



Juanita Beach Park Master Plan Report

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Prepared for
City of Kirkland Parks and Community Services

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INTRODUCTION

Juanita Beach Park sits on the scenic shores of Lake Washington's Juanita Bay. The bisection of the park by NE Juanita Drive effectively creates two separate park sections, a northern section with active recreation features such as tennis courts and little league fields and a southern section with swimming beach, trails, and over-water pedestrian pier. Juanita Beach Park has a long history of attracting City of Kirkland residents and visitors to the park to enjoy its scenic swimming beach and other park amenities.



This report offers a master plan for revitalizing the much-loved and time-degraded park. New development in the area has resulted in an adjacent village core that will connect to the revitalized park. Park improvements will fulfill the growing community's need for appropriately programmed green and open space. The surrounding residential neighborhoods will be well served by new recreation amenities such as a skateboard park and the Community Commons area. The revitalized park will also attract visitors from throughout the region, as the park has one of best swimming and wading beaches on Lake Washington. Improvements to the shoreline and Juanita Creek will also protect and enhance the natural environment of the park.

Purpose of the Juanita Beach Park Master Plan

When the City of Kirkland received ownership of Juanita Beach Park from King County in 2002, the City began improving park maintenance standards, as well as initiating the process of planning for future upgrades to the park.

Following a consultant selection process, the City of Kirkland Parks and Community Services hired J.A. Brennan Associates to help develop a Master Plan for the park in 2004. Park staff met with members of the design team and walked the site and discussed historic site uses, opportunities, and constraints. The consultant team began by accumulating background information about the site, revising the site topographic survey, researching regulatory aspects of the project, and gathering information about related projects such as the Juanita Village development.

Park facilities considered during the master planning phase include swimming, picnicking, sports fields and supporting facilities, such as: access and parking, lighting, storm water measures, concession, and restroom facilities. Other park uses considered were passive recreation, playgrounds, picnic areas, shelters, vehicular and pedestrian access and circulation, park maintenance areas, and natural enhancement areas.

The primary objective of the Master Plan is to begin developing Juanita Beach Park into a community and regional park. Specifically, the master planning phase of the project is focused on the design of swimming beach and associated water quality improvements, Little League baseball fields, multi-use play field, related drainage, fencing, bleachers, walkways, parking, access drive, park signage, playground, picnic facilities, hand carry boat launch and rental facility, skate park, and other recreational amenities. Habitat restoration components of the project include vegetation restoration, and stream and lake buffer enhancements.

The City of Kirkland's Recreational Needs

The Juanita Beach Park project will alleviate local and regional need for active recreation play areas that include Little League baseball fields, skateboard facilities, and volleyball courts. Redevelopment of existing recreation areas will provide state-of-the-art facilities that meet user expectations for modern park facilities. Modifications to the pedestrian pier structure and Juanita Creek will improve the quality of the swimming beach, an important focus of the revitalization project.





Design Process

The planning process involved synthesizing input from stakeholders, the public, and the City. An involved public process began with the formation of a Citizen Advisory Team that guided the process along. Members of the Citizen Advisory team represented the community as well as the Park Advisory Board and local sport groups. Six Citizen Advisory Team meetings were held. Four of the Citizen Advisory Team meetings were followed by public meetings, where concerns were heard and design ideas were discussed. An agency meeting with regulators was also held to understand regulatory issues impacting park development.



The City's Parks and Community Services Department issued press releases to inform the public about the project's progress and opportunities to become involved in the public process. The City's website also offered updated information about the project on a regular basis. By listening to the community and stakeholders, the team has identified program elements that represent the community's needs and worked with the City of Kirkland to develop an appropriate preferred Master Plan for the park. See Appendix for public meeting notes.

The designers gained a thorough understanding of the site and its context in the community by reviewing extensive site data and the public's input from the first three public meetings, where community needs and desires and uses appropriate to the site were discussed. From this discussion two alternatives were developed. Input was then solicited from the City, the Park Board, and a draft master plan was developed taking elements from each of the alternatives.

Preference	Program Element	Associated Parking	Parking Area @ 400 SF/Vehicle	Comments and Recommendations
	Group Gatherings and Events			
	Emory Plaza on Promenade	Potential special events		Could also be used for farmer market or art market. Responds to urban edge of park. Olmsted promenade concept
	Lakefront Plaza with Picnicking	Shared with other use parking		
	Farmer's Market Art Market Community Gathering Plaza Shared Venue	Shared with other use parking Special events demand		Consider impacts on adjacent areas and the need for supporting utilities. Scale of events and scheduling will define the need for parking above that already provided to site. Existing Farmers Market in Downtown Kirkland on Wednesdays May through October. Similar to Moss Bay events. Parking needs depend on scheduling
	Bandstand, Amphitheater at Meadow with Power Supply	Shared with other use parking 50 stalls? Special events demand		Consider impacts on adjacent areas and the need for supporting utilities. Scale of events and scheduling will define the need for parking above that already provided on site
	Gardens for Weddings and Group Rentals (See revenue producing elements)	30-50 vehicles including 3 accessible spaces		100 to 150 capacity may be realistic given size of facility. Activity related to Community Pavilion

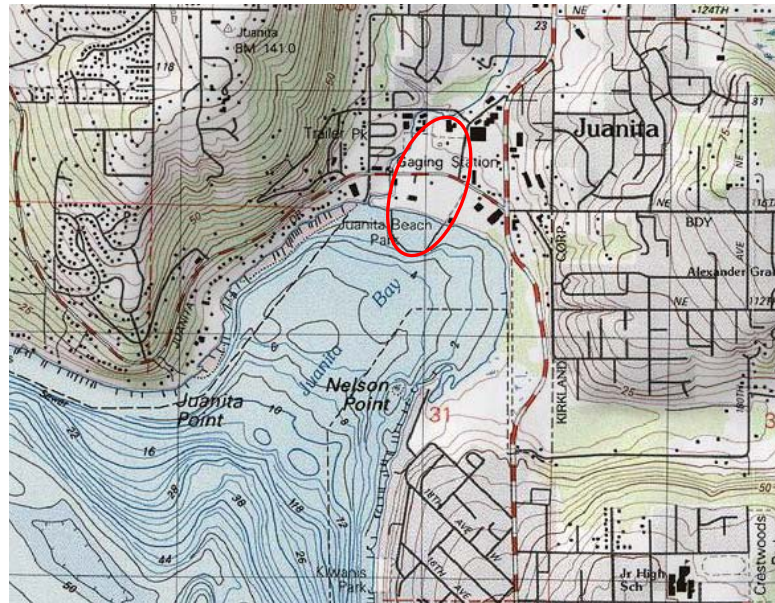
Public Meeting attendees were able to express opinions about various program elements during the design process.



Project Location and Site Description

Juanita Beach Park is located in the Juanita neighborhood of the City of Kirkland, on Lake Washington's Juanita Bay. The park is bisected into southern and northern sections by NE Juanita Drive. The park's southern edge is bordered by 1,000 feet of Lake Washington shoreline, where a 1,350 foot long pedestrian pier extends 580 feet into Juanita Bay. The southern section of the park also includes the swimming beach, restroom, meadow areas, picnic areas, and Juanita Creek.

The northern park area includes tennis courts, ballfields, open play areas, the historic Forbes house, and Juanita Creek. King County transferred ownership of the 29.5 acre park to the City of Kirkland in 2002. On November 5, 2002 Kirkland voters voted for slight property tax increase to pay for maintenance and improvements at the park.





EXISTING CONDITIONS / SITE DATA AND ANALYSIS

Cultural Elements

Historic or Cultural Resources

- 1876 Juanita Beach property homesteaded by Dorr and Eliza Forbes
- Urania Dock – ferry Urania and Urania Club House (Scandinavian meeting place from Finn Hill) (west of Forbes property)
- 1906 Forbes House/Juanita House: Two story wood frame house
- 1916 Construction of Lake WA Ship Canal caused Lake Washington to drop 8.8 feet, exposing vast expanse of fine white sand at Juanita. Sand shelf extended 500 ft. from shore, only 5 ft deep
- 1921 Forbes and Nelson constructed restrooms and 20x30 foot bath house and opened beach business for day use resort
- 1925 Forbes built open-air kitchen with tables, stove and hot water
- 1928 Forbes built a larger, two-story bath house with jukebox and dance floor, swimsuits for rent
- After WW II Juanita Beach lost its appeal, people went into mountains instead.
- 1957 King County bought the Shady Beach and Sandy Beach properties
- Forbes House/Juanita House: Two story wood frame house, 1906
- Community Landmark designation, City of Kirkland
- King County Parks used for interpretive program offices



Existing Structures

Structure and Location	Size	Description	Comment/Condition
Picnic Shelter #1 (SE):	24'x38'	Open, wood, post and beam, flat-roofed shelter; not ADA accessible; 3-4 picnic tables, grill box, water and electricity. Reserve for up to 150 persons. Several outdoor grills nearby.	
Picnic Shelter #2 (SW):	20'x30'	Half open, wood, post and beam, gable-roofed shelter with 6 tables, nearby fire pit, water and electricity. Reserve for up to 150 persons.	(Preferred)
Bath House:		Built in 1965, CMU building; dressing rooms, restrooms and concession stand	
Parks Maintenance Shop	4,500 SF CMU building	Lacks adjacent supporting yard area and covered vehicle parking	Condition: good. Located within Juanita Creek buffer zone.
Restroom (North of Juanita Drive):	10'x32'	Prefabricated metal restroom building.	Condition: fair to poor.
Concession Stand and Storage shed			Condition: fair exterior condition
Pedestrian Pier/Breakwater		Built in early 1970's; horseshoe-shaped. Projects 580 feet into Juanita Bay from the shoreline. 1350 foot long pier of timber bents and pile caps	Every other plank was removed from the south sections of the pier, where



		which support a concrete deck, and a bent-to-bent wood vertical planking system on the inner and outer faces on the west and south legs of the pier.	greatest wave forces experienced. This modification reduced wave attenuation, but also silted in the diving area. Diving platform. "Juanita Beach Pier Inspection and Condition Report", April 1999, Summit Technology Consulting Engineers, Inc., P.S.
Pedestrian Bridge		Provides access to Picnic Shelter #2 and a large scenic area with views of the Creek and Bay. Timber bridge and timber railings are in good condition. (not ADA accessible, because no ADA path on west side)	

Conclusion: Except for Forbes House, the pier, and the pedestrian bridge, site structures are in poor locations, poor conditions, and/or functionally inadequate.

Existing Recreational Features:

Structure and Location	Description	Comment/Condition
Two ball fields	Poor condition with short outfields (178 LF), inadequate fencing and rough turf. Ball field #1: outfield ranges from 146 LF to 154 LF. Neither field meets Little League standards for regulation play.	Both fields present a potential safety hazard for players, spectators, and other Park users due to location and size.
Tennis Courts	Fenced and lighted; Use: formal and informal games;	Not ADA accessible (no access path); good condition, but require resurfacing; Light glare and noise may disturb neighbors (Inn on the Park); located in the Juanita Creek Buffer zone
Sand Volleyball Courts		
Horse Shoe Pits		
Play Area		new
Swimming Area	Enclosed by pier/breakwater: +/- 190 M x 180 M area	

Land Use and Zoning

The following land uses and zoning regulations impact and/or surround the immediate area of the park:

- High-density multi-family zones: contain detached, attached or stacked dwelling units
- Apartments and Condos flank the southern portion of the park and the west and north sides of the northern portion of the Park.
- Commercial and business zoning: east of the northern portion (east of 97th Ave. NE)
- Spuds Restaurant
- German Retirement Village
- Chelsea at Juanita Village and Avalon Juanita Village east of park
- Proposed: Juanita Village 5, east of park



Paths/Pedestrian Circulation

Pedestrian circulation is an important element of a park's functionality in the community. Because the park is bisected by NE Juanita Drive, safe pedestrian connections are particularly important at Juanita Beach Park. Currently path and pedestrian circulation at the site includes the following elements:

- Sidewalks along NE Juanita Beach Drive
- Safe signalized pedestrian crossing at 97th Ave. NE
- Pedestrian links to surrounding apartments and condominiums
- Secondary pedestrian crossing south of tennis courts
- King County considered construction of a pedestrian underpass or overpass across Juanita Drive, but too expensive (\$400,000 to \$500,000)
- Two paved paths: One between the Maintenance Shop and western pier entrance (also maintenance vehicle route) intersects the bridge across Juanita Creek. The other path leads from the main parking lot to the bathhouse.
- Pedestrian path along southern boundary of south parking lot (too narrow for ADA), poor condition
- Pedestrian Pier
- Park is largely inaccessible to persons with disabilities due to the lack of ADA-compliant paths connecting facilities.

Traffic, Vehicular Circulation and Parking

The park is accessed by vehicle from NE Juanita Beach Drive, a two-lane road with five foot bike lanes in each direction, planted median and sidewalks or from 97th Avenue NE, also a two-lane road. Access to/from I-405 is 1¼ miles east of the Park on NE 116th St.

Entries: Main South Entry at 97th Ave NE and NE Juanita Drive (at traffic signal)
 Main North Entry off 97th Ave NE to gravel parking lot (near intersection)
 Second North Entry, off 97th Ave. NE to Forbes House loop driveway

Parking: South lot: approx. 200 Parking spaces
 North lot: 50 Parking spaces (gravel)

Utilities

Water Supply Systems

- Water lines area located on east side of Park with connections to existing facilities.
- A water meter is located in southern portion of Park, serving both sides of the Park. (King County requested two meters be installed one in each side of the Park as part of the Juanita Drive Improvements Project.

Sanitary Sewer Systems

- Twin sanitary sewer force mains run south across Juanita Drive from the Metro Pump Station and then east along the south side of the Juanita Drive right-of-way.
- Additional lines and manholes: see plan
- Metro Pump Station – existing at NW corner of 93rd Ave. NE



- Juanita Bay Pump Station – new
- It is assumed that existing restrooms still utilize septic tanks.

Stormwater Systems

There are storm sewer lines and catch basins located in the southern portion of the Park. None are visible on the northern portion. Upgrades to the stormwater system will be required in the master plan to improve water quality.

Electricity and Telephone

- The Juanita Drive Improvement Project placed power lines and telephone lines underground along Juanita Drive.
- Services to the Forbes House are from sources along 97th Ave. NE

Natural Systems Elements

Lake Washington

This below memorandum summarizes Tetra Tech's review of sediment, hydrology, water quality and fisheries conditions at Juanita Beach Park and includes recommendations on actions to include in the Master Plan for improving those conditions.

Sediment

A review of historic to current aerial photos (1936, 1960, 1974) of Juanita Beach Park shows that there has always been a very shallow sandy beach and shoreline at the location of the Park beach and the north and east ends of the bay. In the oldest photos, there were long linear piers that went out to deep water, presumably to allow boats to tie up in deeper water. In the early 1970's, King County built the existing pier that entirely encloses Juanita Beach and added planking on the north and west sides, presumably to reduce wave action at the beach, but perhaps also to prevent sediment from Juanita Creek from depositing at the beach. Juanita Creek delivers a significant load of sediment (approximately 20,000 tons/year) including small gravel, sands, and fine silts that are deposited in the bay. It is estimated that 10,000 tons per year to the delta, 4400 tons in the swimming area, and remaining 5200 tons is lost the deep sediments of Lake Washington.

It has to be understood that Juanita Creek has historically been a significant source of sand to the Juanita Beach area. However, it can be assumed that the total delivery of sediment to Lake Washington has increased as the result of urbanization of it watershed. In addition, the particle size distribution may be different today then prior to human development of the basin. Specifically, the sediment delivered to the lake probably is made up of a larger fraction of fines. This is based on the reduced biofiltration capacity of the watershed as land-use changed from forested/vegetated to impervious urban surfaces.

Currently, sediment has deposited to a depth of about 3 feet against the north pier and planking and the reduction in current and wave action has facilitated the deposition of silt and organic material within the pier and at Juanita Beach. There is also a large delta that has built up between Juanita Creek and the pier that was not visible in the historic photos. The prevailing current in the bay is clockwise from west to east and then south. This has likely caused the outward growth of the delta because the planking on the piers prevent the coarser sediment from moving on eastward in the bay. Though the planking reduces the ability for the nearshore current to transport the coarser sediments, the finer silts and calys are likely still transported eastward with some of the silt to be deposited in the sheltered, low energy environment of the beach area.



Options to reduce the sediment buildup are: 1) dredge the delta to a depth of 3-5 feet; 2) dredge up fine sediment at the beach; 3) implement maintenance dredging program at delta to remove sediment every few years; 4) remove the planking on the piers to allow natural sediment movement in the bay; 5) implement sediment detention and removal in the creek basin to reduce sediment load into the lake; 6) reduce sources of sediment in the basin.

Because the prevailing winds during the summer are from the north and northwest and the fetch is very small in Juanita Bay from that direction, the planking on the piers does not appear to provide any useful measure of wave reduction or increased swimmer safety when the beach will primarily be used. During the winter, the prevailing winds are from the south and southwest, with a very long fetch directly towards the beach. However, the historic aerial photos do not indicate that wave action significantly affected the shallow beach, although it may have removed fine sediments (silts and organics) that had deposited along the beach. Thus, removal of the planking on the piers appears to be an easy method to allow natural water and sediment circulation around the bay and provide winter scour to remove some of the fine sediment deposited at the beach. This would help restore the beach to its historic condition. How rapidly this would occur is difficult to estimate and initial dredging of the delta may help facilitate a quicker return to the historic condition. Removal of the planking would however, allow sediment to be deposited in the shallow area down current of the beach as in historic conditions. Thus, additional sand would likely be delivered to the docks immediately to the east of the swim beach.

It should also be noted that removal of the planking would allow eastward movement of sand currently deposited in the delta and into the swim area. This could initially create a slug of sand moving through the beach area and through areas beyond the beach. This possibility should be investigated further and if necessary, considerations of dredging the delta deposits to prevent such an occurrence should be considered.

Options to manage the sediment loading to the lake include upstream bank stabilization and stormwater runoff best management practices within the Juanita Creek drainage basin. Within the park, side channel floodplain connectivity could be provided to help trap sediments in small storm events.

Hydrology

Juanita Creek is approximately 3 miles in length, with approximately 9 miles of open stream in the basin. The watershed area is 6.6 mi². Base flows in Juanita Creek are approximately 5 cfs (with minimum discharges of 2-3 cfs). Juanita Creek flows have been modified as a result of urbanization and removal of forested cover in the basin and can be considered to be typical of urban stream in western Washington with higher peak flows and larger runoff volumes during storm events. Annual peak flows range from 90-270 cfs.

Prevailing winds and wave energy in Juanita Bay are from the southwest and south in the winter (5 mile fetch from southwest on Lake Washington; 4.3 mile fetch from the south) and from the northwest and north in the summer (beach is largely protected; only 0.1 mile fetch). The current flows clockwise around the bay from the west to east and then south.

Lake Washington elevation fluctuates by two feet and is controlled by the U.S. Army Corps of Engineers at the Hiram Chittenden Locks. The lake level is controlled to provide flood storage in the winter months and to provide sufficient water supply for navigation and fish enhancement at the Locks during the spring, summer, and fall. The lake is typically at its lowest level (Elevation 20) starting in October and continuing until February, when the Corps begins to slowly fill the lake back to its high level (Elevation



22) reached in April-May. The pre-lock level (prior to 1917) of Lake Washington was approximately 30 feet-MLLW.

1. Options to restore a portion of the natural hydrologic functions to Juanita Creek and Juanita Bay include: restore floodplain and floodplain wetlands/side channels along Juanita Creek;
2. provide upstream stormwater detention;
3. remove baffles on pier to restore natural bay circulation;
4. remove or raise a portion of the encircling pier to restore natural wave energy and bay circulation;
5. perform dredging to remove portions of the delta that have grown out into Lake Washington as a result of the blockage of sand transport by the pier baffles.

Water Quality

Juanita Creek is listed on the Washington Department of Ecology's draft 2002/2004 303(d) list for water quality impairments including dissolved oxygen, fecal coliform, temperature, mercury, pH, alpha-Endosulfan, ammonia-N, arsenic, beta-Endosulfan, cadmium, chlorpyrifos, chromium, copper, Endosulfan, hexachlorobenzene, lead, nickel, pentachlorophenol, selenium, silver, and zinc. The USGS found 17 pesticides during a storm event in 1998, which was the highest number detected in that larger King County survey (Voss and Embrey 2000 cited in Kerwin 2001). The water quality impairments in Juanita Creek adversely affect the fish and aquatic food web.

Of particular concern to Juanita Beach Park, are the high levels of fecal coliform after storms. Juanita Beach is frequently closed during the summer season due to dangerous levels of coliform bacteria in the lake water. It is likely that the high levels of bacteria in the bay are due to a combination of fecal coliform from the creek, direct runoff from the park and adjacent lawns (high amounts of geese and duck feces at the park), and potential leakage from the old sewer pipe that runs under the beach (although this was not indicated by the RNA tracking performed by King County, personal communication Jonathan Frodge, 2005). Bacteria can bind to fine sediments and organic matter, such as is present all along the beach inside the ring pier, although previous investigations at Juanita Beach have failed to demonstrate that the sediments at the beach are in fact a source of bacterial contamination (J. Frodge, personal communication 2005). The main body of water within Lake Washington has good water quality and does not reflect any of the problems documented for Juanita Creek of the swim beach. To improve the water quality at the beach for all parameters there is a need to promote more exchange of water with the open water of the lake. In previous years King County installed a pump to try to get more exchange, but it was undersized relative the volume of water that needs to move through the beach area to avoid water quality problems.

Options to improve water quality at the beach and in the creek include: 1) reduce sources of pollutants in Juanita Creek basin through stormwater BMPs; 2) restore floodplain wetlands to filter pollutants; 3) create a high flow sand filtration system to filter creek flows; 4) reduce attractiveness of park to geese and ducks by reducing area of lawn adjacent to the beach and creating a visual barrier using shrubs to reduce their direct access from the water to lawn; 5) create swales and rain garden to filter runoff from the park prior to entering the bay or creek; 6) remove planking on piers to restore natural circulation and wave action to scour fine sediments away from beach; 7) investigate the integrity status of the sewer pipe adjacent to the beach to ensure it is not leaking; 8) reduce runoff in park by repaving parking area with pervious pavement, reducing lawn area especially with inadequate drainage and attraction to waterfowl for feeding, reducing other pervious surfaces.

Reducing fine sediment deposition along the beach, increasing lake-beach circulation, and reducing direct runoff from fecal material from the park will be the most significant in reducing fecal coliform concentrations at the beach.



Fisheries and Fish Habitat

Juanita Creek and Juanita Beach both provide potential habitat for a variety of fish species. Species that are known to be present, or are likely to be present, in Juanita Creek include coho and sockeye salmon, kokanee, cutthroat and rainbow trout, longfin smelt, lamprey, three-spine stickleback, largescale sucker, dace, shiner, sculpins, and crayfish. Species that utilize the shoreline and beach area likely include chinook, coho, and sockeye salmon, steelhead, cutthroat and rainbow trout, peamouth chub, yellow perch, northern pikeminnow, largescale sucker, sunfish, bullhead, largemouth bass, smallmouth bass, carp, sculpins, and crayfish. (King County 2002; Kerwin 2001; Martz *et al* 1996)

The habitat in Juanita Creek was assessed by King County (2002) in 2000. In general, throughout the watershed, bank stability is poor in many locations, the riparian vegetation is limited in width and percent canopy, very few pieces of large woody debris (LWD) are present and they are predominantly small diameter alder, pool frequency is low, and pool quality is low. Particular problems included significant quantities of fine sediment in most reaches; the only suitable spawning gravel is in the park and in their surveyed Segment 4 (just downstream of 141st St). Pools throughout the creek, while moderately frequent, are all very shallow and do not provide sufficient depth or cover. Several potential fish passage barriers are present upstream of 141st Street.

In the lower segment of the creek, including Juanita Beach Park, the riparian zone was only 21% forested, primarily with young alders (*Alnus rubra*), with significant presence of blackberry (*Rubus armeniacus*) and reed canary grass (*Phalaris arundinaceae*) and mowed lawn in the park. Purple loosestrife (*Lythrum salicaria*) and Japanese knotweed (*Polygonum cuspidatum*) are also present. The stream banks are eroding in several locations in the park on the outside of meander bends. Many banks have been armored, including banks with low risk of erosion. While pools are riffles are present between Juanita Drive and the pedestrian bridge at the upper end of the park, the channel is incised and appears to be entirely disconnected from the floodplain. Downstream of Juanita Drive, the creek floods into the park frequently, a maintenance building is located immediately adjacent to the left bank and the channel appears to have been moved to the edge of the park to bring it as far away from the swimming beach as possible.

The Lake Washington shoreline along Juanita Beach is shallow water with sandy or silty/organic substrate and minimal vegetation. No wood or overhanging vegetation for cover is present along the shoreline at the park. To the southeast of the park are the extensive wetlands in Juanita Bay Park. This area is indicative of the historic shoreline condition in Juanita Bay.

The historic condition in the basin was coniferous forest with Douglas fir (*Pseudotsuga menziesii*), western red cedar (*Thuja plicata*), western hemlock (*Tsuga heterophylla*), with likely alder, willows (*Salix* sp.) and cottonwood (*Populus balsamifera*) along the creek and lakeshore. The 1936 aerial photos show much of the basin forested, even after 50 years of timber harvest and development. Current photos show much of the watershed developed to residential and commercial uses. Although Juanita Creek has generally always flowed through a narrow ravine and narrow floodplain, much of that former floodplain has now been developed. The park downstream of Juanita Drive now serves as the only floodplain available.

High quality salmonid habitat is characterized by a diversity of pools, riffles, glides, side channels, wetlands, and oxbows to provide suitable habitat during multiple life history stages such as spawning, rearing, refuge, and adult holding and migration. Large woody debris is believed to play a major role in the formation of habitats in the Pacific northwest via energy dissipation, pool formation, sediment retention, and provision of cover (Maser *et al* 1988; Bilby and Ward 1991; Harmon *et al* 1986 all cited in King County 2002). In Lake Washington, salmonids use the shoreline for short-term rearing and migration. Key features that chinook appear to utilize are shallow shorelines with sandy or small gravel substrate, overhanging vegetation, and small woody debris (Tabor *et al* 2004). Sockeye fry were also



commonly encountered at a shallow sandy beach with natural vegetation adjacent to the Cedar River mouth in 1994 and 1995 (Martz *et al* 1996).

Numerous opportunities for habitat restoration and enhancement exist along Juanita Creek and Juanita Beach including: 1) excavate floodplain side channels/wetlands along Juanita Creek downstream of pedestrian bridge, in lower park where frequently flooded, where maintenance building currently resides; 2) remove maintenance building and restore riparian and create floodplain; 3) remove armoring on banks except where absolutely necessary; 4) slope banks back and revegetation; 5) restore riparian zone; 6) place LWD in the channel; 7) restore shoreline between north pier and creek mouth to natural vegetation such as willows and cottonwoods to provide buffer and overhanging vegetation; 8) place small woody debris along shoreline in clumps, best to be associated with overhanging vegetation; 9) revegetate clumps of willows along shoreline at swimming beach or eastern edge of property, in select locations to provide overhanging vegetation.

Geotechnical and Soils

- Indianola soils – along streams and lakes, excessively drained soils
- Alluvium and glacial till: along NE Juanita Drive
- Sandy beach: sands imported over the years that overlay stream deposits of silty sands and gravels.

Juanita Creek

Juanita Creek is a perennial creek that flows from the north to the south through the park and has its mouth on Lake Washington through the beach portion of Juanita Beach Park. It is located in the Juanita Creek Drainage Basin, a Primary Drainage Basin under the City of Kirkland Code (KZC). Juanita Creek is used by resident salmonids and anadromous salmonids. In the northern portion of the park where the creek enters the park, flows are relatively shallow with areas of gravel and cobble-lined glide habitat. The creek deepens as it flows under NE Juanita Drive and turns to the west and flows to the mouth of the creek. The channel is deeper near the mouth and has a sand/mud bottom. The creek channel has been realigned in locations and is influenced by upstream sedimentation, bank incising, and areas of bank armoring.

The riparian zone along the creek is highly urbanized with areas of lawn and foot traffic up to the edge of the creek. There are also areas where shrubs and trees provide some vegetative buffer in the northern portion of the park. Himalayan blackberry (*Rubus armeniacus*) dominates the shrub layer in many locations and competes with the native vegetation. The minimal vegetative cover within the riparian zone has allowed for easy access to the channel and foot traffic has eroded the creek banks in some locations.

Juanita Creek is rated as a Type A stream by the City of Kirkland code due to the use of the creek by salmonid species. Required buffers on Type A streams within Primary Drainage Basins are a minimum of 75 feet wide per the KZC Chapter 90.90. The City requires a 10-foot building setback from the stream buffer (KZC 90.45 and 90.90).

Opportunities for enhancement of Juanita Creek as it flows through Juanita Beach Park are numerous. The recent Stream Inventory Report prepared by Parametrix (2004) identifies numerous opportunities to restore and enhance the creeks. Some key opportunities include:

- Control upstream sedimentation inputs to moderate sedimentation within the creek channel.



- Remove the failed bank armoring and replace with bio-engineered approaches to channel stabilization.
- Remove invasive species within the stream buffer.
- Establish a wider buffer for the creek by planting native species within the 75-foot buffer.
- Develop trails in the outer 50% of the buffer to allow some human access along the creek, but minimize uncontrolled access to the creek banks.
- Relocate buildings currently located within the 75-foot creek buffer to outside the creek buffer.

Wetlands

Three reviews of wetland boundaries have been performed at the Juanita Creek Park property to date:

1. Wetlands, Stream, and Wildlife Report prepared by B-Twelve Associates, Inc. August 1999 (incorporated into the Juanita Beach Park Site Inventory and Analysis Report in August 1999).
2. Wetland Delineation Report prepared for the Juanita Bay Pump Station and Forcemain Upgrade Project, prepared by HDR in July 2002; and
3. Memorandum summarizing peer review of the HDR Wetland Delineation Report prepared by Adolfson Associates, Inc. in September 2002.

Additionally, a review of wetland buffers, Shoreline Management Act regulations, and Endangered Species Act implications that relate to potential redevelopment at Juanita Beach Park was prepared by The Watershed Company in July 2001.

The 1999 wetland delineation conducted by B-Twelve identified two large wetland areas along the shoreline at Juanita Beach Park, Wetland A and Wetland B. These areas were identified based on observations of soil conditions and inference of hydrology. Because the two areas are located in mowed grass areas of the park, vegetation was not used as a decisive parameter for the wetland determination. No data sheets or hydrologic monitoring data was provided with this wetland delineation, without which specific soil conditions and hydrologic conditions observed cannot be confirmed.

The 2002 wetland delineation conducted by HDR identified two small wetland areas adjacent to Juanita Creek, but disagreed with the B-Twelve delineation regarding the two large wetland areas identified in the mowed grass area along the shoreline. HDR used hydric soil criterion developed specifically for sandy soils such as those found at Juanita Beach Park and determined that the soils in these locations did not meet the necessary criterion for sandy hydric soils. The report also refers to multiple visits to the site to observe hydrologic conditions, and based on these observations, determined that the wetland hydrology parameter was not met in the two areas determined to be wetland in the 1999 wetland determination. The 2002 HDR wetland determination report includes data sheets. However, data for hydrologic monitoring conducted during the multiple site visits was not included in the report.

The 2002 memorandum prepared by Adolfson reviewing the 2002 HDR report indicated that their biologists were in agreement with the location of the two wetlands identified adjacent to Juanita Creek, but indicated that three other wetlands were also present adjacent to the creek. The review also requested hydrologic monitoring data to document HDRs observances of hydrologic conditions in the areas previously delineated as wetland by B-Twelve in 1999.

Issues regarding wetland boundaries to be resolved include:

1. Are the two areas delineated by B-Twelve in 1999 jurisdictional wetlands or not?



Resolution of this question is important as these two wetland areas are large and have significant buffers. If present, they represent significant limitations to development in this area of the park.

Potential methods for resolving this question include:

- Contacting HDR to request any hydrologic data collected; and
- Conduct hydrologic monitoring within these areas through the first three months of the growing season in 2005 (March, April, May, and potentially June).

This data, in combination with the existing soil data, should clarify the presence or absence of wetlands in these areas. Ideally, a redelineation of these areas would be confirmed by the US Army Corps of Engineers (USACE), as the USACE has final jurisdiction over determination of wetland boundaries. However, it is difficult to obtain USACE review for a project unless there is a specific USACE permit application submitted. A Master Plan level of design does not generate a USACE permit as these are typically prepared at the time of project development.

2. Are there additional wetlands along Juanita Creek that are not shown on the 2002 HDR wetland determination, as indicated in the 2002 Adolfson review memorandum?

- Potential methods for resolving this question include:
- Contacting HDR and requesting any data collected along the Juanita Creek that was not included in the wetland determination report. The report is thorough and it is unlikely that there is additional data available.
- Conduct another wetland determination to clarify the presence or absence of wetlands along Juanita Creek.

Resolution of the wetland locations and boundaries is an important first step to identifying the permitting issues associated with various Master Plan designs and establishing predictability for the permitting process. For the purpose of designing a Master Plan for Juanita Beach Park, and based on the above information, it is recommended that the design incorporate the four wetland areas identified along Juanita Creek by HDR and Adolfson Associates, jointly. The two areas identified as wetland by B-Twelve will need further documentation to confirm their presence or absence but it is recommended that these areas not be identified as wetland for master planning purposes.

The wetlands along Juanita Creek would be classified as Type 1 wetlands because the wetland is contiguous with Lake Washington and adjacent to Juanita Creek, both water bodies that provide habitat for federally-listed fish species. The wetlands are all located within a Primary Drainage Basin and therefore, buffers on the wetlands along Juanita Creek would be 100 feet wide per the KZC Chapter 90.45. As with Juanita Creek, a 10-foot building setback from the buffer is required.

Opportunities for enhancement of the wetlands adjacent to Juanita Creek in Juanita Beach Park are numerous. Some key opportunities include:

- Restore and enhance vegetation within the wetlands by planting native wetland species.
- Diversify the vegetation structure and species by planting a mixture of trees, shrubs, and herbaceous species.
- Remove invasive species within the wetlands.
- Establish a wider buffer for the wetlands by planting native species within the 100-foot buffer.
- Relocate buildings currently located within the 100-foot wetland buffer to outside the wetland buffer.



- Develop trails in the outer 50% of the buffer to allow some human access along the wetlands and creek, but minimize uncontrolled access to the creek banks.

Vegetation

Vegetation at Juanita Beach Park is highly urbanized and consists mostly of non-native landscape species. Along Lake Washington, south of NE Juanita Drive, vegetation is characterized by lawn grass species with plantings of landscaped trees, including black cottonwood (*Populus balsamifera*), Scarlet oak, and willow. On the north side of NE Juanita Drive are more large areas of lawn grass species with landscape tree species. Many of the trees, especially the cottonwoods (150 Cottonwoods were planted by Forbes in 1925) are reaching the end of their life spans.

Opportunities for enhancement of the vegetation at Juanita Beach Park are numerous. Some key opportunities are included in the Juanita Beach Park Natural Resource Inventory and Analysis Report.

Wildlife

Although Juanita Beach Park has some function as a wildlife refuge within the larger urban environment, the habitat has been degraded through human impact and lack of vegetative diversity. Wildlife habitat in the park is degraded by expanses of non-native lawn grass species and stands of invasive plant species, including primarily Himalayan blackberry. In addition, predatory animals including bullfrogs and domestic cats are a threat to the survival of small mammals, amphibians, and birds in the park. Wildlife at Juanita Beach Park is typical of an urban waterfront park with gulls, ducks, and Canada geese dominating the avian species along the shoreline. The heavy use of the park by Canada geese especially is noted to contribute to waste and water quality issues along the shoreline.

The presence of federally-listed threatened and endangered species is identified within the park in the shoreline environments of Lake Washington and Juanita Creek. Federally-protected fish species in these water bodies include:

- Chinook salmon (*Oncorhynchus tshawytscha*)(threatened) and present in Lake Washington, with potential presence in Juanita Creek only;
- Coho salmon (*Oncorhynchus kisutch*); and
- Cutthroat trout (*Oncorhynchus clarki*)

State-listed fish species identified at Juanita Creek Park include:

- longfin smelt (*Spirinchus thaleichthys*);
- sockeye salmon (*Oncorhynchus nerka*), and
- kokanee (*Oncorhynchus nerka*).

The nearest bald eagle nest is identified by the Washington Department of Fish and Wildlife (WDFW) priority habitats and species maps as being located 1.2 miles to the west of Juanita Beach Park (WDFW pers. comm. 12/6/04). Based on studies of wildlife use at the nearby Juanita Bay Park in 1992 (Watershed Dynamics 1992), other state-listed sensitive species that have the potential to be present at Juanita Beach Park include: great blue heron (*Ardea herodias*), bufflehead (*Bucelphala albeola*), hooded merganser (*Lophodytes cucullatus*), and western pond turtle (*Clemmys marmorata*). All of these species except for western pond turtle were identified at Juanita Bay Park during the 1992 wildlife study and have the potential to be found at Juanita Beach Park also.

See the *Juanita Beach Park Natural Resource Inventory* report for additional wildlife data and enhancement opportunities.



PROGRAM OPPORTUNITIES

In order to develop park programming appropriate to the site, the design team worked with the City, the Citizens Advisory Team (CAT), and the public to create a vision for the park that was based on community input and the site's context. Goals for the park revitalization led to appropriate programming for the park.

Vision Statement

Juanita Beach Park is a family friendly, multi-generational community park that fits the scale, character, and history of the park site and the surrounding neighborhood. The park provides waterfront access and a balanced mix of active and passive recreation opportunities while protecting and enhancing the natural environment.

Goals

Park Integration Goals:

- Link park to surrounding community
- Unify north and south sides of the park
- Buffer parking lot views
- Encourage bike and pedestrian access

Recreation Goals:

- Create multi-use recreational facilities where possible
- Develop facilities that respond to the needs of the community
- Provide recreation appropriate to the site character
- Balance development with environmental issues
- Balance active and passive recreation activities

Environmental Stewardship Goals:

- Enhance Juanita Creek to create a healthy stream environment. (This could include the reach within the park and up-stream reaches)
- Create a salmon and wildlife friendly shoreline
- Enhance and restore wetlands
- Educate the visitors about habitat values

Community-Building Goals:

- Create community gathering areas
- Create sense of community ownership
- Consider adopt a park opportunities

Aesthetic Goals:

- Buildings should not dominate the landscape
- Provide aesthetically pleasing night lighting
- Create naturalistic landforms



- Improve the visual quality of the shoreline
- Maintain framed views of the lake

Historical Resources Goals:

- Maintain and restore Forbes House and associated landscape
- Provide appropriate interpretation of area history
- Protect cultural resources

Revenue Goals:

- Develop revenue opportunities that can contribute funds to operations and/or development of the Park.
- Include commercial activities that enhance the experience of park users and fit the park's character
- Attract users that can support other businesses in the surrounding commercial district

Maintenance Goals:

- Consider the cost / benefits of dredging the swimming area
- Create a park in balance with maintenance resources

Park Program

Through extensive meetings with the public, CAT, City staff, the Park Board, and City Council the designers developed the programming elements for the park. The two alternative concepts developed take these program elements to the next step, integrating ideas and concepts into the site.

Program Element	Associated Parking	Parking Area @ 400 SF/Vehicle	Comments and Recommendations
Passive Recreation			
Picnic Areas	10 spaces per shelter, or minimum group area 2 cars per picnic table	4,000 SF	Group picnic (minimum 25 people) Family & individual picnicking
Lakefront Promenade	Shared with other use parking		Walkway adjacent to the beach that leads visitors to beach access points, the water walk and other view points. Enhances goose control
Forbes House Garden	Shared with multi-use playfield parking		Entry garden used for events as well as landscape feature. Consider historical context of the garden
Interpretive Trails, Signage, Shelters, & Wayfinding	Shared with other uses		Located in selected areas to present information about the environment that is being viewed
Active Recreation			



Program Element	Associated Parking	Parking Area @ 400 SF/Vehicle	Comments and Recommendations
Multi-use Playfield	20 to 60 vehicles if used concurrently with other recreational elements Could be shared use if scheduled properly	8,000-24,000 SF	Informal play lawn for various sports and activities, such as soccer, football, Frisbee, etc. Could be more than one playfield of varying size
Little League Baseball Field	62 spaces per field including 3 accessible spaces	24,800 SF	2 fields exist – consider relocating and improving fields, could reduce to one field, or could eliminate fields and use for other activities. Consider orientation of fields and facility location 205' foul lines, 215' center field, 50' to 60' infield Little league season is from March to mid June. Opportunity to share parking with swimming which starts mid June
Skate Park	Assume 20 vehicles	4,000 SF	Minimum the size (approximately 40FTx80FT) or up to 14,000 S.F. Should be more challenging than skate park at Peter Kirk. Provide good visibility and access. Consider other teen and young adult activities in area such as rock climbing, and space nets
Basketball Multi-Use Sport Court	10 spaces per court including a accessible space	4,000 SF per court	Consider ½ court and full court basketball. Potential multi-use sport court Badminton, pickle ball, basketball
Tennis Courts	3-4 spaces per court	1600 SF per court	Relocate tennis courts, resurface existing courts, or eliminate. Existing tennis court are lighted
Participatory Fountain Spray Park	Shared with other use parking		Consider location in association with playground, beach area or beach plaza area. Could be sculptural element of more of a package play feature
Water & Beach Related Recreation			
Day Use Moorage	Shared with other use parking		Consider use of portion of water walk for short-term day moorage if water depth is adequate. Locate floating docks on outside of water walk



Program Element	Associated Parking	Parking Area @ 400 SF/Vehicle	Comments and Recommendations
Hand Carry Boat Launch. Wind surf and kite board rigging & launching	Shared with other uses Parking 6 stalls	2,400 S.F.	Requires relatively close vehicle access to unload equipment and access to open water. Grass rigging areas desirable. Consider load and un-load zone for peak use
Small Boat Rental Facility (Canoe, Kayak, Paddle Boat, Sail Boats)	Assume 30 vehicle spaces including 3 accessible space	12,000 SF	Facility would require relatively close service access and a connection to open water. Parking figure assumes 40 boats. Enatai has 80 boats, all of which might be out at once on sunny day. Boathouse is 2400 square feet. Ideal facility would include 4-foot wide floating dock with finger piers for launch and return
Swimming Beach	50 SF of beach area and water area per person. 50 – 270 vehicles 6 vehicles	135' x 600' if 200 stall 81,000 S.F. 2400 SF Lifeguard house	Consider the "carrying capacity" of the area adjacent to the beach regarding the amount of parking that is appropriate for that park area. The existing parking lot holds approximately 200 vehicles. At 3 people per vehicle that equals 600 people (requiring 30,000 SF of beach area). The existing beach area is approximately 40,000 SF. Using the 50 SF/person standard, the existing beach can accommodate 800 people requiring approximately 270 parking spaces Consider options for swimming facilities. Existing formal swimming area is enclosed by water walk and protected by breakwater. Consider modification of pier to T pier, complete or partial removal of breakwater, lifeguard facilities, water depths, and dredging options See water quality section. Lake scientists indicate that with intervention water can be safe for swimming Men's and woman's restrooms, changing area, life guard office and first aid, indoor or outdoor shower, storage area, link to possible concession Life Guard Facilities
Outdoor Classroom	Shared with other use parking		Could be associated with a shelter, small- scale plaza, amphitheater, or open lawn area. Consider solar orientation
Group Gatherings and Events			
Entry Plaza or Promenade	Potential special events		Could also be used for farmer market or art market. Responds to urban edge of park. Olmsted promenade concept
Lakefront Plaza with Picnicking	Shared with other use parking		



Program Element	Associated Parking	Parking Area @ 400 SF/Vehicle	Comments and Recommendations
Farmer's Market Art Market Community Gathering Plaza Shared Venue	Shared with other use parking Special events demand		Consider impacts on adjacent areas and the need for supporting utilities. Scale of events and scheduling will define the need for parking above that already provided on site. Existing Farmers Market in Downtown Kirkland on Wednesdays May through October. Similar to Moss Bay events. Parking needs depend on scheduling
Bandstand, Amphitheater or Meadow with Power Supply	Shared with other use parking 50 stalls? Special events demand		Consider impacts on adjacent areas and the need for supporting utilities. Scale of events and scheduling will define the need for parking above that already provided on site
Garden for Weddings and Group Rentals (See revenue producing elements)	30-50 vehicles including 3 accessible spaces		100 to 150 capacity may be realistic given size of facility. Activity related to Community Pavilion
Forbes House as support facility for outdoor rental events (e.g. restrooms, changing, and setup)			
Community Pavilion	Assume (100 to 150) guests at an event – average of 3 people per vehicle. 30 –50 vehicles		Rental Facility for community meetings and programs. Weekday uses to complement weekend rentals for weddings banquets, and receptions. Could be at Forbes house, near Forbes house or by lake
Plaza / Garden Space	Shared use		Near Forbes house and / or by events rental element. Multi purpose plaza space. Creative focal point
Revenue Producing Elements			
Event Facility Rental	See Community Pavilion		Weddings Meetings Corporate Use at Forbes House or new facility
Commercial Recreation			Appropriate use and scale Boat rental Others?
Food/ Restaurant Concession			Trailer Pad Snack Bar Small Restaurant Range of scale
Entertainment Events			



MASTER PLAN ALTERNATIVES

Park Theme and Character Alternatives

The following themes and alternative characters were discussed in public meetings and at CAT meetings to help focus on the design of park. The designers and City staff considered a range of possibilities.

Landscape Alternatives Considered

- Wild landscape character
- Naturalistic landscape character
- Formal landscape character
- Open landscape character
- Park room concept – defined spaces
- Ecological landscape / edges / patterns/ diversity / corridors / structure

Architectural Alternatives Considered

Character

- Rustic architectural character
- Craftsmen architectural character
- Modern architectural character

Site Planning and Massing

- Building programs clustered
- Building organized around meadows or plazas
- Buildings tucked into landforms or vegetation edges

Experiential Quality Discussion

The discussion about the experiential quality of the park resulted a few different design ideas:

The park could be developed to define a consistent character that is homogeneous throughout, or alternatively a series of park rooms could be developed each with a different character, however the rooms would achieve unity by repeating materials and forms to tie the park together. In no case should the park be fragmented and chaotic.

Transitions in one alternative could lead the visitor through a series of spaces ranging from formal on the urban edge to wild along the stream or within the natural shoreline buffer.

Another alternative could provide a naturalistic feel immediately from the edge of the park creating a green oasis juxtaposed with the urban setting of the project.





Alternative Description

This table is provided to highlight differences between the two alternative designs to be presented at public meeting number three. Note that various elements can be selected from either alternative or recombined to create the preferred alternative design.

There are many elements common to both alternatives such as preserving and enhancing stream and lake buffers, water quality improvement measures, loop paths for strolling and interpretation, and passive recreation amenities.

Park Element	Alternative No. 1	Alternative No. 2
N. Side Parking	Parking south and east borders	Parking north and east borders
S. Side Parking	Arched parking lot. This allows for the retention of some of the trees along Juanita Drive	Parking located along Juanita Drive, parallel to the roadway. Most of the trees along Juanita Drive removed. Some could be saved in parking lot islands. Fingers of green extend from Juanita drive to the lake
Community Events Plaza	Located along 97 th Ave. Promenade leading from village to Juanita Drive	Located along shoreline as part of waterfront promenade. Provide service access from parking lot
Community Commons W/ Amphitheater	Small scale amphitheater (120' x 60') centrally located along shore. Minimize or omit bandstand	Larger amphitheater 200' x 175') centrally located along shore
Multi-use Playfield	Locate north toward northern property line. Provide minimum 15' buffer	Locate south toward Juanita Drive and southern property line
Skate Park	Locate adjacent to tennis court. Note that this will be close to parking located along Juanita Drive	Locate east of multi-use playfield near entry plaza.
Restroom	Combine with boathouse & Bathhouse on west side of park shoreline near stream buffer	Central location between bathhouse and amphitheater
Boathouse	Boathouse provided, include kiosk on dock for life jacket and sales	No Boathouse provided
Waterfront Promenade	The promenade has a more sinuous or meandering form	The promenade is simpler in form allowing for integration of community gathering plaza



Public Reaction to the Master Plan Alternatives

At public meeting number three, where the alternatives were presented to the public, the general consensus was that the design for the northern park section from Option 2 was preferred and the southern park section from Option 1 was preferred. See graphics attached.

Please refer to the Appendix for more specific meeting notes from each of the public meetings.



PREFERRED MASTER PLAN

Juanita Beach Park, a Green and Blue Oasis

Working collaboratively with the City and the public, the design team developed a Master Plan that will create a healthy place for the City with both passive and active recreational elements meeting the needs of the community and regional park users. Meeting the needs of diverse users, from people to fish, the new Juanita Beach Park is about putting smiles on the faces of children and adults. Lake and beach access, beach volleyball, multi-use recreational fields, picnic facilities, boating facilities, a skate park, and community activity areas will coalesce to create a special place for Kirkland residents. Juanita Beach Park will be a place where the community can come together to recreate and enjoy healthy and life-sustaining activities. (See Appendix, Figures - and - for Master Plan graphics.)

Park Theme and Character

Juanita Beach Park character is defined by the history of lakefront recreation within the region as well as the history of recreational use on the site. The Forbes House provides an important historic treasure for the park. This park history is complemented by the natural landscape that defines the edges of Juanita Creek and the trees and lawn that define the remainder of the park. The landscape patterns and Juanita Drive divide the park into a series of use areas and outdoor rooms that define distinctive areas of the park. The north area is defined by attractive tree plantings, lawn areas, play fields and the Juanita Creek natural area to the west. The southern park area is defined by trees and lawn, a large parking area, the beach and pier. The connection of Juanita Creek to Lake Washington is an important landscape element for the park.

The park is developed to present a character that is consistent thematically throughout the park. The design is carefully integrated into the park's setting at Juanita Village to promote use and access, and compatibility with the park surroundings. Unity is achieved in design by repeating materials and forms that tie the park together. This is important to connect the park experience across Juanita Drive.

Architectural Character/ Site Planning and Massing

Buildings are developed with a craftsmen style architectural character that strongly ties to the parks natural landscape, open lawn character and the historic recreational use of the site. The buildings are sited at the edges of the lawn and plaza areas to assist in defining the spaces. The building scale and locations complements and reinforces the landscape character and provide focal points for park visitors. Buildings are tucked into gentle landforms or vegetation edges.

Plan Description

Juanita Beach Park is a unique mix of landscapes, open space and recreational opportunities within a rapidly growing area of Kirkland. The park provides open lawns for organized and informal games, natural landscapes that define the course of the Juanita Creek as it meanders through the park and access to the Lake Washington waterfront. The park has two distinct characters. It is an urban park, providing open space and amenities for the urban land uses on the west, north and east of the park. It is a natural park providing lakefront access and opportunities to experience the natural landscapes along Juanita Creek.

Juanita Drive defines two sections of the park. The north section provides the urban amenities for Juanita Village and other surrounding residential areas. Along NE 97th Ave. park visitors can stroll along a wide sidewalk or promenade defined by a double row of street trees. This urban space provides opportunities to sit, read the paper and on weekends attend a Saturday market. A paved area to the west of NE 97th



Ave. provides parking for the ball fields, tennis courts and soccer green to the west. When appropriate the market functions can expand into the parking area. A picnic shelter, play ground, restroom and skate park enrich the plaza space located between the ball fields and parking. The Forbes House provides a focal point for public and private functions. The Historic residence provides space for park offices, meetings, family reunions, and weddings. The entry garden and small orchard provide outdoor rooms for events and celebrate the historic character of the house. Overflow parking is provided at the north edge of the park. This parking area provides parking for Forbes House activities as well as additional parking for baseball and soccer games. It will be constructed with a grass pave material that will provide a green turf surface and permeable paving. This will minimize the impact to surface water resources while providing a functional and aesthetically pleasing character.

The skate park plaza provides an important focal point and park entry gateway at the northwest corner of the NE 97th Ave. and Juanita Drive intersection. The skate park plaza provides color and activity that greet park visitors as they enter the park from the corner. Consideration should be given to lighting the skate park to extend the hours of use into the evening. From this area park visitors are linked to other areas in the north section of the park. The skate park plaza also provides a strong tie to the pedestrian crosswalk and plaza on the south side of Juanita Drive.

Another pedestrian cross walk occurs in the center of the park. This crossing is marked by rows of trees that define the crossing and adjacent open spaces.

The southern section of the park is dominated by the large lawns defined by trees, beach and pier that provide park visitor with waterfront access. Pedestrian paths connection the two sections of park pass through a series of landscapes as the visitors proceed to the beach. The first is a transitional landscape on the south side of Juanita Drive. This landscape provides a buffer between the Juanita Drive and park areas to the south as well as framing views of the park and lake for travelers on Juanita Drive. The parking area is the next area encountered. Within this area the majority of parking for the beach is located. The parking area is diversified by biofiltration / raingarden areas and tree stands. Pedestrian ways through the parking area are strongly defined with paving patterns and landscape elements to announce the crossing points to drivers and pedestrians. Consideration should be given to the use of permeable pavers to minimize the impact to surface water resources and to reduce costs for stormwater treatment facilities.

The lawn landscape is the next area the visitor passes through. Three lawn areas providing a striking series of landscape experiences. A central lawn area, defined by gentle landforms and formal rows of trees, provides an amphitheater for small scale performances. Within this area families could picnic on the lawn while watching the performances with the Lake providing a beautiful backdrop to the plaza “stage” area. The lawn areas to the west and east of the central space provide picnic and informal play opportunities within the lawn and scattered shade tree setting. Picnic shelters are located within each of these lawn areas.

The beach is the next area the visitor encounters. This area is defined by the lakefront promenade on its upland edge. The expansive beach area is softened by informal stands of trees which add salmon habitat and aesthetic value. The trees in addition defining the beach areas provide shade and informal play spaces. The lakefront promenade connects the east and west edges of the beach as well as providing access to the two entries to the pier. The restroom / concession building are located adjacent to the western end of the lakefront promenade. This facility provides beach amenities as well as a food concession for the beach and lawn areas. A playground is to the east of this building. The pier provides park visitors with opportunities to get out over the lake, to fish, to dock a boat as well as rent a canoe or kayak.



Another unique park area is the area on the west side of Juanita Creek. This area provides space for additional water quality treatment for stream flows as well as interpretive trails through this natural area.

Entry Signage and Gate

A City of Kirkland Parks entry sign and lockable entry gate will be provided at all four parking lot entries. Accent plantings are provided to highlight the park entries.

Drop Off Area / Entry Plaza

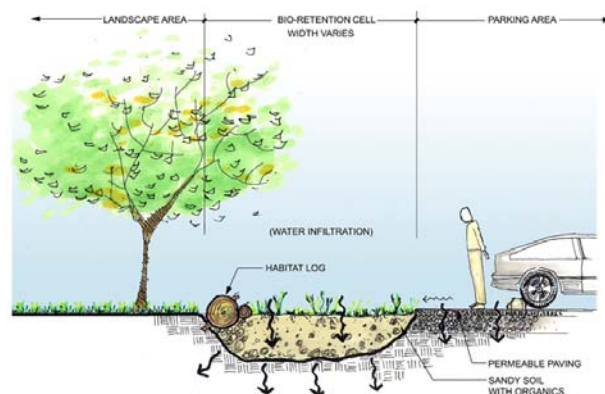
Two entry plaza/ drop-off areas are provided on the south side of the park. A drop off area is provided near the south entry of the park to allow for convenient drop off of park users and providing a minimum of traffic conflict through the use of a circular turn-around. The turn-around is 24 feet wide and is defined by an attractive landscaped island. Three short term load and unload parking spaces are provided at the east end of the parking lot, and five are located at the west end of the parking lot.

Parking Lot

The site, with its gentle slopes can easily accommodate parking facilities. Important considerations will be:

1. Minimization of impervious surfaces
2. The development of efficient site access to both the north and south portions of the site
3. Optimizing the elevation difference between the parking surfaces and the water quality facilities so that storm water management options are available.
4. Saving existing trees, particularly between the parking lot and Juanita Drive.
5. Soften parking with tree and shrub plantings.
6. Create strong pedestrian crossings through parking lots.
7. Provide efficient drop-off areas to avoid congestion.
8. Provide ADA and short term parking.

Consideration should be given to providing some or all of the parking on permeable paving. Poured in place permeable concrete paving is available from specialty contractors. The installed price of this material is three to four times more expensive than asphalt but it allows infiltration of storm water that will reduce storm water treatment and detention costs. Permeable concrete unit pavers are also available for four to five times the cost of asphalt. This material has a superior appearance and is readily available. Pervious asphalt paving could be considered for use on paths or parking lot pavement. Issues and concerns relating to pervious asphalt paving include clogging and wear issues, in addition to an increase in cost compared to conventional asphalt paving. Further analysis of these options will be made as the design moves ahead. Pervious grass pavement is proposed for the overflow parking along the northern perimeter of the park. It would be advantageous to design the parking to allow decentralized water quality treatment facilities.



Low Impact Design: Parking lot with permeable paving and rain gardens.



Rain gardens should be considered for integration into the parking lot design. These could be located to the east of the village lot and they could be integrated into the central planting strip of the south parking lot.

Parking for a total of 350 cars is provided. 270 stalls exist now. Of the 350 proposed stalls 125 spaces are proposed for the north portion of the park and 225 spaces are proposed on the south or waterfront portion of the park. Assuming 2% of the parking spaces are ADA accessible parking a total of 7 ADA spaces are provided.

Emergency Vehicle Access

Emergency Vehicle access is provided to the parking lots and to the beach area. The service access near the bathhouse is designed with removable bollards that all access to the beach area. A hammerhead turn around constructed with grass pave or unit pavers is provided near the beach.

Park and Recreation Elements

Swimming Beach

The large sandy swimming beach that exists on the shoreline will be maintained and enhanced. The beach offers opportunities for sunning, picnicking, and sand castle building. Life guard viewing areas will also be developed on the beach and walking pier as required. Water depths within the swimming area are very shallow with summer depths ranging from 1 to 5 feet in depth. No diving will be allowed from the pier. The swimming beach has always been very shallow and is perfect for water play for younger swimmers, and stronger swimmers who don't mind the shallow water. Consideration could be given to providing a float line to delineate water play and lap swimming areas.

See the water quality section for recommendations for improving water quality.

Community Commons

The Community Commons offers a flexible lawn area that provides an informal passive recreational feature as well as a place for community oriented entertainment including moderate to small scaled music events, and movies in the park or other community events. It will also make a great place to gather on the 4th of July. A small informal stage area is provided along the Lakefront Promenade which also serves as an informal gathering and picnic area when not used for events.

Lakefront Promenade

The Lakefront Promenade makes a great place to stroll with opportunities to socialize and enjoy views toward the lake and park areas. Low concrete seating walls provide opportunities for resting, sunning, and also limit geese access to the lawn areas. Easy access from the lawn areas to the beach are provided across the promenade. Art elements could be incorporated into the seat walls or paving to explore the history of the site, water quality improvement and issues, or other interpretive topics. Integrated into the dock entry plaza on the east end of the promenade is a water channel feature that interprets the function of the rain garden and the cleaning of water flows before they enter the lake.

Children's Playgrounds

Playgrounds are provided in the north and south portions of the park. The southern playground space is located between the Bathhouse and the Picnic shelter to create a strong connection between the picnic shelter and the playground. Families will be able to use the picnic shelter while children are able to enjoy the Playground.



The northern play area is located between the picnic shelter and the restroom. Parents will be able to sit near the playground or at the picnic shelter and watch their children. This smaller play area will serve younger children in groups or families utilizing the multi-use playfield. The play areas will be ADA accessible with a ramp located off the plaza to accommodate wheel chair access. Encompassing the Playground is a walk that contains the wood chips. At either end of the play area picnic tables are located on widened portions of the walk to create a small gathering space and seating area for adults to monitor the children at play. Placement of play structures will comply with ASTM Playground Safety Guidelines. The play surface will be a wood chip material set at a depth of 12" and compacted in place to provide ADA access. Location of structures will provide for good site lines to the play area for parental monitoring of children.

Playstructure Ages 2-5

Play ground structure that will accommodate ages 2-5. The play elements will be appropriate for children of this age.

Playground Ages 5-12

Play ground structure that will accommodate ages 5-12. The play elements will be appropriate for children of this age.

Consideration could be given to a young teen climbing structure to cater to an age group that is often missed in recreation other than organized activities.

Playground Elements and Issues

- Seating for parents/guardians
- Pre-teen climbing structure
- Older children's play structure
- Tot lot
- Curb walls
- Play surface
- Provide ample room for fall zones
- Drainage
- Geo-fabric

Juanita Beach Park Path System

The park's Path system will provide recreation opportunities for strollers, and joggers. One trail will loop around the multi-use playfield. Distance markers for walking and jogging reference would be placed along the loop paths. Generally all on site trails will be handicapped accessible. Another series of loops are provided on the south side of the park that includes the water walk pier. Pedestrian entries are designed to encourage efficient and attractive access to reduce parking demands.

The IAC contributed to the federal Architectural and Transportation Barriers Compliance Board's (Access Board) report on the minimum guidelines for picnic and camping areas, beaches and trails. The new ADA Accessibility rule was due out in late 2004 and was intended to apply to federal agencies only. These guidelines are the most current available, and should be followed during the detailed design of the trails and park facilities, to assure that ADA accessibility is incorporated to the maximum extent possible. A final report is available from the Access Board's web site: <http://www.accessboard.gov/>.

Drinking fountains will be located at several key places in the park. Locations include restrooms, playgrounds, ball fields, skate park, bathhouse and picnic shelters.



Educational Opportunities

Incorporated into the Juanita Creek streamside and lakeside buffers are educational opportunities for the general community, in addition to area schools. Passive park areas such as interpretive viewpoints, an interpretive pavilion and boardwalk crossing the water quality treatment / flood zone wetland, riparian enhancement areas, stream enhancement areas, rain gardens, and a potential backyard wildlife display area, and a potential historical display at the Forbes House Garden can serve as a part of an educational resource for the community.

Potential Interpretive Themes:

Riparian and salmon habitat

- Site & community history
- Ethno-botany
- Backyard wildlife
- Salmon habitat
- Innovative use of stormwater
- Stormwater treatment/ water quality

Architectural Elements

This study team concurs with the conclusions of the 1970 Recreational Master Plan, 1987 Master Plan Report, and 1999 Site Inventory & Analysis Report. All three of these documents assessed the condition of the existing structures in the Park and recommended that, with the exception of the historically-significant Forbes House and the repairable pier, none of the existing structures were worth repairing and retaining. Most, like the bath house, restroom building and picnic shelters, were so deteriorated that it would be more cost-effective to accommodate their functions in new structures. Others, like the district maintenance building and the small out-buildings next to the Forbes house, should be removed and not replaced on this site at all.

Bathhouse

The bath house represents a building type that was appropriate in the past when it made economic sense for a Parks Department to staff locker and towel concessions for public bath houses at swimming beaches. Bath houses are seldom included now when swimming beaches are developed unless the number of users is substantially higher than is likely at Juanita Beach. Swimmers can change into swimsuits in changing areas in adjacent restrooms and are more likely for security purposes to bring clothes and valuables down to the beach rather than to leave them in self-lock lockers in a changing area. For this reason changing areas and lockers have been limited in the design.

Restrooms

New restrooms can take advantage of vandal-resistant and easy-to-maintain materials such as polycarbonate interior wall cladding, stainless steel plumbing fixtures and casework cladding and solid polyethylene toilet partitions. Full skid-resistant tile floors can provide a good-quality floor finish. Building shell materials such as concrete masonry unit walls, steel doors and steel roofs with polycarbonate-glazed skylights can provide attractive, low-maintenance toilet and changing facilities. Prior planning documents recommended building one new toilet building on each side of the park and providing room for changing in the building on the south near the beach.



For purposes of the current Master Plan effort, we have developed a schematic design for a restroom prototype that will have four toilets and three lavatories on the women's side and three toilets, two urinals and three lavatories on the Men's side. The toilet building near the beach will have a 200 s.f. space for dressing and will also have 15-20 lockable lockers with free-standing benches on each side of the toilet Room.

Food Concessions in Juanita Park

The possibility of small-scale concessions in the Park has been brought up many times in past reports and in public meetings conducted by the current design team. Several King County Parks and some North West municipal parks rent space to food concessions. These food service operations tend to be small, locally-owned takeout food businesses although King County has had excellent experience renting space to national chains selling fast but relatively-healthy food in Park's' recreational buildings. The restroom building near the beachfront will have about 340 S.F. as a leasable concession area.

Lifeguard Office

A 240 S.F. lifeguard office is provided in the bathhouse building.

Non Motorized Boat Rental Facility

The specific program and design for the small boat rental facility will need to be determined once a lessee has been identified. The schematic plan shows 432 S.F. for office and storage. The design program has mentioned storage buildings for rental kayaks or rowing shells. A small-scale boat rental business could be operated from a building of 850 S.F. This floor area would allow for a 100 S.F. rental office plus a 700 S.F. boat storage room opening to a garage door on a sidewall. An additional 50 S.F. would provide space for a small mechanical/utility room. Architecturally the boat rental building could either be part of the Bathhouse or could be a free-standing building with materials, colors and details similar to the other new buildings on the site.

A kiosk is also proposed on the pier for staffing on the dock. The kiosk would provide storage or life jackets and paddles as well as a cashier function. A 120' x 24' float and two finger floats are provided off of the water walk. A gangway will provide access to the float. Grated decking should be used for improved light penetration to minimize impacts to salmonids. Consideration should be given to installing a mooring anchor and float within the DNR lease area for winter moorage of the float. This would reduce maintenance costs due to damage from winter storms.

Hand Carry Boat Launch

A hand carry boat launch is provided west of the water walk near the stream delta. This will allow easy water access for small boats in an area of the beach outside of the enclosed swimming area. Access is provided from the west end of the parking lot. Boats, windsurfers, and kite boards will need to be carried approximately 400 feet from the end of the parking lot. 5 load and unload short term parking spaces are provided in this area. Boating in Juanita Bay is anticipated to be attractive to many users and some visitors may paddle toward Juanita Bay Park. Educational signage should be provided to minimize the impact of boaters on wildlife habitat. Buoys or logs with signage could be used to identify sensitive areas that are off limit to boaters.



Day Use Motorized Boat Moorage

Short stay day use moorage is provided outside of the water walk to allow boat access to the park. A gangway and concrete floats are provided for boat slips. Water in this area is approximately 5 feet deep in the summer. Grated decking should be used for improved light penetration to minimize impacts to salmonids. Consideration should be given to installing a mooring anchor and float within the DNR lease area for winter moorage of the float. This would reduce maintenance costs due to damage from winter storms.

Boating Mitigation Plan Required

The Juanita Beach Park Master Plan includes several new opportunities for boating on Lake Washington, as described above. However, these boating opportunities can only occur if wildlife habitat areas in and around nearby Juanita Bay Park are protected. Establishment of the non-motorized boat rental facility, hand carry boat launch, or day-use motorized boat moorage is contingent upon the implementation of a City Council-approved boating mitigation plan which describes in detail how wildlife habitat areas will be protected from intrusion by both motorized and non-motorized watercraft. The mitigation plan should detail the effective strategies to be implemented, which may include use of appropriate physical barriers and signage, establishment of rules and enforcement, seasonal restrictions, and boater education (especially to non-motorized boat renters). The mitigation plan will be developed in consultation with groups and agencies such as the State Department of Fish and Wildlife, King County Marine Patrol, East Lake Washington Audubon Society, Juanita Bay Park volunteer park rangers, and others as necessary.

Picnic Shelters

New picnic shelters should to accommodate groups of varying sizes. Prior master plans recommended building two small and one large shelter south of Juanita Drive and two small shelters north of the Drive. This recommendation seems to reflect current trends in park use, with most picnic groups being 4-8 and a few being 16 or more. Each shelter will be able to accommodate 20-40 people.

The Forbes House

This house and its site have been nominated as a historic property by the City. Its significance as a pioneer farmhouse and the prominence of the Forbes family in the development of early Kirkland has earned the house a permanent position in the Park. During the planning process, the issue as to whether the House could be moved slightly to a better location for planning and site-use purposes came up. The national standard for historic property preservation dictates that the only justification for moving a historic structure is if the building's existence is threatened and moving it is the only way to save it. This is not the case with the Forbes House, so the Master Plan team is recommending that the House stays where it is. The historic designation report by Mimi Sheridan recommends that work be done to the interior and exterior of the house, as well as site improvements. The historic designation report by Mimi Sheridan recommends that the following work be done to the House's exterior:

- Remove the west carport roof and ramp and patch wall at carport attachment.
- Restore deteriorated porch, stairs, trim, siding, windows and doors.
- Replace roof with historically-accurate wood shingles treated for fire resistance
- Repair chimney and foundation to original design.

In addition to the above historic restoration effort, this Master Plan team has recommended restoring the Forbes House's surrounding site to enhance its attractiveness as a rental facility for special events. The Historic residence provides space for park offices, meetings, family reunions, and weddings. Historic photos of the site show a substantial fruit tree orchard north and west of the house and gardens to the north and east of the House. The recommended site improvements for the Forbes House are:



- Replant a portion of the orchard and restore flower and food gardens to the north and east to enhance the historic setting for the House.
- Develop parking lots or landscaped aprons to the east to accommodate rental uses. If the house can accommodate up to 99 people, parking should be provided for 30-40 cars.
- Given the relatively hard, urban edge on the east edge of the site on 97th Avenue, the east edge of the Forbes House site on 97th might be enhanced with heavier, vertical plantings or arbors to reinforce this edge and to define a break between the street scale and this historic farm house property.

Proposed interior work:

- Remove interior walls as needed to provide meeting space for up to 99 people.
- Refit kitchen as a catering-style kitchen with room for warming and cooling modules. Replace sink and cabinets as needed.
- Refit bathroom to ADA standards with attention to historic appropriateness.
- Refit bedrooms and basement spaces as appropriate for rental functions.
- Refit/replace building structural, mechanical, electrical and plumbing systems as needed.
- Paint and patch all interior surfaces per needs of rental function.

If the House's exterior shell were restored and its interior were reconfigured to accommodate a larger variety of rental uses, the House could become a revenue-producer for the Parks Department. Another opportunity to tell the Forbes House story could be satisfied by the installation of interpretive panels detailing the house's history and the significance of the Forbes family in the development of Juanita Beach. These panels could be displayed near approaches to the house on posts and could also be mounted in old-style frames on the interior as pictures would have been hung.

Active Recreation Components

1. Providing soccer and little league is a component of the project.
2. All fields should serve the same level of competition.
3. Park to include two Little League baseball fields
4. Construction of one multi-use playfield that can be used for multiple sports activities.
5. The fields are to be natural turf; synthetic turf options were not considered.
6. It is assumed that no lighting will be provided for the fields.

The Master Plan shows a multi-use field that could be marked as required to accommodate a 250' x 150' soccer field and two little league fields with 200' foul lines.



Fencing

Fencing is recommended for each of the little league fields. Backstop fencing will be included and this fence will extend down each foul line past 1st and 3rd bases to the end of the dugout or to the edge of the outfield. The recommended height of this fence at the backstop is 30 ft and can be a combination of chain link fence and nylon netting. Outfield fences are optional and if provided would need to be portable so that fencing could be removed and stored during soccer season since the fields overlap.

Lighting

Lighting is proposed for Tennis Courts, Skate Park, Bathhouse, Parking Lots, and on the dock. Lighting should be low level, with attractive fixtures that fit the character of the park and Juanita Village.

Basketball Court

A basketball court is provided for use by children and adults in the community, and is proposed for location at the west end of the south parking lot. Basketball backstops are provided within the parking lot to reduce the amount of impervious paving and can be used during the fall, winter and spring when swimming is closed. This location will allow use during non-peak park use periods, when the parking lot is not fully occupied.

Skate Park

The skate park is 10,000 S.F. in area and includes street skating and bowl skating opportunities. The details of the design should be developed with a specialist in skate park design and with input from user groups. Consideration should be given to lighting the park to extend the hours of use. Seating walls and bollards are used to control access to the skate park and to create a safe park environment.

Beach Volleyball

Two sand volleyball courts are provided with nets and boundary lines. Safe clear areas are also provided.

Tennis Courts

The two existing tennis courts are maintained in their current location. It is anticipated that the courts will need re-surfacing in the future. Consideration should be given to upgrading the lighting in future phases.

Public Art

Public art will be incorporated into the Park design. A collaborative effort between the Cultural Council, artist, the design team, and the community will help to create lasting art focal points to explore history and culture and provide a sense of ownership to the neighborhood.



Natural Systems Enhancement Opportunities

The greatest opportunities for natural systems enhancement include:

Juanita Creek Flood Zone Water Quality Enhancement

Recommendations

1. Restoration of natural bay circulation and wave energy to the swimming beach will improve water quality, sediment quality, and reduce deposition of sediment along the park shoreline. It will also allow fish passage along the shoreline. This can most easily be accomplished by removal of all of the planking and baffles on the existing circular pier structure. Beyond removal of planking/baffles, raising a portion of the pier up in an arch to allow more wave energy into the swimming area (and potentially small boats) would further increase circulation. Dredging may be necessary to prevent a slug of sediment being transported from the delta to the swim beach and further eastward. It may also be expeditious to dredge material from the swim beach area to reduce the time for recovery of the beach to a more natural condition. Though the sediments from the delta and swim beach will naturally erode and move along the shoreline once circulation and wave energy are restored, the period for recovery could be lengthy.
2. Restoration of the creek riparian zone and creation of floodplain habitats will improve water quality, sediment quality and sediment loading to the lake, and significantly improve fish and wildlife habitats. (A) Recommend an average 75 foot wide buffer on both banks to meet City of Kirkland requirements and provide significant habitat benefits. (B) Excavate an overflow channel and floodplain in upper area of park (downstream of pedestrian bridge on right bank) through blackberry dominated site and revegetate with native trees and shrubs (cedar, hemlock, big leaf maple, crabapple, willow, salmonberry, twinberry, spirea, etc.). (C) Excavate floodplain in lower area of park (right bank across from existing maintenance building) and revegetate entire area with native trees, shrubs, and emergent vegetation (cedar, cottonwood, alder, crabapple, serviceberry, mock orange, willow, twinberry, red elderberry, sedges, etc.). (D) Remove maintenance building and revegetate as riparian/floodplain area. (E) Restore the shoreline between north pier and creek mouth to natural wetland and riparian area (willows, cattails, sedges, cottonwood, cedar).
3. Sediment and bacteria control can be further enhanced by installation of a sand filtration system under the parking area to collect high flows. After filtration, the water can be returned to Juanita Creek.
4. Reduce runoff of fecal material from the park by creating a grassy swale to intercept overland flows and filter flow to discharge at east end of property, create a visual barrier between the water and the lawns by a raised walkway with shrub plantings to reduce geese and waterfowl numbers.

Riparian Buffer Enhancement

Existing scientific studies show 25- to 300-foot minimum buffer widths are necessary to provide bank stabilization, sediment, nutrient and pollutant removal, and habitat functions.^{1,2,3}

Based on site visits, areas with the greatest opportunities for stream or riparian buffer enhancement include:

- Riparian vegetation enhancement at the northwest end of the park, including removal of Himalayan blackberry and English ivy (*Hedera helix*).



Dense riparian plantings will be provided along the creek for shade, to provide cover and food, and limit access by dogs and humans. Pine rail fences could be provided at the edge of the riparian buffer in high use areas to control access. Viewpoints are provided at strategic locations to allow viewing of the stream and ponds. Railings or pine rail fencing will be provided at viewpoints to limit access. Interpretive signage is included a key view point for public education and enjoyment.

Opportunities for enhancement of Juanita Creek as it flows through Juanita Beach Park are numerous. The recent Stream Inventory Report prepared by Parametrix (2004) identifies numerous opportunities to restore and enhance the creeks. Some key opportunities include:

- Control upstream sedimentation inputs to moderate sedimentation within the creek channel.
- Remove the failed bank armoring and replace with bio-engineered approaches to channel stabilization.
- Remove invasive species within the stream buffer.
- Establish a wider buffer for the creek by planting native species within the 75-foot buffer.
- Develop trails in the outer 50% of the buffer to allow some human access along the creek, but minimize uncontrolled access to the creek banks.
- Relocate buildings currently located within the 75-foot creek buffer to outside the creek buffer.

Wetlands

Opportunities for enhancement of the wetlands adjacent to Juanita Creek in Juanita Beach Park include:

- Restore and enhance vegetation within the wetlands by planting native wetland species.
- Diversify the vegetation structure and species by planting a mixture of trees, shrubs, and herbaceous species.
- Remove invasive species within the wetlands.
- Establish a wider buffer for the wetlands by planting native species within the 100-foot buffer.
- Relocate buildings currently located within the 100-foot wetland buffer to outside the wetland buffer.
- Develop trails in the outer 50% of the buffer to allow some human access along the wetlands and creek, but minimize uncontrolled access to the creek banks.

Park Planting

Existing vegetation along the stream and throughout the park will be maintained and enhanced to provide a natural character of the park. Some of the existing trees will need to be removed however, many of these trees are old and in declining health. New Plantings will be utilized to highlight entry areas, define different rooms, offer shade, increase opportunities for habitat enhancement, and provide an enhanced park experience. Trees will be selected that are rich in texture and provide vibrant fall color. Concerns of safety and ensuring views into the Park will limit shrub plantings. Strategically locating and appropriate selection of shrubs will provide for safe site lines into the Park and buffer perimeters and parking lots. All newly created planting areas will be mulched. Trees should be selected to minimize the impact to view especially from the condominiums to the east of the park near the lake.

Awareness to maintenance requirements for the Park should assist with decisions being made about the selection of tree species. Input from Maintenance crews should be taken into consideration when defining tree types to be used on site.



Playfield lawn areas will be prepped for appropriate play surface; seed mix for the playfield area should be a suitable seed mix for the anticipated type of activity that will be taking place on the playfield areas, i.e. soccer, football, baseball such as a Perennial Rye Grass mix.

Some meadow areas could be planted with a seed mix that is more drought tolerant and would require less water application. Eco-turf could be used as a drought tolerant seed mix. Potential to seed less actively used areas with wildflower seed mix could add interest and beauty as well offer a playful meadow landscape for children.

Landform Development and Soil Preparation

Landform development is proposed for drainage improvement of very level grass areas, definition of outdoor spaces, and improvement of soils to support a healthy plant community.

Proposed Soil Improvements

A minimum soil replacement depth of four inches of topsoil is recommended.

Mulch

Chip on site material for stream, forest and buffer planting area mulching as available. Utilize bark mulch for the remainder of planting areas, spreading bark throughout the entire planting bed. In areas where trees are planted within meadow or grass areas, place a three-foot circle of mulch around each individual tree. Mulch is important for its moisture-holding capacity, which is a critical element for plant survival through the dry summer months. Mulch also reduces maintenance requirements and keeps grass from competing with plants for water and soil nutrients.

Stormwater Management and Drainage

Water Quantity

It is assumed that stormwater detention will not be required for the parking area(s) south of Juanita Drive since discharge will be directly to Lake Washington. Use of low impact design methods will be maximized in the design of these parking facilities for management of peak flows. The underlying soils south of Juanita Drive may not have the capacity to infiltrate during more extreme events, and if this is the case, excess flows from the parking areas will be directed into the swale running adjacent to the parking areas. The swale will convey excess flows to the lake.

North of Juanita Drive detention may be required for the proposed parking areas due the fact that any proposed outfall would be outlet directly to Juanita Creek. If runoff from new parking areas is conveyed directly to Juanita Creek, detention will likely be required. Similar to the case for the parking areas south of Juanita Drive, the use of low impact design methods will be maximized in the design of these parking facilities for management of peak flows. It is expected that the soil texture north of Juanita Drive is more conducive to infiltration and it may be possible to manage runoff from the parking areas without requiring detention. However, in the event that detention is required it is assumed that it will be provided in underground detention vaults and that Level 2 flow control will be required as per King County Surface Water Design Manual (King County 1998), the design manual currently used by the City.



Water Quality

Water quality facilities for parking areas will need to treat sediment, hydrocarbons, and heavy metals. Water quality facilities may not be required for playfields if runoff is infiltrated and there is no surface discharge. If infiltration is not possible water quality requirements will apply. Treatment would need to respond to nutrient loading and organic chemical components of other materials used in playfield maintenance.

Low Impact Design (LID) methods could be used to infiltrate runoff in rain gardens in each of the parking lots. Infiltration is considered to be the most naturalistic and most effective mechanism for management of peak flows. Infiltration can also provide significant water quality benefits and can greatly reduce construction costs by eliminating or minimizing pipe networks.

Water quality requirements for the fertilizers used on the playfields could likely be met if a minimum 18-inch sand layer is used for the subgrade?

Utilities

Irrigation

Irrigation of the park is proposed through the Park.

- Irrigated turf for play areas: full head to head automatic irrigation
- Irrigation Equipment:
- Rainbird /Hunter / Toro
- Provide CCU computer link
- Rain sensor
- Per United Pipe

Sanitary Sewer Systems

Provide sewer connection for the bathhouse and the restroom north of Juanita Drive.

Power Supply

Provide upgraded power supply to all park buildings and for site lighting. Power will also be provided for the stage area at the Community Commons.



PHASING PLAN AND COST ESTIMATE

The total anticipated cost for the development of Juanita Beach Park is \$15 million dollars (2005).

A general phasing strategy will be developed before the end of 2005. As funding becomes available the subsequent phases will be further defined to fit the available budgets and community priorities.

See Appendix for the Master Plan Cost Estimate



REGULATORY IMPLICATIONS

Wetland, lake, stream and upland habitats are regulated by state, federal, and local agencies. Some of the key agencies that will have review and approval of proposed master plan activities at Juanita Beach Park are summarized below.

US Army Corps of Engineers

The US Army Corps of Engineers (USACE) regulates fill or discharge into the waters of the United States through the Clean Water Act (CWA) Section 404 regulatory program and Section 10 of the Rivers and Harbors Act. Activities involving up to 0.5-acre of aquatic impact would likely require a Section 404 Nationwide Permit (NWP) and impacts over 0.5-acres would likely require an Individual Permit (IP) from the Corps. The NWP program allows for activities in wetlands under a program of various permits tailored to specific types of projects. NWPs each have unique criteria for their use and specific requirements. NWPs are applied for through the submittal of a Joint Aquatic Resource Permit Application (JARPA). IPs are discretionary permits that involve an alternatives analysis and public review and comment.

For projects where there is a CWA permit from the USACE, the USACE is typically the lead agency for coordinating consultation to determine a project's compliance with the Endangered Species Act (ESA) Section 7 and the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act). This consultation is conducted with NOAA Fisheries and/or the US Fish and Wildlife Service (USFWS) through review of a Biological Assessment/Biological Evaluation.

NOAA Fisheries

NOAA Fisheries is the federal agency that provides consultation for projects affecting federally-listed marine and anadromous species. They will review the project and the BA or BE and consult with the other federal agencies on the potential effects of the project on federally-listed marine and/or anadromous species. Per preliminary discussions with NOAA Fisheries regarding the Juanita Beach Park Master Plan, NOAA Fisheries indicated that there are restoration and enhancement activities that they strongly encourage to be implemented for projects along the shoreline of Lake Washington. These measures are aimed at improving the fish habitat along the shoreline, while accommodating human uses:

- Removing and/or minimizing bulkheads and breakwaters to the maximum extent feasible;
- Redesign bulkheads and breakwaters to include bioengineering techniques.
- Provide a shallow grade along the beach to dissipate wave energy at the shore.
- Provide overhanging vegetation along a minimum of 50% of the shoreline. Overhanging vegetation should include a mixture of conifers, deciduous, and typically willow species.
- Plant emergent vegetation along the shoreline.

USFWS

While NOAA Fisheries is the federal agency that provides consultation for projects affecting federally-listed marine and anadromous species, the USFWS provides consultation for projects affecting all other federally-listed species. They will review the project and the BA or BE and consult with the other federal agencies on the potential effects of the project on all non-marine and/or federally-listed species. USFWS will provide comment on habitat restoration and enhancements that are proposed in the project.

Department of Natural Resources and Environmental Protection Agency

The Department of Natural Resources (DNR) may have review, comment, and approval of activities entailing removal or disturbance of the substrate in the shoreline of Lake Washington at Juanita Beach Park. The extent of DNRs involvement in potential projects entailed in the Master Plan is still being



explored. The Environmental Protection Agency (EPA) will have review, comment, and approval of the project activities in Lake Washington under Section 303 of the Clean Water Act, specifically addressing water quality issues.

WDOE

The WDOE has review and approval authority for several federal, state, and local permits including Clean Water Act (CWA) Section 401 Water Quality Certification; CWA Section 402 National Pollutant Discharge Elimination System (NPDES) permits; Section 303 of the CWA; and Shoreline Development Permits under the Shoreline Management Act (SMA). WDOE may review the JARPA for the USACE permit submittal, although typically WDOE does not review or issue Section 401 Water Quality Certifications for projects with under 0.5 acres of impact to wetlands. WDOE administers the SMA and reviews permits issued under the each jurisdiction's Shoreline Management Program (SMP). The City of Kirkland has a SMP and will serve as the lead jurisdiction for issuance of any shoreline permits, while the WDOE will review any proposed permits. WDOE will also have administrative review of any State Environmental Policy Act (SEPA) permits that are issued by the City of Kirkland. Any projects with a ground disturbance of over 5 acres will require an NPDES permit from WDOE.

WDFW

The WDFW administers the State Hydraulic Code (75.20 RCW), which is intended to protect fish life and its supporting habitat. The WDFW issues Hydraulic Project Approvals (HPAs) for work within the ordinary high water mark (OHWM) or work landward of the OHWM that has direct impacts on fish or fish habitat. An HPA would be required for any proposed work within Juanita Creek and/or Lake Washington.

City of Kirkland

The City of Kirkland administers several codes and programs that would apply to activities affecting natural resources at Juanita Beach Park including the Kirkland Zoning Code (KZC), especially Chapter 90. Drainage Basins that addresses wetlands, streams, lakes and other water resources within the City; the Kirkland Municipal Code (KMC), especially Chapter 24.02 SEPA Procedures; and Chapter 24.04 Shoreline Master Program.

Juanita Creek is rated as a Type A stream by the KZC Chapter 90 due to the use of the creek by salmonid species. Required buffers on Type A streams within Primary Drainage Basins are a minimum of 75 feet wide per the KZC Chapter 90.90. The City requires a 10-foot building setback from the stream buffer (KZC 90.45 and 90.90). Under Chapter 90, the wetlands along Juanita Creek would be classified as Type 1 wetlands because the wetland is contiguous with Lake Washington and adjacent to Juanita Creek, both water bodies that provide habitat for federally-listed fish species. The wetlands are all located within a Primary Drainage Basin and therefore, buffers on the wetlands along Juanita Creek would be 100 feet wide per the KZC Chapter 90.45. As with Juanita Creek, a 10-foot building setback from the buffer is required.

Chapter 90 of the KZC details City requirements and opportunities for proposed development within these aquatic resources or their buffers. Minor improvements (likely including pedestrian trails, benches, and viewing areas) can be located within the outer 50% of the resource buffer so long as various criteria are met, including:

- a. It will not adversely affect water quality;
- b. It will not adversely affect fish, wildlife, or their habitat;
- c. It will not adversely affect drainage or storm water detention capabilities;
- d. It will not lead to unstable earth conditions or create erosion hazards or contribute to scouring actions; and



- e. It will not be materially detrimental to any other property in the areas of the subject property or to the City as a whole, including the loss of significant open space or scenic vistas.

Buffer reductions or averaging can also be requested and for Type 1 wetlands will be reviewed by the Hearing Examiner pursuant to Process IIA as required in KZC Chapter 150. Any proposed activities in the Type 1 wetlands would have additional requirements such as demonstrating that there is no feasible alternative to the proposed fill, limiting fill to less than five percent of the wetland area, and providing compensatory mitigation per Chapter 90.55.

The City of Kirkland's Shoreline Management Program (SMP) requirements will apply to the shoreline designated along Lake Washington. Currently, the shorelines within Juanita Beach Park are designated as "Urban Residential 1". However, under the state requirements for updating SMPs, the City of Kirkland is expected to begin updating its SMP in 2005 or 2006, including the classification of shoreline environment designations. This will provide the City with the opportunity to apply a new environmental designation to the shoreline of Lake Washington within Juanita Beach Park, and may thus affect management policies and regulations within the park. The most likely environmental designation for Juanita Beach Park under the new guidelines would be "Urban Conservancy."

Within environments designated as Urban Conservancy, development should have an overall goal of improving ecological functions while providing public recreational opportunities and access. Predicting specific zoning requirements under the Urban Conservancy or any other environmental designation is inherently speculative. However, development within the shoreline area would have some limitations under most foreseeable scenarios. Typically, existing buildings are allowed to remain with limitations on new development. The opportunities for habitat enhancement along Lake Washington and Juanita Creek are numerous and the project could propose reconstruction of existing buildings, some relocation of existing buildings, along with shoreline habitat enhancement as a way of addressing the public needs and the goals and requirements of the SMA and SMP.

The Master Plan has been developed consistent with the City of Kirkland's zoning and development regulations. The City will evaluate the implementation of this Master Plan for Critical Areas permits, as applicable. A master use permit may be necessary. Further review will be necessary as part of the permit process. (See Existing Conditions above for further discussion Fish and Wildlife permitting implications.)

National Environmental Policy Act (NEPA) and State Environmental Policy Act (SEPA) compliance will be completed in the next phase. Permit requirements for implementing the Juanita Beach Park Master Plan include the following:

The Joint Aquatic Resources Permits Application (JARPA) is used by US Army Corps of Engineers (ACOE) to coordinate the various federal, state and local jurisdiction permits that are required for work within aquatic areas and includes the below permit applications:

- ACOE Nation Wide Permit (NWP) or Individual Section 404 Permit
- Hydraulic Project Approval, issued by the Washington Department of Fish and Wildlife
- Section 401 Water Quality Certification. The Washington State Department of Ecology must determine whether a project complies with state water quality standards before the ACOE will issue a Section 401 certification
- Services Review under ESA. The information required for an ESA evaluation must be prepared in the form of a Biological Evaluation (BA)
- City Critical Area permit, if applicable.



Washington State Department of Natural Resources

The lease for aquatic land with the DNR will expire and will need to be re-negotiated. Consideration should be given to expanding the lease area to include winter moorage for floats. The DNR has indicated that the cost of the lease will be affected by the amount of fee collected by revenue producing elements.

Community Opportunities for Public Involvement in the Implementation of Restoration Projects

Collaboration with the following agencies or public groups is possible.

- WRIA 8 project coordination
- East Lake Audubon Society
- Salmon Watch stewards
- Neighborhood environmental stewardship groups



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