1-1, O15-23, I146-4, I148-1, I209-9, I285-11, I333-3, I334-6

Response:

In existing conditions, humans have free access to all habitats across the entire Sand Point Magnuson Park site. Any visitor who has spent time in the 'interior' portions of the park knows that humans widely use an intricate network of informal footpaths that criss-cross the entire site, making no portion of the 'habitat' area off-limits. In fact, in public meetings, members of the public have expressed concerns that proposed conditions would preclude human access to large portions of the interior of the habitat zones of the park. Proposed conditions to limit access to habitat areas reflect the strong message received during the Wetland Charrette design process in the summer of 2001: create and maintain the interior portion of the habitat complex as human-free as possible to maximize habitat use for more sensitive wildlife species. The design attempts to achieve that goal by removing the existing trails that circumnavigate every wetland on the site; by designing trails to have access to portions of representative wetland types, most often on the 'outside' (roadside) edge of those wetland types; by providing habitat overlooks from the existing bunkers on the north side of the habitat area, as a means to provide visual access while limiting direct human access; and by signage and subtle fencing to direct users towards pathways.

No design can completely preclude human actions. There will always be those park users who determine, for a variety of rationalizations, that the rules do not apply to them. Therefore, it is expected that there would be some park users who insist on going into the interior of the habitat zones. There might also be instances in which small groups of individuals are allowed access to interior areas for monitoring and/or recreational purposes. And, of course, bird monitors would want access to all portions of the park to document use patterns in all seasons and all habitat zones.

Self-policing by other park users may be the most effective manner by which inappropriate access to interior portions of the habitat zones can be reduced. It should be expected that human access to the interior zones cannot be precluded unless overt use of extensive fencing is incorporated. Based on comments received in community outreach efforts for the wetland/habitat planning process, that option was not considered a realistic solution for the entire wetland/habitat complex. However, limited areas of fencing, perhaps disguised or hidden within vegetation, might be used to prevent human use in selected strategic areas.

Issue WET 4: Need for herbicide use on athletic fields

Issue: One comment questioned the use of herbicides on the natural-turf sports fields, since the fields would be mowed regularly. The commenter further stated that herbicides would reach the wetland areas through runoff and would impact wetland plants. The commenter wanted to know if it really matters if there are weeds in the fields.

Applicable Comments: A7-4

Response:

Sand Point Magnuson Park has been managed for many years as an herbicide, pesticide, and insecticide free park. Park maintenance staff have supported this commitment in project planning discussions, and the incorporation of such chemical applications into future management options has not been assumed. **Section 2.2.13** of the EIS has been modified to more clearly address this point.

Issue WET 5: Clarity of species identification

Issue: One comment stated that the identification of some species in the EIS was unclear.

Applicable Comments: O15-22

Response:

The orchid species present at Sand Point Magnuson Park is *S. romanzoffiana* (also known as *S. romanzoffiana var. romanzoffiana*). This identification is based on field confirmation, information contained within Flora of the Pacific Northwest (Hitchcock and Cronquist, 1973) and personal communication with J. Gamon of the Washington Natural Heritage Program. *S. romanzoffiana* is not identified as a State Sensitive species. It is noted as being common on disturbed sites such as Sand Point Magnuson Park (J. Gamon, Washington Natural Heritage Program). The more sensitive species of orchid, *Spiranthes porrifolia* (also known as *S. romanzoffiana var. porrifolia*) is listed as a State Sensitive species in Washington, as cited in the Field Guide to Washington's Rare Plants (Washington State Department of Natural Resources and Spokane District Bureau of Land Management, 2000). The two species are quite similar appearing, but they have quite distinct habitat needs, and only *S. romanzoffiana var. romanzoffiana* would be expected in the highly disturbed conditions of Sand Point Magnuson Park. Botanists from the State Natural Heritage Program supported this conclusion.

Issue WET 6: Need for amendment of disturbed wetland soil

Issue: One comment regarding **Section 3.3** stated that soils that are disturbed on the site should be properly amended.

Applicable Comments: A4-14

Response:

Soil conditioning is proposed to provide adequate soils for all non-sports field areas of the project site. Topsoil is to be manufactured on site using an estimated 6-inch stripping depth, to be stockpiled and incorporated with organic composted mulch (from on-site and imported material) to create topsoil for distribution over all planting areas at a depth of 6 to 8 inches. In addition to the manufacture and installation of this topsoil, it is proposed that the subgrade in all areas designated as upland planting, mixed forest, and marsh meadow would be further conditioned. This conditioning will include the addition of a mulch top dressing and seeding with a nitrogen fixing cover crop, to be tilled under after a minimum of one growing season, prior to the installation of the site manufactured topsoil.

Issue WET 7: Location of sports fields relative to wetland area

Issue: One comment wondered why the City planned to locate sports fields 8 and 9 on top of a rare wetland area that was purported to be one of Washington's finest examples.

Applicable Comments: I36-2

Response:

Section 2.2 of the EIS explains the rationale for sports field and wetland/habitat configuration represented by the proposed action. **Section 3.3** of the EIS describes the existing wetland habitats on the project site; this includes the wetland area in question, which is a part of the wet meadow community discussed in **Section 3.3.1.3**. **Section 3.3.1.4** of the EIS includes a functional assessment of the existing wetland communities, which concluded that the wetland types on the site generally rate low to moderate for all wetland functions. The wet meadow habitats of Sand Point Magnuson Park are present due to the past disturbances on the site. These wetlands are not historical remnants of Mud Lake and its associated peat bog community. The filled and graded soils on the site preclude precipitation from soaking into the ground, therefore shallow inundation is common across the site for much of the winter. This pattern precludes upland grasses or shrubs from colonizing and only allows the establishment of species adapted to both shallow inundation and summer drought conditions.

4.2.5 Wildlife and Fish (WDLF)

Issue WDLF 1: Impacts of lighting/human disturbance on wildlife

Issue: Many comments raised general or specific issues involving the impacts that the sports field complex could have on wildlife. Most of these comments addressed potential or suspected impacts of athletic field lighting on wildlife, including wetland areas and fisheries. Commenters stated that this impact needs to be more fully analyzed in the EIS because there are many species that would be affected, and that the issue is inadequately addressed in the document. Some of these comments also stated that not enough mitigation is offered to minimize or avoid lighting impacts to wildlife. Similar comments specifically addressing potential human disturbance impacts from noise, or noise and lighting in combination, are included in this issue category.

Applicable Comments: A7-3, O1-5, O2-15, O2-16, O7-1, O8-2, O14-8, O15-7, O15-14, O15-17, O15-26, O15-27, O15-29, O15-33, O16-1, O16-5, O17-2, I37-9, I41-2, I61-3, I67-4, I68-1, I103-1,

I119-3, I122-3, I146-3, I148-1, I149-3, I193-4, I209-5, I215-1, I215-4, I221-1, I221-2, I221-4, I229-1, I254-6, I266-1, I266-8, I268-2, I282-1, I284-3, I288-4, I296-3, I299-2, I301-4, I309-2, I309-4, I311-3, I333-2, I333-13, I333-18, I334-6, I342-3, I356-2, I367-4, T1-3, T5-1, T11-2, T11-3, T13-3, T13-7, T15-3, T15-6, T23-2, T28-2, T33-2, T43-3, T45-5, T46-3

Response:

The response material for this issue addresses the specific topics of sports field lighting disturbance and human presence and noise disturbance.

Sports Field Lighting Disturbance

Section 3.4.1.2 of the Final EIS has been modified to include more information about potential disturbance effects from sports field lighting on wildlife. Attempting to determine if the proposed lighting of the sports fields would have an effect on wildlife is difficult. There is no research specifically on the effects of tall, shielded sports field lights on wildlife, although there is evidence that some sources of artificial light have negative impacts on most guilds of animals that could use the wetland/habitat complex at Sand Point Magnuson Park. Extensive summaries of effects of artificial lighting from a recent conference in California (Harder 2002; Longcore and Rich 2001; Urban Wildlands Group and UCLA Institute of the Environment 2002) indicate that artificial lights have had adverse effects on a wide range of guilds including mammals, amphibians, reptiles, fish, and invertebrates.

The available scientific literature that was found assessed impacts of street lights, lights associated with towers and large buildings, and lights associated with tennis courts on wildlife. Extensive querying of experts and the scientific literature failed to find any studies of effects of sports field lights on wildlife. The sports field lights proposed for Sand Point Magnuson Park differ from street lights in that they would not be on all night, and they are generally taller and brighter than street lights. Tall lights would be visible from a greater distance and, while they would be fully shielded, they would shed some light into areas adjacent to the sports fields in the form of glare, spill, and glow.

Because the currently available research on lighting effects on wildlife is inconclusive with respect to sports field lighting, DPR proposes to monitor wildlife use in the newly created/enhanced habitats on the site. A purpose of this monitoring would be to compare and contrast use patterns in habitats within the lighting spill zone to those more interior on the site. Such comparative monitoring would inform the park staff as to the effects, if any, and inform adaptive management decisions to remedy identified problems.

Several options exist for mitigating potential light effects on the habitat areas. Options range from removal of the lighting near habitat areas, screening via use of full cutoff lighting, minimizing the hours the fields are lit or reducing the hours the lights nearest the fields are lit, and screening via use of vegetation and mounds. These options are discussed in more detail in **Section 3.4.1.5** of the Final EIS.

Human Presence and Noise Disturbance

The proposed action would result in increased use of the park by people in the sports field area as well as in the more passive areas of the park. Recognizing that concurrent increases and wildlife habitat would result in increased opportunity for wildlife/human/domestic dog interactions, design features to reduce adverse human/wildlife impacts were incorporated into the proposal. The proposed design has attempted

to limit cumulative impacts to wildlife by physically limiting access to the interior portions of the habitat area. Measures to limit access include designing overlooks that are heavily screened with "non-friendly" native shrubs that bear thorns to reduce volunteer trail development, and providing over-water access for views and education opportunities in locations where wetlands are already closest to roads and human activities. Trails and viewing sites are designed to guide visitors through the margins of wetland areas and some upland buffer habitats, but no wetland would be completely circumnavigated by trails and/or roads. Informational handouts and signage are proposed to educate and encourage visitors to remain in approved locations, and discrete temporary and permanent fencing in strategic locations would block off-trail access to more sensitive habitats. Temporary fencing is proposed in all habitat restoration areas to limit human/dog access until installed plant material gains a level of maturity to provide natural blockage and/or preclude pedestrian access.

Human behavior is such that unwarranted access into habitat interior areas could not be fully prevented without perimeter enclosing fencing of such intensity that the entire character of the park would be destroyed. Elements to positively direct, gently correct and solidly preclude inappropriate or easy access to the most sensitive interior spaces have been designed into the habitat areas. It is perhaps ironic that there is a vocal group of park users who strongly object to limiting human access to the interior portions of the park, as well as to the elimination of the informal "volunteer" paths throughout the park. The park's multiple mandates assure there will be some disagreement over many design elements.

Section 3.4.1.5 explains that temporary and, if necessary, permanent innocuous fencing would be placed at strategic locations around the perimeter of the interior portions of the habitat zones to preclude inappropriate access. Fencing would be placed at the time of initial habitat planting and installation to assure protection of plants, exclusion of inappropriate access and protection of establishing wildlife populations. Moreover, **Section 3.4.1.4** states that new continuous perimeter fencing will surround the permanent Off-Leash Area, which would decrease the random entrance of dogs into the habitat area. In the past, dogs have been able to jump over the sagging temporary fencing.

Noise from the sports fields would increase due to increased use of the park, and would be more common in the evening. The noise associated with people does not affect all wildlife guilds equally. More reclusive species (owls, snipe, weasels, mink) might not use habitats near to the high-intensity sports field area. Less sensitive species (amphibians, invertebrates, some passerines and other birds) might not be as directly affected by human crowd noise. Wildlife adaptations to human presence can be quite variable; however, persistent presence and high-intensity use by humans would preclude some species from using available habitats when humans are present.

Screening the margins of the habitat areas nearest points of human access/presence could provide a visual barrier and reduce noise. Screening is proposed by means of vegetation and earth mounds between the sports fields and the west side of the habitat areas. Large areas of native trees and shrubs are proposed along the swim beach access road through the eastern edge of the habitat area, and forested habitat is proposed surrounding much of the lagoon. Traffic speeds would be posted at less than 15 mph in the park to assure safety for humans and wildlife, and to reduce noise.

Issue WDLF 2: Displacement of existing wildlife

Issue: A few commenters wanted to know where displaced wildlife would go during and following development of the project, what species would be harmed by construction and what invasive species (such as bullfrogs) might dominate some areas following development.

Applicable Comments: O2-18, I12-5, I334-8

Response:

There is wildlife habitat provided in existing conditions of the park. Removal of the open space along the western limits of the site and replacement of that area with sports fields would result in a net decrease in habitat available on that portion of the site. In the proposed action, the Commissary, existing trails, roads and an internal parking lot would be removed and replaced with a myriad of wetland community types and upland habitats, without interior human access. The design is proposed to provide an increase in available habitat types across the habitat zone of the park. Given the limitations of funding and construction, a phased approach to construction is proposed. This would result in loss of some habitat elements and increased temporary construction in sequence across the park. As stated in **Section 3.3.2.1**, vegetation clearing would be confined to a portion of the project site at any given time during the construction period.

It is a generally accepted premise of wildlife ecology that all available habitat niches are filled within a given landscape. Removal of habitat implies that resident, non-migratory species would not be able to successfully breed, raise young, or survive. In reality, it means that some adaptable species with wide tolerance ranges (American robins, starlings, English house sparrows, Norway rats, eastern gray squirrels) might physically shift locations and nest at higher densities, while species with more restrictive habitat requirements (Lincoln sparrows, mink, owls) might not successfully reproduce, and could possibly perish. However, it should be noted that the ultimate goal of the proposal is to create more diverse and complex habitat communities across the site, and reduce human and vehicular access to the central portion of the habitat area. Species using the habitats on site in existing conditions have established there since the Sand Point site was used as an active military base into the 1970s. Species recolonized the site after nearly 50 years of intensive military use. Therefore, it is reasonable to assume that wildlife would recolonize again in the future, after sequential habitat restoration is completed.

Some species, including ground-breeding and ground-dwelling birds and mammals, and birds that forage and take cover in upland meadows, (e.g. meadow vole, vagrant shrew, deer mouse, rat, rabbit), might decline in abundance due to the proposed actions to convert the seasonal saturated meadows into more long-term saturated wetlands.

The proposed habitat enhancement design has attempted to pre-empt the easy use of the site by non-native species such as bullfrogs. The aquatic habitats westward of the swim beach access road (west of the proposed lagoon) would not have a direct surface water connection to the waters of the lagoon and therefore the lake. This was designed purposefully to preclude the easy colonization of the wetland complexes by invasive non-native plant and animal species. Aggressive non-native species that are readily present in Lake Washington include bullfrog, bass, carp, purple loosestrife, yellow iris, and Japanese knotweed. However, by not providing a direct surface water connection from the lagoon into the interior, it is hoped to delay and/or totally avoid the colonization of the interior habitats by some of

these species. Species such as bullfrog that can move terrestrially might move across the landscape into the interior wetlands, or perhaps well-meaning members of the public would plant volunteer tadpoles into the interior wetland complexes. This cannot be avoided. Although there is concern about bullfrogs colonizing the wetlands, several studies of native amphibians in the Puget lowlands (Adams 1999; Richter and Ostergaard 1999; Ostergaard 2001) provide no evidence that indicates bullfrogs eliminate or reduce native amphibian populations. Pacific treefrogs use different microhabitat than bullfrogs, and there are many examples of ponds where Pacific treefrogs and bullfrogs coexist (Ostergaard 2001).

Plant species that colonize by seed dropped by birds or carried by mammals or humans can be controlled through swift removal, given careful monitoring.

Issue WDLF 3: Characteristics of on-site trails

Issue: Two comments stated that the proposed trail through the wetland area is too wide and could act as a barrier for some smaller species of wildlife.

Applicable Comments: O7-2, O15-16

Response:

The cross-country trail (see **Section 2.2.7**) is proposed at a 12-foot width. The cross-country trail is the primary proposed means of circulating around the wetland/habitat complex and would be "fed" by the primary, secondary, and cross-park trails. The 12-foot size is intended to accommodate the estimated traffic resulting from its important role in wetland/habitat complex circulation. The cross-country trial would have numerous culverts at all low points to allow water passage under the trail, which could be oversized to further facilitate movement of wildlife under the trail. The width of the trail will be further studied and reductions could be considered in later phases of design development.

Based on the literature, the proposed 12-foot-wide gravel cross country trail could be a barrier, actual or psychological, for amphibians, invertebrates, reptiles, or small mammals attempting to migrate across it (DeMaynadier and Hunter, Undated). However, no effects on eastern amphibians were found on roads 15 to 20 feet wide, and some salamanders were affected at roads 40 feet wide (DeMaynadier, pers. comm.). Research has not attempted to determine whether there is a difference in wildlife use between 8-foot wide and 12-foot wide roads (DeMaynadier, pers. comm.). The only available research identified the effects of roads with vehicular traffic, not trails with pedestrian traffic.

The site and surrounding areas are highly disturbed and fragmented, from a wildlife perspective, in existing conditions. The site is criss-crossed with a mixture of decommissioned paved and concrete roads used as trails, as well as numerous 'volunteer' dirt trails. All of the volunteer trails through the habitat areas would be removed, and the interior access road and central parking lot would be removed in the proposed action. Given the extent of various trail types throughout the habitat areas in existing conditions, the construction of a new 12-foot wide crushed rock cross-country trail around the wetland complex, coupled with the removal of all the other existing roads and trails, would not seem to pose a significant threat to wildlife.

Issue WDLF 4: Effect on park designation as an environmentally critical area

Issue: One comment pointed out that Magnuson Park is one of the City of Seattle's Environmentally Critical Areas for wildlife and would like more information concerning how the proposed action would affect this designation.

Applicable Comments: O15-4

Response:

The Seattle Department of Design, Construction and Land Use administers the environmentally critical areas designations, and would be responsible for reviewing permit applications for the proposed project. **Section 3.4** of both the Draft and Final EIS describes how the proposed action would result in a substantial increase in the diversity and value of wildlife habitat on the project site and within the park overall. Consequently, the Department of Parks and Recreation assumes the project would have no adverse effect on the subject designation, but instead would enhance and promote the ability of the park to support wildlife.

This comment has also been treated as a land use issue, because it relates to consistency of the proposed action with existing plans and policies. Please see the response to issue LU 1 and **Section 3.7.2** of the Final EIS for more discussion of this issue.

Issue WDLF 5: Control of user behavior/enforcement of park rules

Issue: Two comments raised issues relating to inappropriate user behavior, particularly the presence of off-leash dogs, and inquired whether the Parks Department would increase enforcement of existing park rules (e.g., leash laws) to protect wildlife in wetlands areas from disturbance.

Applicable Comments: O15-24, I149-6

Response:

Potential human disturbance effects in the wetland/habitat complex and measures to counteract those possible effects are discussed at multiple locations in the Draft and Final EIS, primarily in **Sections 3.3** and **3.4**. This topic is also addressed in the previous responses to issues WET 3 and WDLF 1. Control measures identified include fencing, plantings, signing, distribution of educational materials and the design of the pedestrian circulation system itself. Engagement of additional uniformed staff to patrol the wetland/habitat complex has not been identified as a specific need and is not noted in **Section 2.2.13** as a project operational measure. This issue relates to personnel needs for overall management and operation of the park, and would be monitored and evaluated on a continuing basis along with other operational needs.

There are several and-use mandates for Sand Point Magnuson Park. In addition to active sports fields, these include off-leash dog use, sailing access, tennis, community gardens, housing, preservation of historic buildings and viewsheds, kite flying, walking, swimming, motor boat access, and restoration of habitats. The project design has been developed with an effort to allow for a broad range of multiple uses. The restoration/creation of functional habitat in the larger interior portion of the site has been

designed in a manner that attempts to both provide effective habitat while still allowing functional use of the site by pedestrians used to full and free access. From a habitat perspective, it would be best to preclude human access to the entire habitat zone; from the perspective of pedestrian access, education and passive recreation (e.g., running, walking, bird watching), free access to the entire site has been a given since the City obtained access to the site. The design result for the proposed project is therefore one of compromise.

Issue WDLF 6: Impact of the lagoon on fisheries

Issue: Several comments raised issues concerning impacts that the creation of the lagoon would have on fisheries in the area, and the impact this would have to the lake bottom as well. Other comments requested information on impacts to fisheries from summer water temperatures and increased predation of juvenile salmon confined in the shallow waters of the lagoon.

Applicable Comments: I12-2, I37-4, I285-12

Response:

There are no fisheries habitat structures proposed within the lagoon, as large woody debris and large boulder/rocks in the water would provide lurking habitat for predatory fish such as bass. Therefore, based on input from a U.S. Fish and Wildlife Service fisheries biologist and City of Seattle salmon experts, the lagoon is not proposed to have fish habitat structures that one usually associates with flowing water systems. Use of the lagoon by targeted fish species (anadromous and resident salmonids) is anticipated only for small fry as they move from the Sammamish River or the Cedar River toward the Lake Washington Ship Canal. These small fish feed in the shallows all along the shore of Lake Washington in existing conditions, moving off-shore to avoid predators and watercraft. The lagoon is intended as additional shallow water refuge habitat. Knowing that bass are also present in such conditions, however, care was taken in the design to reduce cover habitat for predators such as bass.

The lagoon is designed to have a year-round open water connection to the lake, as well as to be deep enough to intercept the groundwater in that area of the park. Therefore, it would have a year-round flow of water out towards the lake, although the rate of flow would be reduced in the late summer months when rainfall is lowest. This is also the time of year when the lake level is kept the highest by the Corps of Engineers, so the lagoon would be the deepest during the warmest time of the year. In addition, the lagoon is designed to be surrounded, eventually, by mixed coniferous/deciduous forests on the south, west, and north sides, to minimize solar radiation as the trees mature.

Additional discussion that applies to this issue is included in the response to issue WDLF 7, below.

Issue WDLF 7: Information on endangered species and ESA compliance

Issue: One comment asserted that information on threatened and endangered species from the Department of Fish and Wildlife was not referenced or documented in the EIS. The comment stated that a bald eagle is seen regularly within the park and there is no information in the EIS about this bird. The commenter further stated that the habitat requirements of threatened species was not presented in the document and questioned why a Biological Assessment was not completed for this project.

Applicable Comments: I85-4

Response:

A Biological Assessment (BA) would be required of this project at the time of application for a federal permit, most likely under Section 404 of the Clean Water Act, as administered by the Corps of Engineers for activities in wetlands or "waters of the U.S." such as Lake Washington. A BA is not required as part of the SEPA process, although a BA is sometimes prepared concurrent with a SEPA EIS.

Listed Fish Species

Providing increased shallow shoreline habitat along Lake Washington was envisioned as a benefit to native resident and anadromous fish in the lake. Regional experts on salmonids were contacted and a field visit conducted to determine whether the proposed lagoon would pose a risk to young fish or would provide beneficial habitat. Input from City of Seattle and U.S. Fish and Wildlife Service fisheries experts (K. Kurko and R. Tabor, personal communication) confirmed that the lagoon might provide some benefit to young fish of various species and would not increase predation by non-native predators if certain design precautions were incorporated. Design elements that are purposefully not included in the lagoon include large woody debris, large rock/boulders or other potential hiding places for predatory bass. The shoreline of the lagoon is proposed to have mosaic of shallow sloping sandy shores, shallow emergent marsh, and steep bank shoreline around the perimeter to provide refuge and feeding habitat for small fish. Shallow water, less than 12 inches deep is not a preferred habitat for predatory fish, it is a preferred feeding zone and it also provides physical refuge for young fish to escape from larger predatory fish.

Young fish (bull trout, chinook salmon, and other resident and anadromous native species) are assumed to be present in Lake Washington and using the shoreline in existing conditions. The lagoon would create additional shallow shoreline for use by these species. The proposed lagoon design includes several features to guard against elevated water temperatures in the lagoon during the summer, as discussed in the response to issue WDLF 6 and in **Section 3.4.2** of the Final EIS.

Bald Eagles

Construction impacts on bald eagles would be expected to be minimal. The nearest bald eagle nest or wintering territory is at least 1.5 miles from the park (Brookshire, pers. comm.). That nest site has not been used by bald eagles for several years. Construction projects are generally not considered to have impacts on bald eagles unless they are within 0.5 miles of a nest. Bald eagles could use the shallow waters off-shore to catch fish or to access fish carcasses washed ashore. The excavation of the lagoon might provide a temporary loss of shallow shoreline habitat during construction, and heavy equipment use could influence use during daylight hours. However, given the high current use of the shoreline for passive and active recreation by humans (including a very active power boat launch immediately adjacent), it is not anticipated that construction impacts of the phased project would represent anything but temporary, minor impacts to bald eagle use of the site.

Issue WDLF 8: Construction impacts on frogs

Issue: One comment requested to see scientific data supporting the DEIS statement that amphibians would increase, and wanted to know about impacts on frogs from 10 years of construction.

Applicable Comments: I122-4

Response:

Creating acres of shallowly inundated ponds with stable water levels, as well as permanent seasonally inundated ponds across the habitat area of the project, is the basis for concluding that amphibian habitat would be increased over existing conditions. The only habitat on site in existing conditions identified with amphibian breeding use is Frog Pond, which the project has been carefully designed to avoid during construction and in future conditions. Research by Klaus Richter (King County staff) and Bill Leonard (Washington Department of Transportation), two nationally recognized experts on amphibians, was used in the design of habitat components for future conditions. The marshy flow-through ponds on the western margin of the habitat area are designed to fill with water early in fall and remain with stable water levels through late spring, a critical parameter for breeding amphibians. Secondly, upland mixed forest community is proposed adjacent to many wetland habitats on site and linking across the site to the upland forests of Promontory Point. Amphibians use wetland habitats for only a portion of their life-history needs, while research by Richter and Leonard has documented that mature upland forest habitats are important for amphibian populations to be sustainable over time. Therefore, the project design anticipates the two key habitat components necessary for amphibian population viability: stable emergent wetlands with thin-stemmed emergent vegetation present, and upland forest.

Although construction would be sequenced over 10 years, it should be anticipated that populations of amphibians would remain and/or recolonize the site after construction is completed, just as populations successfully colonized the site after 50 years of military use. As an example of this process, a beaver population became established in Meadowbrook Pond within 2 years of construction of a pond on nearby Thornton Creek, where no pond had previously ever existed. Wildlife populations are often astounding in their ability to find and utilize habitats in spite of human effects.

4.2.6 Energy and Natural Resources (ENR)

Issue ENR 1: Electric energy and water consumption

Issue: A number of comments raised issues about significant increases in electric energy and water consumption associated with the project and stated this was not adequately addressed in the EIS. Specific aspects of individual comments in this issue category included statements about the demand for new power at peak times, purported understatement of the power usage increase, the project power need relative to energy conservation goals, and the fairness of the Seattle City Light rate structure. Several commenters noted that the project would increase energy consumption at a time when the public is being asked to conserve electricity, and several stated that the project would be a waste of energy.

Applicable Comments: A4-15, O14-9, O15-30, I37-11, I44-4, I51-3, I51-10, I149-4, I176-1, I188-4, I209-18, I273-2, T14-2, T44-2

Response:

Section 3.5 has been revised in the Final EIS to include a new section specifically addressing water consumption for the project. The discussion of energy impacts has also been supplemented, primarily to provide more specific information about expected power demands relative to peak load times on the Seattle City Light system. As in the Draft EIS, the Final EIS identifies the demand and annual energy consumption estimated for the project and compares these figures to corresponding measures for the system, as the Department considers these to be the most relevant and appropriate measures of project energy needs. An essentially infinite range of other comparative measures could be presented but are not necessary.

Comments relating to increased energy consumption at a time when conservation is needed, to wasting energy or to the fairness of the Seattle City Light rate structure are subjective statements that reflect the values and beliefs of the speaker or writer. Some reviewers clearly believe the proposed use of electricity to light sports fields is inappropriate and socially irresponsible, while others clearly believe it is a worthwhile expenditure of energy resources. There is no objective resolution to this issue, and no further response to such comments is possible.

4.2.7 Noise (NOI)

Issue NOI 1: Operational noise from use of the proposed sports fields

Issue: Many comments raised the issue of a significant increase in noise levels due to operation of the sports fields included in the proposed action. Some comments also asserted that noise readings were not taken in surrounding residential neighborhoods but should have been, because the hillside acts as a natural amphitheater to direct sound from events at the park. In addition, comments stated that because background noise is less at night, noise from events at Sand Point Magnuson Park fields in the evenings would be more noticeable in the surrounding neighborhoods. Some comments asserted that a long history of complaints from local residents about noise from Sand Point Magnuson Park was well documented and should have been disclosed in the EIS. Other comments stated that noise impacts to on-site residents were not analyzed adequately, and that both existing and proposed noise levels are unacceptable.

Applicable Comments: O2-10, O2-11, O8-4, O12-3, O13-5, O14-10, O16-7, O17-4, I44-6, I61-5, I68-2, I68-8, I69-2, I79-3, I79-4, I80-1, I121-5, I121-7, I148-1, I149-7, I155-4, I176-1, I193-3, I209-3, I209-14, I215-1, I215-4, I221-4, I232-4, I248-1, I253-2, I24-5, I259-2, I260-2, I266-3, I266-8, I268-6, I269-1, I285-10, I292-10, I296-2, I299-4, I301-2, I307-4, I311-2, I316-1, I333-11, I333-16, I334-1, I337-2, I343-2, I354-1, I367-5, I373-1, T2-2, T2-6, T13-4, T18-4, T19-3, T21-1, T23-4, T24-3, T26-1, T38-1, T41-5, T42-1, T43-2, T44-3, T45-4, T47-4

Response:

In response to these review comments on the Draft EIS, the Department of Parks and Recreation commissioned additional noise analysis of the proposed project. This supplemental study included measurements of existing sound levels on the project site and in the nearby local area, specific predictions of worst-case noise from athletic activities and related traffic on both on-site and off-site locations,

consideration of potential mitigation measures, and a substantial revision to the noise section (**Section 3.6**) of the Final EIS.

All of the specific aspects of the operational noise issue identified by the comments in this category are addressed in some fashion in the revised **Section 3.6** of the Final EIS. The following response discussion also addresses each specific aspect of the issue, generally explain what was done in response and the corresponding results. The response discussion is organized under the following subject headings: (1) the existing sound environment; (2) past noise complaints; (3) noise impacts to residents of the on-site housing; (4) noise impacts to off-site residential areas; (5) traffic noise; and (6) other specific issues.

Existing Sound Environment

In response to comments on the Draft EIS, additional sound level measurements were taken on the Sand Point site (at SPCHA Building 224), in the View Ridge neighborhood, and in the residential area to the south of the project site. A trained noise observer and analyst visited each of the monitoring locations several times to install equipment, observe existing conditions and record measured sound levels. Sound levels of various types of activities anticipated to occur at the sports fields were also measured. Results of the sound level measurements are documented in the revised **Section 3.6** and in **Appendix E** of the Final EIS.

In general, several comments are correct in noting that there are often hours in the day when sound levels in the View Ridge neighborhood are fairly low. Sound level measurements taken at the corner of 56th Avenue NE and NE 73rd Street in May 2002 recorded large variations in sound levels in this area. The average day-night sound level (Ldn) over a 3-day period was 60 dBA. Average hourly sound levels (Leqs) during the daytime hours varied from 44 to 64 dBA, while average sound levels (Leqs) between 10 and 11 p.m. varied from 46 to 47 dBA. Maximum daytime sound levels (Lmaxs) ranged from 66 to 87 dBA; maximum sound levels (Lmaxs) between 10 and 11 p.m. ranged from 69 to 72 dBA.

Past Noise Complaints

Several comments maintained that there was a well-documented history of numerous citizen complaints about noise from the activities at Sand Point Magnuson Park, and stated directly or implied that sports field activities were the source of many complaints. In response to these comments, DPR staff investigated official City of Seattle sources where any such complaints would be recorded. These sources included DPR files, Seattle Police Department records, and Seattle Department of Design, Construction and Land Use records. The results of this records search are documented in **Section 3.6.1.4** of the Final EIS. In summary, the searches of DPR and DCLU files produced negative results, while the SPD dispatch records indicated there have typically been a handful (from 0 to 7) of unspecified noise complaints per year with a Sand Point Magnuson Park dispatch address.

In discussions with the noise analysts, DPR staff indicated their anecdotal knowledge is that noise complaints from the View Ridge neighborhood are received on occasion, typically in response to activities occurring in the buildings at the north end of the Sand Point site (Buildings 2 South and 27). These activities tend to include live, amplified music or voices. One event involved noise from a "fire pipe" that created a sonic-boom type noise that elicited several complaints. The Department has responded in the past by disallowing certain types of activities or equipment, or by closing doors of venues. However, the past events coordinator for Sand Point Magnuson Park did not recall noise

complaints associated with athletic activities at either the Sand Point or Magnuson Park fields. The proposed project would increase use of sports fields on the site, but would not affect the activities scheduled in the buildings on the northern portion of the Sand Point site. The proposed project does not include any additional venues for musical concerts, and would not increase or decrease the frequency of music activities occasionally held in the buildings in the northern section of the Sand Point site.

Noise Impacts to On-Site Residents

To summarize the results of the noise study with respect to the residents of the SPCHA homeless transitional housing west of Sportsfield Drive, predicted sound levels at Building 224 during the fall and winter months would easily meet the Seattle noise limits for longer-term noise of 55 dBA during daytime hours and 45 dBA after 10 p.m. In addition, noise from athletic activities would generally fall within the range of existing sound levels experienced at Building 224. The predicted spring and summer sound levels from all fields in use would also easily meet Seattle's daytime noise limits at Building 224. In fact, sound levels in the future would likely be lower than the existing sound levels during maximum daytime usage of the fields. The proposed project would spread park activities over a larger area and thereby increase the distance between many of the activities and Building 224, thereby reducing the sound levels of many of the activities.

The predicted sound levels from spring and summer use of the athletic fields after 10 p.m. could exceed both Seattle's L25 noise limit of 45 dBA and maximum short-term event limit of 60 dBA. This would primarily be due to baseball or softball games played at Fields 7 and 11. Potential mitigation for this impact includes restricting use of these fields to no later than 10 p.m.

The EPA recommendation is for a day-night sound level (Ldn) of 55 dBA. (The Ldn is a 24-hour average sound level, with a 10-decibel penalty added to sound levels that occur between 10 p.m. and 7 a.m. in consideration of potential disturbance of people trying to sleep.) The EPA level is a guideline and not a regulatory limit, because the cost and feasibility of achieving these levels was not considered in setting the guideline. Also, most locations in urban neighborhoods do not currently meet the EPA guidelines, and most residents would probably not consider themselves severely impacted by noise. For instance, the measured Ldn during the 4-day measurement at Building 224 was 56 dBA, exceeding the EPA's recommended limit. On the hillside in the View Ridge neighborhood, from which numerous residents have commented on the existing quiet character of their neighborhood, the three day measured Ldn was 60 dBA (Saturday afternoon to Tuesday afternoon). This indicates that compliance with the EPA's recommended level of 55 dBA, while a noble goal, is not necessarily an accurate indicator of noise impacts. Finally, assuming that the proposed project would emit sound levels as high as permitted by the Seattle noise limits for every hour the fields would operate (55 dBA from 9 a.m. to 10 p.m. during the weekends), the estimated Ldn of park activities would be no higher than 52 dBA. Because this example is a considerable exaggeration of anticipated park usage, the actual Ldn from park activities would be lower. During the week, the park would see far fewer hours of activity and the Ldn would be lower still.

Potential noise impacts at the proposed new transitional housing units were not included in the noise analysis because the housing plan is, as yet, unrefined. No detailed design information is currently available for the units, and no real timeline exists indicating when these units might be constructed. The following potential noise levels were identified based on predicted noise levels at Building 224 and the limited information available regarding the proposed units.

Noise from soccer on Field 14 would be audible at some of the 28 units considered for a site south of NE 65th Street. Under the proposed action, the maximum noise events received at the nearest unit could exceed the short-term limit of 60 dBA after 10 p.m. However, a potential mitigation measure of switching the locations of Fields 14 and 15 to move activity occurring after 10 p.m. further from the proposed new units would result in maximum noise events that meet the nighttime limit.

Noise received at a location west of Sportsfield Drive considered as a site for 70 new units would be similar to but slightly higher than the levels received at Building 224. In summary, noise from baseball games played after 10 p.m. on Fields 7 and 11 could exceed the maximum limits at the new proposed units adjacent to Sportsfield Drive. In addition, noise from traffic on Sportsfield Drive could contribute to the overall noise levels of the proposed action, which could exceed the Seattle noise level (L25) limit. One possible mitigation measure specified in the revised noise section of the Final EIS would be to prohibit the use of Fields 7 and 11 after 10 p.m.

Because the design process for the new housing units has not yet begun, it is not possible at this time to know the configuration of the housing on the site(s) or the directional orientation. It is conceivable that the housing could be located on the Sand Point site and built in a configuration that would minimize noise impacts from the sports fields.

Noise Impacts in Off-Site Residential Areas

The supplemental noise analysis also applied worst-case assumptions to estimate the sound levels that would result from maximum usage of the proposed sports field complex in residential areas west and south of the project site. Daytime and nighttime sound levels were calculated for two locations in the View Ridge residential community and another in the residential area south of the project site. The sound levels predicted for all three of these neighboring residential locations indicate park operational noise would not only easily meet the Seattle noise limits, including the stricter nighttime limit that applies between 10 and 11 pm, but would also generally be far below measured existing sound levels. The results of the analysis are documented in **Section 3.6.2.2** of the Final EIS.

During one monitoring visit to the off-site locations, heavy daytime activity at the existing Sand Point Magnuson Park sports fields included 6 concurrent ultimate Frisbee games and one Little League baseball game. Noise from these activities was barely audible in the View Ridge neighborhood on 56th, 57th, and 58th Avenues NE, and then only during abnormally loud cheering events. Because the noise levels in the project vicinity tend to decrease during later evening hours, the sound levels from the future sports fields would likely be audible more frequently during the later evening hours, particularly any such maximum events (cheering).

In comparison to the measured existing sound levels, the predicted sound level for the proposed action during peak usage at residences on the View Ridge hillside was 38 dBA, with a maximum estimated sound level of 54 dBA for a peak event (i.e., a loud cheer). Although the maximum events from park activities would occasionally be audible when other background noise sources are low, worst-case estimates of such park noise events indicate they would be far lower than existing maximum events, and would easily meet Seattle's noise limits. Thus park activity noise is not expected to constitute a significant noise impact in these off-site residential areas.

Similarly, predicted noise levels of park activities received at the Park Point condominiums on the west side of Sand Point Way NE (the closest off-site location analyzed) would easily meet Seattle's daytime and nighttime noise limits during peak spring and summer use. Predicted sound levels are very conservative because the calculations did not consider the numerous intervening buildings between the Park Point Condominiums and most of the athletic fields. Therefore, noise from the proposed project affecting residences at the base of the hillside west of Sand Point Way NE are not anticipated to cause noise impacts.

The sound level predictions included in **Section 3.6** of the Final EIS considered only distance attenuation, and did not consider temperature inversions or any other meteorological variables that would either enhance or reduce noise. But even though a temperature inversion could cause levels at distant locations to increase by a few decibels (generally 3 to 4 dBA with a strong inversion), the predicted levels would still easily meet the Seattle noise limits at the hillside locations, including the stricter nighttime limit applicable after 10 pm. At the same time, the noise predictions also did not include factors like atmospheric absorption or the presence of intervening structures that would tend to reduce noise transmission to distant locations. For example, atmospheric absorption in the frequency range of human voices would reduce the estimated sound levels at the distance to the hillside by approximately 3 decibels, enough to compensate for the noise increase potentially caused by a temperature inversion. Finally, it is worth noting that temperature inversions are generally strongest in the very early morning hours, long after park activities would have concluded, and they tend to occur more often in winter when the level of anticipated use at the park would likely be lower. Therefore, the influence of temperature inversions on noise from the sports fields would not change the conclusions of the noise analysis.

Traffic Noise

The supplemental noise studies conducted for the Final EIS included consideration of the noise from traffic associated with the sports fields. Please refer to the revised **Section 3.6.2.2** in the Final EIS. In summary, additional traffic volumes on local roads between 10:30 and 11:30 p.m., after cessation of activities at the sports field complex, would increase overall noise levels in the project vicinity by 2 dBA or less and are not anticipated to result in noise impacts.

Other Specific Issues

Environmental noise studies of proposed projects do not typically include an assessment of community response (i.e., a survey of residents) to a proposed noise source because the studies tend to be conducted prior to the existence of the noise source. To assess the potential for noise impacts from a project, a noise analysis will typically include one or more baseline measurements and predictions of future levels that can be compared with applicable noise limits and existing sound levels. The supplemental noise analysis conducted for the Final EIS included these components, as presented in the revised **Section 3.6**.

The assessment of potential cumulative noise impacts presented in the EIS is sufficiently inclusive in its consideration of other noise sources. The residential use associated with the expanded student housing is consistent with the existing uses in the project vicinity and would not be anticipated to substantially alter the existing noise environment. Because much of the student housing is currently in use, any noise from these units would also have been included in the sound level measurement taken on the hillside south of the project site. Similarly, the traffic counts taken in the project vicinity in June 2002 would have included this use. In this way, the student housing was inherently included in the noise analysis. The

new Children's Hospital development is anticipated to be a medical support office building, with few noise sources and little potential for substantially affecting the existing noise environment. Traffic associated with the hospital offices would be greatest during the peak traffic hours in the morning and late afternoon, not during the late evening hours when noise from traffic exiting the sports fields would have the most potential for impacting the surrounding neighborhoods.

Issue NOI 2: Provisions of and compliance with the City noise ordinance

Issue: Several comments raised issues relating to control of noise through the City's noise ordinance. Two comments questioned why the noise ordinance did not limit noise generation from the sports fields to daytime hours only. Another stated that the DEIS did not address the City's noise ordinance, but that allowing field use until 11 PM would violate the ordinance. One commenter asserted that the project as proposed would definitely violate the City's noise ordinance, and demanded a quantitative demonstration of compliance with the noise ordinance.

Applicable Comments: O2-12, I51-4, I51-8, I209-2, I292-11

Response:

The Seattle noise ordinance does not limit construction activities to daylight hours. It does, however, only allow for construction noise to exceed its operational noise limits only during daytime hours, which are defined as 7 a.m. to 10 p.m. on weekdays and 9 a.m. to 10 p.m. on weekends and holidays. This effectively limits all but the quietest construction activities to daytime hours unless a noise variance is acquired. No construction noise variance is being requested with the proposed project.

Instead of limiting activities to daytime hours, the City of Seattle tries to protect its citizens from undue amounts of noise by reducing the limits for noise received in residential areas by 10 dBA after 10 pm. Because both the park and the surrounding communities are zoned residential, the park activities are subject to the strictest noise limit of 55 dBA during daytime hours and 45 dBA during nighttime hours, with allowed short-term exceedances. The supplemental noise analysis conducted in response to comments on the Draft EIS indicates that noise from activities at the expanded facility would comply with these noise limits at all off-site residential locations.

The nighttime activities at the proposed sports fields would either have to meet these more stringent nighttime noise levels (i.e., an L25 of 45 dBA and an Lmax of 60 dBA) or attempt to get a variance from the City to allow for the louder activities. At the off-site residential areas (i.e., View Ridge, Windermere, Park Point), the worst-case sound levels predicted in a supplemental noise analysis would easily meet both Seattle's daytime and more stringent nighttime noise limits. At the SPCHA transitional housing in Building 224, the maximum noise limit of 60 dBA might be exceeded by adult baseball/softball games played on Fields 7 and 11 after 10 p.m. If these worst-case predictions proved to be correct and sound levels did exceed Seattle's noise limits, DPR would either have to restrict the use of these fields to hours before 10 p.m. or develop other effective means of reducing park noise to an acceptable level. Ultimately, park noise would not be permitted to exceed the Seattle noise limits.

Issue NOI 3: Treatment of impacts from construction noise

Issue: Two comments raised issues with treatment of construction noise impacts in the Draft EIS. One comment stated no mitigation for the construction noise and traffic was planned, that movement of earth into and out of the park would affect neighboring residents, and that construction noise was not adequately addressed in the Draft EIS. Another comment asserted that 10 years of construction-related noise would be an unfair burden to the community.

Applicable Comments: O2-13, I301-3, T4-2, T24-1

Response:

Contrary to comment I301-3, the Draft EIS discussed mitigation for construction noise in **Section 3.6.5**. The Draft EIS also discussed mitigation for construction traffic in **Section 3.12.6.1**. **Sections 3.6.5** and **2.2.11** both stated that barge transportation would be preferred if large quantities of fill material needed to be imported to the site; using barges instead of trucks would minimize or eliminate one significant potential source of construction noise. **Section 3.6** has been supplemented for the Final EIS, including some additional and revised material on construction noise impacts.

The question of whether construction noise over a 10-year period would be an unfair burden to the community is a subjective assessment based on individual beliefs and values. It should be noted, however, that while construction activity for the project is expected to span a total period of about 10 years, construction activity and associated noise would not be continuous or pervasive throughout that period. Large-scale construction activities would tend to be concentrated during relatively short periods of time, primarily the drier season that is preferred for earthmoving and grading. Construction activities would occur over a large area during four different phases of the project, so the locations of concentrated activity would shift during the construction period. During the 10-year period, much of the construction activity would be quite distant from any one residential area for a large portion of the construction season, resulting in much lower levels of construction noise for the majority of the time. Please refer to the revised discussion of construction noise in **Section 3.6.2** of the Final EIS.

Issue NOI 4: Adequacy of mitigation for noise impacts

Issue: Several comments criticized the mitigation measures for operational noise identified in the EIS. These comments stated either that the EIS did not address mitigation for operational noise impacts or that the measures identified were inadequate.

Applicable Comments: O12-4, O13-6, I221-5, I268-7

Response:

Section 3.6, including the discussion of mitigation for operational noise impacts in **Section 3.6.5**, has been revised and supplemented for the Final EIS. The mitigation measures that are discussed in the Final EIS are measures that appear to be feasible and that are consistent with the location and level of the impacts identified through the revised analysis.

4.2.8 Land Use (LU)

Issue LU 1: Consistency with park designation as an environmentally critical area

Issue: One comment pointed out that Magnuson Park is designated by the City of Seattle as an Environmentally Critical Area for wildlife, and said the Draft EIS did not address how the proposed action could affect this designation. This comment was also coded as a wildlife issue (WDLF 4), but is addressed primarily within the context of consistency with land use plans and policies.

Applicable Comments: O15-4

Response:

Section 3.7.2 of the Final EIS has been modified to include a discussion of the environmentally critical areas component of the City's land use plans and policies. The new material indicates the area within Sand Point Magnuson Park that has been designated as a critical area for fish and wildlife habitat and explains the regulatory provisions associated with this designation. In summary, DCLU staff would need to review permit applications for the proposed project for consistency with the critical area regulations. Based on the provisions of the program (as described in **Section 3.7.2**) and the characteristics of the proposed project, which would provide a net increase in fish and wildlife habitat function, DPR assumes the project would be consistent with the critical area designation.

4.2.9 Aesthetics (AES)

Issue AES 1: Impacts on views of the lake and Magnuson Park

Issue: Several comments raised issues relating to views from residential areas and the effects of the proposed action on those views. Most of those comments incorporated reference to the relationship between views and property values, and/or to the effects of lighted sports fields on nighttime views. One comment, for example, stated that building sports fields and erecting lamp-posts would ruin the landscape. Another asserted the lighted sports fields would decrease home values and intangible attributes for all (residents) with views of Lake Washington and Magnuson Park.

Applicable Comments: I5-1, I37-10, I37-12, I44-7, I61-1, I67-2, I281-3, I284-4, I357-3, I358-2, T12-3, T28-4, T43-1, T46-2

Response:

Section 3.8.2 of the EIS provides a detailed assessment of the locations from which views of the facilities included in the proposed action would be possible, and the characteristics of those views. Several new graphics have been added to that section for the Final EIS, depicting simulated daylight views of the project site with the addition of the proposed action. **Section 3.8** focuses on the structural characteristics of the project and the extent to which they would modify the existing landscape, and therefore is applicable primarily to daylight views. The visibility of the proposed sports field lights is addressed in detail in **Section 3.9**, which has also been revised for the EIS in response to Draft EIS review comments.

The EIS does not specifically address any potential connection between views and property values, as explained in the response to issue SEPA 6. The responses to issues L&G 1 and L&G 2 are also relevant to the comments in this category that address views in conjunction with lighting impacts.

4.2.10 Light & Glare (L&G)

Issue L&G 1: Methodology used to assess light and glare impacts

Issue: Several comment letters asserted that the methodology used to measure and calculate light, glare, sky glow, etc., is not adequate. Other comments stated that the Draft EIS failed to consider the visual perception of light, especially at night, in determining impacts.

Applicable Comments: O2-6, O2-7, O2-8, I51-2, I51-7, I121-1, I209-4, I209-15, I285-6, I317-2, T13-5, T16-4, T17-5, T25-2, T25-4, T55-1

Response:

The Final EIS (**Section 3.9**) has been revised with additional information to further address lighting impacts and the methods for assessing those impacts. The revised material includes additional information addressing in greater detail the differing light considerations, plus additional explanation of relative foot-candle values, glare types, spill light, luminance and sky glow. The area of calculated spill light has been expanded to reflect a larger area for what is considered an illuminated surface. A greater emphasis has also been placed on the amount of reflected light (luminance) associated with the synthetic turf surfaces. These impacts have been assessed and quantified in the Final EIS to the greatest degree possible, using industry standards for computer calculations and measurement techniques. The Draft EIS was correct in stating that there are no generally accepted methods for measuring glare and skyglow, and for quantifying those aspects of lighting impacts.

Issue L&G 2: Characterization or acceptability of light and glare impacts

Issue: Many comments took exception to the characterization of the light and glare impacts identified in the Draft EIS, and/or stated that the light and glare impacts to on-site and adjacent residents would not be tolerable. Some of these comments referred to the October and November lighting demonstrations, stating the light in those cases was bad enough and consisted of only three light poles where the proposed action contains 85 poles. Other comments requested that the lights for the athletic fields only be allowed until 9pm, not 11pm. Still other comments stated that not enough information is contained in the Draft EIS to determine what the impacts will truly be.

Applicable Comments: O2-5, O4-1, O5-1, O8-3, O10-4, O12-1, O12-2, O12-6, O13-4, O14-7, O16-4, O16-6, O17-2, I1-1, I5-2, I5-5, I41-3, I44-3, I61-2, I61-2, I67-3, I68-4, I68-7, I69-1, I72-2, I79-2, I79-5, I80-2, I107-1, I119-1, I121-2, I121-6, I146-2, I146-6, I148-2, I149-2, I155-3, I159-1, I166-1, I173-2, I177-1, I188-2, I193-2, I205-4, I209-6, I209-14, I215-1, I215-4, I220-3, I221-1, I221-3, I221-9, I232-3, I248-1, I253-1, I254-1, I254-3, I258-1, I259-2, I260-2, I262-1, I266-2, I266-6, I266-8, I268-3, I269-1, I273-1, I281-1, I282-1, I284-2, I285-5, I285-7, I288-3, I288-5, I292-1, I292-5, I292-9, I296-4, I297-1, I297-2, I299-1, I301-1, I307-1, I307-3, I309-3, I317-1, I333-1, I333-9, I333-15, I334-1, I342-2, I342-4, I343-3, I354-3, I356-1, I357-1, I358-1, I366-1, I367-1,

I367-2, I367-3, I373-1, T1-2, T1-4, T2-3, T4-1, T5-2, T11-6, T12-2, T13-2, T13-4, T13-7, T18-1, T19-1, T25-3, T25-5, T26-2, T28-1, T28-3, T30-1, T33-1, T34-1, T35-1, T38-2, T41-6, T42-2, T43-1, T45-2, T45-9, T46-2, T47-1, T47-3, T48-1, T48-2, T55-1

Response:

Section 3.9 has been substantially revised for the Final EIS in response to these comments. The revised material includes additional information addressing in greater detail the differing lighting considerations, plus additional explanation of relative foot-candle values, glare types, spill light, luminance and sky glow. The area of calculated spill light has been expanded to reflect a larger area for what is considered an illuminated surface. A greater emphasis has also been placed on the amount of reflected light (luminance) associated with the synthetic turf surfaces. The expected levels of impact for all specific types of lighting impacts (spill light, glare and skyglow) have been carefully reviewed and assessed relative to applicable standards (which are limited) and the context and intensity of the impacts.

The proposed lighting design for the athletic field lighting systems meets all of the current City of Seattle lighting requirements. The lighting systems are also designed with the intent of meeting the current standard practices with athletic field lighting system design implemented by the Department of Construction and Land Use to limit the environmental impacts on adjacent properties. The lighting system design also complies with the new spill lighting guidelines outlined in the Seattle Department of Parks and Recreation "Ballfield Lighting Study (WC 50)". This includes the environmental affects for spill light on the adjacent housing across Sportsfield Drive. For the purposes of lighting design, the sports field area has been addressed as though it were its own property (as opposed to part of a larger park). The associated lighting impacts would meet City spill light requirements at that property line, in this case, the eastern edge of Sportsfield Drive.

The two lighting demonstrations arranged by DPR were intended to educate and inform the public as to the what lights were being considered for the project and to solicit comments from the general public on preferred lighting systems. The public input generated as a result of the lighting demonstrations was incorporated into the lighting design, most notably through maximizing the use of full cut-off fixtures, (the largely preferred fixture) wherever possible. The lighting demonstration was also intended to simulate the impacts that the three different lighting systems could generate, if deployed on a larger scale. It was limited to three poles because a full-scale mockup would not have been practical in either physical or economic terms.

An 11 PM time limit for night sports field use was employed in the analysis to reflect current park policy, and allowed the EIS to assess the maximum impact of lighting. Restricting the hours of field lighting operation was identified in the Draft EIS as a potential mitigation measure. The final determination of the field operating schedule is a decision to be made by the City Council, based on impacts outlined in the Final EIS and other information.

Issue L&G 3: Consideration of cumulative light and glare impacts

Issue: A number of comments stated that the cumulative effects of lighting from all areas and activities that occur at Sand Point Magnuson Park should be considered when determining the impacts of light and glare on the residential and wildlife communities.

Applicable Comments: O15-28, I205-3, I209-7, I266-7, I268-8, I285-8, T11-4, T15-2, T16-2, T17-2, T39-1

Response:

As was done for all elements of the environment, **Section 3.9** of the EIS considers all appropriate actions in assessing the potential for cumulative light and glare impacts.

4.2.11 Recreation (REC)

Issue REC 1: Consideration of passive recreation uses and users

Issue: Two comments asserted that the EIS overlooks opportunities as well as impacts to passive recreation park users, i.e., those who walk, picnic, meditate, etc., in favor of those who participate in organized sports, or that the Draft EIS did not adequately consider those users. One of the comments indicated that park walkways are congested in the summer, and that passive park use numbers should be counted as a separate category.

Applicable Comments: O14-4, I334-2

Response:

Section 3.10 of the Draft EIS provided documentation of existing passive uses of the park and the project site and assessed the expected effects of the project on those uses. This section has been modified for the Final EIS to provide additional discussion of existing and proposed opportunities for passive recreation. While the proposed action includes a large complex of sports fields for active recreational pursuits, it also includes a 65-acre wetland/habitat complex that would provide excellent opportunities for passive recreation. The project also includes a variety of amenities that would facilitate and promote passive uses. The material on existing conditions (**Section 3.10.1.1**) does not report data on the numbers of passive users because those data are not available.

Issue REC 2: Scheduling and allocation of time on sports fields

Issue: A number of comments stated that residents in the surrounding neighborhoods do not want to have the park and athletic fields overscheduled so that it is impossible to use the park/fields in a spontaneous manner occasionally. Other comments asserted that once the monetary investment is made in the park, this will be justification to have the fields in constant use. This would be an impact to neighbors in that the fields would in essence be privatized for sports field users when they are supposed to be for all the public to use.

Applicable Comments: O17-6, I5-4, I41-4, I166-2, I292-4, T5-3

Response:

This issue is addressed in detail in **Section 3.10.2** of the Final EIS. In summary, scheduling of field use would be done according to City-wide policies in the future, as is presently the case for the existing fields.

Opportunities for informal, unscheduled use of fields would increase overall with the proposed action, simply by virtue of the increase in sports fields.

4.2.12 Historic & Cultural Preservation (CUL)

Issue CUL 1: Level C review and consultation for Building 15

Issue: One comment stated that the Parks Department would need to conduct a Level C Review for the proposed demolition of the Hobby Shop (Building 15) located at the corner of NE 65th Street and Sand Point Way because the building is part of the Sand Point Historic District. The comment indicated the review should include consultation with the State Historic Preservation Officer, consideration of alternative to demolition, and identification of other mitigation measures.

Applicable Comments: A9-1

Response:

This comment is generally consistent with the discussion of impacts and mitigation presented in **Section 3.11.3** of the Draft EIS. The Department of Parks and Recreation will consult with the SHPO as requested. The discussion of potential impacts to historic resources has been modified for the Final EIS to acknowledge this input concerning the significance of Building 15.

4.2.13 Transportation (TRAN)

Issue TRAN 1: Analysis of impacts to traffic outside of the park

Issue: Numerous comments raised issues related to the traffic impacts of the project on the neighborhoods near the park. Some of these comments stated that the EIS does not adequately address impacts from increased traffic associated with the proposed action, while some maintained that traffic volumes are understated. Several comments noted the projected increase in daily traffic volumes, and felt these were not consistent with the Draft EIS conclusions regarding level of service impacts. Other comments noted that several specific intersections were not included in the traffic analysis conducted for the project and should be. Still other comments asserted that traffic safety was not adequately addressed in the document.

Applicable Comments: A5-1, O2-9, O8-4, O11-1, O15-34, O17-3, I44-5, I63-1, I68-3, I72-3, I122-2, I148-1, I155-2, I176-1, I209-8, I221-7, I248-1, I253-3, I254-4, I258-1, I259-2, I260-2, I269-1, I281-2, I288-2, I296-1, I299-3, I307-4, I333-10, I334-1, I334-3, I337-1, I338-2, I343-2, I354-2, I357-2, I367-5, I373-1, T2-2, T2-5, T12-1, T15-5, T18-4, T19-2, T23-3, T24-2, T24-3, T44-6, T45-3, T46-5

Response:

In response to comments from the Seattle Transportation Department (SeaTran), PM peak-hour traffic counts were taken at the intersections of 35th Avenue NE/NE 65th Street and Sandpoint Way/NE 95th Street. Existing, no action and with-project traffic analysis was conducted for each of these intersections. The EIS has been updated to include the results of this analysis in the appropriate sections.

Traffic impacts were analyzed for the Draft EIS according to direction from DCLU. Study intersections were identified, as well as identification of pipeline projects such as Radford Court and the new Children's Hospital, background traffic growth, period of study and methodology for analysis were all done according to direction from DCLU, and applying standard engineering practices. Great effort was taken to carefully project not only the project's impacts, but also to specifically address other impacts of new occupancy and development of other portions of the park.

The project is expected generate 2260 net new *daily* trips. These trips would be distributed over the entire day and in a variety of directions on the local street network. An increase of X percent in the daily trips to/from a traffic source does not mean that traffic volumes at nearby intersections would increase by the same rate. The weekday PM peak hour is typically the hour of the day with the highest traffic volumes. This time period is studied because, by analyzing in the hour with highest over-all volumes, it is assumed that typically all other hours would operate at a better level. The Draft EIS examined the weekday PM peak for the level of service analysis. **Table 3.12-6** illustrates the traffic volume impacts for the weekday PM peak hour. Increases at the study area intersections, aside from the intersections immediately adjacent to the park, are expected to increase by 3 percent or less during the weekday PM peak hour. **Section 3.12.4.5** of the Final EIS has been updated to make this discussion more clear. The difference in existing and future "no action" traffic volumes can be derived by comparing the volumes shown in **Figure 3.12-2** with those in **Figure 3.12-3**. The percentage increase varies by intersection.

The project related traffic volumes are based on trip rate information from similar park projects in King County. The trip rates used to estimate the project traffic represent a conservative analysis. Trip rates for this project are slightly higher than trip rates in several other published studies for similar projects, and are also slightly higher than rates based on information provided by the Department of Parks and Recreation on existing and future schedules and attendance. It was conservatively assumed that all fields would be scheduled for games during the peak hour studied, but actual game schedules might vary. Additionally, arrivals would be staggered, as individuals and teams have different warm-up schedules and arrival times.

A queuing analysis was conducted for the existing, 2007 No Build and 2007 Proposed Action conditions for all the study area intersections. The results of this analysis have been added to the text of the Final EIS.

Because there would be an increase in traffic attributed to the project, there may be a commensurate increase in the potential for traffic accidents to occur. The specific numerical increase cannot be reliably quantified because some of the variables affecting accident occurrence cannot be predicted or measured; however, the overall accident rates are unlikely to change significantly, because the percentage of project traffic at study area intersections is minor. Existing safety concerns, such as those stated for traffic crossing the Burke Gilman trail or travel speeds on NE 65th Street exceeding a safe design speed for the road are not caused by the project and do not have a direct bearing on the impact analysis. The City does provide a program to assist neighborhoods with traffic calming projects. Information on this program can be found on the Internet at the following site: http://www.cityofseattle.net/td/ntcpreso.asp. Additionally, the new signal at Sand Point Way NE/NE 70th will accommodate pedestrians and bicyclists crossing Sand Point Way.

Issue TRAN 2: Analysis of impacts to traffic and circulation inside the park

Issue: A second batch of transportation-related comments addressed issues associated with transportation and circulation within Sand Point Magnuson Park. Several comments stated directly or indirectly that the EIS does not adequately address impacts to pedestrians and cyclists from increased traffic in the park associated with the proposed action. These comments reflected a general concern over pedestrian safety in relation to park vehicle traffic. One comment stated the Draft EIS did not address the effect of increased traffic on the transitional housing.

Applicable Comments: A5-2, O12-5, O13-7, I253-4

Response:

Pedestrian improvements include the addition of a sidewalk on the north side of NE 65th Street from Sandpoint Way to the boat launch and on the east side of Sportsfield Drive from NE 65th Street to the northern boundaries of the project. It also includes several new internal trails providing connection through the project and to other parts of Sand Point Magnuson Park. These new sidewalks and trails would greatly improve accommodation of pedestrians through and in the park, providing clear separation from auto traffic and connections to parking and activity centers throughout the park. Park roadways are already posted with low speed limits, which would also be posted on signage included with the roadway modifications for the proposed action.

Section 3.6.2 of the Final EIS addresses the potential noise impact of project-related traffic on residents of the SPCHA transitional housing. These residents would not be using Sportsfield Drive to access the housing area and sports field users would not be traveling on 62nd Avenue NE to access the sports fields, so there should not be significant conflicts between these traffic flows.

Issue TRAN 3: Effects on seasonal parking demands

Issue: One comment referred to a problem with parking in a residential area that appeared to be associated with sports field use. This comment was interpreted to address seasonal parking demands associated with the proposed action.

Applicable Comments: I282-3

Response:

As stated in the Draft EIS, under the proposed action the park would have adequate parking to serve all on-site demand. A parking analysis performed separately for the Parks Department considered seasonal variations in visitation as well as special events held at the park, such as the Pumpkin Push and Best of the Northwest. The proposed supply, on a park-wide basis, would be adequate to meet the peak parking demands for all events. Some special management approaches would be needed to address those large events. Park staff are developing a management program to address those needs.

Issue TRAN 4: Promotion of private vehicle use

Issue: Two comments asserted that the proposed action encourages the use of cars because no transit access or other transit improvements are proposed. One comment stated the Parks Department needs to include incentives for carpools and transit use in the proposed action, and that transit access needed to be greatly improved to support the proposed action. Another comment claimed the Draft EIS does not address public transportation issues, and suggested the Department should have selected a site better served by public transportation.

Applicable Comments: O15-35, I209-8

Response:

Public transportation services are addressed in **Section 3.12** for the proposed action, the lesser-capacity alternative, no action and existing conditions. The proposed action acknowledges the prevailing individual travel patterns and the fact that transit service to the project site is available. Metro has no plans at this time to increase bus service along Sand Point Way. It is anticipated that any increase in transit demand could be accommodated without changes to the transit system. It should be noted that much of the future sports field use would be occurring during hours of the evening and weekends when transit service is typically scaled back in response to demand patterns.

The Sand Point Magnuson Park staff have developed a Transportation Management Plan (TMP) and are working on a parking management plan, both of which would encourage car sharing, bicycling and other alternative transportation modes. Though not specifically part of the project addressed in the EIS, the TMP addresses the tenants and activities located throughout the park.

4.2.14 Public Services & Utilities (PSU)

Issue PSU 1: Effects on public safety

Issue: Several comments expressed concerns related to public safety and emergency services. Most of these comments were general statements of concern about crime and expectations of a decrease in public safety with lighted sports fields supporting late-night use. One comment indicated security was not mentioned.

Applicable Comments: O10-1, O10-5, I155-5, I176-1, I299-5, I373-1, T24-4

Response:

This issue is addressed in detail in **Section 3.13** of the Final EIS. For a variety of reasons discussed in the text, the Final EIS retains the conclusion that the proposed project would not be likely to have significant impacts on public safety or emergency services.

4.3 NON-SUBSTANTIVE COMMENTS

A large majority of the more than 450 comment records documented by the Department of Parks and Recreation conveyed the writers' or speakers' opinions about the merits of the proposal but did not address a substantive EIS issue relating to alternatives, impacts or mitigation. Many individuals expressed support for the proposed action or for specific elements of the proposal, such as lighted sports fields. Many others voiced opposition to the project, typically based on objections to the expected influence of the project on the adjacent neighborhoods.

These non-substantive comments were grouped into five issue categories that involve multiple statements of support for or opposition to some aspect of the project, or support for the comments provided by other writers or speakers. These comments are statements of opinion, values or beliefs related to the proposal, but not to a specific aspect of the Draft EIS. Because these comments do not address the substance of the EIS, it is not possible or appropriate to provide a substantive response in the Final EIS. The decision makers who will undertake final action on the proposed project may consider this input when evaluating the proposal, however.

4.3.1 Support/Opposition (S/O)

Issue S/O 1: Support for lighted sports fields

Issue: Many comments expressed the writers' support for development of the proposed sports fields at Sand Point Magnuson Park. Most of these comments specifically indicated support for lighted sports fields, and for operating the lights until 11 PM.

Applicable Comments: A1-2, A1-3, O3-1, O3-2, O9-1, O17-1, I95-1, I95-4; also Individual Comment Records I2, I3, I4, 16, I7, I8, I9, I10, I11, I13, I14, I16, I17, I18, I19, I20, I21, I22, I23, I24, I25, I26, I27, I29, I31, 132, I33, I34, I35, I38, 139, I40, I42, I43, I45, I46, I47, I49, I50, I52, I53, I54, I55, I59, I60, I62, I64, I65, I66, I70, I71, I73, I74, I75, I77, I78, I82, I83, I84, I86, I87, I88, I90, I91, I92, I93, I94, I96, I97, I98, I100, I101, I102, I108, I109, I110, I111, I112, I114, I115, I116, I117, I118, I120, I123, I124, 1125, I126, I127, I128, I129, I131, I132, I133, I134, I135, I136, I137, I138, I139, I140, I141, I142, I143, I144, I145, I147, I150, I151, I153, I154, I156, I157, I158, I160, I161, I162, I163, I164, I165, I168, I169, I170, I171, I174, I175, I178, I179, I180, I181, I182, I183, I184, I186, I187, I190, I191, I195, I198, I200, I201, I202, I203, I206, I207, I208, I210, I211, I212, I213, I216, I217, I218, I219, I222, I223, I224, I225, I226, I227, I228, I230, I233, I234, I235, I236, I237, I238, I239, I240, I241, I242, I243, I244, I245, I246, I247, I249, I250, I251, 1252, I255, I256, I257, I263, 1264, I265, I267, I270, I271, I272, I274, I275, I276, I277, I278, I279, I283, I286, I287, I289, I290, I291, I293, I294, I295, I298, I300, I303, I304, I305, I306, I310, I312, I314, I315, I318, I319, I320, I321, I322, I323, I324, I325, I326, I327, I331, 1335, I336, I339, I340, I341, I344, I345, I346, I348, I349, I350, I351, I352, I353, I355, I359, I360, I361, I362, I363, I364, I365, I368, I369, I370, I371, 1372

Issue S/O 2: Support for wetland creation/restoration

Issue: A number of comments expressed support for enhancing or creating wetlands and other habitats at the park. Some comments in this category referred to specific features such as the proposed education center.

Applicable Comments: O7-4, O11-4, O15-5, I89-2, I258-1, T8-1, T23-6, T51-3

Issue S/O 3: Support for the lesser-capacity alternative

Issue: Some comments expressed support for the lesser-capacity alternative, or indicated that it was preferable to the proposed action.

Applicable Comments: O11-2, I231-1, I373-2

Issue S/O 4: Opposition to the proposed action

Issue: Many comments expressed opposition to the project or to one or more components of the project. Most of these comments objected to the sports fields in general, or to lighted sports fields specifically.

Applicable Comments: O8-1, O16-8, O17-1, I37-1, I44-2, I61-6, I63-3, I67-1, I72-1, I119-2, I155-7, I166-3, I209-18, I215-2, I215-3, I248-1, I259-1, I260-1, I266-11, I269-1, I292-3, I301-5, I333-6, I333-14, I342-1, I343-1, I367-6, T1-1, T2-1, T11-1, T18-2, T23-9, T25-1, T26-3, T28-5, T31-4, T32-2, T35-3, T37-2, T38-3, T48-3, T49-1, T50-1, T52-1, T52-3, T54-1, T55-3, T55-4; also Individual Comment Records I15, I28, I30, I48, I57, I58, I99, I113, I192, I199, I214, I313, 1332

Issue S/O 5: Support for the no action alternative

Issue: Some comments expressed support for the no action alternative.

Applicable Comments: I122-5, I311-1, I343-4, T15-1

Chapter 5

Consultation and Coordination

5. CONSULTATION AND COORDINATION

This chapter includes information on public involvement activities and coordination with agencies and other organizations that has occurred to date in conjunction with the preparation of the Sand Point Magnuson Park Drainage System, Wetland/Habitat Complex and Sports Fields/Courts Project EIS.

5.1 PUBLIC INVOLVEMENT

Public involvement is the process by which interested and affected individuals, organizations, agencies, Indian tribes and governmental entities are consulted and included in the decision-making process. Through this process, members of the local community and other parties potentially affected by a proposed action have been given an opportunity to voice concerns, identify issues, suggest approaches to EIS analyses, and otherwise express their opinions. Formal opportunities for public involvement in the Sand Point Magnuson Park Drainage System, Wetland and Habitat Restoration, Sports Fields and Courts Project environmental review process included scoping, community meetings related to the project and other planned activities at Magnuson Park, and review of the Draft EIS.

5.1.1 EIS Scoping

As the lead agency for this proposed project, the Department of Parks and Recreation decided that before any public action (or decision) can occur relative to this proposal, the environmental impacts of the proposed project must be identified and appropriate mitigation measures identified. The Parks Department determined that this project could have a significant impact on the environment and that a detailed environmental impact statement (EIS) was needed.

The first step in the EIS preparation process is scoping. The purpose of EIS scoping is to identify issues that should be addressed in the EIS and to narrow the focus of the proposed EIS to an analysis of "probable significant environmental impacts and reasonable alternatives." The Department's Determination of Significance (decision that an EIS is required) and a supporting EIS Scoping Document were distributed to public agencies, affected tribes, organizations, and the public on August 24, 2001. The Department indicated that formal scoping comments would be accepted during a public comment period that ended September 28, 2001.

To provide additional opportunity for public comment concerning the scope of this EIS, public meetings were scheduled for September 18, 2001 from 7:30 – 9:30 a.m., with opportunity for oral comments on the EIS scope beginning at 8:30 a.m., and September 19, 2001 from 5:30 p.m. to 8:30 p.m., with opportunity for oral comments on the EIS scope beginning at 7:30 p.m. Both meetings were held in the Sand Point Magnuson Park Community Activity Center (Building 406), 7400 Sand Point Way NE. The Department of Parks and Recreation advertised the meetings in local newspapers, in the Sand Point Magnuson Park newsletter, and by direct mail invitation distributed to 15,000 households in the general vicinity of the park.

The formal scoping meetings were lightly attended. Two members of the public attended the September 18 meeting and approximately eight visited the September 19 session. Participants asked questions

during the open house and question-and-answer portions of the meetings, but none elected to make formal comments for the record at either meeting.

At the conclusion of the EIS scoping period, the Parks Department had received 14 letters in response to the scoping notice. The Department reviewed the written comments received, as well as verbal comments or questions received at the public meetings, and noted comments that addressed the range of environmental issues and alternatives to be included in this EIS. Comments received during the scoping process were used to refine the Department's identification of issues to be addressed in the EIS.

5.1.2 Community Meetings

The Sand Point Magnuson Park Division of the Department of Parks and Recreation often sponsors public meetings at Sand Point on a wide variety of Park-related topics. Some of these community meetings focus on specific projects or issues, while others are open to discussion of the full range of park programs and planned actions. The Department of Parks and Recreation held two such meetings during the course of preparing the Draft EIS that specifically addressed topics related to the proposed action.

DPR arranged a lighting demonstration related to the sports field component of the project for the evening of October 8, 2001. Interested parties were invited to an informational meeting at the Sand Point Magnuson Park Community Activity Center (Building 406), 7400 Sand Point Way NE, from 7 to 10 p.m. The meeting portion of the open house consisted primarily of a question-and-answer session in which DPR and consultant staff fielded questions concerning the lighting systems proposed for the new sports fields. Attendees at the informational meeting were given information about the lighting systems and specifically what was being shown in the demonstration. People not attending the information sessions, but who viewed the lights did not receive this background information. Informational handouts were also available at the meeting. In addition, participants were able to view outside mock-upsof the types of field lighting fixtures that were under consideration for the project (at the time of the demonstration, a specific lighting system design had not been selected). Small arrays of typical sports field floodlights were mounted on lifts at approximately 80-foot heights, to simulate the brightness and position of lighting systems that would be proposed for the project. Viewing stations were also established at three locations on the hillside to the west of Sand Point, to provide an indication of the off-site visibility of the lights. Approximately 25 people attended the meeting portion of this lighting demonstration.

DPR also sponsored an issue-specific community meeting on the wetland/habitat and sports field project on the evening of October 22, 2001. This meeting was also held at the Sand Point Magnuson Park Community Activity Center. Following a brief presentation on the proposed project, participants were invited to ask questions about any type of issue or concern they held regarding the project. Approximately 50 people registered their attendance on the sign-in sheets for this meeting. While this meeting occurred following the close of the formal EIS scoping period, the issues identified and comments presented at this meeting were used to help shape the content of the Draft EIS.

In response to the level of interest and questions at the October 8 lighting demonstration, DPR arranged a second lighting demonstration for November 28, 2001. The content and format for this meeting were essentially the same as for the earlier demonstration.

In March 2002 the Department hosted a general "Design Open House" that showcased the major projects underway or anticipated at Sand Point Magnuson Park. The open house featured the drainage, wetland/habitat and sports fields/courts project with displays tables and opportunity for the public to talk directly with the design team.

In addition to the public meetings related to this project, a project advisory team (PAT) was assembled exclusively for this project. The PAT has met monthly over the duration of the design process, as the project development warranted, on the second Tuesday of the month. PAT meetings provided the additional opportunity for team members to review and provide input about the EIS process, helping to shape the content of the Draft and Final EIS.

The Sand Point Communications Committee (SPCC) meets monthly on the fourth Wednesday of the month. This committee meets to review progress and facilitate communications between all projects and organizations affiliated with Sand Point Magnuson Park. The Drainage System, Wetland/Habitat Complex and Sports Fields/Courts Project was an agenda item for several of these meetings, again providing additional opportunities for review and comment and helping to shape the content of the Draft and Final EIS.

5.1.3 Review of the Draft EIS

Public and agency review of the Draft EIS began officially on January 3, 2002, when the Department of Parks and Recreation filed the Draft EIS with the Washington Department of Ecology. At the same time, notices that the EIS was available for review were published in the SEPA Register and in local newspapers of general circulation. The SEPA rules provide for a minimum period of 30 days for public review of a Draft EIS.

The Parks Department allowed a 56-day period, extending from January 3 through February 28, 2002 for review of the Draft EIS. The formal comment period for the Draft EIS was therefore nearly double the minimum 30-day review period provided by SEPA. Any comments on the Draft EIS submitted to the Parks Department by letter, telephone or electronic mail during this period were reviewed and considered in the preparation of the Final EIS. The Parks Department also held a public hearing on February 4, 2002, near the middle of the Draft EIS review period, to provide an additional opportunity for public comment on the contents of the Draft EIS.

Approximately 80 people attended the February 4 public hearing. Fifty-five of those in attendance provided comments on the Draft EIS in the form of verbal testimony. By the end of the comment period the Parks Department also received written or telephone input concerning the Draft EIS from approximately 400 agency, organization and individual sources. Many of those sources provided comments on multiple dates, so the actual volume of Draft EIS comment input exceeds the number of comment sources by a considerable margin. Many of the sources who provided written input also offered verbal testimony at the public hearing.

At the conclusion of the Draft EIS review period, the Parks Department reviewed the written comments received, as well as the verbal comments received at the public meetings, and incorporated that information in the preparation of a Final EIS. The Final EIS addresses the comments on the Draft EIS in two ways. Responses to issues raised by the Draft EIS comments are provided in Chapter 4 of the Final

EIS. In addition, any changes to the substance of the Draft EIS necessitated by those responses are incorporated into the Final EIS text and graphics, primarily in Chapter 3 of the document.

Distribution of the Final EIS by the Parks Department represents the conclusion of the environmental review process for this project. Under the provisions of SEPA, no action can be taken on the proposal for a minimum of 7 days following issuance of the Final EIS.

Upon completion of this environmental review, the Parks Department will ask the City Council to take the appropriate actions to give its approval of the project. At that time the Council may

1. approve the project as proposed and analyzed in the EIS, or
2. make changes to the proposed project based on the results of the environmental analysis included in the EIS or other public input, or
3. reject the proposed project and direct the Department to begin a process to develop a completely different project proposal.

5.2 AGENCY/ORGANIZATION CONSULTATION

Over the past several years the Seattle Department of Parks and Recreation has been actively engaged in gathering public and agency input on the development of Sand Point Magnuson Park. The Department has established a Sand Point Community Communication Committee with the sole purpose of providing direct dialogue among the Department, the community and park users. This committee meets monthly and provides a key method for gathering input on the proposed project as well as other projects in the park. In addition, the Department has established a project advisory team specifically for this project. It is composed of experts in wetland and habitat systems, sports field designers, and community representatives. This advisory team meets monthly and provides input specifically related to this project. The Department also hosts occasional public forums that provide additional opportunity for public and agency comment, including an annual design forum on a Saturday in March. Finally, the Department publishes a quarterly newsletter to provide information to the broader community.

Chapter 6

References

6. REFERENCES

Adams, M.J. 1999. Correlated Factors in Amphibian Declines: Exotic Species and Habitat Change in Western Washington. Journal of Wildlife Management. 63(4):1162-1171.

Adolfson Associates, Inc. 1998. Magnuson Park Wildlife Habitat Study. Seattle Audubon Society. Seattle, Washington.

AMEC Earth and Environmental, Inc. 2000. Hydrogeologic Report, Magnuson Park Wetlands, Seattle, Washington. Prepared for Jones and Jones, Architects and Landscape Architects. Kirkland, Washington. September 22, 2000.

Armstrong, Del. Personal communication. Lighting engineer, Armstrong Engineering, Seattle, Washington. April 25, 2002.

Barratt, D.G. 1997. Predation by House Cats, *Felis catus* (L.), in Canberra, Australia. I. Prey Composition and Preference. Wildlife Research. 24(3): 263-277.

Bergen, F. and M. Abs. 1997. Etho-ecological study of the singing activity of the blue tit (Parus caeruleus), great tit (Parus major) and chaffinch (Fringilla coelebs). Journal fuer Ornithologie 138(4): 451 to 467.

Bragg, J., D. Rice, H. Curl, A. Sparks, R. Rowlette, D. Paulsen and G. Hunn. 1997. The Birds of Sand Point: Spring 1997 Update. Limited copy report. Seattle, Washington.

Bragg, Janice. Volunteer and Master Birder, Seattle Audubon Society. Comments, Sand Point Magnuson Park Vegetation Management Plan. E-mail to Kevin Bergsrud, City of Seattle, November 7, 2001.

Briggs, W.R. 2002. Plant photoreceptors: proteins that perceive information vital for plant development from the light environment. In Abstracts of Ecological Consequences of Artificial Night Lighting, February 23-24, 2002, Los Angeles, CA. Online: [http://www.urbanwildlands.org/abstracts.html]

Brookshire, Jennifer. Personal communication. GIS Specialist, Washington Department of Fish and Wildlife, Olympia, WA. April 25, 2002.

Brown, H.A., R.B. Bury, D.M. Darda, L.V. Diller, C.R. Peterson and R.M. Storm. 1995. Reptiles of Washington and Oregon. Seattle Audubon Society, Seattle, WA.

Brown, S.C. and C.R. Smith. 1998. Breeding Season Bird Use of Recently Restored Versus Natural Wetlands in New York. Journal of Wildlife Management. 62(4): 1480-1491.

Bruderer, B., D. Peter and T. Steuri. 1999. Behaviour of Migrating Birds Exposed to X-band Radar and a Bright Light Beam. Journal of Experimental Biology. 202(9): 1015-1022.

Center for Watershed Protection. 2001. "Simple Method," from organization website www.stormwatercenter.net.

City of Bellevue. 2001. Information from City website, www.ci.bellevue.wa.us/utilities/shorezone/conclusions.htm.

City of Seattle. 2001. Title 22.800, Stormwater, Grading, and Drainage Control Code, Stormwater Treatment Technical Requirements Manual. City of Seattle, Department of Engineering. Seattle, Washington.

City of Seattle. 2000a. Construction Stormwater Control Technical Requirements Manual. City of Seattle, Department of Engineering. Seattle, Washington. July 2000.

City of Seattle. 2000b. Comprehensive Plan, Toward a Sustainable Seattle. City of Seattle, Strategic Planning Office. Seattle, Washington.

City of Seattle. 1998. Sand Point Construction Management Plan. City of Seattle, Office of Sand Point Operations. Seattle, Washington.

City of Seattle. 1997. Sand Point Physical Development Management Plan. City of Seattle, Office of Management and Planning. Seattle, Washington. May 1997.

City of Seattle. 1996. Sand Point Reuse Project Final Environmental Impact Statement. City of Seattle, Office of Management and Planning. Seattle, Washington. October 23, 1996.

Corkran, C.C. and C. Thoms. 1996. Amphibians of Oregon, Washington and British Columbia. Lone Pine Press, Redmond, WA.

Curl, Herbert. Volunteer, Seattle Audubon Society. Personal communication, November 9, 2001.

DeMaynadier, Philip G. Personal communication. Wildlife Biologist, Endangered Species Group, Maine Department of Inland Fisheries and Wildlife. Bangor, ME. April 26, 2002.

DeMaynadier, P.G. and M.L. Hunter, Jr. Undated. Road Effects on Amphibian Movements in a Forested Landscape. Maryland Alliance for Greenway Improvement and Conservation. Online: [http://www.magicalliance.org/Fragmentation/road_effects_on_amphibian_moveme.htm]

Donovan, T.M., I. Frank R. Thompson, J. Faaborg and J.R. Probst. 1995. Reproductive Success of Migratory Birds in Habitat Sources and Sinks. Conservation Biology. 9(6): 1380-1395.

EDAW, Inc. 1998. Final Sand Point Historic Properties Reuse and Protection Plan. Prepared for the City of Seattle, Office of Sand Point Operations and the University of Washington, Director of Real Estate. Seattle, Washington. April 1998.

Edwards, D.G.W. and Y.A. El-Kassaby. 1996. The effect of stratification and artificial light on the germination of mountain hemlock seeds. Seed Science and Technology, 24(2): 225-235.

Frank, K.D. 2002. Impact of artificial lighting on moths. In Abstracts of Ecological Consequences of Artificial Night Lighting, February 23-24, 2002, Los Angeles, CA. Online: [http://www.urbanwildlands.org/abstracts.html]

Fresh, K. 2001. Lake Washington Subarea, in Draft Reconnaissance Assessment - Factors that Contribute to the Decline of Salmonids. Greater Lake Washington Technical Committee. Seattle, Washington.

Frey, J.K. 1993. Nocturnal Foraging by Scissor-tailed Flycatchers under Artificial Light. Western Birds. 24(3): 200.

Gauthreaux, S.A., Jr. and C.G. Belser. 2002. The behavioral responses of migrating birds to different lighting systems on tall towers. In Abstracts of Ecological Consequences of Artificial Night Lighting, February 23-24, 2002, Los Angeles, CA. Online: [http://www.urbanwildlands.org/abstracts.html]

Goertz, J.W., A.S. Morris and M.M. Stephen. 1980. Ruby-throated Hummingbirds Feed at Night with the Aid of Artificial Light. Wilson Bulletin. 92(3): 398-399.

Harder, B. 2002. Deprived of Darkness: The unnatural ecology of artificial light at night. Science News, April 20, 2002, 161(16). Online: [http://www.sciencenews.org/20020420/bob9.asp].

Health Council of the Netherlands. 2000. Impact of outdoor lighting on man and natures. The Hague: Health Council of the Netherlands. Publication No. 2000/25E. Online: [http://www.gr.nl/OVERIG/PDF/00@25E.pdf].

Hitchcock, C.L. and A. Cronquist. 1973. *Flora of the Pacific Northwest*. University of Washington Press. 730 pp.

Illuminating Engineering Society of North America (IESNA). 1999. IESNA Lighting Handbook. 8th edition.

Imber, M.J. 1975. Behaviour of Petrels in Relation to the Moon and Artificial Lights. Notornis, 22 (4): 302-306. Dec. 1975. WR 162 ISSN: 0029-4470. 22(4): 302-306.

Jackson, Philip L. and A. Jon Kimerling. 1993. Atlas of the Pacific Northwest. Oregon State University Press. Corvallis, Oregon.

Jones and Jones. 1975. Sand Point Park Master Plan. Prepared for the Seattle Department of Parks and Recreation. Seattle, Washington.

King County Department of Natural Resources. 1998. Surface Water Design Manual. Seattle, Washington.

Kurko, K. 2001. Seattle's Aquatic Environments: Lake Washington.

Larrison, E.J. 1976. Mammals of the Northwest: Washington, Oregon, Idaho and British Columbia. Seattle Audubon Society, Seattle, WA.

Li, K. 1998. The Lake Washington Story. King County Metro website, http://dnr.metrock.gov/wlr/waterres/lakes/ biolake.htm.

Longcore, T. and C. Rich. 2001. A Review of the Ecological Effects of Road Reconfiguration and Expansion on Coastal Wetland Ecosystems. The Urban Wildlands Group, Inc., Los Angeles, CA.

McGowan Broz Engineers/DMD. 2001. Ballfield Lighting Study. Prepared for the Seattle Department of Parks and Recreation. Seattle, Washington.

Mesure, Michael. Personal communication. Executive Director, Fatal Light Awareness Program. Toronto, Canada. April 23, 2002.

Molenaar, J.G., D.A. Jonkers, and M.E. Sanders. 2000. Road Illumination and Nature III. Local influence of road lights on a black-tailed godwit *Limosa l. limosa* population. Alterra, Green World Research. Wageningen, Netherlands. Online: [http://www.minvenw.nl/rws/dww/uitgaven/grutto/grutto_en.pdf].

Moore, Marianne V. Personal communication. Biologist, Department of Biological Sciences and Nuclear Magnetic Resonance Center, Wellesley College, Wellesley, Massachusetts. April 25, 2002.

Moore, M.V., S.M. Pierce, H.M. Walsh, S.K. Kvalvik, and J.D. Lim. 2000. Urban light pollution alters the diel vertical migration of Daphnia. Verh. Internat. Verein. Limnol. [Proceedings of the International Society for Theoretical and Applied Limnology] 7:779-782.

National Park Service. 2001. Denali National Park and Preserve: Denali Dispatch Special Edition: Backcountry Management Plan Update. Online: [http://www.nps.gov/dena/home/plans/bmpindex.htm]

Negro, J.J., J. Bustamante, C. Melguizo, J.L. Ruiz and J.M. Grande. 2000. Noctural Activity of Lesser Kestrels under Artificial Lighting Conditions in Seville, Spain. Journal of Raptor Research. 34(4): 327-329.

Ostergaard, E.C. 2001. Pond-breeding Amphibian Use of Stormwater Ponds in King County, Washington. M.S. Thesis, College of Forest Resources, University of Washington, Seattle, WA.

Parsons Brinkerhoff. 1997. Houghton Field Expansion Traffic Impact Study.

Reed, B.B. 1978. Bittern Apparently Feeding at Night by Artificial Light. British Birds. 71(9): 416.

Reihle, T.L., R.T. A. and C.C. D. 1998. Bat Foraging Frequency Around Two Different Types of Artificial Light Sources. Missouri Academy of Science, Transactions. 32: 117-118.

Richter, K.O. and E.C. Ostergaard. 1999. King County Wetland-breeding Amphibian Monitoring Program: 1993-1997 Summary Report. King County Department of Natural Resources, Water and Land Resources Division. Seattle, WA.

Ross, Helen. Conservation Coordinator, Seattle Audubon Society. Personal Communication, November 7, 2001.

Rydell, J. 1992. Exploitation of Insects Around Streetlamps by Bats in Sweden. Functional Ecology. 6(6): 744-750.

Rydell, J. and P.A. Racey. 1995. Street Lamps and the Feeding Ecology of Insectivorous Bats. Symposia of the Zoological Society of London.

Sand Point Environmental Stewardship Committee and Seattle Audubon Society. 1997. Magnuson Park Habitats Project: Survey of Existing Conditions. Seattle Audubon Society and City of Seattle Dept. of Neighborhoods. Seattle, WA.

Sand Point Magnuson Park Division. 2002. Seattle Parks and Recreation Athletic Field Scheduling, Ballfield Report for 4/15/2002 thru 6/30/2002. Unpublished. Seattle Department of Parks and Recreation, Sand Point Magnuson Park Division, Seattle, Washington.

Schueler, T. 1987. Controlling Urban Runoff.

Seattle City Light. 2001. Electrical utility information from Seattle City Light website, http://www.ci.seattle.wa.us/light/aboutus/customerguide/power.pdf)/

Seattle Department of Parks and Recreation. 2002. 2002 Athletic Fields Development Program: A Joint Program of the Seattle Department of Parks and Recreation and Seattle Public Schools. Draft, April 25, 2002. Seattle, Washington.

Seattle Department of Parks and Recreation. 2001a. 2001-2002 Joint Athletic Fields Development Program. Public Comment Draft, August 25, 2001. Seattle, Washington.

Seattle Department of Parks and Recreation. 2001b. Sand Point Magnuson Park Vegetation Management Plan. December, 2001. Seattle, Washington.

Seattle Department of Parks and Recreation. 2000. Seattle Parks and Recreation Plan 2000. Seattle, Washington.

Seattle Department of Parks and Recreation. 1999. Sand Point Magnuson Park Concept Design. Seattle, Washington.

Seattle Department of Parks and Recreation. 1993. Seattle Parks and Recreation COMPLAN. Seattle, Washington.

Suter, A.H. 1991. Noise and Its Effects. Administrative Conference of the United States.

The Berger Partnership. 2001. Program Design Narrative, Sand Point Magnuson Park Drainage System, Wetland and Habitat Restoration, Sports Fields and Courts Project. Prepared for the City of Seattle, Department of Parks and Recreation. November 2001. Unpublished.

The Transpo Group, Inc. 1997. Transportation Analysis of Cromwell Park Ballfield. Kirkland, Washington.

Toft, J. 2001. Shoreline and Dock Modifications in Lake Washington. Preliminary Draft. Prepared for King County Department of Natural Resources by Wetland Ecosystem Team, University of Washington.

Tryjanowski, P. and G. Lorek. 1998. Common Kestrels and Great Grey Shrike Hunting Insects by Artificial Light. British Birds. 91(8): 327.

Urban Wildlands Group and UCLA Institute of the Environment. 2002. Conference Proceedings: Ecological Consequences of Artificial Night Lighting. UCLA, February 23-24, 2002. Los Angeles, CA. Online: [http://www.urbanwildlands.org/abstracts.html]

U.S. Department of the Interior. 1990. Standards and Guidelines for Historic Preservation Projects. Washington, D.C.

U.S. Geological Survey. 1968. Seattle North, Washington 1:24,000-scale topographic map. Us. Department of the Interior, Geological Survey.

Washington Department of Ecology. 2001. Stormwater Manual for Western Washington. Lacey, Washington.

Washington Department of Ecology. 2000. Department of Ecology Decision Matrix for Surface Waters Listed Under Section 303(d) of the Federal Clean Water Act. Lacey, Washington.

Washington Department of Natural Resources and Spokane District, Bureau of Land Management. 2000. Field Guide to Washington's Rare Plants. Washington Department of Natural Resources, Olympia. WA.

Western Regional Climate Center. 2001. "Seattle Sand PT WSFO, Washington (457470) Period of Record Monthly Climate Summary," from organization website www.wrcc.dri.edu.

Wise, Sharon. Personal communication. Biologist, Utica College of Sycamore University. April 23, 2002.

Worthy and Associates. 1988. Magnuson Park Master Plan. Prepared for the City of Seattle, Department of Parks and Recreation. Seattle, Washington. October 1988.

Wydoski, R.S. and R.R. Whitney. 1979. Inland Fishes of Washington. University of Washington Press. Seattle, Washington.

Chapter 7

Distribution List

7. DISTRIBUTION LIST

Federal Agencies

Environmental Protection Agency
National Archives and Records Administration-Pacific Alaska Region
National Park Service, Seattle Support Office
National Marine Fisheries Service
National Oceanic and Atmospheric Administration
US Advisory Council on Historic Preservation
US Army Corps of Engineers, Seattle District
US Bureau of Indian Affairs
US Department of Defense, Office of Economic Adjustment
US Department of Education
US Department of Housing and Urban Development
US Fish and Wildlife Service
US Geological Survey-Western Fisheries Research Center
US Navy, Engineering Field Activity Northwest

Indian Tribes

Duwamish Tribal Office
Muckleshoot Indian Tribe
Suquamish Tribe
United Indians of All Tribes

State Agencies

Department of Community, Trade and Economic Development- Office of Archaeology and Historic Preservation
Department of Community, Trade and Economic Development-GMA Division
Department of Ecology, Environmental Review Section
Department of Ecology, Northwest Regional Office
Department of Fish and Wildlife
Department of Fishand Wildlife, SEPA Coordinator, Habitat Management Division
Governor's Office of Indian Affairs
Office of the Governor

Department of General Administration-Division of Property Management
Department of Health
Department of Natural Resources, SEPA Center
Department of Social and Health Services

Department of Transportation, Planning Division
State Parks and Recreation Commission
State Parks and Recreation Commission, Resource Development Division

Regional Agencies

Puget Sound Clean Air Agency
Puget Sound Regional Council
Puget Sound Regional Transit Authority (Sound Transit)
Puget Sound Water Quality Action Team

Local Government Agencies

King County Department of Development and Environmental Services
King County Department of Metropolitan Services
King County Department of Natural Resources, Environmental Planning
King County Department of Parks and Recreation
King County Department of Parks and Recreation, Active Sports and Youth Recreation Commission
King County Landmarks and Heritage Program
King County Metro, Transit Division, SEPA Responsible Official
King County Metro, Wastewater Treatment Division
City of Kirkland Parks and Community Services
City of Kirkland Planning and Community Development
City of Seattle City Council
City of Seattle Department of Design, Construction and Land Use
City of Seattle Department of Finance, Risk Manager
City of Seattle Department of Human Services
City of Seattle Department of Neighborhoods
City of Seattle Department of Parks and Recreation
City of Seattle Department of Parks and Recreation, Planning Section
City of Seattle Fire Department
City of Seattle Land Use Information Service
City of Seattle Law Department
City of Seattle Office of Housing
City of Seattle Office of Intergovernmental Relations
City of Seattle Office of the Mayor
City of Seattle Office of Sustainability and Environment
City of Seattle Planning Commission
City of Seattle Police Department
City of Seattle-SEPA Information Center
City of Seattle Solid Waste Utility
City of Seattle Strategic Planning Office

Seattle City Light, Environmental Affairs Division
Seattle Design Commission
Seattle Housing Authority
Seattle Public Utilities, Environmental Management Division
Seattle Public Schools
SEATRAN (City of Seattle Department of Transportation)

Libraries

Seattle Public Library, Central Library
Seattle Public Library, Documents Department
Seattle Public Library, Governmental Research Assistance Library
Seattle Public Library, Montlake Branch
Seattle Public Library, Northeast Branch
Seattle Public Library, University Branch
University of Washington Architecture and Urban Planning Library
University of Washington, Suzallo and Allen Libraries

Newspapers

Seattle Daily Journal of Commerce
Seattle Post Intelligencer
Seattle Times
UW Daily

Organizations

Audubon Washington
Allied Arts of Seattle
Children's Hospital, Suzanne Peterson
Citizens for Wildlife and Neighborhoods
East Lake Washington Audubon Society
Environmental Management, Port of Seattle
Friends of Athletic Fields
Friends of Youth
Hawthorne Hills Community Council
Jet City Maven
Laurelhurst Advisory Council
Laurelhurst Community Club
League of Women Voters of Seattle
Low Income Housing Institute
Magnuson Environmental Stewardship Alliance

Northeast District Council
North Seattle Community College
Northwest Boardsailing Association
Northwest Montessori School
Northwest Puppet Center
Northwest Child
Northwest Ultimate Association
Park Point Condominium Association
Pottery Northwest
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Sand Point Arts and Cultural Exchange
Sand Point Community Housing Association
Sand Point Community Liaison Committee
Sand Point Boating Center
Sand Point Education Center-North Seattle Community College
Sandpointer Condominiums
Seattle Audubon Society
Seattle Conservation Corp
Seattle Indian Center
Seattle Residents for Fair Field Lighting
Seattle Sports Advisory Council
Seventy - O - One Condominium Association
Thornton Creek Project
University of Washington, Theresa Doherty
University Adult Day Care Center
View Ridge Community Club
Washington Water Trails Association
Wedgwood Community Council
Windermere North Community Association
Youth Care