Beaver Lake Park

Master Plan

City of Sammamish Washington

February 2010

ACKNOWLEDGEMENTS

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TABLE OF CONTENTS

1.0 EXECUTIVE SUMMARY

Beaver Lake Park is an 83.36-acre park located in the southeast section of the City at the intersection of SE 24th Street and 244th Avenue SE. The park was transferred to the City of Sammamish from King County in January 2003. While the park primarily serves the Sammamish Community, it continues to serve a regional use particularly for fishing. This park has become a favorite destination for celebrating special events, outdoor recreation, nature walks and more.

The park currently contains a large pavilion and lodge with public restrooms, activity meadows, the City's park maintenance facility, and approximately 1,900 lineal feet of shoreline on the Lakeside of the park. The existing lodge (though significantly altered) and a lone chimney relic demark the one-time fishing resort and subsequent youth camp (Camp Cabrini) that once existed on the shores of Beaver Lake. The Westside of the park includes three natural turf baseball fields, an off-leash area, a picnic shelter, a play structure and restrooms. These two areas are separated by a forested area in the middle of the park with a network of trails.

There are approximately 54 acres of the park that exist within a contiguous, heavily wooded stand of mature trees and a network of trails. Running east to west from the lake through the heart of the park is Laughing Jacobs Creek. Three easements encumber the park. These include the 150-foot Bonneville Power and Puget Sound Energy easement, and 75-foot Williams Gasline easement that run in a north-south direction; and a 15-foot-wide sewer easement that runs in an east-west direction through the park.

Over the past few years, incremental improvements have been made at the park on an as needed basis. The master plan is the City's first attempt to look at potential improvements to this park in a comprehensive manner utilizing a process that involved the entire community. The City's Model Master Plan Process was conducted from March 2009 to December 2009 to arrive at a preferred alternative for the master plan for Beaver Lake Park. Community input was obtained through a web-based community survey, two stake-holder meetings and four public meetings. Check-in meetings were also held with the Parks Commission and the City Council at each stage of the process. A SEPA review of the master plan was completed and a determination of non-significance was issued in April 2010. The master plan for Beaver Lake Park was adopted by Council at a Regular Meeting held on July 20, 2010.

The objective of this master plan is to build on the success of the existing park and to look to the future to identify how the park can best serve the city and its residents for decades to come. This master plan intends to provide a long-term vision that ensures all future improvements will work to create a park with better functionality, increased recreational and social opportunities, and ecological benefits.

2.0 PROJECT BACKGROUND

2.1 Introduction

A total of $125,000 was allocated in the Capital Improvement Plan (CIP) Budget to fund a site reconnaissance and completion of a master plan for Beaver Lake Park. In November 2008 a Request for Proposals (RFP) was published for landscape architectural services for Beaver Lake Park. Fourteen landscape architecture firms responded to the RFP. The proposal review team scored the proposals based on criteria outlined in the RFP. Three firms with the highest scores were invited for interviews. The Berger Partnership was selected for the project.

2.2 Project Goals

The goals of this long-range master plan are to:

- **Improve Park Arrival:** Whether by foot, bike or car, the arrival at the park is not the quality of experience befitting such a great park. The arrival can be improved not only at the two main entries, but at the corner of SE 24th Street and 244th Avenue SE as well, to mark the arrival at the park and to direct users to their destination. Street frontage improvements are a significant goal of the overall plan to increase visibility, accessibility and the safety of park visitors.

- **Weave Three Parks Into One:** An important element to the success of the park is to improve park connectivity. While the majority of the existing pedestrian network works well, there are portions both within the park and leading to it that are either incomplete or indirect. Completing trail loops or providing more direct routes will result in a safer, more enjoyable park experience. Additionally, incorporating site elements throughout the park that have a common aesthetic (such as the timbers and river rock seen at the Lodge and Pavilion) will help create a more cohesive, improved park identity and experience.

- **Maintain the Character:** Beaver Lake Park is a much-loved park, and improvements proposed in the master plan should work toward maintaining the park's existing character. The goal is to respond creatively to current park uses and facilities while anticipating future needs of a growing population.

- **Embrace Natural Systems:** Improvements to the park should seek to protect and enhance natural systems in the park. These natural systems include forested areas throughout the park, wetlands, creeks, and shorelines. A leading component of this principle is to improve ecological function with formalized beach access and shoreline restoration. Additionally, new areas of vegetation can weave existing stream, wetland, and beach habitats within the park together, improving both aesthetic and habitat function.

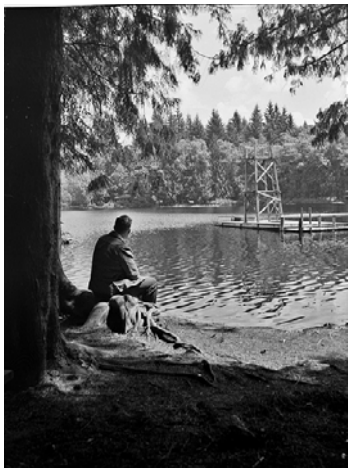
- **Manage Stormwater Effectively:** Stormwater is an important component to the natural function of Beaver Lake Park. How water is managed and treated affects the quality of the habitats both within and around the park. A guiding principle for the development of this plan is to weave stormwater systems into the park in a manner that contributes to both the human experience and ecological benefit.

- **Manage Vegetation:** Significant stands of vegetation should be preserved and enhanced as important habitat areas. Where needed, vegetation and habitat can be improved over time by under-planting native species, removing dead or diseased trees, and removing invasives.

2.3 Site Description and Location

Beaver Lake Park is an 83.36-acre community park in the southeastern section of the City. The eastern edge of the park contains approximately 1900 lineal feet of shoreline along Long and Beaver Lakes. Residential property and undeveloped parcels are located north, south, and west of the park. Two separate and distinct entrances off SE 24th Street and 244th Avenue SE serve for access to the park.

2.4 Site History



The Bratnober Lumber Company and Weyerhauser Timber Company originally owned and cleared much of the land surrounding Beaver Lake. The original park site was purchased from the Weyerhauser Timber Company by Gus and Lulu Bartel in the 1930s to build the Four Seasons Resort. It was later sold and renamed Andy's Beaver Lake Resort. Today, the Beaver Lake Lodge remains as what was the resort's clubhouse. The Catholic Archdiocese of Seattle purchased the resort in the 1960s for use as a youth camp. Camp Cabrini was later purchased in 1985 by King County for use as a park. King County transferred ownership of Beaver Lake Park to the City of Sammamish in 2003.

The existing lodge, though significantly altered, and a lone chimney relic demark the one-time fishing resort (1932-1960) and subsequent youth camp (Camp Cabrini, 1960-1985) that once existed at this site. Camp Cabrini is listed in King County's Historic Resource Inventory (HRI# 1134) but it is considered too altered to retain historic significance—the cabins have been demolished and the lodge changed significantly over the years. It is therefore not eligible for landmark or other historic designation.

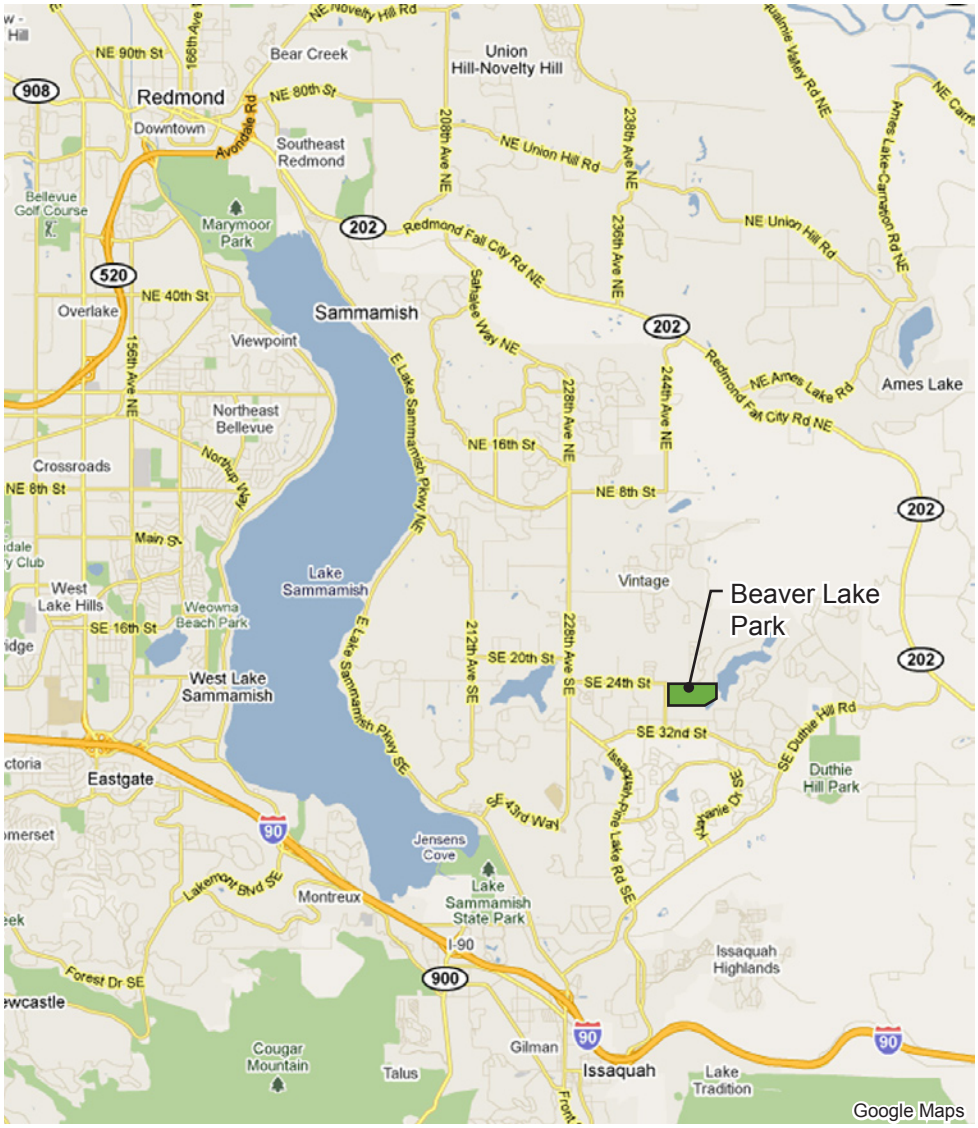
3.0 THE PLANNING PROCESS

3.1 Inventory & Analysis

The first phase, an inventory and analysis, assessed the physical conditions of the site, as well as its existing uses. Information was gathered by first hand observation and a site review with shoreline and wetland ecologists and civil engineers. A shoreline, stream and wetland critical areas reconnaissance was completed as part of this phase. Stakeholder and early-input meetings were conducted with the public, the Parks Commission and City Council.

Site Context

Beaver Lake Park is situated along the shores of Beaver Lake in the southeast section of the City. It is located nearby other park resources such as the City's Beaver Lake Preserve, Cascade Land Conservancy's Hazel Wolf Wetlands and King County's Soaring Eagle Park. Together they serve to deliver active and passive recreational facilities while preserving habitat and natural features that have drawn residents to the area. Currently zoned Urban Residential (R-4), the park is surrounded by single-family homes. The comprehensive plan designation of the site is Public/Institutional.



Site Features

The park site consists of an east and west side, with a forested area in between the two. The east side includes a large pavilion and lodge with public restrooms, activity meadows, an 85-stall parking lot, City park maintenance facilities and approximately 1,900 lineal feet of shoreline. Utilities available on the park's east side include water, electricity and gas lines. The lodge, restroom and maintenance facility utilize septic with drain fields located west of the maintenance building.

The west side of the park includes three natural turf baseball fields, a parking lot with 125 parking stalls, an off-leash area, picnic shelter, play structure and restrooms. Utilities available on the park's west side include water, electricity and gas lines. The restroom building utilizes septic with a drain field located south of the building. The west side is also encumbered by two easements: the 150-foot Bonneville Power and Puget Sound Energy easement, running in a north-south direction over the off-leash area, and the 75-foot Williams Gasline easement, running north-south along the western edge of the park.

These two areas are separated by a forested area in the middle of the park. This 40-acre area contains a heavily wooded stand of mature trees, sensitive areas and a network of trails. Running east to west from the lake through the heart of the park is Laughing Jacobs Creek. A 15-foot-wide sewer easement runs east-west through this wooded area.

Topography

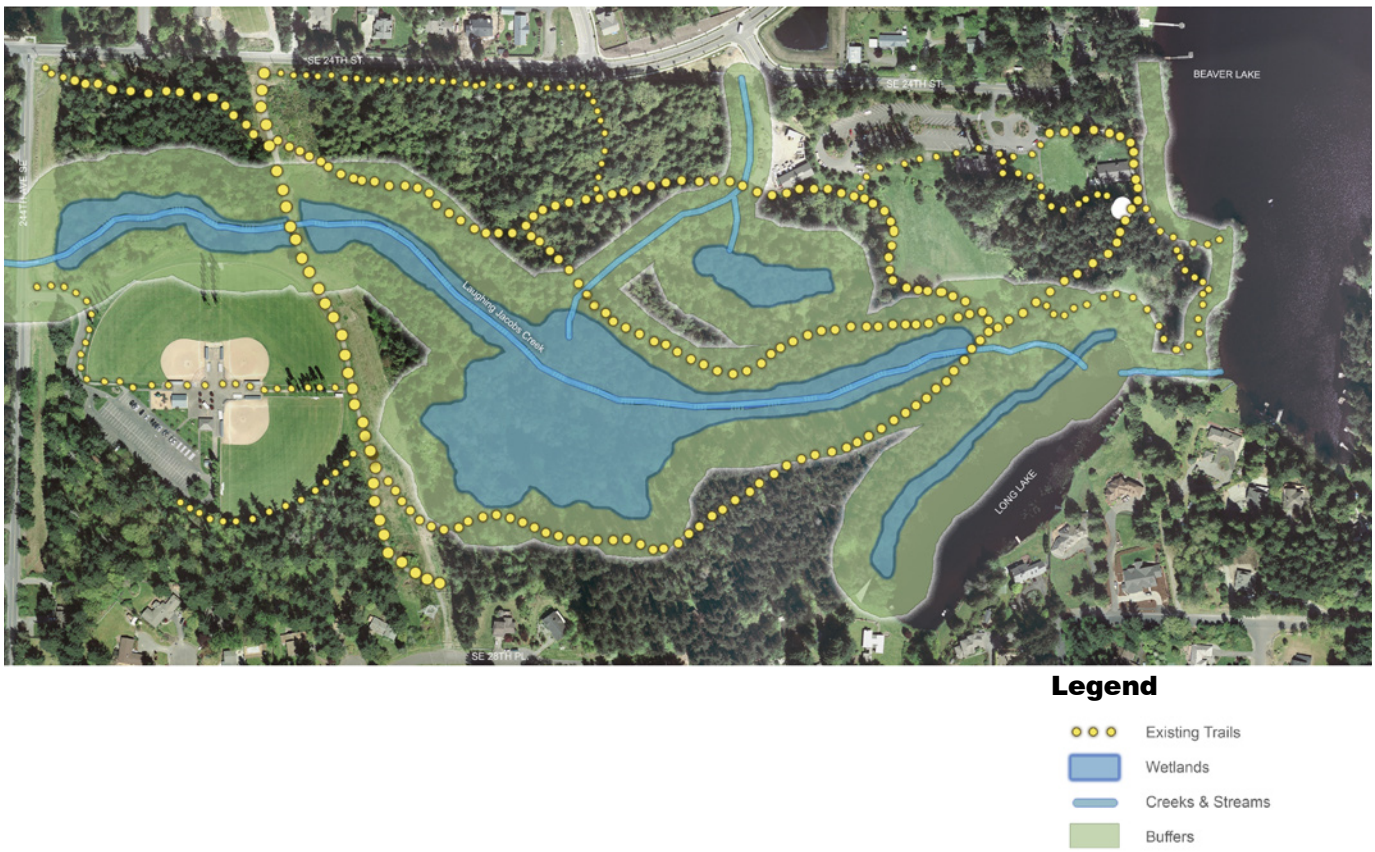
The project site is generally rolling. There is a series of man-made cuts to accommodate existing parking areas, as well as fill slopes as a result of the adjacent 244th Ave SE. These cut and fill slopes account for the steepest slopes on the site and range from approximately 33% to 50%. The site's natural slopes reach their steepest in more undeveloped, wooded areas and are approximately 25%.

A topographic survey was not included in the scope of the master plan work. It is important to note that proposed design improvements are based on GIS data and aerial photography and are complete to a degree of detail appropriate to these sources.

Sensitive Areas

Key environmental considerations identified through the inventory and analysis include significant habitat and buffers along Beaver Lake, Long Lake, Laughing Jacobs Creek, as well as additional tributary creeks and wetlands. A shoreline buffer of 50 feet is required along the shorelines of Beaver Lake and Long Lake. Laughing Jacobs Creek entails a 150-foot creek buffer while the two tributaries are subject to 50-foot buffers. The wetlands are classified as Category II wetlands with 100-foot buffers. Further analysis of critical areas (streams, shoreline, wildlife assessment, and associated regulations summary) and civil considerations (stormwater management, sanitary sewer, and water supply) have been documented in the following memoranda included in the appendix of this document:

- Beaver Lake Park Wetland and Stream Critical Areas Reconnaissance. Anchor QEA, LLC, 9/1/09
- Civil Engineering Reconnaissance. Magnusson Klemencic Associates, 4/15/09



Access & Circulation

Access to the park exists from both SE 24th Street as well as 244th Avenue SE. The parking lot on the east side has 85 parking stalls while the parking lot on the west side has 125 parking stalls. During peak use, parking falls short particularly at the east side. The park edges on both streets lack sidewalks. Improved pedestrian access on both SE 24th Street and 244th Avenue SE was a priority for a majority of attendees at the early input meetings. The corner of both streets does not identify the park; some form of way-finding signage is suggested to mark the arrival at the park. Finally, the existing network of trails is well used but is missing segments needed to complete an internal walking loop within the park.

3.2 Public Involvement

The preferred alternative for Beaver Lake Park Master Plan was arrived at following nearly a year of public process, development and refinement of a variety of concepts. The City's Model Master Plan Process was conducted from March 2009 to December 2009. Community input was obtained through a web-based community survey, two stakeholder meetings and four public meetings. Check-in meetings were also held with the Parks Commission and the City Council at each stage of the process. A project web page kept everyone updated on the master plan process and informed them of upcoming meetings. A SEPA review of the master plan was completed and a determination of non-significance was issued in April 2010.

Inventory & Analysis

- Web Survey
- City Council Meeting: Early Input
- Park Commission Meeting: Early Input
- Stakeholders Meeting #1: Active/Programmed Recreation & Off-Leash Area (OLA) Early Input
- Stakeholders Meeting #2: Environmental and Passive Recreation Early Input

Park Programming

- Public Meeting #1: Early Input/Park Programming Charrette

Master Plan Development

- Public Meeting #2: Master Plan Alternatives
- City Council & Park Commission Meeting #2: Design Alternatives
- Public Meeting #3: Presentation of Shoreline, Wetland and Sports Field Issues
- Public Meeting #4: Preferred Alternative
- Parks Commission Meeting #3: Preferred Alternative
- City Council Meeting #3: Preferred Alternative

3.3 Park Programming

With the inventory and analysis complete, the first public meeting was held to begin park programming. This meeting (Public Meeting #1) was a charrette-style meeting to give community members the opportunity to work together in a hands-on manner and develop ideas for the park. The information and ideas from this meeting influenced the next phase of design: Master Plan Development. Minutes of the meeting are included in the appendix.

3.4 Master Plan Alternatives

Master Plan Development began with three preliminary master plan alternatives for the site, which were presented to the public (Public Meeting #2), City Council and Park Commission for review and comment. These schemes, identified as B, L and P, are described below. Attendees were welcome to pick elements that they liked from each scheme and did not have to vote on any one scheme in totality. In other words, a mix and match of the three concepts was acceptable.

Each scheme is described in three parts. The area east of the existing maintenance building is covered under the *'Lakeside,'* the central wooded area with trails is covered under the *'Woods,'* and the power easement and section of the park west of this easement fall under the *'Westside.'*

Park Areas

Scheme B

Formalized arcs and spaces characterize the proposed development for the lakeside. Proposed improvements include a large swimming beach with a floating swim dock, beachside restroom, fishing pier at "The Point", children's play area, natural grass bermed amphitheater at the lakeside meadow, large covered plaza on south side of the existing lodge building and stormwater improvements to the central meadow, including raingardens. Improvements to vehicular access and parking include the removal of the roundabout, and 55 additional parking stalls in the existing lot. Future access through the maintenance facility with parking on SE 24th Street is anticipated when the City's Public Works Department completes the connectivity project linking 251st Avenue SE to West Beaver Lake Drive SE.

Minimal improvements to the woods include a wetland prow along the southern trail and a couple of intermediate connections on the trail loop. A sidewalk is proposed for the right-of-way improvements on SE 24th Street.

Field development proposed in this scheme has the least impact of the three schemes. The layout has two sets of multi-use fields:

1. Baseball (300' Outfield/ 90' Baseline) with a Soccer Field overlay (180'X300')
2. Two Softball Fields (200' Outfield/ 60' Baseline) with a Soccer Field overlay (180'X300')

Within the power line easement, the off-leash area will remain at the current location with drought-tolerant wildflower plantings along the rest of the easement. A pedestrian path is proposed along the gas line easement parallel to 244th Avenue SE. Maximum support was received for the keeping the fields within the existing footprint and for keeping the dog-park at its existing location.

Master Plan Alternative Schemes
Scheme B

Scheme L

The shoreline development for Scheme L proposes a medium-sized beach with an upper sand area/ volleyball court and no swimming dock or fishing pier. Other improvements include restrooms south of the pavilion and a children's play area adjacent to the volleyball court, just north of the pavilion. The parking lot roundabout is preserved in this scheme with improved circulation, and one bay of parking is added for an additional 50 stalls. The extension of the lodge to the south is less extensive with a gathering area but no additional shelter.

Moderate improvements to the woods include surface improvements to the main east-west trail, a canopy walk (elevated trail), and interpretive trail loops. The existing meandering walk on SE 24th Street will be widened for improved east west connection.

Field development proposed has a moderate impact. The layout has multi-use fields composed of:

1. Baseball (300' Outfield/ 90' Baseline)
2. Two Softball Fields (200' Outfield/ 60' Baseline)
3. Two Soccer Fields (180'X300')

A wildflower garden covers the power line easement, along with a potential connection to SE 28th Place. This scheme proposes to move the off-leash area southwest of the parking lot and along the gas line easement, which runs parallel to 244th Avenue SE. Parking will increase slightly, proposing 10 new stalls, and pedestrian access will improve as this scheme proposes a sidewalk along 244th Avenue SE. Maximum support was received for moving the dog-park to 244th Avenue SE.

Master Plan Alternative Schemes
Scheme L

Scheme P

Shoreline improvements are minimized in this scheme. The existing limits of the beach are retained and no swimming area is identified. A fishing pier is proposed at "The Point." Improvements around the pavilion include terrace improvements and a volleyball court. This scheme does not propose a play area or additional restrooms at the lakeside. A garden enclosure is proposed to the west of the lodge instead of the plaza in both of the other schemes. The parking lot entry remains as is, with reduction to the number of stalls.

Improvements proposed at the Woods include boardwalks and a wetland prow, and surface improvements to the main east-west trail. This scheme proposes to add a separated sidewalk with trees along SE 24th Street.

Proposed development to the fields is maximized in this scheme. Multi-use fields extend beyond the envelope of the existing field layout and include:

1. Baseball (300' Outfield/ 90' Baseline)
2. Two Softball Fields (200' Outfield/ 60' Baseline)
3. Three Soccer Fields (180'X300')

Additional improvements include a maintenance shed, new restrooms and play area, relocation of the off-leash area north and adjacent to SE 24th Street, and additional trails. The existing parking is significantly reduced to accommodate the additional fields, and a new parking lot is proposed at the corner of 244th Avenue SE and SE 24th Street. Sidewalk and parallel parking is also proposed along 244th Avenue SE. The new parking lot at the corner of 244th & SE 24th and the dog park on SE 24th received the least support from the community.

Master Plan Alternative Schemes
Scheme P

Hot Topics

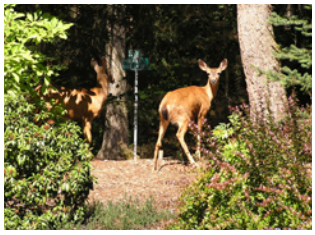
A third public meeting (Public Meeting #3) was held to address "hot topic" issues including field lighting, field turf options, and shoreline/beach considerations. The input from all of these meetings was consolidated and developed into a preferred master plan concept. The preferred master plan was presented to the public (Public Meeting #4), the Parks and Recreation Commission and City Council for review and comment. These comments helped to shape the final master plan design. This master plan report includes plan graphics, descriptions of the design elements and cost allowances for its implementation.

3.5 Preferred Master Plan

Currently, Beaver Lake Park consists of three distinct areas as described in the previous section: Lakeside, The Woods and the Westside. Each of these areas has a unique character and plays an important role in the overall park experience. A primary goal of this master plan is to maintain the character of each area while improving the function and connectivity of the park as a whole. The following is a set of recommendations for each of these areas. These recommendations are intended to be a companion to the project drawings.

Through the development of this plan, much effort was given to reduce and (or) improve current impacts on environmentally sensitive areas while expanding facilities within the park to accommodate our growing community. To highlight this effort, below is the proposed plan with overlays of environmental considerations that have helped shape the design.

Street frontage improvements are a significant part of the overall plan to increase visibility, accessibility, and the safety of park visitors. Sidewalk improvements in the right-of-way are proposed on both SE 24th street and 244th Avenue SE.



"Westside"

Iconic Park arrival and way finding with stone walls and totem at corner of SE 24th St. and 244th Ave SE

R.O.W. sidewalk improvements paralleling SE 24th St. and 244th Ave SE

Three little league baseball fields 200' Outfield/ 60' Baseline

One multi-use rectangle field (soccer, lacrosse, etc.) 200' x 350'

Sports plaza w/ restrooms, picnic shelter, play area, and public art feature

Parking: Approximately 25 additional spaces

Drop-off zone at southeast parking loop

Existing Off Leash Area (OLA) to remain w/ expanded limits to parking area and surfacing and drainage improvements

P-Patch w/ parking off of SE 24th St.

Wildflower meadow

South end overlook

Reduction of creek and wetland buffer impacts

Laughing Jacobs Creek riparian corridor improvements

"The Woods"

R.O.W. sidewalk improvements paralleling SE 24th St.

Existing primary trails with improvements:
- Spine Trail: reduce width to 8' w/ asphalt paving
- Secondary Trails: existing width w/ soft surfacing (crushed rock or wood chip as appropriate)

Mid-park north/south crossing at Laughing Jacob's Creek to southern rustic trail

Trail crossing at Laughing Jacob's Creek connecting northern trail & sports fields

"Lakeside"

R.O.W. sidewalk improvements paralleling SE 24th St.

Iconic Park arrival with stone walls and wayfinding at corner of SE 24th St. and 251st Ave SE

Reconfigured and expanded parking including:
- simplified drop-off loop to create additional parking and expand active landscape area
- additional parking bay adjacent to central meadow
- approximately 30 additional spaces

Lodge improvements including southwest terrace

Storm water improvements at "Central Meadow" to create better hydrologic function and usable, passive recreational space

Shoreline: preserve existing use while improving ecological function and define human access including:
- gravel swim beach
- "pocket" access beaches
- designated fishing area at "The Point"
- shoreline restoration

Improved upland development to support increase in human access including:
- improved lawns
- new restroom facility w/ showers
- play area
- paving and structure improvements at pavilion
- "Lakeside Meadow" improvements

BEAVER LAKE PARK MASTER PLAN

City of Sammamish Washington
The Berger Partnership PS Landscape Architecture

a. ***Park Entry***

The park entry is an important element in the overall park experience. Currently, as one approaches the park along SE 24th Street there is little to celebrate or even identify the park through the trees. An important component of this plan is to extend the experience of Beaver Lake Park to its edges and provide a comfortable, welcoming arrival for all park users coming by car, foot, or bike. This includes:

- Right-of-way (ROW) sidewalk improvements paralleling SE 24th Street.
- Iconic sculptural park entry feature and way-finding signage at corner of SE 24th Street and 244th Avenue SE.
- Reconfigured and expanded parking including:
    - Simplified parking circulation that removes existing roundabout to create additional parking and active landscape area
    - Additional parking bay adjacent to central meadow
    - Approximately 30 additional spaces
- (Optional) New park entry drive off of SE 24th Street at current maintenance facility
- (Optional) With the connection of 251st Avenue SE to West Beaver Lake Drive SE in the future, there is potential to create an enhanced park entry drive with back-in angle parking along SE 24th St.

b. ***Shoreline***

Since its historic use as a resort, Beaver Lake Park's shoreline has long served as an important resource for the community providing recreational opportunities such as swimming, fishing, or simply relaxing and enjoying the view of the lake. Over time, this activity has stripped the shoreline of much of its ecological function that is critical to the health of the lake and wildlife habitats. The goal of this plan is to preserve the existing use at the shoreline, improve ecological function and define areas for human access including:

- Separation of fishing and swimming during the swimming months to reduce conflict between the two activities
- Enhanced swim beach near the Pavilion with use of materials such as gravel to prevent erosion. The limits of the swim area will be outlined with the use of ropes tied to piers; a buoy is also proposed as part of the improvements.
- Vegetation buffer along the rest of the shoreline with defined access points (pocket beaches) to control erosion and improve water quality
- Designated fishing area at "The Point"

    - Platform with tables, benches and amenities to serve fishing activity
- Shoreline restoration to improve ecological function and habitat
- Minimal tree removal, as needed, to establish and maintain shoreline improvements
- The berm at the north end of the property will be preserved and planted to serve as a buffer to the neighbors to the north

c. ***Lakeside Meadow***

The Lakeside Meadow is the central feature of the east side of the park. It is an important multifunctional open space that provides flexibility for serving small individual groups or larger gatherings at the Pavilion. This plan aims to maintain the function and character of the Meadow while weaving new site elements and features around it to improve Lakeside and better serve the park as a whole. Improvements for this area include:

- Improved drainage for lawn areas
- Spine trail along the northern edge of the Meadow to connect parking with Lakeside Pavilion and connecting trails
- New restroom facility near the beach
- New play area along spine trail north of Pavilion
- Natural berm at west edge to buffer the Lodge and direct users
- Improvements to the Pavilion
    - Consideration for improving natural lighting (currently dark and unwelcoming)
    - Additional plaza paving (east and west of structure)
- Totem poles to remain in current location
- Educational signage describing park history as well as plant identification/wildlife
- Southeast terrace at Lodge maintained with improvements for southwest terrace addition (see Central Meadow)

d. ***Central Meadow***

As the use of Beaver Lake Park continues to grow, it is important to ensure the Central Meadow be a flexible open space that can be utilized for a variety of activities and events. Improvements to achieve a more functional space that will better serve the park in this area include:

- Drainage improvements to the existing meadow
- Bioretention for treating and storing runoff from additional parking surface

- Connection to the Lakeside Meadow and Shoreline with a primary cross-park spine trail along south edge
- Southwest event terrace at lodge to orient events toward Central Meadow
- South-facing berm to provide variety and interest in the meadow clearing along the forest edge

e. ***Long Lake Edge***

Tucked away from the primary active Lakeside area is Long Lake, the outfall of Beaver Lake and the headwaters of Laughing Jacobs Creek. As a valued area of the park for its sense of natural discovery and ecological function, enhancement and preservation of Long Lake's shoreline and riparian edges is an important part of this plan. Improvements for this area include:

- Existing lake access points to remain with shoreline improvements to control erosion and enhance ecological function
- Stone chimney relic to be preserved, maintained, and celebrated with interpretive signage telling its history
- Lakeside clearings to be enhanced with buffer plantings and maintained with more natural character to accommodate natural, seasonal flooding
- Mitigation along the shoreline and inlet to Laughing Jacobs Creek including removal of concrete bulkhead to improve ecological function

The Woods

Located between Lakeside and Westside, the Woods is 40-acre stand of mature coniferous forest. Laughing Jacobs Creek, smaller streams and riparian wetlands that weave their way through the forest all provide Beaver Lake Park with an invaluable asset of habitat, environmental engagement and discovery. As it exists, this area contains a network of cross-park pedestrian trails that connect the east and west sides of the park. The goal of this plan is to enhance and protect the existing quality of the natural features while improving overall park connectivity and exploration. Improvements for The Woods are described in this section.

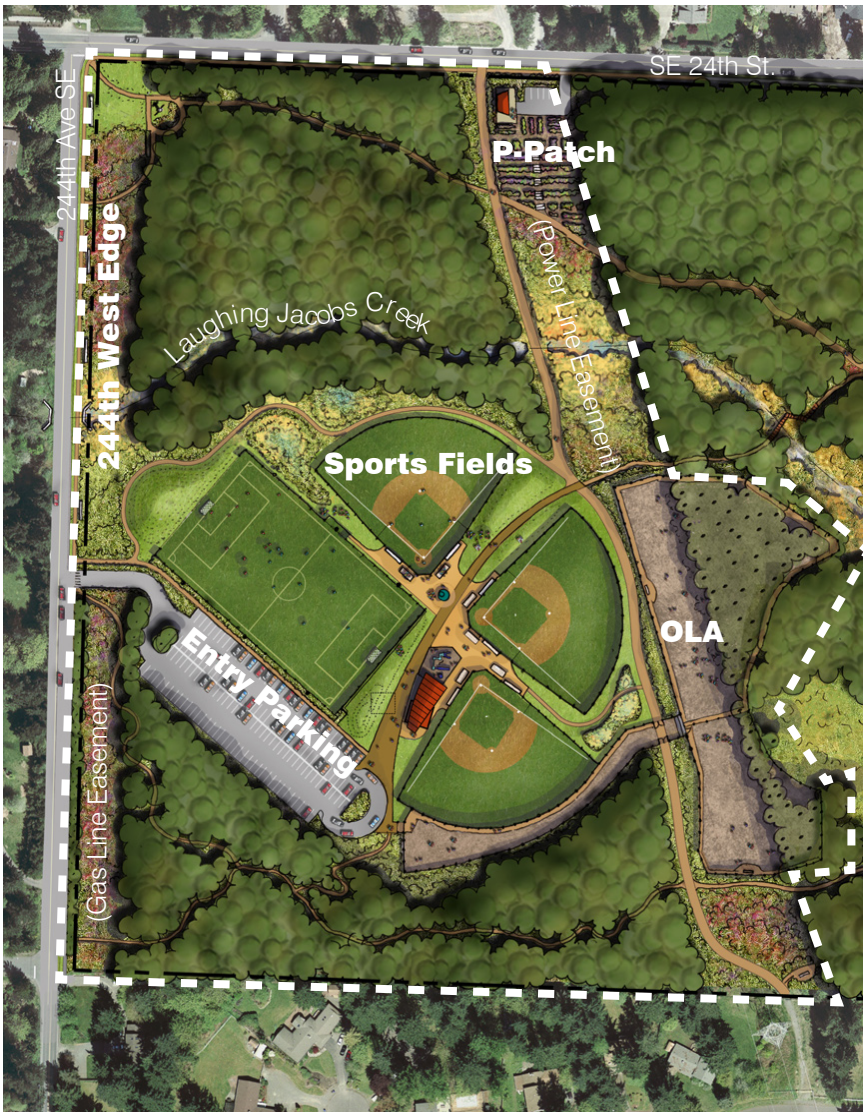
Trail System

As park use increases, so too will the desire for effective cross-site connections and more nature-oriented strolls through the Woods. To address this, a hierarchy of paths is planned to better connect Lakeside to Westside, along with opportunities to enjoy the area's natural features. Maintaining and managing this system of trails, together with a few "discovery" features, are the primary trail improvements included in this plan. These improvements are described as follows:

- ROW improvements with sidewalk and parkway planting to match existing improvements on SE 24th Street
- Existing trails to remain with surfacing improvements
- The 'spine' trail is an existing trail that runs east west, over the 15-foot-wide sewer easement toward the maintenance facility and connects to the swimming area on the lakeside. The master plan proposes to pave a portion of the width of the trail for ADA accessibility and stroller friendliness.
- New north-south connection across Laughing Jacobs Creek (bridge & boardwalk treatment to minimize environmental impacts)

Westside

The Westside is a valued component to Beaver Lake Park and currently serves programmed sports and the off-leash area (OLA). As demand for sports fields exceeds availability in Sammamish, redevelopment of the existing fields to maximize usability throughout the year is critical. Additionally, as the Westside is often mistaken as an entirely separate park from Lakeside, there is great opportunity to connect the two by incorporating thoughtful design elements. This section outlines planned improvements for enhancing the services, character and experience of Westside.



a. ***Gas Line Easement***

For most visitors, the first view of the park is a forested corner at 244th Avenue SE and SE 24th Street. To better establish and celebrate the presence of the park at this corner and direct park users to their desired destination, the following improvements are recommended:

- Iconic park arrival and way-finding signage
- Wildflower meadow or other vegetative improvements as permissible within gas line easement area for visual interest
- Enhanced/restored riparian corridor at Laughing Jacobs Creek culvert

b. ***Parking***

Parking accommodations are a delicate balance between providing a sufficient amount with the redevelopment of the sports fields but also reducing impacts on Laughing Jacobs Creek. The recommendations for the parking area are as follows:

- Parking for the athletic fields was discussed at length during the public process.
- The addition of one full-size rectilinear field creates a higher demand for parking. While some of this demand may be managed by scheduling, additional parking may be needed.
- A reconfigured entry drive helps accommodate the additional rectilinear field, simplify circulation and remove the large swath of impervious paving from the stream buffer.
- Parking on the Williams Gasline easement was proposed by staff but rejected by the Williams Gas Line company due to several reasons. For example, leak detection vents would be exposed to an ignition source (vehicles), unsupervised vehicle weight loads over the pipelines, and parking alternatives exist off of the easement.
- Parallel parking along 244th Avenue SE right-of-way will be explored with the City's Public Works Department as part of the proposed street improvements. Proposed right-of-way improvements include a sidewalk with parkway planting.
- Expansion of the existing parking lot is also proposed and will create approximately 25-additional parking spaces.
- An enhanced drop-off area at southeast corner of lot is part of the proposed improvements.

C. ***Sports Fields***

Currently the demand for sports fields exceeds the availability in Sammamish. A use study found the primary use of the three existing ball fields at Beaver Lake Park to be Little League, which utilizes a shorter field than what exists. The additional outfield area is not only wasted space, but also wasted revenue with maintenance upkeep. Most people renting the field have to set up temporary fences at the 200' line. Since the maximum demand for soccer/lacrosse is in the spring, when the Little League fields are also occupied, none of the multi-use field options that were considered earlier in the master plan process would be feasible.

The following proposed improvements aim to provide a multi-functioning facility to meet current and future needs of the community:

- The three existing baseball fields are reconfigured to include three smaller Little League baseball fields and one additional multi-use rectangle field (soccer, lacrosse, etc.).
- The total footprint of the proposed fields is 119,335 square feet, which is considerably less than the existing footprint of 189,340 square feet.
- The new proposed layout will remove approximately 5,085 square feet of field area from the stream buffer.
- Based on the current need, the multi-use field is proposed to have synthetic turf and lights.
- The Little League fields will remain natural turf, with the possibility of installing synthetic turf on the infields for maintenance purposes only. No lighting is proposed on these fields.
- The fields are organized on a central traverse that provides a linear park plaza experience across the sports complex to the overall park trail system.
- Other improvements include a new picnic shelter with restrooms.
- Play area relocated (existing equipment to be replaced as determined by Parks)
- Proposed plan allows for phasing of fields and restroom facility
- Future sewer connection
- Other improvements include a reduction of the creek and wetland buffer impacts as well as trail additions to complete an internal loop inside the park.

d. *Field Lighting Considerations*

Included in the Master Plan is a policy notation regarding field light usage that would take effect upon development of a synthetic turf field at this site. The policy language mirrors the City's existing field light policies and calls for lights to be turned off at 9:00 p.m. Lights will not be permitted after 5:00 p.m. on Sundays. During the spring and summer months, when natural light prevails, field play would be allowed until 9:00 p.m. on Sundays or as long as there is sufficient light to play. Finally, the field light policy includes a "Dark December" restriction—four consecutive weeks of no lights from approximately mid-December to mid-January.

e. *Power Line Easement*

The power and gas line easement along the east edge of Westside has long been an underutilized swath of open land. The recent development of the OLA has led to new ideas of what can be done within this area. The following are several opportunities this plan identifies for making this easement a more compelling part of Beaver Lake Park:

- Vehicle maintenance access road/trail remains with minor alignment revisions near sports field/OLA
- P-Patch at north end (described later in this section)
- OLA remains with surface improvements (described below)
- Laughing Jacobs Creek riparian corridor improvements through creek channelizing and vegetation management
- Wildflower meadow
- South-end overlook

f. *Off-Leash Area (OLA)*

What began as a pilot project in 2008, the Beaver Lake Park off-leash area has become a popular feature of the park. As with any OLA, there are many unique operational and maintenance challenges. In addressing these issues, improvements for the OLA include:

- Existing off-leash area to remain
- Expanded limits extending to parking area for direct access and to avoid conflicts with off-leash dogs entering the sports field area
- Under-drainage and surfacing improvements throughout OLA

g. ***P-Patch***

One of the great opportunities to initiate park stewardship is to develop a community P-Patch. Located at the north end of the power line easement off of SE 24th Street, the P-Patch provides a new element within the park that will improve and activate the park experience along an otherwise unused, inactive edge. The following are highlights of the plan:

- Located on north end of power line easement adjacent to SE 24th Street
- Access off of SE 24th Street with a small parking lot
- Area for material delivery, stockpiling mulch soil, etc.
- Simple, secure garden structure shed
- Water supply
- Terraced, south-facing gardens

4.0 IMPLEMENTATION

4.1 Cost Estimate & Phasing

The estimate for the probable cost of construction totals approximately $11.9 million. The costs are divided into three areas (Lakeside, Woods, and Westside). This estimate is included on the following pages for reference.

A total of $1,750,000 is currently allocated in the 2009-2010 Budget to fund Phase I design and construction. Based on council discussion at the time of adoption of the master plan, the scope and budget for Phase I improvements may be significantly reduced.

While overall phasing and funding have yet to be determined, staff recommends Phase I to include work on the east side of the park involving the parking area, lakeside meadow and beach improvements.

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Beaver Lake Park Master Plan

Master Plan Probable Cost of Construction

Prepared for the City of Sammamish

January 26, 2010

Master Plan Cost Considerations Preface

This master plan is intended to serve as a decision-making guide for the City. It documents physical improvements that can be undertaken in the park to better meet the program needs of park users and the City. "Decision-making" frequently implies spending money; as a result, this plan includes preliminary cost estimates for specific items in the park. It is important to note that these costs are intended to be used as budgeting figures and do not reflect a guaranteed construction cost, as the elements are not yet fully designed to ensure that level of accuracy.

Most park projects lend themselves to phasing, and this is the case with the Beaver Lake Park (BLP) Master Plan. Through the planning phase of this project, we have identified three areas that together make up the park. These Master Plan Cost Considerations (MPCC) address each of these areas individually with numerous assumptions made for levels of design not yet fully defined or visible in the master plan drawings.

This MPCC has been broken down into geographic sections within which specific construction items and tasks have been itemized. The cost estimate is intended to provide enough detail to allow cost information to be extracted in order to define project scope and set budgets for possible future phases. Additionally, this estimate has been prepared on the assumption that a general contractor will complete the work.

The assumptions for this document are as follows:

General Assumptions

Park plans and graphics included in the Master Plan are intended to convey a long-term vision for the park.

All elements included on the plans may not be included in this MPCC due to pending resolution on adjacent properties by the City and (or) the proposed work involves significant impacts beyond the scope of this project.

Work outside of park property (within the R.O.W.) is limited to that directly related to making primary connections between parks and does not include secondary sidewalks, trails, plantings, or other work not considered essential to the function of the adjacent park(s) and overall corridor. Such items are noted as "Not Included in Cost" (N.I.C.).

Items involving work that is not clearly defined at the master plan level are either noted as N.I.C. or given a cost allowance. The allowances provided are estimated figures based on items from similar projects of like character and site conditions.

Assumptions

Temporary erosion & sedimentation control (TESC): Not included in this estimate. TESC will be required, but without knowing specific construction phasing, it cannot be accurately predicted.

Trails: Costs include subgrade preparations, clearing & grubbing. Costs assume the widest trail width for type of trail.

New Structures: A range of unit costs is provided for new structures based on material selections.

Sports Fields: See detailed cost estimate prepared by DA Hogan.

Cost Ranges

Some elements in the MPCC that may have a range in costs are included with the higher cost to allow the city further leeway in establishing a budget. More detailed cost considerations including ranges may be included in the appendix of this document to further describe the scope of work assumed for the purposes of the MPCC.

Mark-up Definitions

Mark-ups are generally required to allocate prime contractor costs beyond those that can be quantified under Direct Costs. Additional post-bid mark-ups may also be included to reflect additional costs to the project beyond those of the general contractor including sales tax, design fees and administrative costs. A typical percentage assigned to each of these mark-ups is noted below and is typical for similar projects but may vary based upon a variety of factors. No mark-ups are included in the costs at this time; however, these mark-ups should be applied when making project size/scope decisions.

Construction Contract Mark-ups

Direct Construction Costs: The sum of line item costs in the estimate. These are the direct costs to the prime contractor.

Design Contingency: Design contingency is a reflection of the level of design on which the MPCC is based. This contingency is an allowance to reflect unforeseen or non-quantifiable elements of the project that will be incorporated during subsequent design development work. This contingency is higher in the early phases of design and gets lower as the design approaches completion. This is not a bid contingency or an owner construction contingency. For this project, we would recommend a design contingency of 20%.

General Conditions: Direct field costs to the general contractor, which cannot be charged to any particular item of work. These items include, but are not limited to: mobilization, job shack, phone and fax, storage shed, temporary work, demobilization, etc. General conditions are generally assumed to be 5%-8%.

Contractor Overhead: Home office costs to the general contractor including, but not limited to: accounting, billing, estimating, project management, etc. Contractor overhead is generally assumed to be 5%.

Contractor Profit: This fee is a percentage of gross project costs. Contractor profit is generally assumed to be 6%.

Escalation: Escalation is a provision for inflation increasing the cost of labor, material and equipment over time. Escalation is typically applied from the date of the estimate projecting to the midpoint of future construction. For the purposes of this cost estimate, given no firm timeline, no escalation has been included. While a rate of escalation is highly dependent on existing economic conditions, the rate is historically in the ballpark of around 3% annually. However, currently and for the last 2-3 years, escalation has been greatly accelerated and construction costs have increased at a very high rate of 12%-15% per year or more.

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Project: Beaver Lake Park Master Plan

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Jan. 26, 2010

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Location	Quantity	Unit	Unit Cost	Total
Lakeside				
Lakeside: Overall Elements				
Site Civil Infrastructure				
Sanitary Sewer Force Main	400	LF	$20.00	$8,000.00
Sanitary Sewer	300	LF	$20.00	$6,000.00
Lift Station	1	EA	$40,000.00	$40,000.00
Water Line	700	LF	$20.00	$14,000.00
Bio Retention Infrastructure		Allow		$50,000.00
Storm Drain	200	LF	$20.00	$4,000.00
			Site Civil Infrastructure Subtotal	$122,000.00
Landscape Improvements				
R.O.W. Improvements				N.I.C.
Curb and Sidewalk				
Parking				
Trails				
Spine Trail (8' Wide Paved)	2,000	LF	$37.50	$75,000.00
Secondary (4'-6' Wide Crushed Rock)	600	LF	$21.00	$12,600.00
Rustic Trails (3'-4' Wide Wood Chip)	1,000	LF	$18.00	$18,000.00
Native/Restoration Plantings	21,600	SF	$3.00	$64,800.00
Trees	50	EA	$375.00	$18,750.00
			Landscape Improvements Subtotal	$189,150.00
			Lakeside Overall Elements Total	**$311,150.00**
Lakeside: Entry and Parking				
Site Demolition				
Asphalt Paving	8,345	SF	$1.75	$14,603.75
Bollard Removal	28	EA	$100.00	$2,800.00
Tree Removal		Allow		$4,000.00
Hauling and Dumping		Allow		$10,000.00
T.E.S.C.				N.I.C.
			Site Demolition Subtotal	$31,403.75
Site Preparation				
Rough Grading	21,855	SF	$0.30	$6,556.50
Topsoil Import- 6" (Incorporate Into Native)	80	CY	$65.00	$5,200.00
Finish Grading	21,855	SF	$0.50	$10,927.50
			Site Preparation Subtotal	$22,684.00
Site Improvements				
Iconic Park Entry Feature		Allow		$50,000.00
Paving- Asphalt Paving (Parking)	10,875	SF	$7.00	$76,125.00
Paving- Asphalt Sidewalk (6' Wide)	400	LF	$30.00	$12,000.00
Security Lighting Fixtures (Existing Infrastructure)	6	EA	$1,500.00	$9,000.00
			Site Improvements Subtotal	$147,125.00

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Location	Quantity	Unit	Unit Cost	Total
Landscape Improvements				
2" Meter				N.I.C.
P.O.C. (DCVA, Master Valve, Vaults, etc.)				N.I.C.
Controller				N.I.C.
Mainline System w/ Quick Couplers	100	LF	$28.00	$2,800.00
Planting Bed Irrigation	4,160	SF	$1.75	$7,280.00
Shrubs & Groundcover	4,160	SF	$6.00	$24,960.00
Trees	8	EA	$375.00	$3,000.00
		Landscape Improvements Subtotal		$38,040.00
		Lakeside Entry and Parking Total		**$239,252.75**
Lakeside: Lakeside Meadow				
Site Demolition				
Asphalt Paving	6,000	SF	$1.75	$10,500.00
Clearing & Grubbing	5,700	SF	$1.00	$5,700.00
Tree Removal		Allow		$20,000.00
Hauling and Dumping		Allow		$5,000.00
T.E.S.C.				N.I.C.
		Site Demolition Subtotal		$41,200.00
Site Preparation				
Imported Fill	1,500	CY	$20.00	$30,000.00
Rough Grading	13,600	SF	$0.30	$4,080.00
Drainage (Underdrain- 4" Perf. Pipe)	1,000	LF	$28.00	$28,000.00
Topsoil Import- 6" (Incorporate Into Native)	232	CY	$65.00	$15,080.00
Finish Grading (Tilling, Add Soil, Fine Grade)	71,200	SF	$0.50	$35,600.00
		Site Preparation Subtotal		$112,760.00
Site Improvements				
Pavilion Improvements				N.I.C.
Plaza Paving at Pavilion	5,690	SF	$14.00	$79,660.00
Play Area		Allow		$200,000.00
Restroom		Allow		$250,000.00
Signage- Park and Wayfinding		Allow		$15,000.00
Tables & Benches	10	EA	$1,500.00	$15,000.00
Benches	15	EA	$200.00	$3,000.00
Bike Racks	2	EA	$1,000.00	$2,000.00
Trash Receptacles	4	EA	$1,200.00	$4,800.00
		Site Improvements Subtotal		$569,460.00
Landscape Improvements				
2" Meter				N.I.C.
P.O.C. (DCVA, Master Valve, Vaults, etc.)				N.I.C.
Controller				N.I.C.
Mainline System w/ Quick Couplers	1,000	LF	$28.00	$28,000.00
Meadow Irrigation	58,720	SF	$1.00	$58,720.00
Planting Bed Irrigation	12,480	SF	$1.75	$21,840.00
Meadow (Seeded)	58,720	SF	$0.50	$29,360.00
Shrubs & Groundcover	58,720	SF	$5.00	$293,600.00
Trees	12	EA	$375.00	$4,500.00
		Landscape Improvements Subtotal		$436,020.00
		Lakeside Meadow Total		**$1,159,440.00**

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Location	Quantity	Unit	Unit Cost	Total
Lakeside: Shoreline Improvements (Beaver & Long Lake)				
Site Demolition				
Bulkhead Removal	1,500	LF	$40.00	$60,000.00
Clearing and Grubbing (15' Swath)	2,000	LF	$15.00	$30,000.00
Tree Removal		Allow		$10,000.00
Hauling and Dumping		Allow		$80,000.00
T.E.S.C.				N.I.C.
		Site Demolition Subtotal		$180,000.00
Site Preparation				
Rough Grading (10' Swath)	2,000	LF	$2.00	$4,000.00
Finish Grading	2,000	LF	$1.00	$2,000.00
		Site Preparation Subtotal		$6,000.00
Site Improvements				
Swim Beach	165	LF	$400.00	$66,000.00
Swim Area Markers		Allow		$35,000.00
Floating Swim Platform/Dock		Allow		$30,000.00
Fishing Access	15	LF	$325.00	$4,875.00
Fishing Platform	1	Allow	$10,000.00	$10,000.00
Micro Beaches	260	LF	$110.00	$28,600.00
Restored Shoreline Habitat Zones	1,560	LF	$60.00	$93,600.00
		Site Improvements Subtotal		$268,075.00
Landscape Improvements				
2" Meter				N.I.C.
P.O.C. (DCVA, Master Valve, Vaults, etc.)				N.I.C.
Controller				N.I.C.
Mainline System w/ Quick Couplers	500	LF	$28.00	$14,000.00
Temporary Irrigation	1,500	LF	$10.00	$15,000.00
Native/Restoration Plantings (10' Width)	2,000	LF	$30.00	$60,000.00
Trees	50		$375.00	$18,750.00
		Landscape Improvements Subtotal		$107,750.00
		Lakeside Shoreline Improvements Total		**$561,825.00**
Lakeside: Central Meadow				
Site Demolition				
Tree Removal		Allow		$2,000.00
Hauling and Dumping		Allow		$40,000.00
T.E.S.C.				N.I.C.
		Site Demolition Subtotal		$42,000.00
Site Preparation				
Rough Grading	53,115	SF	$0.30	$15,934.50
Drainage (Underdrain- 4" Perf. Pipe)	975	LF	$28.00	$27,300.00
Soil Import- 6" (Incorporate Into Native)	1,200	CY	$65.00	$78,000.00
Finish Grading (Tilling, Add Soil, Fine Grade)	70,000	SF	$0.50	$35,000.00
		Site Preparation Subtotal		$156,234.50

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Location	Quantity	Unit	Unit Cost	Total
Site Improvements				
Lodge Improvements (Structure)				N.I.C.
Plaza Paving at Lodge	3,000	SF	$14.00	$42,000.00
Signage- Park and Wayfinding		Allow		$60,000.00
Tables & Benches	2	EA	$1,500.00	$3,000.00
Benches	4	EA	$200.00	$800.00
Trash Receptacles	2	EA	$1,200.00	$2,400.00
		Site Improvements Subtotal		$108,200.00
Landscape Improvements				
2" Meter				N.I.C.
P.O.C. (DCVA, Master Valve, Vaults, etc.)				N.I.C.
Controller				N.I.C.
Mainline System w/ Quick Couplers	300	LF	$28.00	$8,400.00
Meadow Irrigation	70,000	SF	$1.00	$70,000.00
Planting Bed Irrigation	11,000	SF	$1.75	$19,250.00
Meadow (Seeded)	70,000	SF	$0.50	$35,000.00
Shrubs & Groundcover	5,500	SF	$5.00	$27,500.00
Native/ Restoration Plantings	5,500	SF	$3.00	$16,500.00
Trees	15	EA	$375.00	$5,625.00
		Landscape Improvements Subtotal		$182,275.00
		Lakeside Central Meadow Total		**$488,709.50**
		Lakeside Total		**$2,760,377.25**

Westside

Westside: Overall Elements

Site Civil Infrastructure				
Sanitary Sewer Force Main	800	LF	$20.00	$16,000.00
Sanitary Sewer	50	LF	$20.00	$1,000.00
Lift Station	1	EA	$40,000.00	$40,000.00
Water Line	200	LF	$20.00	$4,000.00
P-Patch Water Main	1	EA	$5,000.00	$5,000.00
Bio Retention Infrastructure		Allow		$75,000.00
Storm Drain	1,000	LF	$20.00	$20,000.00
		Site Civil Infrastructure Subtotal		$161,000.00
Site Demolition				
Clearing and Grubbing	18,000	SF	$1.00	$18,000.00
Hauling and Dumping		Allow		$80,000.00
T.E.S.C.				N.I.C.
		Site Demolition Subtotal		$98,000.00
Site Preparation				
Rough Grading	18,000	SF	$0.30	$5,400.00
Finish Grading	39,800	SF	$0.50	$19,900.00
		Site Preparation Subtotal		$25,300.00
Site Improvements				
Iconic Park Entry Feature		Allow		$60,000.00
		Site Improvements Subtotal		$60,000.00

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Location	Quantity	Unit	Unit Cost	Total
Landscape Improvements				
R.O.W. Improvements				N.I.C.
Curb and Sidewalk				N.I.C.
Parallel Parking				N.I.C.
Trails				
Spine Trail (8' Wide Paved)	200	LF	$37.50	$7,500.00
Secondary (4'-6' Wide Crushed Rock)	1,000	LF	$21.00	$21,000.00
Rustic Trails (3'-4' Wide Wood Chip)	2,500	LF	$18.00	$45,000.00
Native/Restoration Plantings	22,200	SF	$3.00	$66,600.00
	Landscape Improvements Subtotal			$140,100.00
	Westside Overall Elements Total			**$484,400.00**
Westside: Entry and Parking				
Site Demolition				
Asphalt Paving	21,445	SF	$1.75	$37,528.75
Hauling and Dumping		Allow		$60,000.00
Clearing and Grubbing	1,350	SF	$1.00	$1,350.00
Tree Removal		Allow		$4,000.00
Hauling and Dumping		Allow		$10,000.00
T.E.S.C.				N.I.C.
		Site Demolition Subtotal		$112,878.75
Site Preparation				
Fill Dirt Import	1,000	CY	$15.00	$15,000.00
Rough Grading	1,350	SF	$0.30	$405.00
Finish Grading	1,350	SF	$0.50	$675.00
		Site Preparation Subtotal		$16,080.00
Site Improvements				
Paving- Asphalt Paving (Parking)	1,350	SF	$7.00	$9,450.00
Paving- Asphalt Sidewalk (6' Wide)	550	LF	$30.00	$16,500.00
Security Lighting Fixtures (Existing Infrastructure)	6	EA	$1,500.00	$9,000.00
		Site Improvements Subtotal		$34,950.00
	Westside Entry and Parking Total			**$163,908.75**
Westside: Sports Plaza				
Site Demolition				
Asphalt Paving	31,950	SF	$1.75	$55,912.50
Picnic Shelter		Allow		$10,000.00
Dugouts & Bleachers		Allow		$10,000.00
Restroom		Allow		$20,000.00
Storage Shelter		Allow		$1,000.00
Clearing & Grubbing (Including Lawn)	3,755	SF	$1.00	$3,755.00
Rough Grading	284,500	SF	$0.30	$85,350.00
Tree Removal				N.A.
Hauling and Dumping		Allow		$160,000.00
T.E.S.C.				N.I.C.
		Site Demolition Subtotal		$346,017.50
Site Preparation				
Topsoil Import- 6" (Incorporate Into Native)	1,300	CY	$65.00	$84,500.00
Finish Grading (Tilling, Add Soil, Fine Grade)	70,200	SF	$0.50	$35,100.00
		Site Preparation Subtotal		$119,600.00

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Location	Quantity	Unit	Unit Cost	Total
Site Improvements				
Sports Field Improvements		*See DA Hogan Cost Estimate (Net= $2,553,086)		
Sports Lighting				N.I.C.
Plaza Paving	30,305	SF	$12.00	$363,660.00
New Picnic Shelter		Allow		$200,000.00
New Restroom		Allow		$250,000.00
New Play Area		Allow		$250,000.00
Lighting			*See DA Hogan Cost Estimate	
Signage- Park and Wayfinding		Allow		$120,000.00
Tables & Benches	4	EA	$1,500.00	$6,000.00
Benches	8	EA	$200.00	$1,600.00
Bike Racks	2	EA	$1,000.00	$2,000.00
Trash Receptacles	10	EA	$1,200.00	$12,000.00
		Site Improvements Subtotal		$1,205,260.00
Landscape Improvements				
2" Meter				N.I.C.
P.O.C. (DCVA, Master Valve, Vaults, etc.)				N.I.C.
Controller				N.I.C.
Mainline System w/ Quick Couplers	1,500	LF	$28.00	$42,000.00
Meadow Irrigation	59,000	SF	$1.00	$59,000.00
Planting Bed Irrigation	6,000	SF	$1.75	$10,500.00
Meadow Seeding	60,000	SF	$0.50	$30,000.00
Shrubs & Groundcover	3,000	SF	$5.00	$15,000.00
Native/Restoration Plantings	3,000	SF	$3.00	$9,000.00
Trees	25	EA	$375.00	$9,375.00
		Landscape Improvements Subtotal		$174,875.00
		Westside Sports Plaza Total		**$1,845,752.50**
Westside: Off-Leash Area (OLA)				
Site Demolition				
Clearing & Grubbing	18,000	SF	$1.00	$18,000.00
Tree Removal		Allow		$0.00
Hauling and Dumping		Allow		$5,000.00
T.E.S.C.				N.I.C.
		Site Demolition Subtotal		$23,000.00
Site Preparation				
Drainage (Underdrain- 4" Perf. Pipe)	1,500	LF	$28.00	$42,000.00
Rough Grading	18,000	SF	$0.30	$5,400.00
Finish Grading (Tilling, Add Soil, Fine Grade)	117,600	SF	$0.50	$58,800.00
		Site Preparation Subtotal		$106,200.00
Site Improvements				
Sand Surfacing	2,180	CY	$38.50	$83,930.00
Asphalt Path (4' Width)	1,840	LF	$25.00	$46,000.00
4' Post & (2) Rail Fence w/ Black Wire Mesh	650	LF	$40.00	$26,000.00
4' Pedestrian Gate	10	Allow	$150.00	$1,500.00
Benches	4	EA	$200.00	$800.00
Trash Receptacles	3	EA	$1,200.00	$3,600.00
Doggy Wash Station	1	Allow	$5,000.00	$5,000.00
		Site Improvements Subtotal		$166,830.00
		Westside Off-Leash Area Total		**$296,030.00**

DRAFT-Probable Cost of Construction

Project: Beaver Lake Park Master Plan

Prepared for The City of Sammamish

Jan. 26, 2010

The Berger Partnership PS
Landscape Architecture

1721 8th Avenue N
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Location	Quantity	Unit	Unit Cost	Total
Westside: P-Patch				
Site Preparation				
Clearing and Grubbing	23,230	SF	$1.00	$23,230.00
Tree Removal		Allow		$0.00
Hauling and Dumping		Allow		$10,000.00
Rough Grading	23,230	SF	$0.30	$6,969.00
Finish Grading	23,230	SF	$0.50	$11,615.00
T.E.S.C.				N.I.C.
		Site Preparation Subtotal		$51,814.00
Site Improvements				
Paving- Asphalt Paving (Parking)	3,340	SF	$7.00	$23,380.00
Paving- Crushed Rock (3' Wide)	600	LF	$15.00	$9,000.00
Paving- Crushed Rock	1,545	SF	$3.50	$5,407.50
Garden Structure		Allow		$80,000.00
Planter Boxes	80	EA	$250.00	$20,000.00
		Site Improvements Subtotal		$137,787.50
Landscape Improvements				
2" Meter				N.I.C.
P.O.C. (DCVA, Master Valve, Vaults, etc.)				N.I.C.
Controller				N.I.C.
Mainline System w/ Quick Couplers	100	LF	$28.00	$2,800.00
Planting Bed Irrigation	19,900	SF	$1.75	$34,825.00
Shrubs & Groundcover	1,040	SF	$6.00	$6,240.00
Native/Restoration Plantings	4,000	SF	$3.00	$12,000.00
		Landscape Improvements Subtotal		$55,865.00
		Westside P-Patch Total		**$245,466.50**
Westside: Power and Gas Easements				
Site Preparation				
Clearing and Grubbing	100,000	SF	$1.00	$100,000.00
Hauling and Dumping		Allow		$40,000.00
Rough Grading	40,000	SF	$0.30	$12,000.00
Finish Grading	40,000	SF	$0.50	$20,000.00
T.E.S.C.				N.I.C.
		Site Preparation Subtotal		$172,000.00
Site Improvements				
Crushed Rock Easement Access (12' Wide)	1,500	LF	$30.00	$45,000.00
		Site Improvements Subtotal		$45,000.00
Landscape Improvements				
2" Meter				N.I.C.
P.O.C. (DCVA, Master Valve, Vaults, etc.)				N.I.C.
Controller				N.I.C.
Mainline System w/ Quick Couplers	750	LF	$28.00	$21,000.00
Meadow Irrigation	100,000	SF	$1.00	$100,000.00
Meadow (Seeded)	100,000	SF	$0.50	$50,000.00
Native/Restoration Plantings	18,000	SF	$3.00	$54,000.00
		Landscape Improvements Subtotal		$225,000.00
	Westside Power and Gas Easements Total			**$442,000.00**
		Westside Total		**$3,477,557.75**

DRAFT-Probable Cost of Construction

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Location	Quantity	Unit	Unit Cost	Total
The Woods				
The Woods: Overall Elements				
Site Civil Infrastructure				
General Allowances			Allow	$10,000.00
			Site Civil Infrastructure Subtotal	$10,000.00
Site Preparation				
Clearing and Grubbing	6,000	SF	$1.00	$6,000.00
Tree Removal		Allow		$0.00
Hauling and Dumping		Allow		$0.00
Fill Dirt Import	0	CY	$15.00	$0.00
Rough Grading	6,000	SF	$0.30	$1,800.00
Finish Grading	6,000	SF	$0.50	$3,000.00
T.E.S.C.				N.I.C.
			Site Preparation Subtotal	$10,800.00
Site Improvements				
R.O.W. Improvements				N.I.C.
Curb and Sidewalk				N.I.C.
Trails				
Spine Trail (8' Wide Paved)	1,325	LF	$37.50	$49,687.50
Secondary (4'-6' Wide Crushed Rock)	1,770	LF	$21.00	$37,170.00
Rustic Trails (3'-4' Wide Wood Chip)	2,360	LF	$18.00	$42,480.00
			Site Improvements Subtotal	$129,337.50
Landscape Improvements				
Native/Restoration Plantings	32,730	SF	$3.00	$98,190.00
Trees	90	EA	$250.00	$22,500.00
			Landscape Improvements Subtotal	$120,690.00
			The Woods Overall Elements Total	**$270,827.50**
The Woods: Design Features				
Site Preparation				
Clearing and Grubbing	1,200	SF	$1.00	$1,200.00
Tree Removal		Allow		$0.00
Hauling and Dumping		Allow		$5,000.00
Rough Grading	1,200	SF	$0.30	$360.00
Finish Grading	1,200	SF	$0.50	$600.00
T.E.S.C.				N.I.C.
			Site Preparation Subtotal	$7,160.00
Site Improvements				
Mid-Park Crossing	2	Allow	$35,000.00	$70,000.00
Wetland Prow	1	Allow	$25,000.00	$25,000.00
			Site Improvements Subtotal	$95,000.00
Landscape Improvements				
Native/Restoration Plantings	15,000	SF	$3.00	$45,000.00
Trees	40	EA	$250.00	$10,000.00
			Landscape Improvements Subtotal	$55,000.00
			The Woods Design Features Total	**$157,160.00**
			The Woods Total	**$427,987.50**

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Location	Quantity	Unit	Unit Cost	Total
Beaver Lake Park Master Plan Landscape Project Subtotal				**$6,665,922.50**
			Design Contingency (20%)	$1,333,184.50
			Project Subtotal	$7,999,107.00
			General Conditions (5%)	$399,955.35
			Subtotal	$8,399,062.35
			Contractor Overhead (5%)	$419,953.12
			Subtotal	$8,819,015.47
			Contractor Profit (6%)	$529,140.93
			TOTAL Construction Contract Amount	**$9,348,156.40**
			Escalation (undetermined %)	$0.00
Sports Fields				
Westside Sports Fields (See DA Hogan Estimate)			Allow	$2,553,086.00
GRAND TOTAL (Landscape & Sports Fields)				**$11,901,242.40**

Not including W.S.S.T., design fees, permits, taxes

Community Sports Fields

Preliminary Cost Estimate - 2009 Dollars

Prepared For: The Berger Partnership

1-Dec-09

Site: Beaver Lake Park Master Plan

Item	*Quantity*	*Unit*	*Unit Cost*	*Est. Cost*	*Total*
Mobilization & Management	*Quantity*	*Unit*	*Unit Cost*	*Est. Cost*	*Total*
Bonds (3%)	1	ls	$50,983.61	$ 50,980	
Insurance (2%)	1	ls	$33,989.07	$ 33,980	
Mobilization (7%)	1	ls	$33,989.07	$ 33,980	
Project Management	5	mon	$7,500	$ 37,500	
Construction Survey & Layout	1	ls	$10,000.00	$ 10,000	
Temporary Erosion Control	1	ls	$4,500.00	$ 4,500	
Total for Mobilization & Management					$170,940
Demolition and Earthwork					
Misc. Demolition	1	ls	$5,500.00	$ 5,500	
Remove existing fence/backstops	3	ea	$2,500.00	$ 7,500	
Sod Removal & Disposal	1500	cy	$25.00	$ 37,500	
Earthwork - Cut/Fill to Balance (12" Average)	7500	cy	$6.00	$ 45,000	
Total for Demolition and Earthwork					$ 95,500
Utilities					
Repair / relocation of existing irrigation main line	1500	lf	$10.00	$ 15,000	
Irrigation System Isolation Valves	5	ea	$250.00	$ 1,250	
Total for Utilities					$ 16,250
Little League Baseball Field No. 1 - Sand Based Natural Grass					
Fine Grading for Subgrade Establishment	40000	sf	$0.10	$ 4,000	
Irrigation System Point of Connection	1	ls	$500.00	$ 500	
Subsurface Drainage System	2600	lf	$6.00	$ 15,600	
Subsurface Drainage System - 8" Collector Pipe	250	lf	$16.00	$ 4,000	
Type 1 Catch Basin	2	ea	$1,000.00	$ 2,000	
Outlet Piping to Storm Drainage (8")	50	lf	$16.00	$ 800	
Concrete Perimeter Edge Anchor	800	lf	$15.00	$ 12,000	
Structural Fabric	4500	sy	$1.50	$ 6,750	
Base Sand (6" Depth)	925	cy	$35.00	$ 32,370	
Root Zone Sand (6" Depth)	555	cy	$45.00	$ 24,970	
Infield Mix (6" Depth)	235	cy	$50.00	$ 11,750	
Warning Track Crushed Rock Surfacing	135	cy	$35.00	$ 4,720	
Automatic Irrigation System	24000	sf	$0.55	$ 13,200	
Infield Wet Down Irrigation System	10000	sf	$0.75	$ 7,500	
Natural Grass Seeding and Establishment	24000	sf	$0.35	$ 8,400	
Fine Grading for Finished Surfaces	40000	sf	$0.10	$ 4,000	
6' Perimeter Fence	600	lf	$30.00	$ 18,000	
9' Chain link Fencing at Dugouts	85	lf	$45.00	$ 3,820	
10' Chain link Fencing with 15' Netting	120	lf	$150.00	$ 18,000	
Chain link Gates	50	lf	$100.00	$ 5,000	
30' Backstop Fencing	80	lf	$200.00	$ 16,000	
Bases & Anchors	1	set	$1,000.00	$ 1,000	

Community Sports Fields
Preliminary Cost Estimate - 2009 Dollars
Prepared For: The Berger Partnership
1-Dec-09
Site: Beaver Lake Park Master Plan

Item	*Quantity*	*Unit*	*Unit Cost*	*Est. Cost*	*Total*
Foul Poles	2	ea	$2,500.00	$ 5,000	
Dugout Roofs	2	ea	$6,500.00	$ 13,000	
Dugout Benches	2	ea	$500.00	$ 1,000	
Trash Receptacles	2	ea	$500.00	$ 1,000	
Concrete Dugout Pads	400	sf	$6.00	$ 2,400	
Portable Bleachers	2	ea	$3,500.00	$ 7,000	
Total for Little League Baseball Field No. 1					$ 243,780
<u>Little League Baseball Field No. 2 - Sand Based Natural Grass</u>					
Fine Grading for Subgrade Establishment	40000	sf	$0.10	$ 4,000	
Irrigation System Point of Connection	1	ls	$500.00	$ 500	
Subsurface Drainage System	2600	lf	$6.00	$ 15,600	
Subsurface Drainage System - 8" Collector Pipe	250	lf	$16.00	$ 4,000	
Type 1 Catch Basin	2	ea	$1,000.00	$ 2,000	
Outlet Piping to Storm Drainage (8")	50	lf	$16.00	$ 800	
Concrete Perimeter Edge Anchor	800	lf	$15.00	$ 12,000	
Structural Fabric	4500	sy	$1.50	$ 6,750	
Base Sand (6" Depth)	925	cy	$35.00	$ 32,370	
Root Zone Sand (6" Depth)	555	cy	$45.00	$ 24,970	
Infield Mix (6" Depth)	235	cy	$50.00	$ 11,750	
Warning Track Crushed Rock Surfacing	135	cy	$35.00	$ 4,720	
Automatic Irrigation System	24000	sf	$0.55	$ 13,200	
Infield Wet Down Irrigation System	10000	sf	$0.75	$ 7,500	
Natural Grass Seeding and Establishment	24000	sf	$0.35	$ 8,400	
Fine Grading for Finished Surfaces	40000	sf	$0.10	$ 4,000	
6' Perimeter Fence	600	lf	$30.00	$ 18,000	
9' Chain link Fencing at Dugouts	85	lf	$45.00	$ 3,820	
10' Chain link Fencing with 15' Netting	120	lf	$150.00	$ 18,000	
Chain link Gates	50	lf	$100.00	$ 5,000	
30' Backstop Fencing	80	lf	$200.00	$ 16,000	
Bases & Anchors	1	set	$1,000.00	$ 1,000	
Foul Poles	2	ea	$2,500.00	$ 5,000	
Dugout Roofs	2	ea	$6,500.00	$ 13,000	
Dugout Benches	2	ea	$500.00	$ 1,000	
Trash Receptacles	2	ea	$500.00	$ 1,000	
Concrete Dugout Pads	400	sf	$6.00	$ 2,400	
Portable Bleachers	2	ea	$3,500.00	$ 7,000	
Total for Little League Baseball Field No. 2					$ 243,780
<u>Little League Baseball Field No. 3 - Sand Based Natural Grass</u>					
Fine Grading for Subgrade Establishment	40000	sf	$0.10	$ 4,000	
Irrigation System Point of Connection	1	ls	$500.00	$ 500	
Subsurface Drainage System	2600	lf	$6.00	$ 15,600	
Subsurface Drainage System - 8" Collector Pipe	250	lf	$16.00	$ 4,000	
Type 1 Catch Basin	2	ea	$1,000.00	$ 2,000	
Outlet Piping to Storm Drainage (8")	50	lf	$16.00	$ 800	

Community Sports Fields
Preliminary Cost Estimate - 2009 Dollars
Prepared For: The Berger Partnership
1-Dec-09
Site: Beaver Lake Park Master Plan

Item	*Quantity*	*Unit*	*Unit Cost*	*Est. Cost*	*Total*
Concrete Perimeter Edge Anchor	800	lf	$15.00	$ 12,000	
Structural Fabric	4500	sy	$1.50	$ 6,750	
Base Sand (6" Depth)	925	cy	$35.00	$ 32,370	
Root Zone Sand (6" Depth)	555	cy	$45.00	$ 24,970	
Infield Mix (6" Depth)	235	cy	$50.00	$ 11,750	
Warning Track Crushed Rock Surfacing	135	cy	$35.00	$ 4,720	
Automatic Irrigation System	24000	sf	$0.55	$ 13,200	
Infield Wet Down Irrigation System	10000	sf	$0.75	$ 7,500	
Natural Grass Seeding and Establishment	24000	sf	$0.35	$ 8,400	
Fine Grading for Finished Surfaces	40000	sf	$0.10	$ 4,000	
6' Perimeter Fence	600	lf	$30.00	$ 18,000	
9' Chain link Fencing at Dugouts	85	lf	$45.00	$ 3,820	
10' Chain link Fencing with 15' Netting	120	lf	$150.00	$ 18,000	
Chain link Gates	50	lf	$100.00	$ 5,000	
30' Backstop Fencing	80	lf	$200.00	$ 16,000	
Bases & Anchors	1	set	$1,000.00	$ 1,000	
Foul Poles	2	ea	$2,500.00	$ 5,000	
Dugout Roofs	2	ea	$6,500.00	$ 13,000	
Dugout Benches	2	ea	$500.00	$ 1,000	
Trash Receptacles	2	ea	$500.00	$ 1,000	
Concrete Dugout Pads	400	sf	$6.00	$ 2,400	
Portable Bleachers	2	ea	$3,500.00	$ 7,000	
Total for Little League Baseball Field No. 3					$ 243,780
<u>Soccer Field - Synthetic Turf</u>					
Fine Grading for Subgrade Establishment	70000	sf	$0.10	$ 7,000	
Irrigation System Point of Connection	1	ls	$500.00	$ 500	
Subsurface Drainage System	4550	lf	$6.00	$ 27,300	
Subsurface Drainage System - 8" Collector Pipe	250	lf	$16.00	$ 4,000	
Type 1 Catch Basin	2	ea	$1,200.00	$ 2,400	
Outlet Piping to Storm Drainage (8")	50	lf	$16.00	$ 800	
Concrete Perimeter Edge Anchor	1100	lf	$15.00	$ 16,500	
Structural Fabric	7800	sy	$1.50	$ 11,700	
Permeable Aggregate Base (8" Depth)	2175	cy	$45.00	$ 97,870	
Permeable Aggregate Top Course (2" Depth)	545	cy	$50.00	$ 27,250	
Fine Grading for Top Course Aggregate	70000	sf	$0.10	$ 7,000	
Infilled Synthetic Turf	70000	sf	$5.15	$ 360,500	
Infilled Synthetic Turf - Soccer Markings	1	ls	$6,500.00	$ 6,500	
Infilled Synthetic Turf - Lacrosse Markings	2	ls	$4,500.00	$ 9,000	
Synthetic Turf Maintenance Equipment	1	ls	$10,000.00	$ 10,000	
4' Perimeter Fence	980	lf	$25.00	$ 24,500	
23' Chain Link Fence and Netting	120	lf	$165.00	$ 19,800	
Chain link Gates	40	lf	$100.00	$ 4,000	
Portable Soccer Goals	2	ea	$2,500.00	$ 5,000	
Soccer Goal Anchors	2	ea	$500.00	$ 1,000	

Community Sports Fields
Preliminary Cost Estimate - 2009 Dollars
Prepared For: The Berger Partnership
1-Dec-09
Site: Beaver Lake Park Master Plan

Item	*Quantity*	*Unit*	*Unit Cost*	*Est. Cost*	*Total*
Portable Lacrosse Goals	2	ea	$1,500.00	$ 3,000	
Total for Soccer Field					$ 645,620
Electrical Improvements - Synthetic Turf Soccer Field Lighting					
Incoming Secondary Service	200	ft	$30.00	$6,000.00	
Pad Mount Pedestal Transformer Excavation/backfill	1	ls	$7,500.00	$7,500.00	
Free Standing Panelboard		ls	$20,000.00	$20,000.00	
Main Switchgear		ls	$9,000.00	$9,000.00	
Calsense Lighting Controller	1	ea	$4,000.00	$4,000.00	
Steel Floodlight Poles	6	ea	$8,000.00	$48,000.00	
Floodlights	24	ea	$2,500.00	$60,000.00	
Area Luminaires I per pole	6	ea	$600.00	$3,600.00	
Receptacles	6	ea	$400.00	$2,400.00	
Handholes	10	ea	$400.00	$4,000.00	
Trenching, Wire and Conduit	1100	ft	$12.00	$13,200.00	
Misc. Labor & Materials @ 5%	1	ls	$8,885.00	$8,885.00	
Miscellaneous Items	1	ls	$5,000.00	$5,000.00	
Electrical Contractor Overhead and Profit	1	ls	$19,158.50	$19,158.50	
Total for Electrical Improvements					$ 210,744
Estimated Net Construction Cost for Field Renovation					$1,870,394
Contingency for Design (10%)					$ 187,039
Subtotal					$ 2,057,433
Contractor Overhead/Profit (15%)					$ 308,614
Estimated Net Construction Cost - Base Bid					**$2,553,086**
Allowance for Primary Power (PSE Service Charges)	1	ls	$20,000.00	$20,000	

Estimated net construction costs do not include construction contingency, sales tax, design fees, construction testing, FF&E, permit fees and other project related soft costs. Anticipated to be 30% of net construction costs.

5.0 Agency Coordination and Permitting

Sammamish Plateau Water & Sewer District

In 2007, the Sammamish Plateau Water and Sewer District (District) approached the City regarding installation of a sewer line along West Beaver Lake Drive SE. To make this connection, a line would need to be constructed through the parking lot of Beaver Lake Park (on the Lodge side of the park). The sewer line currently terminates at the Beaver Lake Maintenance Shop. The Lodge, the Maintenance Shop and the ball field restrooms are currently operating on septic systems. All three systems are working properly.

Further work was done during the master plan process to identify the costs associated with extending a sewer line and connecting to the existing and future restrooms at Beaver Lake Park.

- District staff provided the City with an estimated cost for installation of sewers and connection at the Lodge for a cost of $1,612,120.
- The City cost for the sewer connection at the ball field side of the park (244th Avenue SE) is estimated at $541,008.
- Discussions with District Staff indicate that the park could be divided into distinct areas, which could reduce the overall cost.

A new near-shore restroom is proposed as part of the master plan. Construction of this restroom building in the future will require connection to a sanitary system. Due to the prohibitive cost of the sewer line construction and connection, staff recommended to Council to continue the use of the existing septic systems at Beaver Lake Park. The near-shore restroom will be developed as funds become available.

The following documents are included at the end of this section for reference:

1. Letter from Sammamish Plateau Water & Sewer District dated 7/23/2009 providing costs for sewer connection at Beaver Lake Park.
2. Internal memo summarizing sewer costs.
3. Letter from the District dated April 1, 2010.

SAMMAMISH PLATEAU
WATER AND SEWER DISTRICT

July 23, 2009

Anjali Myer
Park Project Manager
City of Sammamish
801 228th Avenue SE
Sammamish, WA 98075

RE: Tax Parcel 112406-9006 - Beaver Lake Park - Sewer Service (corrected)

Dear Ms. Myer:

This letter is provided to discuss the costs associated with obtaining sewer service for different sections of Beaver Lake Park. Based on our previous discussions, extension of sewer service into the Beaver Lake Lodge area is expected to be included with Phase 1 improvements in the proposed Beaver Lake Park Master Plan. Sewer service extensions to the Ballfield area are anticipated at a later date, and are also included in the following discussion.

The District's charges for sewer service include three primary components:

1. General Facility Charge: This charge is for the equitable share of the cost of the larger shared facilities, such as transmission mains and the connection to the sewer system owned by King County.
   This fee is based on meter size as an estimate of water use (and wastewater discharge).
2. Side Sewer Inspection Fee: This fee pays for the District's inspection of each side sewer connecting a structure to the sewer main, or stub off of a sewer main.
   This fee is charged per each connection. If multiple inspections (widely spaced in time) are required for a side sewer, there may be multiple charges.
3. Local Facility Charge: This charge is for the equitable share of the cost of the sewer collection main through and adjacent to the property. This fee is based on the property size and locations of sewers through and adjacent to the property. This charge may be:
   A) Paid in cash to the District for both existing sewer mains.
   B) Paid in cash for proposed sewer mains that are not being installed prior to provision of service.
   C) Paid by the installation of sewer facilities.

   [The cash fee may be paid at the standard Local Facility Charge based on average sewer installation costs, or may be paid at a rate set by a Reimbursement Agreement or Special Local Facility Charge adopted based on actual cost, and can be paid for at half of the rate if it is on the side of the property, or at the whole rate if it is through the property.]

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Applying the **Standard District Policy** with a developing property includes payment for all facilities that now exist or are going to be provided for the entire property.

The General Facility Charge and Side Sewer Inspection fees are fairly straightforward, and a table is provided below for the existing water service accounts and one additional new restroom. The Future Bathroom was assumed to utilize a 3/4-inch meter, the smallest size available. The fees included below are only for sewer service, and do not include any water charges for the future bathroom.

Service Location	Account	Meter Size	ERUs	Sewer General Facility Charge	Side Sewer Inspection
Maintenance Building	31093	3/4"	1	$2,395	$300
Lodge	31094	2"	8	$19,160	$300
Shelter/Ranger House	31095	2"	8	$19,160	$300
Future Bathroom	FUTURE	3/4"	1	$2,395	$300
Irrigation by Lodge	7489	2"	8	NA	NA
East side Subtotal				$43,110	$1,200
Ballfields	31092	1"	2.5	$5,988	$300
Ballfields Irrigation	7237	3"	16	NA	NA
Ballfields Subtotal				$5,988	$300

The fees quoted are those currently in effect and are subject to change at any time without prior notice. The actual fees charged will be those in effect at the time service is paid for and provided.

To assist consideration of the different options, the following guidelines can be utilized:

- Each separate structure requires a separate water meter.
- The meter size must meet plumbing code requirements for minimum size.
- Sizes of existing meters can be modified to meet the needs of the facilities as proposed in the master plan, and Equivalent Residential Units (ERUs) within the same property can be reallocated within the property.

The calculation and assessment of Local Facility Charges are more complicated as they vary widely based on property size, location and how the existing sewer system has been installed.

The **Standard District Policy** for Local Facility Charge with a developing property includes:

- Paying for all existing sewer that is located within or adjacent to the property.
  In this case the sewer has been paid for by the District, and the fee would be charged at the standard Local Facility Charge Rate. (Currently $384/ft or $192/ft)
- Extending all proposed sewer through and across the property and its frontages.
  For Beaver Lake Park this would include:
  - Lodge sewer from existing trail to SE 24th
  - SE 24th adjacent to Lodge area

- 244th Ave SE – (we assume the City will request that the installation of this facility be deferred to a later phase)
- Ballfields Sewer within park - (we assume the City will request that the installation of this facility be deferred to a later phase)

- If any of the proposed sewer installation is deferred, pay the Local Facility Charge for future installation of this facility by others.

In a tabular format this appears as

Beaver Lake Park Local Sewer Included	Cost Basis	Footage	Local Facility Charge Rate	Local Facility Charge
Existing Sewer				
Existing Trail Sewer	Standard LFC	2170	$384/lf	$833,280
Existing SE 24th Frontage from 244th to 248th	Standard LFC	1400	$192/lf	$268,800
Existing Sewer Subtotal				**$1,102,080**
[Note the actual cost of this sewer extension in 2002 was over $1.2 Million.]				
Sewer Installed with Phase 1				
Crossing Lodge area from Maintenance Building to SE 24th	Installation Estimate	662	NA	$233,440
SE 24th from 9020 to W Beaver Lake Drive SE	Installation Estimate	440	NA	$232,290
Sewer Installation Subtotal				**$465,730**
Future Sewer Payment				
244th Frontage from SE 24th to South Property Line (sewer may be required by others)	Standard LFC	1285	$192/lf	$246,720
On-site sewer from 244th to restrooms (sewer only required by Ballfield Area)	Defer Installation	750	Deferred	$0
Future Sewer Payment Subtotal				**$246,720**
Phase 1 Total of LFC payment & installation				**$1,814,530**

The District recognizes this is a significant cost, and the City has previously indicated a desire to reduce the cost and also to associate costs with service to specific areas.

Policy Modification Considerations
Potential specific Beaver Lake Park **Policy Modifications** for **consideration**:

The park has some distinct use areas: Maintenance Facility, Lodge area (east side), Ballfields (west side), and the North Woods (trail sewer route). In consideration of the significant charges associated with the park as a whole and that sewer service may be available to the different areas at different times, the District Board may consider the park as if it were several separate properties instead of one large property.

By splitting the property into these four areas the charges for each area would be paid at the time sewer service was provided to each of the areas, delaying payment for the remainder. A potential example of splitting Beaver Lake Park to four areas follows.

Again, considering the General Facility Charge and Side Sewer Inspection Fee first:

Area	Service Location	Account	Meter Size	ERUs	Sewer General Facility Charge	Side Sewer Inspection
Maintenance						
	Maintenance Building	31093	3/4"	1	$2,395	$300
	Maintenance Subtotal				**$2,395**	**$300**
Lodge Area (East)						
	Lodge	31094	2"	8	$19,160	$300
	Shelter/Ranger House	31095	2"	8	$19,160	$300
	Future Bathroom	FUTURE	3/4"	1	$2,395	$300
	Irrigation by Lodge	7489	2"	8	NA	NA
	Lodge Area Subtotal				**$40,715**	**$900**
Ballfields (West)						
	Ballfields	31092	1"	2.5	$5,988	$300
	Ballfields Irrigation	7237			NA	NA
	Ballfields Subtotal				**$5,988**	**$300**
North Woods (Trail)						
	No proposed use				$0	$0
	North Woods Subtotal				**$0**	**$0**

The Local Facility Charge could also be considered for each of the separate areas as follows:

Local Sewer Included	Cost Basis	Footage	Local Facility Charge Rate	Local Facility Charge
Maintenance				
Existing N-S Trail Sewer adjacent to Maintenance Building	Standard LFC	290	$192/lf*	$55,680
Maintenance Subtotal				**$55,680**
*charging at half of the LFC rate				
Lodge Area (East)				
Crossing Lodge area from Maintenance to SE 24th	Installation Estimate	662	NA	$233,440
SE 24th from 9020 to W Beaver Lake Drive SE#	Installation Estimate	440	NA	$232,290
Lodge Area Subtotal				**$465,730**
# eligible for latecomers reimbursement				

Local Sewer Included	Cost Basis	Footage	Local Facility Charge Rate	Local Facility Charge
Ballfields (West)				
244th Frontage from SE 24th to South Property Line (assumes prior installation by others)	Standard LFC	1285	$192/lf	$246,720
On-site sewer from 244th to restrooms	Installation Estimate	750	NA	$288,000
Ballfields Subtotal				**$534,720**
North Woods (Trail)				
Existing SE 24th Frontage from 244th to 248th	Standard LFC	1400	$192/lf	$268,800
Existing N-S Trail Sewer adjacent to Maintenance Building	Standard LFC	290	$192/lf	$55,680
Existing E-W Trail Sewer from 244th to Maintenance Building	Standard LFC	1880	$384/lf	$721,920
North Woods Subtotal				**$1,046,400**

Splitting the property into four sections, where the North Woods section does not have any proposed development, essentially reduces the actual cost of service to the Park property by over $1 Million dollars. However, I must emphasize that District staff does not have the authority to approve this potential course of action. A specific request would need to be made to the District Board of Commissioners for determination. In addition, this is based on policies and fees in effect today. Those policies, fees and the availability of water and/or sewer service could change at any time, without prior notice.

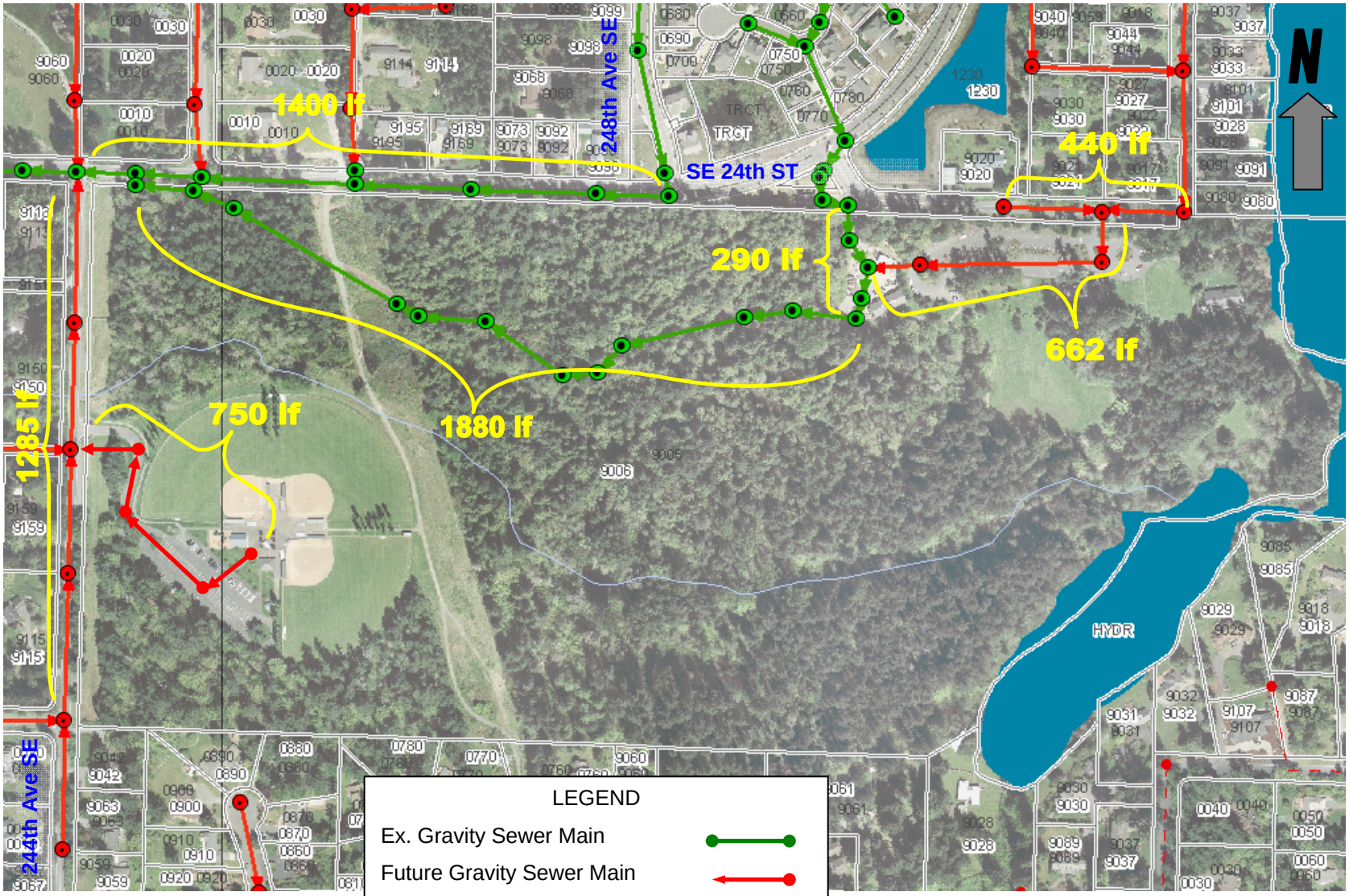
If you have questions regarding the costs or District policy included in this letter, please feel free to contact our office.

In addition to the costs provided in this letter, there may be additional costs associated with the process used to install new sewer extensions. For instance, a Developer Extension Agreement would include District Administrative and Design/Inspection fees not included previously.

Sincerely,

Jay Regenstreif, P.E.
Planning Engineer

BEAVER LAKE PARK SEWER



Memorandum

DATE: October 14, 2009

TO: Jessi Richardson, Director of Parks and Recreation
CC: Linda Frkuska, Deputy Director of Parks and Recreation

FROM: Anjali Myer, Parks Project Manager

RE: Summary of Costs related to Sewer Service at Beaver Lake Park
Ref: Letter from Sammamish Plateau Water and Sewer District, dated July 23, 2009

A. COSTS USING STANDARD DISTRICT POLICY **$ 2,153,128**

1. <u>Costs for sewer connection on SE 24th Street:</u> **<u>$ 1,612,120</u>**

a. General Facility Charge $ 43,110
(This includes charge for existing water service accounts to Maintenance building, Lodge, Shelter, future bathroom and irrigation by the lodge)

b. Side Sewer Inspection Fee $ 1,200

c. Local facility Charge
i). Exist. Trail Sewer and Exist. SE 24th Frontage $ 1,102,080
ii). Sewer installed with Phase I $ 465,730

2. <u>Costs for sewer connection on 244th Avenue SE:</u> **<u>$ 541,008</u>**

a. General Facility Charge $ 5,988
(This includes charge for ballfields restroom and ballfields irrigation)

b. Side Sewer Inspection Fee $ 300

c. Local facility Charge
i). 244th Frontage from SE 24th to south property limit $ 246,720
ii). On-site sewer from 244th to restrooms $ 288,000

B. COSTS USING POLICY MODIFICATION CONSIDERATIONS $2,153,128

1. Costs for sewer connection to Maintenance Building: $ 58,375

a. General Facility Charge $ 2,395

b. Side Sewer Inspection Fee $ 300

c. Local facility Charge $ 55,680
Exist. N-S trail sewer adjacent to maintenance building

2. Costs for sewer connection to Lodge Area: $ 507,345

a. General Facility Charge $ 40,715
(This includes charge for existing water service accounts to the Lodge, Shelter, future bathroom and irrigation by the lodge)

b. Side Sewer Inspection Fee $ 900

c. Local facility Charge $ 465,730
Sewer installed with Phase I

3. Costs for sewer connection to Ballfields: $ 541,008

a. General Facility Charge $ 5,988
(This includes charge for ballfields restroom and ballfields irrigation)

b. Side Sewer Inspection Fee $ 300

c. Local facility Charge
i). 244th Frontage from SE 24th to south property limit $ 246,720
ii). On-site sewer from 244th to restrooms $ 288,000

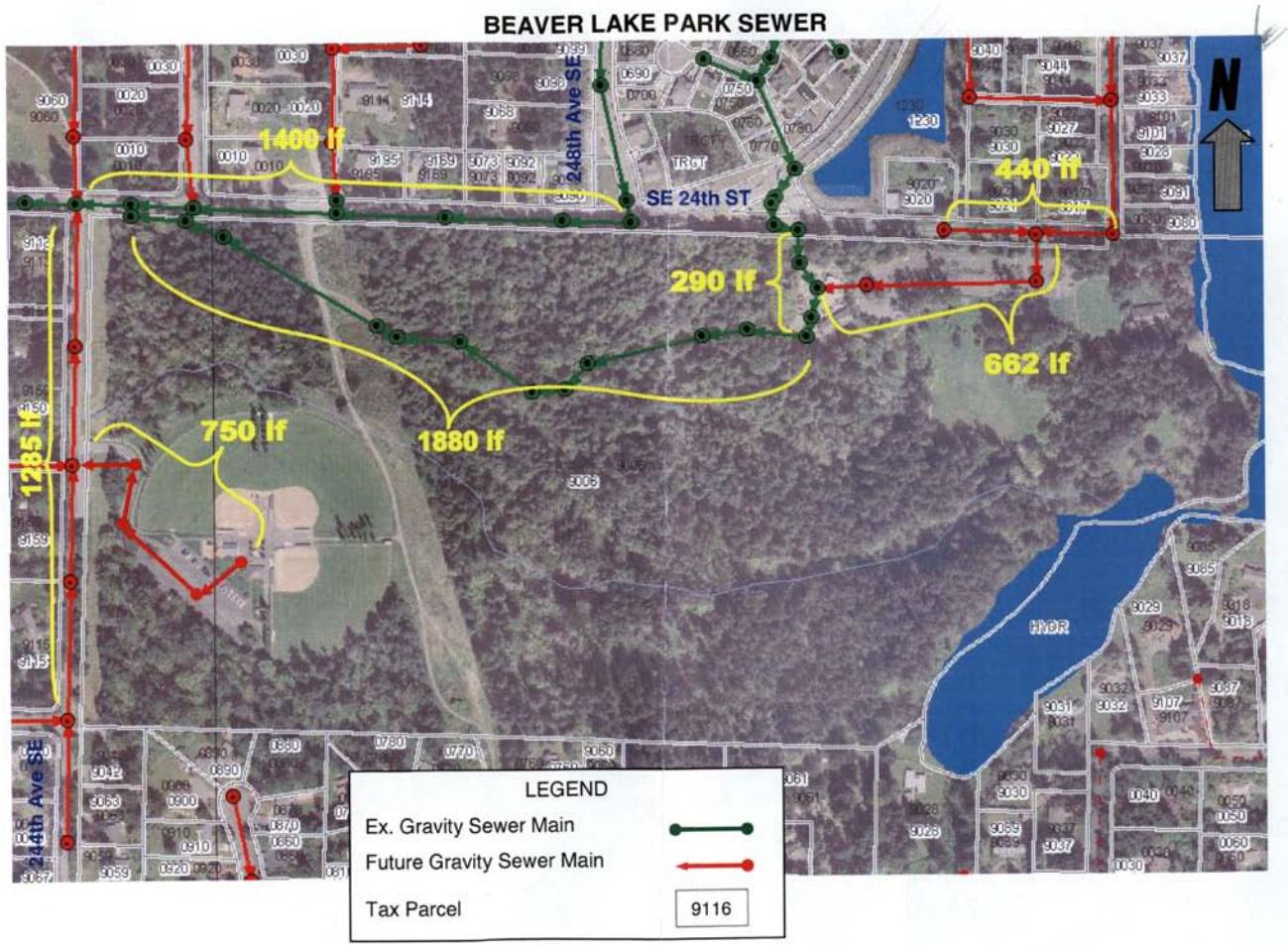
4. Costs for sewer connection to Northwoods Trail: $ 1,046,400*

a. General Facility Charge $ 0
(no proposed use)

b. Side Sewer Inspection Fee $ 0

c. Local facility Charge
i). Exist. SE 24th Frontage from 244th to 248th $ 268,800
ii). Existing N-S trail sewer adjacent to maintenance bldg. $ 55,680
iii). Exist. E-W trail sewer from 244th to maintenance bldg. $ 721,920

*The logic here is that since the North Woods section does not have any proposed development, this cost of approximately $1,000,000 would not be incurred.



09-07-52Beaver Lake Park Sewer service costs.doc

SAMMAMISH PLATEAU
WATER AND SEWER DISTRICT

April 1, 2010

Ben Yazici
City Manager
City of Sammamish
801 228th Avenue SE
Sammamish, WA 98075

RE: Sewer Connections at Beaver Lake Park

Dear Mr. Yazici: Ben

We appreciate the advance notice regarding the City Council memorandum on the potential for sewer provision for the Phase I portion of the Beaver Lake Park Master Plan. However, we are concerned by the recommendation provided, which is to not pursue the installation of the sewer through the lodge area in conjunction with the Phase I improvements.

The District is not fully aware of the final scope of the proposed Phase 1 Improvements, but modifications required to existing septic systems or proposals to install new septic systems would be contrary to the City and County regulations. The City Comprehensive Plan and ordinances indicate support for extension of sewers with new development.

On a more practical level, it is commonly accepted that the overall cost of sewer construction can be reduced when the installation is done in conjunction with other construction activities. This is especially true when considering the total true cost if any of the new construction would need to be reconstructed when the sewer is installed. This is precisely the argument used by the City in requesting the District spend over a million dollars to install the sewer on SE 20th Street prior to the City's non-motorized improvements.

As noted in the proposed Council Memorandum, the District previously approached the City regarding installation of the sewer through the park in conjunction with requests for sewer service from residents along West Beaver Lake Dr. SE. Not installing the sewer in conjunction with the park improvements will further delay the potential extension of sewer to this area, and

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likely increase the ultimate cost of service. Leaving the community input and requests for the sewer out of the proposed recommendation would seem short-sighted.

The Sammamish Plateau Water and Sewer District requests that the City reconsider the exclusion of sewer extension as a part of the Beaver Lake Park Phase 1 improvements. The current recommendation appears to be focused strictly on the current cost, while not considering the life time costs for the park.

Sincerely,

Ronald E. Little
General Manager

C: Jessi Richardson

Williams Gas Line Company

The 26" Interstate Transmission Pipeline runs parallel and adjacent to 244th Avenue SE within the 75-foot-wide easement along the west edge of Beaver Lake Park. It is operated by Williams Northwest pipeline. The access drive to the sports fields crosses this easement. During the master plan process, staff communicated with Ronald A. Mertz and Clay R. Gustaves to discuss the possibility of adding parking over part of the easement. The response received from Northwest was that they couldn't accept the proposed parking lot over the easement for the following reasons:

- Leak detection vents would be exposed to an ignition source (vehicles)
- Excessive construction and access congestion being located at the intersection
- Unsupervised vehicle weight loads over the pipelines
- Parking alternatives exist off of Northwest's easement

Northwest sees opportunities to approve a crossing of the easement to an adjacent parking area if it crosses perpendicular to the pipelines and meets vehicle loading standards.

Bonneville Power Administration

City staff communicated with Robert A. Thompson at Bonneville Power Administration (BPA) and Darby Broyles at Puget Sound Energy (PSE) during the programming phase of the master plan. The main features of the utility lines in the easement at Beaver Lake Park and associated restrictions are outlined below:

1. BPA has a transmission corridor (230 KV lines) within the park boundaries.
2. The easement is leased out by BPA to PSE.
3. PSE operates two 6" PVC conduits for 13 kV electrical distribution system, and one 12" high pressure natural gas pipeline within BPA's transmission corridor.
4. BPA & PSE must have access at all times to operate and maintain the lines in a safe manner.
5. Parking will be permissible under these lines with the following restrictions:
   - 50' clearance is required from the steel towers.
   - Parking cannot be located directly under the maximum sag, which occurs half way between two towers.
   - BPA & PSE have the right to reject/modify the location of the proposed parking.
   - They will restrict the size of vehicles using the parking lot.
   - If asphalt is used for the parking lot, the design section has to meet HS 20 loading standards for larger vehicles.
   - Parking might result in 'nuisance shocks' seen more in kids than adults. This is usually a bigger issue under 500 kv lines.

Permit Summary

A summary of review comments dated 11/17/2009, was provided by the City's Department of Community Development (DCD) and are attached here for reference. The review indicated that the master plan is by and large consistent with the Sammamish Municipal Code and will require typical permit work to approve. In the absence of a delineation of wetlands and stream boundaries, additional review will be required during the project design phase. The new trail crossings of the wetlands were noted to be generally not supported by the Sammamish Municipal Code; a Public Agency/Utility Exception (PAUE) may be an option for approval.

DCD notes on preferred Beaver Lake Master Plan (11/17/2009):
Notes for permitting / review
The Master Plan is generally consistent with the Sammamish Municipal Code and will generally require little permit work to approve. The notes below are based on a conceptual review at this time (more specific review can be provided as more details are available). There are a few items that may need to be tweaked during project review (as noted below), but otherwise the master plan largely appears to be consistent with applicable requirements.

Overall Plan:

1. Wetland / stream boundaries have not been delineated / surveyed at this time. There will be additional wetland / stream review done during the project review. Delineation would normally be done only when the proposed improvements will go "closer" to critical areas than the existing improvements (e.g. new trails, landscaping near ball fields, etc).
2. New driving surfaces that drain to the lake are subject to the 80% AKART phosphorous removal standard (probably a limited concern to the new parking areas) in addition to other KCSWDM requirements.

Lakeside area: *Comments are based upon the proposed SMP (assuming permits come in after the SMP is adopted by DOE). If DOE modifies the SMP, we should re-review the improvements on this side of the park:*

3. Landscaping will need to include native plants
4. Non-motorized connections are required between the road and the park improvements
5. 80% tree retention is required – it appears this will not be a problem.
6. Play area – no comments
7. The Point – it appears that The Point has a fishing dock / platform. Presuming this extends past the OHWM, it would be treated as a dock for permitting purposes. The dock generally appears to be consistent with the proposed SMP requirements.
8. Beach / Swimming area: it's not clear whether or not beach enhancement is proposed. It could be permitted and approved as part of a larger park approval project (maybe not as clear as a standalone project). Please note: that state permits (WDFW) will be required prior to installation, and requirements may be different from City requirements.
9. Parking interior to the site – if changed it would need to meet the dimensional standards (likely not a problem)
10. Parking along road – if the stalls are located "on site" then the proposed alternate parking lot design may not be approvable (SMC prohibits on-site parking from entering street ROW for circulation). If the parking is entirely in the public right-of-way, then PW would review the design.

Westside area:

11. Iconic park feature – no comments
12. Parking lot with P-Patch – easement provisions for BPA would need to allow this improvement (or otherwise approved by BPA). Parking lot would be subject to design requirements (probably not an issue)
13. Improvements (trail / landscaping) to the northwest of the proposed ball field location appear to be located closer to Laughing Jacobs Creek than the existing ball field improvements (based upon approximate measurements). Laughing Jacobs normally has a 150 foot buffer; buffer averaging could allow for a reduction down to 75 feet (with expansion elsewhere). Otherwise these improvements may need re-design at the project stage

The Woods area:

14. Trails - There are two proposed stream / wetland crossings in the Woods area and one proposed wetland prow. There are three items around the trail crossing / prow proposal:
    a. Trails that are allowed in wetlands / streams / buffers are limited to the outer 25% of the buffer, and require mitigation (e.g. mitigation, widening of the buffer, etc). The prow would also normally be located in the outer 25% of the buffer (which would limit direct viewing of the wetland).
    b. Trail crossings of streams and wetlands must meet mitigation sequencing (i.e. the impact is not avoidable). New trail crossings of wetlands are generally not supported by the SMC, however could be approved through a PAUE process.
    c. A Public Agency / Utility Exception may be an option for the trail crossings and prow in the wetlands (provided we address the mitigation sequencing requirement).

Permitting:

15. SEPA review: It appears we will issue a SEPA non-project determination for the Master Plan, and SEPA project determinations for each phase.
16. Land use permits: It appears that one (or more) shoreline substantial development permit(s) and a public agency / utility exception (PAUE) will be required to implement each phase of the master plan
17. Construction permits: Grading permit(s) and / or building permits will be required for each phase of the project.

Appendix

ANCHOR QEA

1423 Third Avenue, Suite 300
Seattle, Washington 98101
Phone 206.287.9130
Fax 206.287.9131
www.anchorqea.com

MEMORANDUM

To:	Dave Knight, The Berger Partnership	**Date:**	September 1, 2009
From:	Calvin Douglas and Betsy Bermingham, Anchor QEA, LLC	**Project:**	090526-01
Cc:	Peter Hummel, Anchor QEA, LLC; Guy Michaelsen, The Berger Partnership		
Re:	Beaver Lake Park Wetland and Stream Critical Areas and Shoreline Assessment		

The City of Sammamish (City) is currently in the process of developing the Beaver Lake Park Master Plan associated with Beaver Lake Park (Park), located in the City of Sammamish (City), King County, Washington. This Critical Areas Assessment Technical Memorandum (Memorandum) provides the results of a wetland and stream critical areas assessment on the approximately 83-acre park (Township 24 North, Range 6 East, Section 2). It also provides a qualitative assessment of the level of disturbance versus intact fish and wildlife habitat along the park's shoreline. This Memorandum is intended to support the Master Plan by providing information regarding the presence of two types of Environmentally Critical Areas (ECAs) and lakeshore habitat conditions. ECAs are defined in *Chapter 21A.50 Environmentally Critical Areas* of the City of Sammamish Municipal Code (SMC) (City of Sammamish 2009a). Critical areas protected under the SMC and addressed in this Memorandum include wetlands, streams, and lake shoreline. In addition, a list of wildlife species typically associated with similar habitats in King County that could occur within the park has been prepared. This list is based on observations during the site visit and vegetation communities and terrestrial and aquatic habitats existing within the park, Geologic and steep slope hazard critical areas are not addressed in this memorandum, and will be addressed in a separate document. The following sections of this Memorandum describe the methods used in the field investigation and the findings of Anchor QEA, LLC (Anchor QEA). An aerial photograph and topographic map of the park and study area is provided in Figure 1.

SUMMARY OF REFERENCES

The investigation was performed by Anchor QEA ecologists on April 2, 2009. As part of the analysis to identify critical areas in the park, Anchor QEA ecologists reviewed the following sources of information to support field observations:

- *U.S. Fish and Wildlife Service* (USFWS) *Wetlands Mapper for National Wetlands Inventory* (NWI) *Map Information* (USFWS 2009)
- *Soil Survey of King County, Washington* (USDA 1973)
- *Natural Resource Conservation Service* (NRCS) *Web Soil Survey* (USDA 2009)
- *Hydric Soil List for King County, Washington* (USDA 2001)
- SMC (City of Sammamish 2009a)
- City of Sammamish Sensitive Areas Map (City of Sammamish 2009b)
- City of Sammamish (Curry 2009)
- *Stream and Riparian Areas Restoration Plan* (Watershed Company 2006)
- *Beaver Lake Park Wetland Delineation Study* (Watershed Company 2007)
- *Beaver Lake Park Sewer Extension Wetland and Stream Analysis Report* (B-Twelve Associates, Inc 2004)
- *Management of Wildlife Habitats in Forests of Western Oregon and Washington, Vols. 1 and 2* (Brown 1985)
- Aerial photographs

The assessment was a reconnaissance-level investigation. Information was collected at the park to identify wetland conditions according to the methods defined in the U.S. Army Corps of Engineers (Corps) *Wetland Delineation Manual* (Environmental Laboratory 1987) and Washington State Department of Ecology's (Ecology's) *Washington State Wetland Identification and Delineation Manual* (Ecology 1997). Wetland ratings were determined using the most current version of Ecology guidance in *Washington State Wetland Rating System for Western Washington: Revised* (Ecology 2004) and *Wetland Rating Form – Western Washington, Version 2* (Ecology 2006), and according to the SMC wetland rating criteria (City of Sammamish 2009a). Stream characteristics were documented and stream types were determined based on SMC criteria (City of Sammamish 2009a). Information on lake shorelines conditions based on key habitat parameters was collected, and homogeneous shoreline segments or "reaches" were identified. Based on this information, appropriate wetland, stream, and lake buffers were identified per the SMC (City of Sammamish 2009a).

Wetland and stream boundaries were approximated and identified by marking aerial photographs. Lake shoreline reaches were also identified by marking aerial photographs. Locating boundaries with a Global Positioning System (GPS) was attempted, but satellite reception was poor due to dense forest cover; therefore, GPS point data were not collected. Wetland, stream, or lake shoreline boundaries were not flagged or surveyed as part of this investigation.

PARK DESCRIPTION

Beaver Lake Park is an approximately 83-acre park with approximately 54 acres comprising forest, wetland, and stream habitats. The remainder of the park includes ball fields, a picnic shelter, a playground, restrooms, and parking lots. The Sammamish-Maple Valley transmission line corridor, which is leased by the Bonneville Power Administration (BPA) to Puget Sound Energy (PSE), traverses the park from north to south. Residential property and undeveloped parcels are located north, south, and west of the park. The shoreline of Beaver Lake and Long Lake form the east boundary of the park (see Figure 1).

RESULTS AND CONCLUSIONS

The following sections provide the results of the wetland, stream, and lake shoreline investigation. The approximate locations of wetland, stream, and lake shoreline features identified during the investigation are shown on the aerial photograph of the park (Figure 2).

Streams and Wetlands

At the time of the site visit on April 2, 2009, flow and standing water in the streams and wetlands within the park appeared to be unusually high. Flow in the streams often appeared above the ordinary high water (OHW) line. Standing water was observed in upland areas outside of wetland habitat. Standing water several inches deep was frequently observed around the trunks of trees, such as Douglas fir (*Pseudotsuga menziesii*), and other upland plant species, such as salal (*Gaultheria shallon*) and sword fern (*Polystichum munitum*), were within inundated areas. Standing water was also observed within the grass field areas of the park. Several of these areas were not identified as wetland habitat, but as temporarily flooded areas.

Streams

Streams in the park include Laughing Jacobs Creek and two tributaries to the creek, Tributaries A and B (Figure 1). Laughing Jacobs Creek is identified on the City's sensitive areas map (City of Sammamish 2009b). The creek flows into the park from Long Lake and traverses the park from east to west, exiting the park at the west boundary through a culvert that flows beneath 24th Avenue SE. In general, the reach of the creek within the park is within forested habitat. In the location of the power line corridor that traverses the park in the north-south direction, the creek flows through a culvert. During the investigation, the width of the creek ranged from about 10 feet wide to more than 100 feet wide, with the wider reaches associated with wetland habitat. Fish use of the creek in the reach of the park includes cutthroat trout (*Oncorhynchus clarki*). Salmon such as coho (*O. kisutch*) and kokanee (*O. nerka*) use the lower reaches of the creek, downstream of the park (Watershed Company 2006). About 300 feet downstream of the Park boundary, the downstream reach of Laughing Jacobs Creek is identified as a wildlife corridor in the City's sensitive areas map (City of Sammamish 2009b)

Tributaries A and B are not identified on the City's critical areas map (City of Sammamish 2009b). Both tributaries are located within the forested habitat in the park. Tributary A flows into the park from a culvert beneath SE 24th Street on the west side of the park maintenance facility. Tributary A flows through a culvert beneath a walking trail a couple hundred feet from SE 24th Street. In this reach, Tributary A has a defined channel ranging from about 3 feet to about 10 feet wide. Downstream of the walking trail, Tributary A fluctuates from areas with a defined OHW line to areas of ponded water within upland hummocks. Many of these ponded areas did not have surface water connections at the time of the investigation, indicating flow is subsurface in several areas. As described previously, standing water was observed in several areas with upland vegetation such as sword fern and salal. While a connection with a large wetland system associated with Laughing Jacobs Creek was identified, overall, at the time of the site visit, surface flow in Tributary A was intermittent with an undefined channel for significant reaches of the system. Tributary B flows away from Tributary A about 100 feet south of the walking trail. Tributary B is very similar to Tributary A, with an undefined channel through a mosaic of upland hummocks. Tributary B flows into a depressional wetland system (Figure 1). Tributaries A and B appear to have seasonal flow and are unlikely to support fish use.

Under the SMC, Laughing Jacobs Creek appears to meet the criteria of a Type F stream, based on the use of salmonids or the potential to support salmonid uses. Tributaries A and B appear to meet the criteria of Type Ns streams. Type Ns streams have seasonal flow and do not have the potential to be used by salmonids. Under the SMC, Type F streams have a 150-foot buffer and Type Ns streams have a 50-foot buffer (City of Sammamish 2009a). The SMC also identifies setback distances of 15 feet for buildings and other structures from the edge of critical area buffers. Items allowed within the 15-foot building setback include landscaping, uncovered decks, building overhangs (no more than 18 inches into setback area), and impervious ground surfaces (provided that such improvements may be subject to special drainage provisions and trails) (City of Sammamish 2009a). The City will determine the final stream ratings and minimum buffers.

The SMC (City of Sammamish 2009a) identifies allowable activities or alterations to streams and stream buffers. The following is a summary of allowable activities or alterations (see Chapter 21A.50.340 of the SMC for the complete text):

- Proposed development may be allowed that will protect, restore, or enhance the habitat, natural drainage, or other valuable function of the stream.
- Utilities may be allowed in stream buffers if no reasonable alternative location is available (in addition to meeting a variety of construction and mitigation specifications).
- Surface water management activities may be allowed in stream buffers if surface water discharge to the stream is in compliance with City stormwater requirements. A Type Ns stream may be used as a stormwater management facility if required exemptions are granted, stormwater requirements are met, the use will not lower the stream rating, and there are no significant adverse impacts to stream or habitat.
- Trails and viewing platforms may be allowed in stream buffers under specific requirements of development standards.
- New crossings (utility corridors, roads, and trails) may be allowed in stream buffers if the number of crossings is minimized, bridges or bottomless culverts provide fisheries protection and pose no harm to stream habitat or inhibit anadromous fish migration, crossings are constructed during summer low flows and timed to avoid stream disturbance during critical fish periods, crossings do not occur over spawning areas, bridge piers or abutments are not placed within the

ordinary high water mark, and crossings do not diminish the flood carrying capacity of stream.

- Stream relocations may be allowed for type Ns streams as part of a public road, trail or park project or for the purpose of enhancing resources in the stream if appropriate floodplain protection measures are used and the relocation occurs on site. Any relocation must maintain existing surface water and ground water hydrologic characteristics.
- Replacement of existing culverts to enhance stream habitat may be allowed.
- Habitat enhancement and restoration that is limited to placement of rock weirs, log controls, spawning gravel and other specific habitat improvements may be allowed.

Each of these activities would be subject to applicable federal, state, and local permits and approvals.

Wetlands

The *USFWS Wetlands Mapper for NWI Map Information* identifies the body of water of Beaver Lake and several wetland systems within the park (USFWS 2009). The main body of Beaver Lake is identified as lacustrine limnetic, unconsolidated bottom, permanently flooded (L1UBH) lake system. The shoreline of Beaver Lake associated with the park is identified as a lacustrine littoral, aquatic bed, permanently flooded (L2ABH) lake system. Long Lake is identified as a palustrine aquatic bed, permanently flooded (PABH) wetland system. Three wetlands are identified as palustrine unconsolidated bottom, permanently flooded (PUBH) wetland systems. These three wetlands are located in areas associated with Laughing Jacobs Creek.

All wetland habitats identified during the investigation are associated with lakes or streams. Wetland habitat associated with Laughing Jacobs Creek ranges from a few feet wide to more than 100 feet wide. The majority of the reach of the creek within the park includes associated wetland habitat, although there are several areas where there are small patches of wetland habitat between breaks of upland habitat, particularly in the reach of the creek west of the culvert within the power line corridor. Wetland habitat is present within the park within the same general locations as identified on USFWS NWI mapping, although wetland conditions observed during the investigation cover a larger area than the NWI (USFWS

2009). The dominant wetland community in the park is Palustrine forested (PFO) systems with palustrine scrub-shrub (PSS), palustrine emergent (PEM), and PAB also occurring, usually as understory of the PFO habitat. A complete list of all plant species observed during the investigation is provided on Table 1.

Table 1
Summary of Vegetation Species Observed within the Park

Scientific Name	Common Name	Indicator Status[1]
Trees		
Acer macrophylum	Big-leaf maple	FACU
Alnus rubra	Red alder	FAC
Arbutus menziesii	Pacific madrona	UPL
Fraxinus latifolia	Oregon ash	FACW
Picea sitchensis	Sitka spruce	FAC
Populus trichocarpa	Black cottonwood	FAC
Pseudotsuga menziesii	Douglas fir	FACU
Salix lasiandra	Pacific willow	FACW+
Salix scouleriana	Scouler willow	FAC
Thuja plicata	Western red cedar	FAC
Tsuga heterophylla	Western hemlock	FACU-
Shrubs		
Acer circinatum	Vine maple	FAC-
Cornus sericea	Red-osier dogwood	FACW
Cytisus scoparius	Scot's broom	UPL
Gaultheria shallon	Salal	FACU
Holodiscus discolor	Oceanspray	UPL
Ilex aquifolium	Holly	FACU
Mahonia aquifolium	Tall Oregon grape	UPL
Oemleria cerasiformis	Indian plum	FACU
Rosa nutkana	Nootka rose	FAC
Rubus armeniacus	Himalayan blackberry	FACU
Rubus spectabilis	Salmonberry	FAC+
Rubus ursinus	Trailing blackberry	FACU
Sambucus racemosa	Red elderberry	FACU
Spiraea douglasii	Spirea	FACW
Symphoricarpos albus	Snowberry	FACU
Vaccinium ovatum	Evergreen huckleberry	UPL
Vaccinium parvifolium	Red huckleberry	UPL

Scientific Name	Common Name	Indicator Status[1]
Ferns & Herbaceous		
Agropyron repens	Quackgrass	FAC-
Carex obnupta	Slough sedge	OBL
Equisetum hyemale	Scouring-rush	FACW
Galium trifidum	Small bedstraw	FACW+
Hedera hibernica	English ivy	UPL
Holcus lanatus	Common velvet grass	FAC
Iris pseudoacorus	Yellow-flag iris	OBL
Lysichiton americanus	Skunk cabbage	OBL
Oenanthe sarmentosa	Water-parsley	OBL
Phalaris arundinacea	Reed canarygrass	FACW
Plantago lanceolata	English plantain	FAC
Polypodium glycyrrhiza	Licorice fern	FACU
Polystichum munitum	Sword fern	FACU
Pteridium aquilinum	Bracken fern	FACU
Ranunculus repens	Creeping buttercup	FACW
Taraxacum officinale	Common dandelion	FACU
Urtica dioica	Stinging nettle	FAC+

Notes:
1 = Wetland indicator status is based on USFWS.
UPL = Occurs almost always (estimated probability 99 percent) under natural conditions in non-wetlands.
FACU = Usually occurs in non-wetlands (estimated probability 67 to 99 percent), but occasionally found on wetlands (estimated probability 1 to 33 percent).
FAC = Equally likely to occur in wetlands or non-wetlands (estimated probability 34 to 66 percent).
FACW = Usually occurs in wetlands (estimated probability 67 to 99 percent), but occasionally found in non-wetlands.
OBL = Occurs almost always (estimated probability 99 percent) under natural conditions in wetlands.

The functional values of wetlands within the park were rated according to Ecology's wetland rating system (Ecology 2004 and 2006), which classifies wetlands into four categories (Category I, Category II, Category III, and Category IV) using a point system where points are awarded to three functional value categories: water quality, hydrologic, and wildlife habitat. Under the Ecology system, all of the wetland habitats identified within the park are rated as Category II wetlands. Wetland ratings under the SMC are based on the Ecology rating system (City of Sammamish 2009a) and therefore, the wetland ratings under the City are the same as the Ecology wetland ratings.

Appropriate minimum wetland buffers have been identified according to the current SMC (City of Sammamish 2009a). The SMC identifies protective buffer widths based on the wetland category and the wildlife habitat score, per the Ecology rating system. According to the SMC, wetlands in the park have a minimum protective buffer of 100 feet based on a Category II wetland rating and a habitat score of between 20 points and 28 points. As described above in the Streams Section, the SMC identifies setback distances of 15 feet for buildings and other structures from the edge of critical area buffers, with allowable items within the 15-foot building setback including landscaping, uncovered decks, building overhangs (no more than 18 inches into setback area), and impervious ground surfaces (provided that such improvements may be subject to special drainage provisions and trails) (City of Sammamish 2009a). The City will determine the final wetland ratings and minimum buffers once a wetland delineation is completion as part of future park development action.

The SMC (City of Sammamish 2009a) identifies allowable activities or alterations to wetlands and wetland buffers. The following is a summary of allowable activities or alterations (see Chapter 21A.50.100 of the SMC for the complete text):

- Proposed development may be allowed that will protect, restore, or enhance the wildlife habitat, natural drainage, or other valuable function of the wetland.
- Utilities may be allowed in wetland buffers if no reasonable alternative location is available and there is no use by Endangered Species Act (ESA) listed species in the wetland or buffer (in addition to meeting a variety of construction and mitigation specifications).
- Surface water management activities may be allowed if surface water discharge to the wetland does not increase the rate of flow or decrease water quality of the wetland, no reasonable alternative exists, and the functions of the wetland or buffer are not adversely affected,
- Trails and viewing platforms may be allowed in wetland buffers under specific requirements of development standards.
- New crossings (utility corridors, roads, and trails) may be allowed if the corridor is part of a City-adopted plan, and the new crossing creates less overall impacts to critical areas than an existing corridor, does not change overall wetland hydrology, and does not diminish flood storage capacity.
- Wetland enhancement and restoration that results in a net improvement of wetland functions and is limited to revegetation may be allowed.

Each of these activities would be subject to applicable federal, state, and local permits and approvals.

Buffer width averaging for both stream and wetland buffers may be allowed if the action will provide additional natural resource protection, the total area contained in the buffer on site remains the same, and the buffer width is not reduced to less than 50 percent of the standard buffer in any area.

Buffer averaging can be used in conjunction with buffer reduction incentive-based mitigation options as long as the buffer width is not reduced to less than 50 percent of the standard buffer and the applicant demonstrates mitigation sequencing as required in SMC 21A.50.135. In all circumstances where a substantial portion of the remaining buffer is degraded, buffer reduction requires native vegetation planting in these degraded areas and a 5-year monitoring and maintenance plan.

The following incentive-based mitigation options for buffer reduction may be used as approved by the City (City of Sammamish 2009d):

- Installation of biofiltration/infiltration mechanisms (up to 20 percent reduction in buffer width)
- Removal of existing impervious surfaces (between 10 and 20 percent reduction in buffer width based on amount of existing impervious surface)
- Removal of invasive, non-native vegetation within remaining buffer; this action requires monitoring and maintenance for at least 5 years (up to 10 percent reduction)
- Restoration of on-site buffer and habitat areas or restoration of off-site buffer and habitat areas within the same sub-basin on the impacted feature if no on-site restoration is possible (between 10 and 20 percent reduction in width depending on the ratio of impacted and restored areas)
- Removal of significant refuse sources or toxic material (up to 10 percent reduction)
- For stream features only: in-stream habitat enhancement (between 20 and 30 percent reduction in width depending on enhancement features)

Lake Shoreline Regulations and Habitat Assessment

The shoreline of Long and Beaver Lakes constitutes the eastern side of the Park. The Park runs along approximately 10 percent of the Beaver Lake shoreline and 45 percent of the Long Lake shoreline; single-family home private uses dominate the remaining shoreline of both lakes. This section of the memorandum summarizes regulations pertaining to shoreline development first, and then assesses of the conditions of the shoreline habitat by reach. The shoreline buffers are shown on Figure 2. The shoreline reaches are shown on Figure 3.

Shoreline Regulations (Including Buffers)

Under the SMC, the Park shoreline is designated Urban Conservancy and the entire Beaver Lake watershed is designated a special management area in relation to private development (City of Sammamish 2009a). The Park's recreational development is a preferred shoreline use; the City of Sammamish Shoreline Master Program (SMP) Update notes that shoreline recreational facilities must be water-oriented and provide physical or visual access to the water. Non-water oriented public recreational development must be located outside of the shoreline buffer of 50 feet, specified in the lakes and ponds development standards of the Critical Areas Ordinance (21A.50.351). A tree retention requirement of 25 percent of existing significant trees, half of which are located within the 50-foot setback area, also applies (City of Sammamish 2009c, 2009d). Water-oriented recreational structures, such as docks and public shelters, are allowed waterward of the shoreline buffer. Public docks or piers cannot have more than 3,000 square feet of surface area, while public recreational floats cannot have more than 150 square feet of surface area. Picnic or other similar shelters are prohibited over the water or within wetlands or streams; the maximum footprint of these structures per lot is 500 square feet, and they cannot be taller than 10 feet above existing grade (City of Sammamish 2009c).

Shoreline Habitat Assessment

The shoreline exhibits fairly good habitat conditions for fish and wildlife. Most sections of Long and Beaver Lake provide over-water shading from conifer trees, intermixed in some areas with deciduous wetland species. Long Lake contains a nearly continuous band of wetland vegetation at the water's edge, comprising mostly native species. Although found in small pockets along the site, large woody debris is also present, with the majority found near the Laughing Jacob's Creek inlet where evidence of beaver activity was also observed. Only two small sections of the shoreline contain any armoring, and although many sections of the

shoreline are well used by the public, none appear to be irreparably damaged by this use. The following sections describe the shoreline reaches and categorize these reaches based on the degree to which they are impacted or alternatively provide high quality habitat.

Description of Shoreline Reaches

This section describes the characteristics of each homogenous Shoreline Reach within the Park. Figure 3 illustrates the extent of each reach. Attachment A contains photos that illustrate the shoreline site conditions for each reach from the reconnaissance survey.

Reach 1 begins at the intersection of the Park and private property along the southwest corner of Long Lake. The shoreline along this reach is not easily accessible or even very visible from the trail, located approximately 450 feet away. This Reach houses a scrub-shrub wetland consisting of western spirea (*Spiraea douglasii*) thickets with a few salmonberry shrubs (*Rubus spectabilis*) intermixed. A few red alder (*Alnus rubra*) trees are also found along the lake's edge. The upland forest is dominated by western red cedar (*Thuja plicata*) with a salal understory.

Reach 2 begins with the first formal access point to the water's edge, which consists of a short trail from a nearby grass picnic area. This reach is found on the left bank of the Laughing Jacob's Creek inlet from Long Lake. Similar plant species occur along the shoreline as in Reach 1, though more willow species (*Salix lasiandra* and *Salix scouleriana*) are found within the spiraea thickets. Himalayan blackberry (*Rubus armeniacus*) also occurs. Large woody debris pieces are found near the stream inlet.

Reach 3 occurs along the right bank of Laughing Jacob's Creek inlet. This reach contains a small access trail to the water from a larger Parks Department trail and grassy upland area. A greater amount of invasive blackberry is found within this reach; spiraea, salmonberry, alder, and cedar trees also occur. Slough sedge (*Carex obnupta)* clumps also begin to occur in this reach. As with Reach 2, large woody debris can be found near the stream mouth. This reach contains a fair amount of beaver damage in the form of short stumps and snags within the lake near the stream.

Reach 4 occurs near an informal trail that provides access to the shoreline. There is less large woody debris in this reach though a few pieces were observed. The shoreline plant palette is dominated by slough sedge, with spiraea and alder also occurring.

Reach 5 contains an upland picnic area with barbecue and an approximately 20-foot wide access and view corridor to the lake edge. Within this access corridor, no vegetation besides lawn occurs though it is framed by a few cedar and alder trees and spiraea thickets. Oregon ash (*Fraxinus latifolia*) trees are also present within the upland portions of this reach, and one Sitka spruce (*Picea sitchensis*) was also observed.

Reach 6 contains a similar upland palette of open grassy recreation space; however, no picnic tables were observed. The upland area houses a few bat habitat boxes and a Parks trail. Blackberry bushes and spiraea dominate the vegetation along the shoreline.

Reach 7 provides the connection between Long and Beaver Lakes. The approximately 25-foot-wide channel connection looked fairly shallow, with an approximate depth between 5 and 10 feet. Private property across from the Park houses a concrete bulkhead and wire fence with "No Trespassing" signs clearly posted. The vegetation consists of a dense cedar overstory with little vegetation found near the water besides a few sedge clumps, which are found only on the Park side of the channel.

Reach 8 begins within Beaver Lake. This shoreline is dominated by spiraea thickets while the upland has a parkland character with large cedar trees and a salal understory. A small number of large woody debris branches occur within this reach.

Reach 9 contains a fairly open, upland grassy picnic area and a fairly dense patch of large cedar trees near the water. These trees obscure some of the views from the picnic area. Debris, such as fishing lines and ropes hanging from tree branches, indicates that this portion of the shoreline is popular for fishing and possibly swimming.

Reach 10 shares the open upland grassy picnic area with Reach 9; however, this portion of the shoreline has little vegetation at the water's edge besides spirea, and thus, it has better views of the lake than Reach 9. Portions of this reach contain large cedar trees, though these specimens are set back from the water by at least 20 feet.

Reach 11 houses the Park's totem pole landmark within its upland area. A picnic area is also found near the shoreline. A concrete bulkhead structure runs along approximately 15 feet of the shoreline, possibly indicating a past swimming area. A few alder trees and some salmonberry and spirea occur along the shoreline with a few patches of the invasive yellow iris (*Iris pseudacorus*); overall, the vegetation is dominated by lawn.

Reach 12 has a very open shoreline with very little vegetation, besides a few iris patches within the water. Large cedar trees with fairly wide parkland spacing occur approximately 10 feet back from the water. The shoreline has a somewhat beach-like character due to the presence of sand and gravel sediment at the water's edge. Benches and picnic tables have been placed near the shoreline, and a very large picnic shelter with barbecues dominates the upland Park within this reach.

Reach 13 is the last shoreline segment within the Park. While the large parkland plantings and lawn continue within the upland, no formal seating or picnicking amenities are found within this reach. Spirea thickets, carex patches, and a few alders are found at the lake's edge, Cedar and salal dominate the upland though Douglas fir is also found. A drainage culvert was observed approximately 15 feet from the water's edge, and a concrete vault is found along the property line approximately 20 feet from the shoreline. Two decrepit piles were observed within the lake near the Park boundary. The private property is delineated by a fence and within the water, by a dock extending into the lake.

Shoreline Assessment Conclusions

To aid the master planning and future permitting processes, this section describes high quality habitat areas along the shoreline and those areas that are impacted and could either benefit from restoration or could support greater Park development or public use.

Some of the highest quality shoreline habitat is found along Long Lake and is evident especially within Reaches 1 and 4 and, to a lesser extent, within Reaches 2 and 3. The section of the shoreline in Reach 1 contains a nearly continuous wetland with thick vegetation at the water's edge and fairly good canopy cover provided by deciduous and conifer species. Reach 4 also contains dense canopy coverage and includes some large woody debris along the shoreline. Unlike most of the other reaches within the Park, these sections

support less public use and thus provide a greater measure of remoteness for fish and wildlife species. Reaches 2 and 3 exhibit greater impact within Long Lake through the presence of invasive species such as Himalayan blackberry near the water's edge. These same reaches, however, share Laughing Jacob's Creek inlet, which shows evidence of beaver use; these reaches therefore have the greatest amount of large woody debris of all of the Park's shoreline. Reaches 2 and 3 also contain a nearly continuous segment of wetland vegetation.

Within the connecting channel and Beaver Lake, Reaches 7 and 8 provide substantial canopy coverage of the water and a degree of remoteness through a lack of formal trails or picnic amenities. Reach 8 also contains some large woody debris, although much less than Reaches 2 and 3.

Finally, Reaches 9, 12, and 13 provide a good amount of canopy cover from large cedar trees. These sections exhibit less high quality habitat, however, through their nearby uplands, which are dominated by lawns and well-used public recreation amenities. These reaches also have a presence, albeit small, of human-made debris near or within the water (fishing lines, piles) and small areas of invasive wetland species, such as non-native yellow iris.

The areas of the shoreline that are most impacted include Reaches 5, 6, 10, and 11. These reaches have varying degrees of public use, with Reaches 10 and 11 housing greater picnicking amenities and Reaches 5 and 6 containing trails and upland lawn areas. While wetland plants occur along the water's edge through a portion of Reaches 5, 6, and 10; these sections have little canopy coverage over the water. Reach 11 also contains the only armoring structure within the Park boundary (Reach 7 contains an armoring structure on private property only). These reaches also contain little or no large woody debris that is important for shoreline habitat complexity.

Wildlife Assessment

Based on the vegetation communities and terrestrial and aquatic habitats observed within the park, wildlife species known to occur in similar habitats in King County that could occur or are likely to occur in the park were identified. All observations were qualitative; no quantitative wildlife surveys were performed.

Wildlife rely on vegetation for food, shelter, and cover from predators. Wildlife diversity is generally related to the structure and composition of plant species within vegetative communities. In general, vegetation communities that contain few species or vegetative layers (herbaceous, shrubs, or trees) support a low diversity of wildlife, whereas vegetation communities that are more complex and contain a wide variety of plant species and vegetative layers can support a greater diversity of wildlife. Forested and riparian areas with well developed shrub layers are likely to support the greatest number of species and populations of wildlife (Brown 1985).

The lakes, streams, and wetland habitats in the park provide valuable habitat for a variety of wildlife because of their diverse vegetation and source of water. Many bird species, small mammals, and amphibians that depend on water likely use these areas for foraging, nesting, and breeding. The creek and the open water lake and wetland habitats also provide habitat for wintering and migratory waterfowl.

Riparian areas associated with Laughing Jacobs Creek provide habitat for a variety of amphibians, mammals, and birds. Raptors and cavity-nesting ducks use snags and downed trees along riparian and wetland edges for perch sites and nesting areas.

The mixed coniferous/deciduous forest and shrub upland and wetland habitat provides valuable habitat for wildlife species as well as breeding areas for edge species. Because of its relative size, high snag density, and vegetative diversity, the forested/shrub upland and wetland areas are likely to provide habitat for interior-dependent wildlife species and migrating songbirds.

Based on the general premise that wildlife diversity is a function of vegetative diversity, the riparian habitat of Laughing Jacobs Creek and the associated forested/shrub communities, ponds, and wetlands are the habitats of greatest value in the investigated area. Together, they contain several vegetation associations. A greater proportion of native bird species and higher bird species diversity would be expected in these habitats compared with other portions of the park.

Mowed grassland habitat in the park associated with play fields and picnic areas provides the least viable habitat of the park. Wildlife in these areas would typically be associated with the nearby forested, wetland, and riparian habitats.

Overall, forested/shrub upland and wetland habitats in the park likely provide foraging and nesting habitat for a variety of native and nonnative amphibian, bird, reptile, insect, and mammal species common to similar habitats in King County and western Washington. Table 2 lists wildlife species that use similar habitats in King County and would typically be considered likely to occur within the park habitat.

Table 2
Wildlife Species Known to Use Similar Habitats in King County that are Likely to Occur within the Park

Common Name	Scientific Name
Amphibians	
Northwestern salamander	*Ambystoma gracile*
Pacific chorus frog	*Pseudacris regilla*
Red-legged frog	*Rana aurora*
Rough-skinned newt	*Taricha granulosa*
Western red-backed salamander	*Plethodon vehiculum*
Mammals	
Bat	*Myotis spp.*
Black-tailed deer	*Odocoileus hemionus columbianus*
Coyote	*Canis latrans*
Deer mouse	*Peromyscus maniculatus*
Douglas' squirrel	*Tamiasciurus douglasii*
Eastern gray squirrel	*Sciurus carolinensis*
European rabbit	*Oryctolagus cuniculus*
Least chipmunk	*Tamias minimus*
Long-tailed weasel	*Mustela frenata*
Mountain beaver	*Aplodontia rufa*
Norway rat	*Rattus norvigicus*
Raccoon	*Procyon lotor*
Shrew	*Sorex spp.*
Shrew mole	*Neurotrichus gibbsii*
Skunk	*Mephitis mephitis*
Southern red-backed vole	*Clethrionomys gapperi*
Townsend's mole	*Scapanus townsendii*
Townsend's vole	*Microtus townsendii*
Vagrant shrew	*Sorex vagrans*
Virginia opossum	*Didelphis virginiana*

Common Name	Scientific Name
Vole	*Microtus spp.*
Reptiles	
Common garter snake	*Thamnophis sirtalis*
Northern alligator lizard	*Gerrhonotus coeruleus*
Northwestern garter snake	*Thamnophis ordinoides*
Western fence lizard	*Sceloporus occidentalis*
Western garter snake	*Thamnophis elegans*
Birds	
American crow	*Corvus brachyrhynchos*
American goldfinch	*Carduelis tristis*
American robin	*Turdus migratorius*
American widgeon	*Anas americana*
Bald eagle	*Haliaeetus leucocephalus*
Barn owl	*Tyto alba*
Barn swallow	*Hirundo rustica*
Barred owl	*Strix varia*
Belted kingfisher	*Ceryle alcyon*
Bewick's wren	*Thryomanes bewickii*
Black-capped chickadee	*Parus articapillus*
Black-headed grosbeak	*Pheucticus melanocephalus*
Black-throated gray warbler	*Dendroica nigrescens*
Brant	*Branta bernicla*
Brown creeper	*Certhia americana*
Brown-headed cowbird	*Molothrus ater*
Bufflehead	*Bucephala albeola*
Bushtit	*Psaltriparus minimus*
California quail	*Callipepla californica*
Canada goose	*Branta canadensis*
Canvasback	*Aythya valisineria*
Cedar waxwing	*Bombycilla cedorum*
Chestnut-backed chickadee	*Parus rufescens*
Common goldeneye	*Bucephala clangula*
Common yellowthroat	*Geothlypis trichas*
Cooper's hawk	*Accipiter cooperii*
Dark-eyed junco	*Junco hyemalis*
Double-crested cormorant	*Phalacrocorax auritus*
Downy woodpecker	*Picoides pubescens*
European starling	*Sturnus vulgaris*
Gadwall	*Anas strepera*
Glaucous-winged gull	*Larus glaucescens*
Golden-crowned kinglet	*Regulus satrapa*

Common Name	Scientific Name
Gray catbird	*Dumetella carolinensis*
Great blue heron	*Ardea herodias*
Great horned owl	*Bubo virginianus*
Green-winged teal	*Anas crecca*
Hairy woodpecker	*Picoides villosus*
House finch	*Carpodacus mexicanus*
House sparrow	*Passer domesticus*
Killdeer	*Charadrius vociferus*
Mallard	*Anas platyrhynchos*
Marsh wren	*Cistothorus palustris*
Northern flicker	*Colaptes auratus*
Northern harrier	*Circus cyaneus*
Northern shoveler	*Anas clypeata*
Olive-sided flycatcher	*Contopus borealis*
Orange-crowned warbler	*Vermivora celata*
Osprey	*Pandion haliaetus*
Pileated woodpecker	*Dryocopus pileatus*
Purple finch	*Carpodacus purpureus*
Red-breasted nuthatch	*Sitta canadensis*
Red-breasted sapsucker	*Sphyrapicus ruber*
Red-tailed hawk	*Buteo jamaicensis*
Red-winged blackbird	*Agelaius phoeniceus*
Ring-billed gull	*Larus delawarensis*
Rock dove	*Columba livia*
Ruby-crowned kinglet	*Regulus calendula*
Rufous hummingbird	*Selasphorus rufus*
Savannah sparrow	*Passerculus sandwichensis*
Solitary vireo	*Vireo solitaius*
Song sparrow	*Melospiza melodia*
Spotted towhee	*Pipilo erythrophthalmus*
Steller's jay	*Cyanocitta stelleri*
Tree swallow	*Tachycineta bicolor*
Varied thrush	*Ixoreus naevius*
Violet-green swallow	*Tachycineta thalassina*
Western gull	*Larus occidentalis*
White-breasted nuthatch	*Sitta caralinensis*
White-crowned sparrow	*Zonotrichia leucophrys*
Winter wren	*Troglodytes troglodytes*
Yellow warbler	*Dendroica petechia*
Yellow-rumped warbler	*Dendroica coronata*

Note: Table 2 is a summary of wildlife species likely to occur within the park based on existing habitats and is not intended to provide a comprehensive list of all wildlife species that may be observed within the park.

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Lakeside

One of the most unique and valued features of Beaver Lake Park is its relationship to Beaver Lake. The lakeside's natural features and park amenities make it the heart of the park. In addition to beach access and recreation, the Lodge, Pavilion, and iconic totem poles are all located here. The two totem poles in the lakeside meadow and the three Salish House posts in the pavilion are owned by King County and qualify as public art. These art pieces will remain in the locations they are in now. The lakeside has been subject to extensive use over the years resulting in decline of the beach, shoreline trees and meadow areas. The following section outlines improvements for each area within the Lakeside.

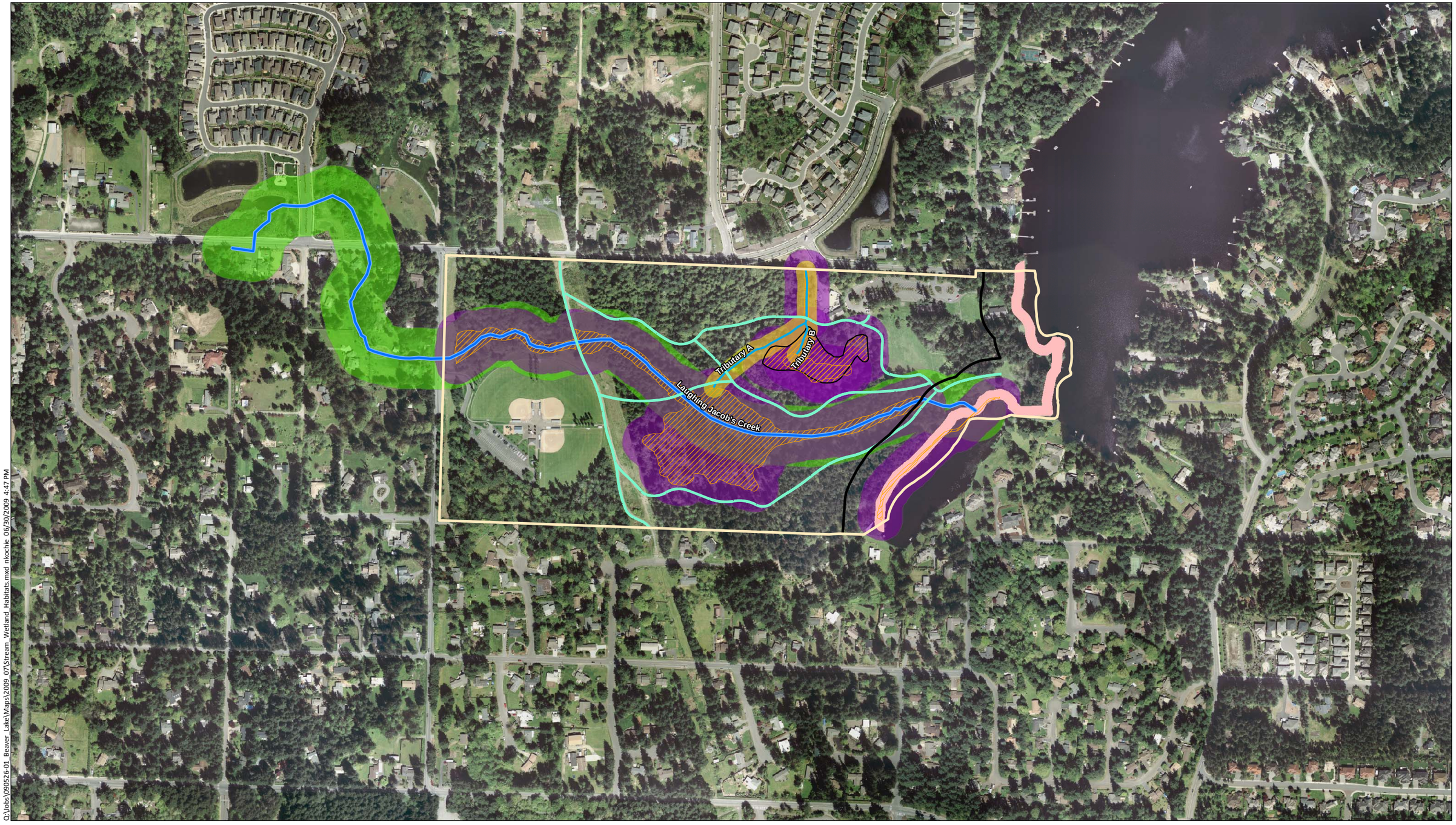
FIGURES

ANCHOR QEA

5ft Topographic Contours
Beaver Lake Park

Feet
0 230 460 690 920

Figure 1
Topographic Map
Beaver Lake Park



Q:\Jobs\090526-01_Beaver_Lake\Maps\2009_07\Stream_Wetland_Habitats.mxd nkochie 06/30/2009 4:47 PM

ANCHOR QEA

- Laughing Jacob's Creek
- Tributary
- Catagory II Wetlands
- City Catagory II Wetland Data (Curry 2009)
- Trails
- 200-foot Shoreline Zone
- 50-foot Tributary Buffer
- 50-foot Shoreline Buffer
- 100-foot Catagory II Wetlands Buffer
- 150-foot Jacob's Creek Buffer
- Beaver Lake Park

Feet
0 230 460 690 920

Figure 2
Stream and Wetland Habitats
Beaver Lake Park

Q:\Jobs\090526-01_Beaver_Lake\Maps\2009_04\Shoreline_Reaches.mxd nkochie 05/07/2009 2:26 PM

ANCHOR QEA

Feet
0 40 80 120 160

Figure 3
Shoreline Reaches
Beaver Lake Park

ATTACHMENT A

Photo A1
Reach 1: View east from upland forest towards Long Lake.

Photo A2
Reach 2: View southeast from upland picnic area towards Long Lake with access trail.

Photo A3
Reach 2: View northeast from Long Lake access point towards stream inlet.

Photo A4
Reach 3: View southeast from Long Lake access point towards stream inlet.

Photo A5
Reach 4: View east from Long Lake access point towards shoreline vegetation.

Photo A6
Reach 5: View southeast from upland lawn towards shoreline access area.

Photo A7
Reach 6: View northeast towards upland lawn area.

Photo A8
Reach 6: View southeast towards trail that runs adjacent to shoreline.

Photo A9
Reach 7: View west towards connector canal and adjacent private property between Long and Beaver Lake.

Photo A10
Reach 8: View east from upland forest towards Beaver Lake.

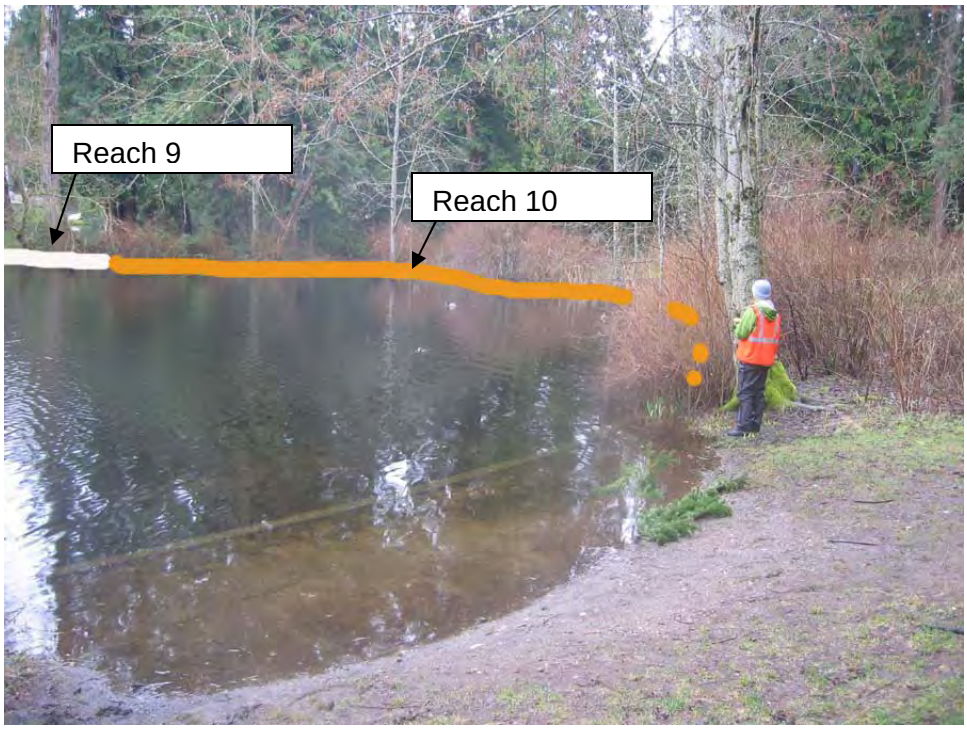


Photo A11
Reaches 9, 10 and 11: View southeast from upland lawn portion of Reach 11 towards shoreline including Reach 10 and a portion of Reach 9.

Photo A12
Reach 11 and 12: View north from Reach 11 towards Reach 12 shoreline.

Photo A13
Reach 11 and 12: View northwest from Reach 11 shoreline towards Reach 12 picnic shelter and upland lawn.

Photo A14
Reach 12: View southeast from upland lawn towards shoreline.

Photo A15
Reach 13: View north from upland lawn towards park boundary fence and shoreline.

Memo

MAGNUSSON
KLEMENCIC
ASSOCIATES

Structural + Civil Engineers

1301 Fifth Avenue, Suite 3200 Seattle Washington 98101-2699 T: 206 292 1200 F: 206 292 1201 W: www.mka.com

TO	David Knight, The Berger Partnership	DATE	April 15, 2009
FROM	Steven Haluschak	PAGE	1 OF 2
PROJECT	**Beaver Lake Park Master Plan**	PROJECT #	93720.50
SUBJECT	Civil Engineering Reconnaisance		

Civil engineering related elements for the Beaver Lake Park site include stormwater management, sanitary sewer service, and water supply for the park. The following paragraphs identify constraints and/or availability of these elements for future changes and developments at the park.

The site is located at the downstream (southwesterly) edge of Beaver Lake. A portion of the park drains to the lake but most of the park drains to Laughing Jacobs Creek. Laughing Jacobs Creek crosses the park from the easterly edge to the westerly edge of the park. There are currently two "developed" sites on the park property. The ball fields area is located on the southwesterly quadrant of the site and the recreational picnic area is located at the northeasterly portion of the site. The recreational picnic area is the bulk of the developed area on the park property that drains to the lake.

Stormwater Management

Quantity:
The portion of the site that drains to the lake (the recreational picnic area) is subject to a Level 3 Analysis and design for stormwater detention. A goal for this area may be to avoid construction of new and/or replaced impervious surfaces in this area. The portion of the site that drains to Laughing Jacobs Creek (this includes the ball fields area) is subject to a Level 2 Analysis and design for stormwater detention. A goal for this area may be to minimize (rather than avoid) construction of new and/or replaced impervious surfaces in the area.

Quality: Enhanced treatment will be required for any pollution generating surfaces throughout the park. Treatment trains will likely be required for water quality treatment of runoff from new and/or replaced pollution generating surfaces throughout the park. Bioretention facilities may be used, even though low-impact development approaches are not yet common or adequately represented in King County. Another benefit of bioretention systems is that they also can provide some stormwater detention. A water quality goal for the park may be to minimize or avoid construction of new and/or replaced vehicular surfaces and/or turf areas that require fertilization and pest management measures.

Sanitary Sewer Service

It appears that the recreational picnic area is currently served by a septic system. An existing sanitary sewer main, located in an easement on site, serves the development north of the park. This sanitary sewer main could serve a portion of the recreational picnic area (including the lodge) with a gravity sanitary side sewer. It appears that the ball fields area is currently served by a septic system. This area could be connected to the sanitary sewer main, although the pipe crossing Laughing Jacobs Creek may need to be core/drilled or jacked under the creek and a small lift station may be required.

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Water Supply

Based on City of Sammamish utility maps, both developed areas on the park property have City water service to the site. As a result, it appears that offsite water pipe extensions will not be required.

SDH/sdh

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Beaver Lake Park

Scheme Options

	Preferred Option	Option B	Option L	Option P
Character		**Formalizedd Arcs & Spaces**	**Central Primary Spine w/ Secondary Crossings**	**Existing (Meandering)**
Lakeside	**Shoreline Development (Maximum)** Minimal Tree Removal @ Shore Existing Use w/ Roped "Swim Area" Designated Fishing at "The Point"	**Shoreline Development (Maximum)** Remove Trees @ Shore Swimming Designated Fishing Dock	**Shoreline Development (Medium)** Remove Some Trees @ Shore Existing Use Designated Fishing	**Shoreline Development (Minimum)** No Tree Removal @ Shore Existing Beach/ No "Swimming" Designated Fishing Area Dock
	Lakeside Meadow Bathrooms w/ Shower Play Area Berm Meadow for "Amphitheater"	**Lakeside Meadow** Bathrooms w/ Shower Play Area Berm Meadow for "Amphitheater"	**Lakeside Medow** Bathrooms Play Area Upper Sand Area (Volleyball)	**Lakeside Meadow** No Bathrooms (Keep at Lodge) Bathrooms Upper Sand Area (Volleyball)
	Lodge (Maximum) Orient to Southwest (Remove Trees) New Southwest Lawn & Pavilion Improve Water Treatment at West Meadow	**Lodge (Maximum)** Orient to Southwest (Remove Trees) New Southwest Lawn & Pavilion Improve Water Treatment at West Meadow	**Lodge (Medium)** Orient to South (Keep Most Trees) South Pavilion (Existing Lawn) Extend Treatment @ West Meadow	**Lodge (Low)** Improve Existing West Lawn
	Lakeside Meadow	**Lakeside Meadow**	**Lakeside Medow**	**Lakeside Meadow**
	Parking (Maximum) Add Extra Bays Entrance @ Maintenance Yard No East Roundabout (Potential) Beaver Lk. Drive Future Dead End (Potential) Angle Parking on Former Street	**Parking (Maximum)** Add Extra Bays Entrance @ Maintenance Yard No East Roundabout (Potential) Beaver Lk. Drive Future Dead End (Potential) Angle Parking on Former Street	**Parking (Medium)** Add One Bay Entrance @ Maintenance Yard East Roundabout (Circulation Simplified) Beaver Lake Drive Remains No Parking on Street	**Parking (Low)** Slight Changes Existing Entry Existing Parking Circulation/ Roundabout Beaver Lake Drive Remains No Parking on Street
The Woods	**Paths (Low)** Existing w/ North-South Connection Potential Ped. Only Creek Crossing Narrow Spine w/ S Narrow Spine w/ Soft Surface Minimal Features	**Paths (Low)** Existing w/ North-South Connection Narrow Spine w/ Soft Surface Minimal Features	**Paths(Medium)** Existing Layout w/ Surface Imprv. Medium Width w/ Crushed/ Ashpalt Some Features (Wetland Prow)	**Paths (High)** Changes w/ North-South Connection Wide Width w/ Ashpalt Features (Wetland Prow, Boardwalks, etc.)
	24th R.O.W.- Sidewalk w/o Parkway Trees	**24th R.O.W.- Sidewalk w/o Parkway Trees**	**24th R.O.W.- Meandering Path**	**24th R.O.W.- Sidewalk w/ Parkway Trees**

Beaver Lake Park

Scheme Options

	Preferred Option	Option B	Option L	Option P
West Rec. Area	**Minimum Field Development** (3) Baseball: 200' Outfield/ 60' Baseline 89,205 sf / 30,135 sf (Outfield/ Infield) 119,335 sf Total Baseball (1) Multi-use 200' x 350' (Lacrosse & Soccer) 70,000 sf Total Multi-use **Total Field Area: 189, 340 sf** (Existing= Approximately 231,365) (5,085 SF Field Area Net Removal From Stream Buffer) **OLA- Expanded Area to Parking + Surfacing** **Power Line Easement** P-Patch off of SE 24th St. (w/ Parking) Wildflowers OLA- Same w/ Surfacing Viewing Overlooks (at ends) **244th R.O.W.- Path in Easement (No Parking)**	**Minimum Field Development** (2) Soccer: 180' x 300' (1) Baseball: 300' Outfield/ 90' Baseline (2) Softball: 200' Outfield/ 60' Baseline **Total Field Area: 205,000 sf** **OLA- Same w/ Surfacing** **Power Line Easement** Wildflowers OLA- Same w/ Surfacing **244th R.O.W.- Path in Easement (No Parking)**	**Medium Field Development** (2) Soccer: 180' x 300' (1) Baseball: 300' Outfield/ 90' Baseline (2) Softball: 200' Outfield/ 60' Baseline **Total Field Area: 231,000 sf** **OLA- Along 244th** **Power Line Easement** Wildflower Garden Connection to SE 28th Pl **244th R.O.W.- Sidewalk Only (No Parking)**	**Maximum Field Development** (2) Soccer: 190' x 330' (1) Baseball: 300' Outfield/ 90' Baseline (2) Softball: 200' Outfield/ 60' Baseline **Tota Field Area: 300,000 sf** Maintenance Shed **OLA- Along 24th Near Easement** **Power Line Easement** Bermed Meadows Viewing Overlooks (at ends) **244th R.O.W.- Sidewalk & Parallel Parking**
Approximate Parking Quantity	**Lakeside** Existing- 85 Proposed- 115 **West Rec. Fields** Existing- 125 Proposed- 145	**Lakeside** Existing- 85 Proposed- 140 **West Rec. Fields** Existing- 125 Proposed- 140	**Lakeside** Existing- 85 Proposed- 135 **West Rec. Fields** Existing- 125 Proposed- 135	**Lakeside** Existing- 85 Proposed- 115 **West Rec. Fields** Existing- 125 Proposed- 165

Beaver Lake Park

Scheme Options

	Preferred Option	Option B	Option L	Option P
Design Issues/ Consideration	**Lakeside** Entry through existing maintenance yard (Grade) Bathroom likely needs pump Central Meadow Stormwater Pond Grades concern-treatment may need to be held to north edge Play area drainage outfall (sheetflow or lake? Elevation is concern) Underdrainage for lawns issue for outfall/ soil profile improvements **The Woods** Wetland Impacts/ Buffer Utilize "Leaky Berm" detail through wetland/ soggy areas Treatment of bridges and other surfaces to be "permeable" **West Rec. Fields** New buildings may require further fire protection (verify fire hydrant) Consider Permeable Paving For Plaza Areas Entry Drive Radii (Reviewed-Okay) Slope (Reviewed-Okay) Treat New Surface in Bioretention Stormwater Ponds Bioretention or Wetland Ponds Elevation/ Head Concern for Ponds Septic System Should Go to Sewer for Capacity and Healther Reasons Lift Station ? Sewer + Jack Bore Under Stream or Arctic Pip Aside Road P-Patch Water Access/ Water Meter Bioretention w/ treatment for new parking OLA Underdrain & release to creek			

Public Meeting Minutes

Beaver Lake Master Plan

Public Meeting #1 Summary Wednesday, April 15, 2009

Public Meeting #1 was conducted in a workshop format and was attended by about 20 citizens. This meeting had been preceded by two Stakeholder Meetings at which attendees had shared their hopes, dreams and fears related to the project. The purpose of the first public meeting was to seek comments regarding people's overall vision for the property and their specific concerns by dividing them into group discussions and allowing them to participate in a design charrette. The following is a summary of the salient points raised by each of the four groups:

Group #1:

- Beaver Lake Park Sign at the corner of SE 24th Street and 244th Ave SE
- Small dog park on the pacific north-west pipeline (Williams) easement
- Better year-round surface at off-leash dog park (for big dogs)
- Direct entry to the park from 244th Ave SE
- Parking along 244th Ave SE
- Increase the size of the parking lot at the ballfields
- Improve parking efficiency at the lodge
- Add soccer field overlays on the ballfields
- Provide stream buffer enhancement at the north of the ballfields
- Artificial turf on all fields
- Field lighting shielded from the neighbors and creek
- Better signage at BPA easement to help connect the two halves of the park
- Make one trail accessible (ADA)
- Provide a boardwalk trail to connect to the two trails
- Locate historic display outside or in the lodge
- Create historic zone around the lodge and pavilion
- Provide a swim beach with outdoor showers and lifeguard
- Identify a location for fishing that protects the rest of the shoreline
- Restore understory and define trails more closely along the edge of the lake

Group #2:

- Unified edge treatment for the park along SE 24th Street and 244th Ave SE
- Entry to the park on SE 24th street from current maintenance facility
- Increase the size of both existing parking lots
- Additional parking on the BPA easement off of SE 24th street
- Additional overflow parking at the corner of SE 24th street and 244th Ave SE
- Equestrian access from the park to 248th Ave SE
- Potential trail through private property easement to 245th Place SE
- Beach access along central section of shoreline; restore the rest of the shoreline to its natural state
- Dog access to long lake
- Restrooms at the beach access
- Improve trail crossing at the creek tributary

Group #3:

- Signage at the corner of SE 24th Street and 244th Ave SE
- Some treatment to define the edge of the park up to the park entry on both streets
- Re-orient two ballfields to accommodate a soccer field between the infields
- Create a picnic area along the meadow south-west of the lodge
- Entry on SE 24th street from the maintenance facility
- Dock on the lake to separate swimming and fishing activities
- Play area at the south edge of the turf area between the lodge and lakeside pavilion
- Some picnic area along the lake

Group #4:

- Buffers for adjacent home-owners
- Pedestrian entry at the corner of SE 24th Street and 244th Ave SE
- Some treatment along both SE 24th Street and 244th Ave SE to define the edges
- Beautify the maintenance facility
- Off-leash area, enforcement and management
- Parking on SE 24th street north of the existing equestrian trail
- Additional parking along 244th Ave SE
- Re-configure access driveway on 244th Ave SE and add parking here
- Re-configure ballfields to be multi-use fields with soccer
- Keep the two trails, one rustic and the other wider and more formal
- Rustic Beach Access
- Play area in the meadow south-west of the lodge

Moving forward, the master plan consultants, the Berger Partnership will compile the input received at this public meeting and the online survey with comments received from City Council, the Parks Commission and City staff as well as their own ideas and recommendations to come up with three distinct alternatives for the Master Plan design. These design alternatives will be presented on June 3, 2009 at Public Meeting #2 to be held at the lodge at Beaver Lake Park.

Beaver Lake Master Plan

Public Meeting #2 Summary Wednesday, June 3, 2009

Public Meeting #2, held at the Beaver Lodge was attended by about 70 citizens. This meeting had been preceded by two Stakeholder Meetings and one public meeting. The purpose of the second public meeting was to seek comments on three schemes of Master Plan Alternates that were presented. Attendees were divided into ten groups to discuss the elements of each scheme that appealed to them. Due to the large number of participants, each group was asked to present 3-5 points of consensus and 2 'hot topics' that the group could not achieve consensus on. The following is a summary of the salient points raised by each of the ten groups:

Consensus Items:

General:

- Safe access to the park, park entries and connector streets with improved pedestrian access along 244th and 24th was a priority for many groups.
- The groups were divided in their vote for the proposed on-street parking.
- Preserving the natural character of the park and saving as many of the existing trees as possible, particularly in the 'woods' was also a consensus item for many groups.
- Two groups said that they did not want Beaver Lake Park to be a destination park for sports clubs. They felt that no addition of activities/attractions is needed. There are enough people coming to the park from outside the City.
- They advised that program elements requiring enforcement or administration should not be added.
- One group said that with any changes to the park, increased parking to accommodate those changes must be addressed, with a ban on parking on 244th Ave SE and SE 24th.
- One group asked to see better park signage throughout the park.

Lakeside:

- Three groups agreed that a new entrance to the park alongside the maintenance facility is a good idea because it creates a nice loop around the parking.
- One group requested a buffer between the beach and the neighboring house to the north (a berm with trees).
- Two groups supported the separation of the lodge and the lakeside pavilion. They asked to improve the usage of the lodge with privacy berms and gardens to make the lodge more attractive.
- While a separation of fishing and swimming was desired by most groups, they were clearly divided on whether a formal approach with a swim beach and dock was needed. Here are the range of comments received:
    1. 'Scheme P' has the best layout for the 'lakeside.' Swimming and fishing have the least amount of disturbance in this scheme and the pier is less obtrusive around the point.
    2. Swimming beach as in 'Scheme B' is preferred, but try and keep as many existing trees as possible.
    3. A swimming beach with a lifeguard and a separate fishing dock (angled, rather than jutting straight out into the lake).

4. Do not place the dock at the point. Consider an L-shaped dock that might be less obtrusive.
5. No formal swimming. No dock.
6. Separation of fishing and swimming.
7. No formal separation of fishing and swimming.
8. Outdoor restroom/shower near the lake is a good idea.
9. Decrease the number of proposed uses at the lakeside.
10. Provide an area to slip a small boat into the water, probably closest to the neighbor, since this would be a quiet activity.

Woods:

- A majority of the groups wanted to preserve the 'woods' as they are with minimal tree removal.
- One group wanted to ensure that sensitivity to habitats was factored in to the location and width of proposed trails.
- Plant identification was suggested along the trails.
- A desire was expressed to keep the rustic trail (the east trail that kind of runs along the water) as-is. However, addition of a loop trail as shown on one plan and a viewing platform would be nice. The main trail (running parallel to 24th) needs improvement to the surface/drainage.
- Two groups raised concerns about paving the main trail (over the sewer easement) as it will end up being used by people on bikes. If the main trail was to be paved, the widths should accommodate the horse trails alongside the paving.
- One group asked to provide parking on SE 24th, a lot just east of the power lines, buffered from the street by trees.

Westside:

- Four groups voted to move the dog park to 244th Avenue SE and to restore the meadow under power lines.
- Three groups wanted to keep the dog park where it is; fix the drainage and improve the surface. They felt the area under the power lines was relatively flat and least disruptive. One group asked to provide closer parking (on 24th, just above the dog park).
- Three groups ruled out the parking at the intersection of 244th Ave SE and SE 24th Street.
- One group felt that additional parking should be accommodated next to the fields with additional cut-back into southwest corner (like the old library).
- The preference was to keep the northwest corner with trails.
- One group liked the path on the gas easement and wanted something similar down the power line easement.
- The comments on the sports fields were varied:
  1. Two groups voted that 'Scheme B' has the best layout for the 'westside.'
  2. Two groups did not like 'Scheme P' with the most intense development of the fields.
  3. Two groups felt that artificial turf is fine but had no agreement on lights.
  4. Two groups were clear that they did not want lights for the ball fields.
  5. The development will be bad for baseball.

Hot Topics:

- Lighting for the sports fields was a hot topic for five of the groups. Most agreed that they don't want lights.
- One of the groups added their reservations against PA systems. They asked that alternative locations such as Sammamish State Park, be investigated.
- One of the groups did not want lights, not because of the lights themselves, but because of the additional hours of noise and traffic. One member in this group represented the lacrosse community and wanted lights with a commitment to shut them off at 8PM.
- Artificial turf for the ball fields was a hot topic for one group.
- One group did not want an overlay of soccer fields in the park.
- Two groups identified saving as many existing trees as possible to be a hot topic.
- Preserving the lodge, the historic tribute to totem poles & original intention of honoring nature was a hot topic for one group.
- Preserving the dog park in its current location was a hot topic for one group.
- One of the groups did not want to see a designated swimming use at Beaver Lake Park.

Moving forward, the master plan consultants, the Berger Partnership will compile the input received at this public meeting with comments received from City Council, the Parks Commission and City staff as well as their own ideas and recommendations to get us closer to the final preferred master plan. Additional studies and data will be gathered on the hot topics to be discussed further at Public Meeting #3 to be held at the lodge at Beaver Lake Park on September 3, 2009.

Beaver Lake Master Plan

Public Meeting #4 Summary Wednesday, November 4, 2009

The purpose of this meeting was to present and seek input on the preferred Master Plan for Beaver Lake Park. Comments were solicited for the three different areas of the park, i.e. the Lakeside, the Westside and the Woods.

The following is a summary of the comments/questions and *responses* from the meeting:

LAKESIDE

- The play area at the lakeside and the beach improvements along the shoreline will require removal of some existing trees. Request for a detailed count of trees to be removed.
- Comment to applaud the effort to keep the trees around the lodge.
- Concern on how the grass-berm in the lakeside meadow will affect the triathlon.
- Question if access for dogs to the lake was considered. *This was not intended or planned for.*
- Concern that the grass-berm will limit the available open space for activities like frisbee. *The berm is proposed in the location of the current asphalt turn-around which will be removed as part of the improvements; net available lawn area will not be compromised.*
- Question regarding the elimination of the existing service road. *The primary 'spine trail' will serve as access for service vehicles.*
- Question if the concrete bulkhead along Long Lake will be removed. *The bulkhead will be removed as part of the shoreline restoration efforts.*
- Question if the fishing platform will support the number of users; concerns regarding easy access to the lake for fishermen when the existing service access will be removed. *The buoy line will be anchored to define the limits of swimming during the summer months only.*
- Question on the number of existing and proposed parking spaces. *The existing parking lot has 85 parking spaces and the proposed parking lot will accommodate a total of 115 parking spaces.*

WESTSIDE

- Question if the 3 little-league fields and 1 rectilinear field (for soccer/lacrosse/football) proposed, was in proportion to the demand. *The 3 little league fields were proposed to ensure no net loss of fields at this facility and the 1 rectilinear field was the most that could be accommodated here. Statistics showed that the peak demand for both little-league and lacrosse is in the Spring, so providing multi-use fields would not work.*
- Question if a survey has been carried out for the effects of noise and lights from the fields. Concern about the noise disturbance from the fields if they are to be lit.
- Comment from an attendee that he is 100% against the fields in Beaver Lake Park if they are to be lit.

- Comment from an attendee that the fields are sunken and surrounded by dense tall trees that buffer the fields from the surrounding residences.
- Concern that the parking proposed on-site may not be adequate. The overflow parking on 244th Avenue SE without the sidewalks is illegal and unsafe.
- Comment that this layout is much better than the options presented previously; but that residents across 244th Ave SE will be impacted by noise and parking issues.
- Statistics show that vandalism is a lot less on fields that are lit.
- Comment from a mother of kids in multiple sports that this is a 'Community Park' and everyone uses it; it is a good layout and she loves the turf fields. She recommended looking at legal parking along the 244th Avenue SE. She hoped that the community would work together in an effort to keep the kids on the plateau and advised to look at a reasonable time to turn-off the lights at 9:30 pm.
- Comment that we do not have enough fields in Sammamish and to applaud the City on the design; the lacrosse field is very timely with the increase in numbers of users.
- Comment that it is important for kids to experience nature just as it is for them to play sports; concern that lighting the fields will impact the wildlife in the woods which forms the center of the park and lends it its unique character. *Current technology has light fixtures with less light spill.*
- Comment that with the lights on the fields, even the winter evenings will no longer be quiet.
- Comment that statistics show that obesity is higher in U.S.A. than anywhere else. Fields are good and obesity is bad.
- Request to allocate fields based on current demand. 128,000 kids play soccer on the Eastside; any capacity added benefits the system as a whole.
- Don't build the soccer field if you don't light it.
- Concern that there are 600 lacrosse players on the plateau; field limitations turn kids away.
- An attendee encouraged others to visit fields with lighting in adjacent communities; these fields make more attractive communities.
- Request to see how the fields at Beaver Lake Park fit into the entire system (in Sammamish) and to look for alternate field locations with fewer disturbances to neighbors.
- Comment that the pea-patch is a nice addition to the park.

WOODS

- Concerns that the sport field lighting will affect the wildlife.
- The off-leash area already barricades wildlife; more fences will further barricade the wildlife.
- Question why asphalt paving is being considered for the primary trail; horses will tear up the asphalt. *Paving a partial width of the trail is being considered to help make this loop ADA accessible and to help maintenance crew to get around the park.*
- Comment to applaud the sensitivity of the design to leave the 'woods' as-is with minimal improvements.

OPERATIONS:

The following comments relate to policies rather than the design and have been grouped below:

- Concern that the people who come to the park to fish, will have to walk a longer distance in the summer time when part of the beach is cordoned off for swimming.
- Lily-pad management in the lake is needed; *this is funded by the Beaver Lake Management District and Friends of Beaver Lake.*
- In the absence of animal control, a stronger enforcement by the City's Police Department is required.
- Concern that if the primary trail is paved, it will be abused by non-maintenance vehicles.
- Concern that though the little league fields are not proposed to lit, it is easy to light them in the future, causing more impact to the neighbors.
- Comment that games/field booking can be staggered to reduce the parking impact on the Westside.

Next Steps:

Following the public meeting, the Preferred Master Plan for Beaver Lake Park will be presented to the Parks Commission and City Council. Both meetings are open to the public.

SEPA Checklist

A. BACKGROUND

1. Name of proposed project, if applicable:

Beaver Lake Park Master Plan

2. Name of applicant:

City of Sammamish, Parks & Recreation Department

3. Address and phone number of applicant and contact person:

Anjali Myer, Project Manager

City of Sammamish
801 - 228th Avenue SE
Sammamish, WA 98075

Phone: 425.295.0581
Fax: 425.295.0600

4. Date checklist prepared:

February 22, 2010

5. Agency requesting checklist:

City of Sammamish

6. Proposed timing or schedule (including phasing, if applicable):

The Master Plan for Beaver Lake Park identifies a series of park improvements that will be implemented over several years as funding allows. This plan includes proposals for new park elements and upgrades to existing park facilities. While overall phasing and funding have yet to be determined, funding has been allocated for a first phase which is likely to include work on the east side of the park involving the parking area, lakeside meadow and beach improvements.

7. Do you have any plans for future additions, expansion, or further activity related to or connected with this proposal? If yes, explain.

No

8. List any environmental information you know about that has been prepared, or will be prepared, directly related to this proposal.

Memorandum: Beaver Lake Park Wetland and Stream Critical Areas Reconnaissance. Anchor QEA, LLC, 9/1/09
Memorandum: Civil Engineering Reconnaissance. Magnusson Klemencic Associates, 4/15/2009

9. Do you know whether applications are pending for governmental approvals of other proposals directly affecting the property covered by your proposal? If yes, explain.

There are no known applications for any other projects affecting this site.

10. List any government approvals or permits that will be needed for your proposal, if known.

The Sammamish City Council will adopt the Beaver Lake Master Plan after SEPA approval. Future phases of the individual projects will potentially require approvals or permits in some or all of the following areas:

- City of Sammamish SEPA
- City of Sammamish: Wetland Buffers, Stream Buffers, Shorelines (Floodplains), Seismic and Landslide Hazard Areas
- City of Sammamish Building Permit
- City of Sammamish Clearing and Grading Permit
- Washington State Department of Fish & Wildlife: Hydraulic Project Approval (HPA)
- Washington State Department of Ecology: Wetlands, Water Quality, National Pollutant Discharge Elimination System Permit (NPDES)
- U.S. Army Corps of Engineers: Wetlands, Streams, Endangered Species

11. Give brief, complete description of your proposal, including the proposed uses and the size of the project and site. There are several questions later in this checklist that ask you to describe certain aspects of your proposal. You do not need to repeat those answers on this page. (Lead agencies may modify this form to include additional specific information on project description.)

Beaver Lake Park is an existing 83.36-acre park transferred to the City of Sammamish in 2003 and is currently developed and open to the public. There are approximately 54 acres of the park that exist within a contiguous, heavily wooded stand of mature trees. The remaining active areas exist among smaller mature stands of trees and provide a variety of amenities including a beach, picnic areas, activity meadows, ball fields, and a network of trails. Running east to west from the lake through the heart of the park, is Laughing Jacobs Creek. There are three distinct existing areas of the park identified in the master plan: **The Lakeside**, **The Westside**, and **The Woods**. The proposed plan calls to expand the current facilities within each of these areas and to provide better connections between them, to improve the park experience and better accommodate all park users within the local community. Street frontage improvements are a significant part of the overall plan to increase visibility, accessibility and the safety of park visitors. This includes potential curb bulbs, completing sidewalks, on-street parking, and adding parking regulatory signage as deemed necessary by the City. Further description of each area is as follows:

The Lakeside

The Lakeside is defined on the north by SE 24th Street and a private residence, Beaver Lake on the east, Long Lake on the south, and The Woods to the west. The area contains an existing parking lot, park maintenance facility, lodge, picnic shelter, and shoreline/beach access to Beaver and Long Lakes. The proposed plan calls for improvements to each of these elements as well as providing approximately 30 additional parking stalls to the existing parking area, shoreline restoration and improvements for ecological function and human access, a new restroom, a new play area, and improved pedestrian circulation. Strategies for limiting the overall impervious paving include maximizing the efficiency of existing parking lot surfacing and removing unnecessary or excessive parking circulation routes.

The Westside

The Westside is defined by SE 24th Street on the north, the Woods to the east, private residential development to the south, and 244th Ave SE on the west. As it exists, this area contains a parking lot, three (3) baseball fields, a play area, a picnic shelter, restrooms, and an off-leash dog area (OLA). Other existing significant features of this area include a 150-foot power and gas line maintenance easement along the east edge and a 75-foot gas line easement to the west. The proposed plan calls for redevelopment of the sports fields, expanding the OLA, relocating the parking entry drive, expanding parking capacity, development of a community P-Patch, expanding the trail network, and improving the creek and riparian function for environmental benefit along Laughing Jacobs Creek. The proposed athletic field configuration includes three smaller little league fields (maintaining existing use) and the addition of one multi-use field for soccer and lacrosse. Additionally, included within the sports field redevelopment is the relocation of the play area, picnic shelter, and restrooms.

The Woods

The Woods exists between the Lakeside and the Westside and consists of approximately 40-acre stand of mature coniferous forest and significant areas of riparian wetlands. As it exists, this area contains a network of cross-park pedestrian trails. The proposed plan calls for preserving this area as an important natural area with the expansion of the trail network to improve park connectivity.

12. Location of the proposal. Give sufficient information for a person to understand the precise location of your proposed project, including a street address, if any, and section, township, and range, if known. If a proposal would occur over a range of area, provide the range or boundaries of the site(s). Provide a legal description, site plan, vicinity map, and topographic map, if reasonably available. While you should submit any plans required by the agency, you are not required to duplicate maps or detailed plans submitted with any permit applications related to this checklist.

Beaver Lake Park is located on the corner of SE 24th Street and 244th Ave SE within the City of Sammamish, Washington. The east end of the park is located on the southwest shore of Beaver Lake from which Laughing Jacobs Creek originates and flows west through the park.

Parcels:

#0224069080 (0.36 acres)
Legal Description: S 80 FT OF GL 3 LESS CO RD

#1124069006 (83 acres)
Legal description: NE 1/4 OF NW 1/4 LESS BEG 750 FT E OF SW COR THOF TH N 57-58-00 E 140 FT M/L TO SH OF SWAMP LAKE TH SLY ALG LK SH 80 FT M/L TO S LN OF SD NE 1/4 OF NW 1/4 TH W 146 FT TO BEG LESS POR LY SELY OF SWAMP LAKE LESS CO RD & NW 1/4 OF NW 1/4 SUBJ TO TRANS LN ESMT & SUBJ TO GAS P/L ESMT & POR OF GL 3 IN NE 1/4 LY NLY OF CHANNEL CONNECTING BEAVER LK WITH SWAMP LK LESS CO RD & POR VAC ST ADJ

(See attached King County iMap)

B. ENVIRONMENTAL ELEMENTS

1. Earth

a. General description of the site (circle one): Flat, rolling, hilly, steep slopes, mountainous, other . . . . . .

The project site is generally rolling.

b. What is the steepest slope on the site (approximate percent slope)?

There are a series of man-made cuts to accommodate existing parking areas as well as fill slopes as a result of the adjacent 244th Ave SE. These cut and fill slopes account for the steepest slopes on the site and range from approximately 33% to 50%. The site's natural slopes reach their steepest in more undeveloped, wooded areas and are approximately 25%.

c. What general types of soils are found on the site (for example, clay, sand, gravel, peat, muck)? If you know the classification of agricultural soils, specify them and note any prime farmland.

USDA Soils mapping lists the following soil types for the site:
Alderwood gravelly sandy loam: 14.9%
Everett gravelly sandy loam: 78.5%
Neilton very gravelly loamy sand: 1.7%
Tukwila muck 4.1%

http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx

d. Are there surface indications or history of unstable soils in the immediate vicinity? If so, describe.

There are no indications of any unstable soils.

e. Describe the purpose, type, and approximate quantities of any filling or grading proposed. Indicate source of fill.

Lakeside

Lakeside Meadow Berm: A berm requiring approximately 1,500 cubic yards is proposed for the lakeside meadow. Located on the existing meadow, this feature is intended to provide a sense of physical separation between the lodge and the meadow/pavilion area while maintaining usable, grassy open space. The source of fill for this feature has not yet been identified at this time.

Shoreline Improvements: There will be small amounts of cut to create beaches at certain points along the shoreline (with balanced fill occurring in upland areas). Areas of cut would be enhanced with imported gravels to construct a stable shoreline. This work would be constructed to improve existing habitats and conditions. The source of gravel fill material is not identified at this time.

Central Meadow Stormwater Features: Stormwater quality features are proposed in the Central Meadow to treat the adjacent increased impervious parking surface and improve hydrologic function and usability of the meadow in wet months. Approximately 2,000 cubic yards of cut will be generated and balanced on site as fill to re-grade the meadow.

Westside

The Sports Fields: Redevelopment of the sports fields will require approximately 7,500 cubic yards of cut-and-fill earthwork balanced on site.

Parking Entry: The relocated parking entry will require approximately 1,000 cubic yards of imported fill to transition from the existing grade on 244th Ave SE to the existing parking lot grade. The source of this fill has not yet been identified.

Laughing Jacobs Creek Improvements: Future improvements are recommended for Laughing Jacobs Creek including enhancing ecological function by restoring denuded portions of the creek and creating new, low flow channels in areas where creek currently sheet flows across open meadow. Although it is expected that any cut material produced from this process would be balanced on site, no quantities have been determined at this stage of design.

Grading for all other park improvements (trails, structures, etc.) will be balanced cut and fill on site.

f. Could erosion occur as a result of clearing, construction, or use? If so, generally describe.

Erosion could occur as a result of construction due to the slight sloping character of the project site and the composition of the site soils. This erosion will not extend outside the project limits.

Proposed prevention measures are discussed below. BMPs will be used to minimize the extent of any temporary disturbance and replanting will be done as needed for long term soil stabilization.

g. About what percent of the site will be covered with impervious surfaces after project construction (for example, asphalt or buildings)?

Preliminary estimates indicate that approximately 5% of the project site would be covered with impervious surfaces after construction.

h. Proposed measures to reduce or control erosion, or other impacts to the earth, if any:

Several key measures relating to the construction process include:

- Protecting cut slopes during the excavation and construction period by placing plastic sheeting on exposed cut slopes and surrounding each area with silt/filter fabric fencing.
- Limiting the maximum duration of the open excavation to the shortest time possible.
- Soil that is stockpiled on site would be protected with plastic sheeting.
- Disturbed soils that are exposed to surface water runoff would be stabilized with straw, hydro-seeding, or arborist mulch.
- Scheduling earthwork activities during the drier summer months, when possible.

2. Air

a. What types of emissions to the air would result from the proposal (i.e., dust, automobile, odors, industrial wood smoke) during construction and when the project is completed? If any, generally describe and give approximate quantities if known.

The proposed action could result in localized increases in air quality emissions primarily as a result of construction activity and increases in vehicular traffic during peak use hours. The primary emissions would be construction dust and carbon monoxide from increased vehicle traffic during construction. Because the amount of increased vehicular traffic would not be significant, the increases in carbon monoxide also would not be measurable. The nature of the activities that would take place on the project site after construction completion would generate minimal increases in air quality emissions during peak use hours.

b. Are there any off-site sources of emissions or odor that may affect your proposal? If so, generally describe.

There are no off-site sources of odor or emissions that would affect the proposal.

c. Proposed measures to reduce or control emissions or other impacts to air, if any:

Using well-maintained equipment and avoiding prolonged periods of vehicle idling will reduce emissions from construction equipment and construction-related trucks.
Dust produced during construction would be reduced by several techniques should dust emissions be noted. Areas of exposed soils, such as staging areas, could be sprayed with water or other dust suppressant.

The amount of soils carried out of the construction area by trucks could be reduced by wheel washing and wetting potential dust-producing truckloads.

3. Water

a. Surface:

1) Is there any surface water body on or in the immediate vicinity of the site (including year-round and seasonal streams, saltwater, lakes, ponds, wetlands)? If yes, describe type and provide names. If appropriate, state what stream or river it flows into.

Yes. The park exists on portions of the southwest shoreline of Beaver Lake and the northwest edge of Long Lake. Additionally, Laughing Jacobs Creek and two unnamed tributaries and three associated wetlands are within the park boundaries.

The main body of Beaver Lake is identified as lacustrine limnetic, unconsolidated bottom, permanently flooded (L1UBH) lake system. The shoreline of Beaver Lake associated with the park is identified as a lacustrine littoral, aquatic bed, permanently flooded (L2ABH) lake system. Beaver Lake is connected and flows into Long Lake via a small channel. Long Lake is identified as a palustrine aquatic bed, permanently flooded (PABH) wetland system. Laughing Jacobs Creek is the outfall of Long Lake and flows east to west eventually emptying into Lake Sammamish. Additionally, the three wetlands are

identified as palustrine unconsolidated bottom, permanently flooded (PUBH) wetland systems. These three wetlands are located in areas associated with Laughing Jacobs Creek.

See attachments prepared by Anchor QEA.

2) Will the project require any work over, in, or adjacent to (within 200 feet) the described waters? If yes, please describe and attach available plans.

Yes. The shoreline improvement will consist of cutting a minimal amount of existing, degraded shoreline for the import of stabilizing material such as gravel to create beaches at certain points along the shoreline. This work will be minimal to the extent necessary to improve shoreline habitat, allow human access (beach access) to the lake, and protect from future degradation caused by human use and environmental conditions.

The existing sports fields are within the 200-foot line of Laughing Jacobs Creek. The planned project calls for redevelopment to result in an overall reduction of sports field square footage within that line.

Two trail crossings over Laughing Jacobs Creek within Class II wetlands are proposed to improve cross-site pedestrian access. The construction of the trails/bridges will be designed to minimize impacts to the extent feasible and required mitigation will occur on the site.

Future improvements are recommended for Laughing Jacobs Creek within the Westside area of the park including enhancing ecological function by restoring the creek channel. Although it is expected that any cut material produced from this process would be balanced on site, quantities will be determined during the design phase.

Other work within the 200-foot line would include removal of a driveway, paving of trails to reduce erosion and additional lawn spaces; however, the most impactful project work would occur outside of the 200-foot line.

3) Estimate the amount of fill and dredge material that would be placed in or removed from surface water or wetlands and indicate the area of the site that would be affected. Indicate the source of fill material.

There will be small amounts of cut to create beaches at certain points along the shoreline (with balanced fill occurring in upland areas). Areas of cut would be enhanced with imported gravels to construct a stable shoreline. This work would be constructed to improve existing habitats and conditions. The source of gravel fill material is not identified at this time.

Future improvements are recommended for Laughing Jacobs Creek including enhancing ecological function by restoring the creek channel. Although it is expected that any cut material produced from this process would be balanced on site, no quantities have been identified at this stage of design.

4) Will the proposal require surface water withdrawals or diversions? Give general description, purpose, and approximate quantities if known.

No.

5) Does the proposal lie within a 100-year floodplain? If so, note location on the site plan.

No.

6) Does the proposal involve any discharges of waste materials to surface waters? If so, describe the type of waste and anticipated volume of discharge.

No. There would be no intentional discharge of waste materials to surface waters. Best management practices will be employed to avoid unintentional spills.

b. Ground:

1) Will ground water be withdrawn, or will water be discharged to ground water? Give general description, purpose, and approximate quantities if known.

There will be no discharge to or withdrawing from ground water. Stormwater runoff from impervious surfaces will be managed using proper storm water treatment methods.

2) Describe waste material that will be discharged into the ground from septic tanks or other sources, if any (for example: Domestic sewage; industrial, containing the following chemicals. . . ; agricultural; etc.). Describe the general size of the system, the number of such systems, the number of houses to be served (if applicable), or the number of animals or humans the system(s) are expected to serve.

The proposal calls for transferring existing septic systems to the sewage system resulting in no discharged waste material into the ground. Should this not occur, the existing septic systems and drainfields that currently serve the restrooms (at the lodge and ball fields) will remain.

c. Water runoff (including stormwater):

1) Describe the source of runoff (including storm water) and method of collection and disposal, if any (include quantities, if known). Where will this water flow? Will this water flow into other waters? If so, describe.

On-site runoff would occur from impervious surfaces (parking, walkways, roofs) and to a much lesser extent from the sports fields, trails, lawn and landscape areas. Existing stormwater is in part infiltrated on site and conveyed through the site's existing stormwater facilities. Added stormwater from additional impervious surfaces will be directed to new and expanded existing stormwater facilities via a gravity fed system as required. From this location, the runoff would flow at a controlled rate consistent with the City of Sammamish Drainage Codes, and/or King County Surface Water Design Manual.

2) Could waste materials enter ground or surface waters? If so, generally describe.

No waste materials would enter ground or surface waters. All surface drainage associated with the project would be connected to the city's storm drainage system via an on-site stormwater facility. All pollution generating surface runoff will be treated per City of Sammamish drainage code, prior to entering the system.

d. Proposed measures to reduce or control surface, ground, and runoff water impacts, if any:

- The City of Sammamish would comply with applicable requirements relating to surface water runoff control and water quality including local drainage control ordinance.
- The proposed project would require City approval of a comprehensive Drainage Control Plan. Specific measures may include oil/water separators, retention/detention storage, and catch basins with clean-outs.
- The proposed project would require City approval of a Drainage Control Plan with Construction Best Management Practices (BMP), and Erosion and Sediment Control Plan as part of a submitted clear and grade permit.

4. Plants

a. Check or circle (Underline) types of vegetation found on the site:

X deciduous tree: alder, various maples, aspen, other – Pacific Madrona, Black Hawthorn, Oregon Ash, Quaking Aspen, Cottonwood, Willow

X evergreen tree: fir, cedar, pine, other –

X shrubs: Native and ornamental- Salal, Oregon Grape, Sward Fern, Huckleberry

X grass

_____ pasture

_____ crop or grain

_____ wet soil plants: cattail, buttercup, bullrush, skunk cabbage, water-parsley, other

X water plants: water lily, eelgrass, milfoil, other

X other types of vegetation (groundcover)

(See attached prepared by Anchor QEA for further information)

b. What kind and amount of vegetation will be removed or altered?

The proposed project will remove areas of existing turf (including ball fields), young ornamental plantings, and limited areas of native trees and shrubs to accommodate the expanded parking area, play area, shoreline and beach areas, new picnic shelter, restrooms, expanded patio/paved areas, walkways, off-leash area, and P-Patch.

It is difficult to estimate accurately, the number of trees that will be impacted in the master plan phase of the project. The redesign and expansion of the parking areas may require the removal of up to as many as 10-15 mature trees (cedars, pines and firs). With the shoreline restoration work, as many as 15-25 juvenile and mature trees (cedars, firs, alders) may be removed. The numbers of trees to be removed are approximations for the master plan.

In the early stages of design, an arborist report will be obtained to assess trees that may be impacted. Efforts will be made to adjust the design layout in an attempt to protect and retain as many healthy trees wherever feasible. During construction, all trees to be preserved in the vicinity of the improvements will be protected with fencing and other tree preservation measures prior to commencing any demolition, construction or grading activities. Additional planting is proposed as part of the improvements.

c. List threatened or endangered species known to be on or near the site.

No threatened or sensitive plant species are known to occur at the site.

d. Proposed landscaping, use of native plants, or other measures to preserve or enhance vegetation on the site, if any:

The proposed action will add native and adapted low water use plants to the site to enhance the ecological and visual presence of the park. Shrubs and groundcover will be added to the parking lot islands, along with additional trees to infill gaps in the canopy. Spaces throughout the site will be created by the use of trees, shrubs and groundcovers. The wooded site perimeter containing native plantings will be enhanced with additional native species that are adapted to the site. Care will be taken to ensure existing trees are preserved and protected throughout the duration of the implementation of the proposal. Removal of invasive species in the wooded areas is proposed as part of the implementation.

5. Animals

a. Circle any birds and animals which have been observed on or near the site or are known to be on or near the site:

birds: hawk, heron, eagle, songbirds, other: Owls, Woodpeckers, Crows
mammals: deer, bear, elk, beaver, other: Squirrel, Cougars, Raccoon, Rats
fish: bass, salmon, trout, herring, shellfish, other:

b. List any threatened or endangered species known to be on or near the site.

There are no known threatened or endangered species to be on or near the site at this time. A list of potential species on or near the site based on habitat characteristics is listed in the attached document Memorandum: Beaver Lake Park Wetland and Stream Critical Areas Reconnaissance. Anchor QEA, LLC, 9/1/09.

c. Is the site part of a migration route? If so, explain.

The lakes, streams, and wetland habitats in the park provide valuable habitat for a variety of wildlife because of their diverse vegetation and source of water. The creek and the open water lake and wetland habitats provide habitat for wintering and migratory waterfowl.

d. Proposed measures to preserve or enhance wildlife, if any:

As the plan aims to restore and preserve the site's overall natural features and habitat while providing open space for human enjoyment and recreation there are many proposed measures to preserve and enhance wildlife. These include:

- Maintain existing, large stands of trees and vegetation that support wildlife
- Keep development within areas already in use as feasible to protect more natural areas
- Restore and protect shoreline habitat
- Incorporate native or beneficial adaptive plantings where feasible with new and existing park areas/ features

- Provide stormwater storage and treatment facilities to reduce flooding and improve wetland and creek water quality.
- Restore creek channels and buffers to improve and protect habitat for fish and wildlife
- Keep impervious surfaces to a minimum

6. Energy and natural resources

a. What kinds of energy (electric, natural gas, oil, wood stove, solar) will be used to meet the completed project's energy needs? Describe whether it will be used for heating, manufacturing, etc.

Energy used would be limited to electricity necessary for security lighting, potential sports field lighting, restroom lighting, scoreboards, and the irrigation systems.

b. Would your project affect the potential use of solar energy by adjacent properties? If so, generally describe.

No.

c. What kinds of energy conservation features are included in the plans of this proposal? List other proposed measures to reduce or control energy impacts, if any:

Security lighting would be controlled with light-sensitive devices that would turn on the lights only during periods of darkness. Sports field lighting would be operated by an automatic programmable lighting control system. The field lights will be turned off when the field is not in use.

A proposed irrigation system will utilize rain sensors to shut off the system when natural rainfall occurs. Low water use plants reduce the amount of water resources, along with efficient design, and whenever possible, irrigation would be discontinued after the plants establishment periods (2-3 years).

7. Environmental health

a. Are there any environmental health hazards, including exposure to toxic chemicals, risk of fire and explosion, spill, or hazardous waste, that could occur as a result of this proposal? If so, describe.

There are no known environmental health hazards on site. During construction, care must be taken to avoid the following:

- Williams Pipeline has an easement on the east side of the property along 244th Ave SE. Within this easement are two (2) buried gas pipelines; one 26" gas main and one 30" gas main.
- Bonneville Power and Puget Sound Energy have easements running north/south along the east edge of the existing ball fields. Within this easement, Bonneville Power controls overhead power lines and Puget Sound Energy controls one (1) buried 12" high-pressure gas main.
- Running from the corner of 244th Ave SE and SE 24th St. to the maintenance yard on the eastern portion of the site is a buried 8" sewer line.

1) Describe special emergency services that might be required.

None required beyond those serving the existing park

2) Proposed measures to reduce or control environmental health hazards, if any:

No environmental health hazards are contemplated on this site or off-site as a result of this project.

b. Noise

1) What types of noise exist in the area which may affect your project (for example: traffic, equipment, operation, other)?

None.

2) What types and levels of noise would be created by or associated with the project on a short-term or a long-term basis (for example: traffic, construction, operation, other)? Indicate what hours noise would come from the site.

Short-term noise from construction equipment would occur during appropriately set hours (see #3 below). The increased noise generated during construction of the project would be temporary in nature.

Long-term noise would result from use of the park and the sports fields by the public. Noise from players and spectators and the occasional use of a public address system for announcements would be similar to the existing noise generation on-site including traffic to and from the site, players and spectator voices, crack of bats, etc. at levels audible off-site. Should sports field lighting be implemented, the hours of associated noise would extend accordingly.

With the improvements at the Lakeside, the long-term noise may increase with increased use as well. This includes noise from additional traffic, voices of park users from added activity at the lodge, pavilion, play area and swim beach.

3) Proposed measures to reduce or control noise impacts, if any:

The proposed action will comply with City of Sammamish ordinances related to noise. Mitigation measures could include:

- Limiting construction activity to the hours regulated by the City of Sammamish Code (Chapter 16.05).
- Use electric rather than diesel or gas-powered machines where practical.
- Use mufflers on all internal combustion engine driven equipment.
- Turn off idling equipment.

Long-term noise impacts can be addressed through the City's athletic field policy and scheduling.

8. Land and shoreline use

a. What is the current use of the site and adjacent properties?

The site is currently used as a public park. Beaver Lake is used for recreational purposes. The other surrounding parcels are in single-family residential use.

b. Has the site been used for agriculture? If so, describe.

No.

c. Describe any structures on the site.

There is one (1) restroom structure, two (2) picnic pavilions, a multi-use lodge with attached restrooms, one (1) maintenance shed, and one (1) utility shed, and shoreline bulkhead

d. Will any structures be demolished? If so, what?

Each of the structures at the sports fields is proposed to be demolished and replaced/relocated in time. This includes one (1) picnic pavilion, one (1) restroom, and one (1) utility shed, shoreline bulkhead (replaced with riparian vegetation).

e. What is the current zoning classification of the site?

Urban Residential 4 (R-4)

f. What is the current comprehensive plan designation of the site?

P/I, Public/Institutional

g. If applicable, what is the current shoreline master program designation of the site?

Under the SMC, the park shoreline is designated Urban Conservancy and the entire Beaver Lake watershed is designated a special management area in relation to private development. The park's recreational development is a preferred shoreline use; the City of Sammamish Shoreline Master Program (SMP) Update notes that shoreline recreational facilities must be water-oriented and provide physical or visual access to the water.

h. Has any part of the site been classified as an "environmentally sensitive" area? If so, specify.

Yes. Laughing Jacobs Creek is identified on the City's sensitive areas map. (See Memorandum: Beaver Lake Park Wetland and Stream Critical Areas Reconnaissance. Anchor QEA, LLC, 9/1/09)

i. Approximately how many people would reside or work in the completed project?

There currently exists a City maintenance facility within Beaver Lake Park. The maintenance shop will continue to serve as a satellite facility for maintenance as well as a base for seasonal use and storage. As many as 8 people will work out of the facility.

j. Approximately how many people would the completed project displace?

None.

k. Proposed measures to avoid or reduce displacement impacts, if any:

Not applicable.

l. Proposed measures to ensure the proposal is compatible with existing and projected land uses and plans, if any:

Not applicable.

9. Housing

a. Approximately how many units would be provided, if any? Indicate whether high, middle, or low-income housing.

No housing is proposed.

b. Approximately how many units, if any, would be eliminated? Indicate whether high, middle, or low-income housing.

None.

c. Proposed measures to reduce or control housing impacts, if any:

Not applicable.

10. Aesthetics

a. What is the tallest height of any proposed structure(s), not including antennas; what is the principal exterior building material(s) proposed?

The tallest building in the proposed action would be the renovated/expanded restroom facility and/or the new picnic shelter at a height of approximately 20'. Materials for proposed buildings will likely match the existing structures consisting of wood, concrete and stone veneer with a metal roof. Other tall structures in the proposed action include steel sports lighting standards (approximately 85-foot tall max.) as well as posts and frames to support added fencing for the ball fields that will likely not exceed the existing chain link backstops (foul ball territory).

b. What views in the immediate vicinity would be altered or obstructed?

No views would be obstructed.

c. Proposed measures to reduce or control aesthetic impacts, if any:

Considerations have been made to maintain existing stands of trees that help screen adjacent properties. Additional plantings will be used as well to screen as appropriate.

11. Light and glare

a. What type of light or glare will the proposal produce? What time of day would it mainly occur?

Security lighting would add minimally to the overall site glare and generally would be used in the hours from dusk until midnight.

Sports field lighting would add to the overall site glare and generally would be used in the hours from dusk until a time yet to be determined by the City Council.

The lighting system will be operated by an automatic programmable lighting control system. The field lights will be turned off when the field is not in use.

b. Could light or glare from the finished project be a safety hazard or interfere with views?

Yes. While the field lighting and parking lots are typically buffered by existing stands of coniferous forests (with the exception of the west entry), light or glare could be visible to adjacent properties, which some might consider an interference on views.

c. What existing off-site sources of light or glare may affect your proposal?

No existing off-site sources of light or glare will affect this project.

d. Proposed measures to reduce or control light and glare impacts, if any:

The proposed exterior lighting would utilize full cut-off or aggressively visored lighting fixtures and support structures that would be oriented to direct illumination at targeted lighting areas, providing effective lighting for sports, recreation, and security, and directing light and glare away from adjacent residences and/or maximizing shielding techniques.

12. Recreation

a. What designated and informal recreational opportunities are in the immediate vicinity?

There is a variety of City and County properties in the area that provide informal open space and recreational opportunities. These include Pine Lake Park, Beaver Lake Preserve, Discovery Elementary, Soaring Eagle Park, and Hazelwolf Wetlands.

b. Would the proposed project displace any existing recreational uses? If so, describe.

No, except during the period of construction.

c. Proposed measures to reduce or control impacts on recreation, including recreation opportunities to be provided by the project or applicant, if any:

No significant adverse recreational impacts are anticipated and no mitigation measures are necessary.

13. Historic and cultural preservation

a. Are there any places or objects listed on, or proposed for, national, state, or local preservation registers known to be on or next to the site? If so, generally describe.

There are no known local, state or federal officially designated historical or cultural places or objects on or proximate to the site. There exist two totem poles and three Salish house posts in the pavilion that are owned by King County and qualify as public art. Each piece will be retained and protected.

b. Generally describe any landmarks or evidence of historic, archaeological, scientific, or cultural importance known to be on or next to the site.

There are no known landmarks of historic, archaeological, scientific, or cultural importance. However, the existing lodge, though significantly altered, and a lone chimney relic demark the one-time fishing resort and subsequent youth camp (Camp Cabrini) that once existed on the shores of Beaver Lake.

Camp Cabrini/Beaver Lake Park is listed in King County's Historic Resource Inventory (HRI# 1134) but it is considered too altered to retain historic significance – the cabins have been demolished and the lodge changed a good deal over the years. It is therefore not eligible for landmark or other historic designation.

There is always a chance that there are archaeological sites on or near the lake too, although there are no known sites or other non-environmental indicators within one mile of the park.

c. Proposed measures to reduce or control impacts, if any:

The noted elements are to be retained and potentially enhanced with improved access and interpretive signage.

14. Transportation

a. Identify public streets and highways serving the site, and describe proposed access to the existing street system. Show on site plans, if any.

Access to the project site is currently provided by 244th Ave SE and SE 24th St. and will remain as such.

b. Is site currently served by public transit? If not, what is the approximate distance to the nearest transit stop?

The project site is not directly serviced by public transit. The nearest public transit stops are located along 228th Ave. NE. Routes 216 and 269 stop along 228th at NE 8th Street, approximately 1¼ miles from the project site (near Pine Lake Park).

c. How many parking spaces would the completed project have? How many would the project eliminate?

The completed project would add approximately 55 new parking spaces to the approximately 210 existing stalls (in 3 parking areas around the site).

d. Will the proposal require any new roads or streets, or improvements to existing roads or streets, not including driveways? If so, generally describe (indicate whether public or private).

Street frontage improvements are proposed to increase visibility, accessibility and safety of the public gaining access to the site. Sidewalk improvements and potential curb bulbs in the right of way are proposed on both SE 24th street and 244th Avenue SE allowing users to safely arrive at the park.

Possibilities for on-street parking on both SE 24th street and 244th Avenue SE will be explored with the City's Public Works Department.

e. Will the project use (or occur in the immediate vicinity of) water, rail, or air transportation? If so, generally describe.

No.

f. How many vehicular trips per day would be generated by the completed project? If known, indicate when peak volumes would occur.

It is anticipated that existing use patterns would continue but with an increased use from the one additional rectilinear field. In addition, field lighting will increase the duration of vehicular trips allowing use into night hours. The project site would continue to be in use year round, with the heavier use occurring during spring through fall due to scheduled sports field use.

g. Proposed measures to reduce or control transportation impacts, if any:

Sporting events could be scheduled to minimize their impact on transportation. A drop-off area proposed at the Westside could help reduce the transportation impacts during practices. New sidewalks in the existing right-of-way would provide improved pedestrian access to the project site, potentially decreasing vehicle use by the project users.

Possibilities for on-street parking on both SE 24th street and 244th Avenue SE will be explored with the City's Public Works Department.

15. Public services

a. Would the project result in an increased need for public services (for example: fire protection, police protection, health care, schools, other)? If so, generally describe.

No.

b. Proposed measures to reduce or control direct impacts on public services, if any.

No significant adverse public service impacts are anticipated and no mitigation measures are necessary.

16. **Utilities**

a. Circle utilities currently available at the site: electricity, natural gas, water, refuse service, telephone, sanitary sewer, septic system, other.

b. Describe the utilities that are proposed for the project, the utility providing the service, and the general construction activities on the site or in the immediate vicinity which might be needed.

The site is currently serviced by the following utilities:

Electrical Power – Puget Sound Energy
Water – - Sammamish Plateau Water & Sewer District
Sewer – Sammamish Plateau Water & Sewer District (the existing site has two restrooms operating on septic systems; an extension of a new sewer line as a separate project from this proposal would allow the connection to a sewer system).
Storm Drainage – City of Sammamish
Natural Gas- Puget Sound Energy

It is proposed with the new restrooms and lodge, to abandon existing septic systems and connect to the existing sanitary sewer main with a gravity sanitary side sewer. Should this not occur, the existing septic systems and drainfields that currently serve the restrooms (at the lodge and ball fields) will remain.

C. SIGNATURE

The above answers are true and complete to the best of my knowledge. I understand that the lead agency is relying on them to make its decision.

Signature:

Date Submitted:

D. SUPPLEMENTAL SHEET FOR NONPROJECT ACTIONS

(do not use this sheet for project actions)

Because these questions are very general, it may be helpful to read them in conjunction with the list of the elements of the environment.

When answering these questions, be aware of the extent the proposal, or the types of activities likely to result from the proposal, would affect the item at a greater intensity or at a faster rate than if the proposal were not implemented. Respond briefly and in general terms.

1. How would the proposal be likely to increase discharge to water; emissions to air; production, storage, or release of toxic or hazardous substances; or production of noise?

The proposal is not likely to significantly increase discharge to water; emissions to air; or production, storage, or release of toxic or hazardous substances; or production of noise. Any potential increases are listed here:

Discharge to Water: Some additional impervious surfaces are planned which will produce additional surface run-off. New subsurface drainage will be added under playfields and other intensive use areas. All new drainage/ runoff will be directed to stormwater facilities (existing and proposed) and ultimately connect to the existing streams and wetlands via surface conveyance or infiltration.

Emissions to Air: The primary emissions would be construction dust and carbon monoxide from increased vehicle traffic during construction. Because the amount of increased vehicular traffic would not be significant, the increases in carbon monoxide also would not be measurable.

Toxic Hazardous Substances: No increase in toxic hazardous materials.

Production of Noise: Noise from players and spectators and the occasional use of a public address system for announcements would be similar to the existing noise generation on-site including traffic to and from the site, maintenance vehicles, players and spectator voices, crack of bats, etc. at levels audible off-site. Should sports field lighting be implemented, the hours of associated noise would extend accordingly.

Proposed measures to avoid or reduce such increases are:

Discharge to Water: New subsurface drainage will be added under playfields and other intensive use areas and directed to stormwater facilities (existing and proposed) to storage and treatment as necessary prior to outfalling to any stream, wetland, or lake.

Emissions to Air: Using well-maintained equipment and avoiding prolonged periods of vehicle idling would reduce emissions from construction equipment and construction-related trucks.
Dust produced during construction would be reduced by several techniques should dust emissions be noted. Areas of exposed soils, such as staging areas, could be sprayed with water or other dust suppressant.

The amount of soils carried out of the construction area by trucks could be reduced by wheel washing and wetting potential dust-producing truckloads.
Toxic Hazardous Substances: None anticipated.

Production of Noise: The proposed action will comply with City of Sammamish ordinances related to noise. Additional mitigation measures could include strategies for limiting hours of park operation to reduce associated park use noise including sports and traffic activity.

2. How would the proposal be likely to affect plants, animals, fish, or marine life?

Overall, the proposal aims to restore and preserve the site's overall natural habitat while providing open space for human enjoyment and recreation. While considerations have been made for overall environmental benefit in the plan there are however, portions of the plan that require the removal of trees and vegetation for new amenities such as trails and other site amenities. One significant element to the proposal includes shoreline restoration. This work will ultimately provide a higher functioning habitat for plants and animals (including marine life). Furthermore, the expansion of stormwater features will provide additional habitat and diversity of plant and animal species.

Proposed measures to protect or conserve plants, animals, fish, or marine life are:

As the plan aims to restore and preserve the site's overall natural features and habitat while providing open space for human enjoyment and recreation there are many proposed measures to protect and conserve plants, animals, fish, or marine life. These include:

- Mitigate any impacts on site with equal or greater benefit
- Maintain existing, large stands of trees and vegetation that support wildlife
- Keep development within areas already in use where feasible to protect more natural areas
- Incorporate native or beneficial adaptive plantings where feasible with new and existing park areas/ features
- Provide stormwater storage and treatment facilities to reduce flooding and improve wetland and creek water quality.
- Restore creek channels and buffers to improve and protect habitat for fish and wildlife
- Keep impervious surfaces to a minimum

3. How would the proposal be likely to deplete energy or natural resources?

The proposed design features do not require significant quantities of construction materials that would significantly deplete on or off-site resources. Other potential increases in natural resource consumption include the following:
Electrical & Natural Gas Energy: increased usage from potential sports field lighting, additional security lighting and the new restrooms.
Water Consumption: increased water usage for new irrigation and the new restrooms.

Proposed measures to protect or conserve energy and natural resources are:

- Avoid development in areas containing natural resources such as trees, streams, and wetlands
- Use recycled or other, more sustainable construction materials where feasible
- Use energy efficient fixtures

- Incorporate timers, sensors and other mechanisms for controlling and managing energy or natural resource consuming features such as irrigation and lighting.

4. How would the proposal be likely to use or affect environmentally sensitive areas or areas designated (or eligible or under study) for governmental protection; such as parks, wilderness, wild and scenic rivers, threatened or endangered species habitat, historic or cultural sites, wetlands, floodplains, or prime farmlands?

This proposal is for the development of an existing city park. The site contains many sensitive areas including lakes, creeks, and wetlands. Additionally, approximately 54 acres of the park exists within a contiguous, heavily wooded stand of mature trees that provides important habitat and environmental benefit. This proposal aims to provide an overall benefit to these environmentally sensitive areas by restoring, enhancing, and protecting them to the greatest extent possible while providing adequate public open space to serve the City of Sammamish. Existing and proposed park uses and facilities include sports fields, activity meadows, trails, play structures, picnic pavilions, fishing, off-leash dog area, p-patch, and a swim beach amongst others. Proposed features are kept outside of sensitive areas and associated buffers to the greatest extent feasible to minimize impacts.

Proposed measures to protect such resources or to avoid or reduce impacts are:

- Avoid or minimize development in sensitive areas by locating park elements away from them
- Provide vegetative buffers to sensitive areas such as wetlands, creeks, and lakes
- Where it is necessary to impact sensitive areas, reduce impacts by incorporating design features and materials that will minimize erosion or pollution.

5. How would the proposal be likely to affect land and shoreline use, including whether it would allow or encourage land or shoreline uses incompatible with existing plans?

This proposal will maintain existing shoreline use while restoring ecological function. Shoreline use includes lake access for recreation including swimming, fishing, and non-motorized water sport. The proposal includes improving the shoreline by providing stable pocket beaches with more focused access points and restoring the remaining reaches to more natural, ecologically functioning shoreline habitat. These improvements are intended to both encourage use of the shoreline and protect it.

Proposed measures to avoid or reduce shoreline and land use impacts are:

The proposal includes improving the shoreline by providing stable pocket beaches with more focused access points and restoring the remaining reaches to more natural, ecologically functioning shoreline habitat.

6. How would the proposal be likely to increase demands on transportation or public services and utilities?

It is not anticipated that the proposal will significantly increase demands on transportation or public services and utilities as it is primarily involves the redevelopment of existing uses. An increase in park use over time however, may result in the increased demand/ use of the following:

- Automobile trips to the park
- Maintenance
- Security/ surveillance (Police)
- Water, sewer, garbage, electricity

Proposed measures to reduce or respond to such demand(s) are:

- Pedestrian access has been improved in the proposed design to encourage alternative means of getting to the park and reduce automobile trips.
- The proposal makes considerations to reduce maintenance through the location of site elements and recommendations on construction materials
- The proposal makes considerations to reduce security concerns through the location of site elements to improve visual openness and overall safety
- The proposal makes considerations to provide resource efficient systems and fixtures that reduce the demands on utilities.

7. Identify, if possible, whether the proposal may conflict with local, state, or federal laws or requirements for the protection of the environment.

There are no conflicts with local, state, or federal laws or requirements for the protection of the environment identified.