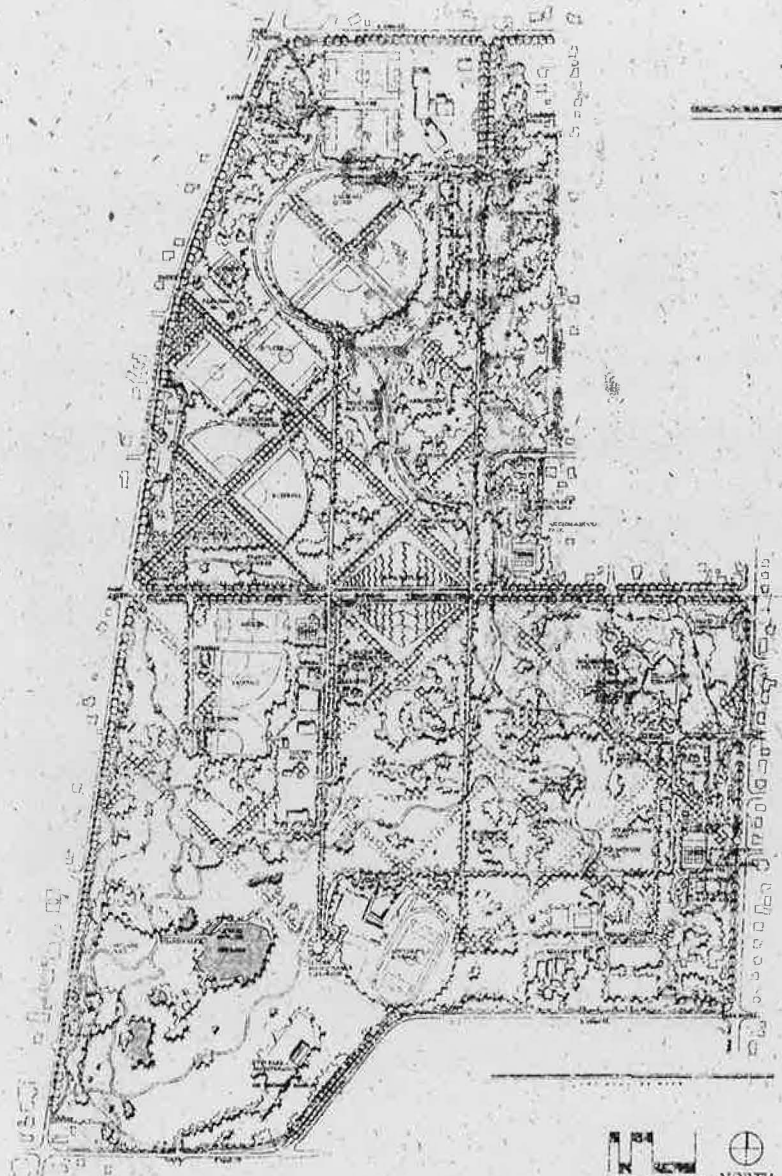


Butter

# NORTH SEATAC PARK

## Master Plan

*draft*



Submitted to  
 City of SeaTac  
 & King County

Submitted by  
 Jones & Jones

NORTH SEATAC PARK



JONES  
&  
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June 26, 1992



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## SUMMARY

### THE IDEA

The Port of Seattle began purchasing property north of SeaTac International Airport as part of a noise remediation program in the 1970s. The people of the Greater Highline and SeaTac areas, seeing the land under-utilized, began to envision a park where they and their children could play and relax. This vision has grown and changed with time, but the goal of providing recreational opportunities in a park-like setting, to as many area residents as possible, has remained constant. The concept of an integrated park design, which joins together active and passive recreation with interpretation and education, utilizing the Park's environment, makes this vision a reality. The North SeaTac Park Master Plan reflects proudly on the vision, energy, and commitment to quality of the City of SeaTac and its neighborhoods.

### THE OPPORTUNITY

The site, approximately 230 acres in size, is bordered on the north by South 128th St., on the west by Des Moines Memorial Drive, to the south by South 144th and South 142nd streets and to the east by 24th Avenue South. The opportunity for a park at this location began with the expansion of SeaTac International Airport. Typical airport operations result in off-site impacts, such as noise,

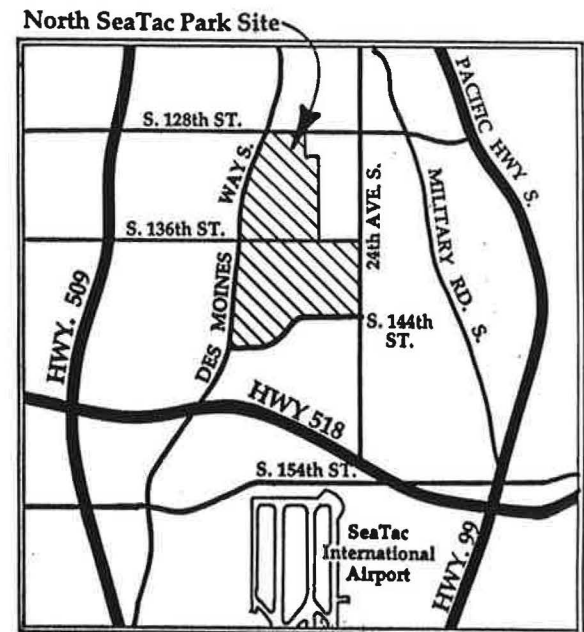
from planes approaching and leaving the runways. Noise mitigation was one of the driving forces behind the Port's purchase of residences in the North Approach Zone. The Port relocated the houses and the resulting void led community groups to coordinate their efforts with local agencies to develop a plan for a park at this site.

### THE SITE

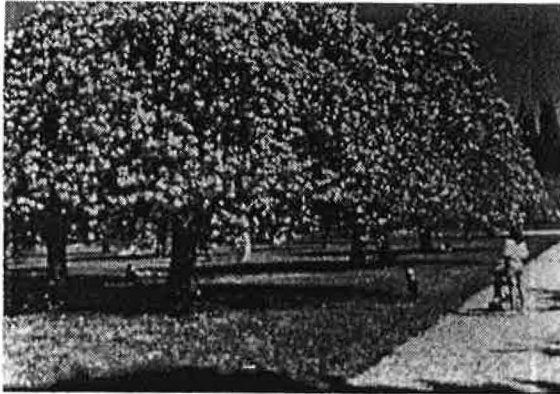
The physical structure of the site has its origins in glacial activity. Physiographic characteristics of the site vary from low-lying depressions to rolling and moderately steep wooded slopes. The formations are typical of the Puget Lowlands with major land forms running northeast to southwest. Drainage patterns generally follow this pattern, except where a drainage swale enters Tub Lake from the east. The site has been extensively altered from previous residential development, creating a series of plateaus, particularly north of S. 136th Street. South of S. 136th St., the site is more sloping and wooded.

### THE MASTER PLAN – SUMMARY

The framework of the North SeaTac Park Master Plan explores and defines the relationships between the natural features of the park, the park's relationship to the airport, the programmatic needs of the citizens of the City of SeaTac and the recreational desires of the park user. This



Location map



framework strongly relates park elements to the site and to one another as well as providing a range of landscape experiences and recreational activities for the park visitor.

The Master Plan design process was initiated in July 1991. The design team consisted of representatives from the City of SeaTac Planning and Community Development Department, King County Parks, the consulting firm of Jones & Jones Architects and Landscape Architects and their subconsultants, and the North SeaTac Park Citizens Advisory Committee. An inventory of site resources was conducted and consisted of: a topographic survey, elevations, slope, wetlands, soils, vegetation and habitat, visual character, existing land uses and utilities. These resources were analyzed to determine their suitability for active recreation uses. This analysis resulted in defining areas that were suitable for development of recreation program elements defined by the Citizens Advisory Committee and the City.

Active park uses that congregate people, such as baseball and soccer, will generally occur north of S. 136th St. where topography and other site conditions are more suitable and distances are further from the airport. Passive uses and lower intensity recreation development will occur south of S. 136th St. Existing uses within the park will remain: the fields at Sunset Park (the two lower baseball fields will be abandoned when the park

is developed because they are within the Tub Lake wetland); the BMX track, which will be rebuilt out of a drainage swale; the equestrian area; and the County Maintenance Shops. The programs currently conducted at the Sunset Activity Center will be moved to the new North SeaTac Community Center near the corner of S. 136th St. and 24th Ave. S. and these buildings will be used by State Archives and possibly the City Public Works Department. An abandoned gravel pit area south of the Sunset Activity Center may be used as a City Maintenance Facility or an outdoor archery range. A paved trail and soft path system link together elements of the park and provide access for surrounding neighborhoods. More than half of the site, most of the wooded steep slopes and the Tub Lake wetland, will remain in an undisturbed, natural condition.

The Master Plan represents a range of landscapes for the park visitor to experience. They can participate in active athletic events, stroll along tree-lined pathways, picnic on lawns, walk through meadows, and explore the natural landscape of the park. See Figure 1: Master Plan.

#### PHASING PLAN

The development of the park will be divided into three phases. The first two phases are funded

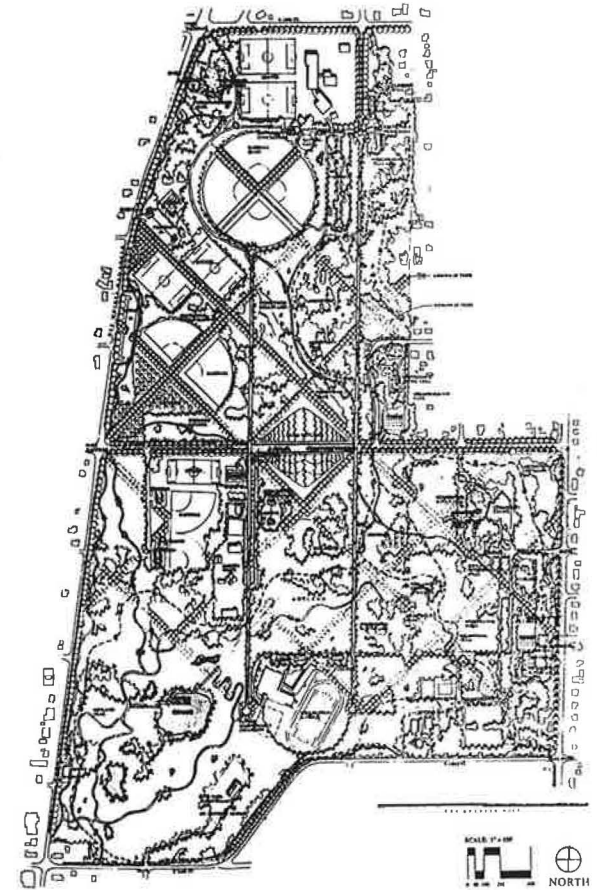


and will be constructed by 1995. All elements of the park not included in these first two phases will be developed in the future as funding becomes available. Phase I development is located in the north end of the park between S. 136th and S. 128th Streets. Recreation facilities include the construction of one of four baseball fields and grading for two additional fields, construction of one soccer field and grading for one other field, parking for 114 cars, a restroom (of 700 sq. ft.), a neighborhood park (picnic shelter, children's play area, basketball courts), over 10,000 linear feet of paths, landscaping and landscape restoration of approximately 75 acres, and the demolition of almost all existing paved roads.

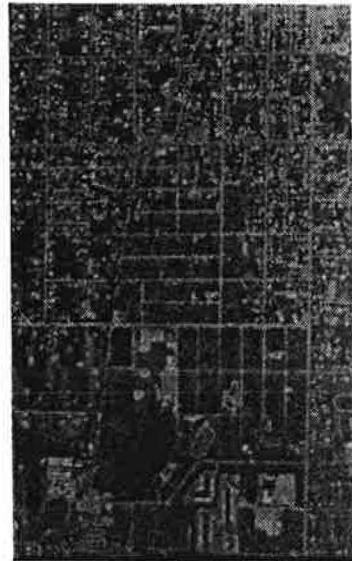
Phase II development is located in the south of the park between S. 136th and S. 142nd streets, except for a segment of the perimeter trail along Des Moines Memorial Drive, north of S. 136th Street. Recreation facilities to be constructed as part of Phase II include: all of the perimeter trail along Des Moines Memorial Drive and S. 144th and S. 142nd Streets, a neighborhood park south of the community center (picnic shelter, children's play area, basketball and tennis courts), a parking lot for 70 cars, the relocated BMX track and parking lot, aircraft interpretive stations, other trails and paths, an additional equestrian arena, landscaping of approximately 20 acres, and the demolition of all non-required roads.

#### CONSTRUCTION SCHEDULE AND COSTS

Design of the first two phases of the park will begin in June 1992. Construction is expected to begin approximately a year after that, with the first phase of the park open in 1995. The cost of the first two phases of design and construction are estimated to be \$8.2 million. Phase I is \$4.8 million and Phase II is \$3.4 million.



**NORTH SEATAC PARK**



## THE MASTER PLAN

### INTRODUCTION

Visitors to North SeaTac Park will be surrounded by diverse landscapes and a rich range of active and passive spaces for recreation activities. The park will provide opportunities for a pleasant walk along tree-lined pathways, a casual picnic under stately trees or within orchards, or views of wildlife from nature trails that pass through the Tub Lake wetlands. Visitors can sit and watch children as they play at one of the neighborhood parks or take an opportunity to view aircraft from one of the interpretive viewpoints.

Opportunities to pursue active recreational play will abound. Soccer and baseball will be a primary focus, although tennis and basketball facilities located on the perimeter of the park will also provide recreation activities. The BMX track, exercise course and equestrian facilities will supplement the range of active recreation facilities. These facilities will be linked by a structured system of trails that connect the perimeter paths with those passing through the park. See Figure 1: Master Plan.

### THE PARK LANDSCAPE

The landscape of North SeaTac Park has un-

dergone substantial changes over time. What had once been a rural landscape dotted with orchards and vegetable gardens during the 1930s, was radically altered when residential development occurred during the 1950s. The residential development set in place a grid pattern of north/south and east/west roads and utilities. The abandoned landscape now found at North SeaTac Park is dominated by these historic corridors cutting through meadow and forested areas. Secret gardens, orchards, and ornamental tree and shrub plantings, as well as foundation walls, can be discovered within the park. These remnant landscapes are what is left of the residential neighborhoods and individual home sites.

The park site has two distinct personalities. North of S. 136th St. the land is gently rolling with a series of open meadows punctuated with stands of mature trees. The land south of 136th is characterized by densely vegetated, steep slopes and a series of wetlands. The park site possesses a range of protection, reclamation and landscape restoration opportunities. Other areas of the park provide places for change, where new landscapes and activities can be developed with minimal impacts to site resources.

### PARK ORGANIZATIONAL FRAMEWORK

The North SeaTac Park site is physically large

enough to provide a range of recreational activities and landscape experiences. The North SeaTac Park Master Plan responds to and respects site conditions by carefully locating park elements in the most suitable areas. These elements are not randomly scattered across the park landscape, but are tied to an overall organizational framework. This framework links recreation elements, provides orientation to the park visitor, and strongly ties the park to the land.

The North SeaTac Park plan evolves from a layered framework that begins with the natural features of the site. The wetlands and natural drainage channels provide areas for passive recreation and wildlife habitat. See Figure 2: Natural Resources. A dominant topographic ridge runs through the park from the northwest to southeast corners of the park. This land form provides a strong physical link across the park. Tub Lake and its wetland anchor the southwest portion of the park.

The next layer of the framework is the circulation system. A system of trails and pathways will provide a unique visitor experience. See Figure 3: Pedestrian/Bicycle Trails. Two pedestrian boulevards bisect the park from north to south. These major pathways act as extensions of the center lines of the runways at SeaTac Airport, providing a visual connection between the park, the airport and aviation activity. These boulevards will cross

over 136th on bridges that will provide a safe, strong tie between the north and south ends of the park. The east bridge will be supported by earthen embankment and be directly linked to the topographic ridge crossing through the site. The west bridge is imagined as a structure that mimics the nearby approach light structure of the west runway of the airport. This structure will be supported on columns allowing the landscape to flow, uninterrupted, under the bridge and pedes-



Figure 2: Natural Features

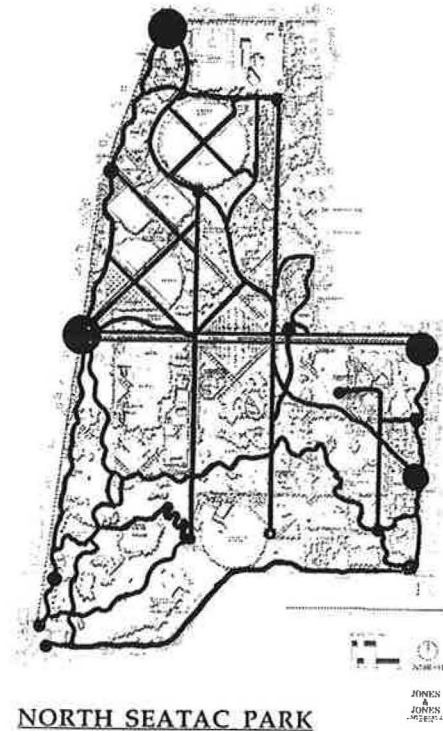


Figure 3: Pedestrian/Bicycle Trails

trians to “fly” over the landscape.

Trails will cross through the park linking together recreation experiences and activity areas. The ridge trail weaves through the park as it follows the brow of the northwest-southeast ridge-line. Perimeter trails will allow pedestrians and bicycles to move through the landscape along the park boundary. Other trails include an exercise

course starting within the orchard north of Des Moines Memorial Drive and S. 136th, and nature trails and boardwalks associated with the special environment of Tub Lake and its drainage ways. Trails are also included within rows of trees. An aviation interpretive trail with viewpoints will originate at the community center. A system of trails for horseback riding originates at the equestrian center and weaves through the site. See Figure 4: Equestrian Trail.

At several locations, entry gateways will celebrate the visitors arrival to the park. Each entry will be developed with a unique treatment. For example, the gateway at Des Moines and S. 136th will feature an orchard, a tie to the areas past. These gateways will identify with surrounding neighborhoods, creating a special link to each.

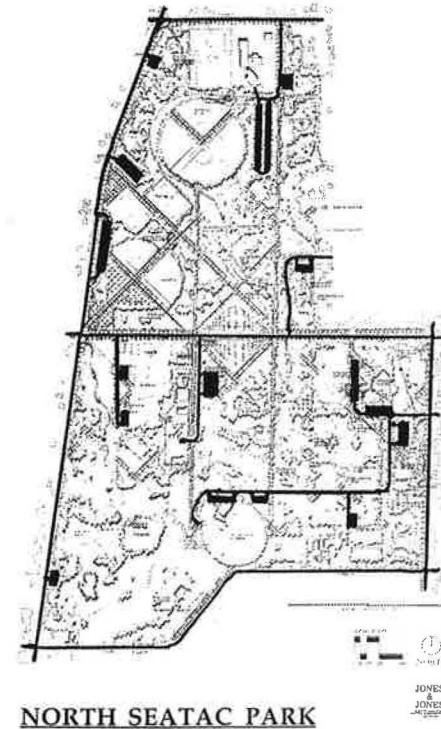
Vehicular access to the park will occur from S. 128th and S. 136th Streets, Des Moines Memorial Drive and 24th Ave. South. The majority of parking will occur around the perimeter of the park, with more centralized parking being provided at the baseball quad, community center and the relocated BMX track. The only roads allowed in the park will provide access to the King County maintenance facility, the Community Center and Sunset Activity Center. See Figure 5: Vehicle Circulation. A majority of the trails within the park will be wide enough to provide access to emergency, police and maintenance vehicles.



**NORTH SEATAC PARK**

*Figure 4: Equestrian Trails*

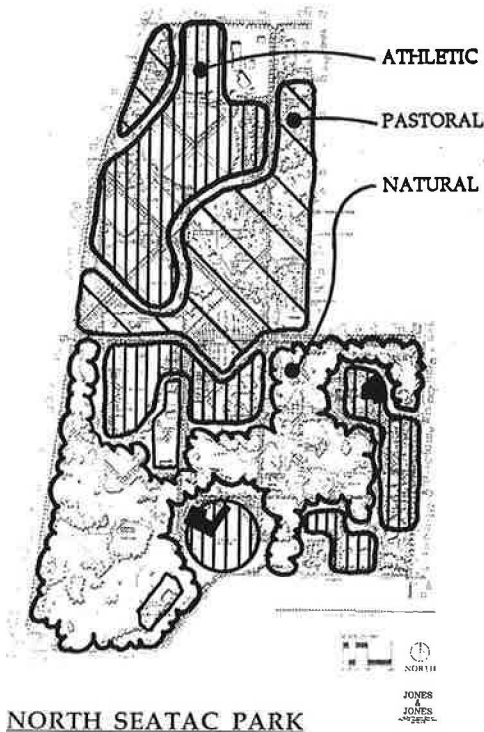
Another layer in the framework is the tapestry of landscapes to be found at North SeaTac Park. The first landscape element is the ribbons of trees that overlay the undulating topography of the park. These rows of trees will provide the structure to organize the complex set of recreation elements in the landscape. This linear structure will also help orient visitors to the park. The great



**NORTH SEATAC PARK**

*Figure 5: Vehicle Circulation*

circles at the north and south ends of the park define spaces of active use and will be linked by and terminate the pedestrian boulevards. The park square, an open meadow and marsh area in the heart of the park, creates another major space. This central space, crossed by S. 136th Street and framed by the two pedestrian bridges, will provide people in cars an opportunity to experience



*Figure 6: Landscape Types*

a portion of the park's rich landscape. This open space will contrast with the enclosure of the street trees along the remainder of S. 136th Street. See Figure 6: Landscape Types.

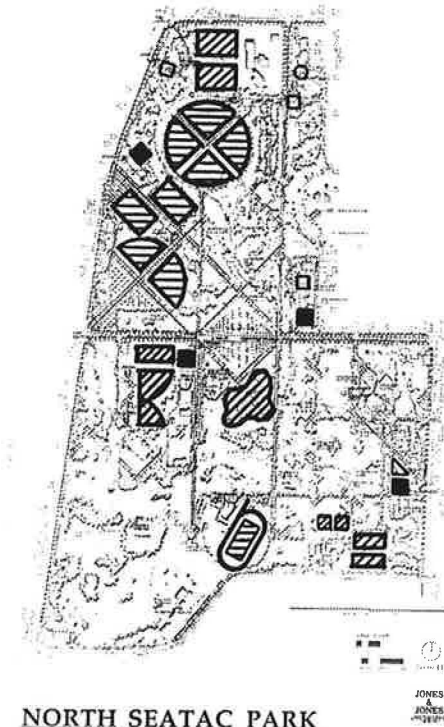
Other landscape experiences at the park will include pastoral areas where stately trees contrast with expanses of grass lawns and natural areas that dominate the south end of the park. A series

of orchards have been located throughout the park. The orchards reflect the agricultural heritage of the area from the 1930s. These orchards will provide contemporary park users with the opportunity to picnic while enjoying the fragrances and fruit of the trees. An arboretum could be located within the pastoral landscape in the northern section of the park as well as natural areas adjacent to Tub Lake. The various landscapes of the Park will require continued and differential management. It is important that native plant species be used to renovate and restore many of the landscapes minimizing the need for intense maintenance activities.

The final layer of the framework the architectural elements and recreation program. These elements will be organized within the overall park framework and respond to site resources.

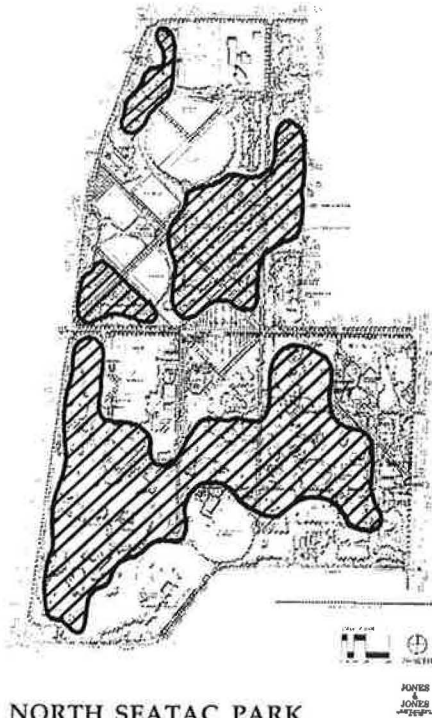
Active recreation elements will be concentrated on the flat, central and northern areas of the park. See Figure 7: Active Recreation. These elements have been organized in clusters around supporting facilities of restrooms, concessions and parking lots. Local neighborhood parks and court game areas will occur on the perimeter of the park. These locations provide easy access to surrounding neighborhoods and greater visibility from adjacent streets.

The location of passive recreation activities will focus on interpretation of the natural features



*Figure 7: Active Recreation*

of the park; particularly at the south end where Tub Lake and its associated wetlands and drainage ways dominate the landscape. See Figure 8: Passive Recreation. Other passive opportunities include the aviation interpretation stations located on the ridge near the community center, the arboretum, and picnic areas associated with the local neighborhood parks and pastoral landscapes.



**NORTH SEATAC PARK**

*Figure 8: Passive Recreation*

Most existing uses within the park will remain: the fields at Sunset Park (the two lower baseball fields are to be abandoned when the park is developed because they are within the Tub Lake wetland); the BMX track that will be rebuilt out of the drainage swale; the equestrian area; and the County Maintenance Shops. The programs currently conducted at the Sunset Activity Center

will be moved to the new North SeaTac Community Center and these buildings will be taken over by State Archives and possibly the City Public Works Department. An abandoned gravel pit area south of the Sunset Activity Center may be used as a City Maintenance Facility or an outdoor archery range.

**CONCLUSION**

The North SeaTac Park Master Plan provides a rich range of landscape experiences and recreational activities within a strong organizational framework. It provides opportunities for City and area residents to access these experiences and activities.

The City of SeaTac is undergoing a renaissance and has ambitious plans underway throughout the City. North SeaTac Park will be *the* major park for the City, a focal point for civic pride and energy. The Master Plan reflects that vision, energy, ambition and creative potential of the city and its residents.

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## HISTORY OF THE PARK SITE

### BACKGROUND

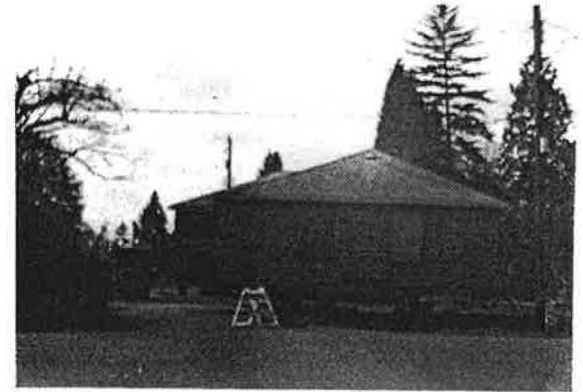
The Port of Seattle began development of a new airport in rural South King County on a 906 acre site in the early 1940s. Through a series of improvements, the airport grew in size and efficiency. At the same time, a suburban community was developing in the once rural landscape. By the early 1970s the airport and surrounding communities began to realize that compatibility of these uses were an issue. In 1974, the Port of Seattle began acquiring residential property at the north end of the airport as part of a noise remediation program.

The SeaTac Communities Plan in 1977 recommended that a major park be created in the North Clear Zone at the north end of the runways at the airport. In 1979, the Port of Seattle and King County jointly funded preparation of the first Master Plan for the area. The Master Plan was updated in 1987. A not-for-profit Highline community organization, the Greater Highline Community Parks Board (GHCPB), began operating portions of the park area at the south end of the park site. This area currently contains the Sunset Activity Center, equestrian and BMX facilities.

In 1989, King County appropriated money to go toward the development of a new community center to be located somewhere on the site outside

of the safety zones of the airport. The Port had previously earmarked \$6 million for development of a community center and park. In 1989, voters approved incorporation of the new City of SeaTac, which includes the park within its boundary. Voters also approved an Open Space Bond issue providing additional money toward the open space portion of park development. The commitment of funds from these three sources provided the motivation for a three-party agreement between the County, the Port, and City of SeaTac. The agreement outlines how the park and community center are to be funded, developed and operated.

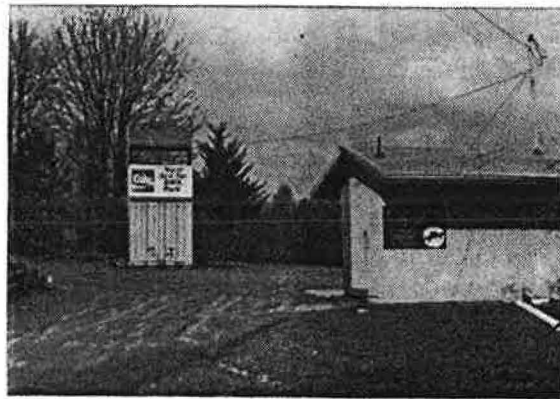
In summary, the agreement states that the new North SeaTac Community Center and the North SeaTac Park will be owned and operated by the City of SeaTac. The City will also be involved in all aspects of design and construction review. The Port will review the design of the park, make lump sum dollar contributions toward its development, and provide a long term ground lease to the City. The County will make a lump sum dollar contribution toward development of the community center and manage the design and construction of the community center and park.





#### PREVIOUS STUDIES

Prior to the development of this master plan, there were two previous park plans prepared for an area of approximately 420 acres directly north of Sea-Tac International Airport. The first plan, the *North Sea-Tac Park Plan*, was prepared by Jongejan/Gerrard/McNeal, Inc., in 1979 and the second, the *North Sea-Tac Park Master Plan Update (Draft)* was prepared by Triangle Associates and Jones & Jones in 1987. These plans responded to different political agendas, funding opportunities and agency desires at the time of their development. Following the completion of a three-party agreement between the Port of Seattle, King County, and the newly incorporated City of SeaTac in 1991, a new plan was necessary to include the realities of funding (as provided in the agreement) and the desires of the City, which will maintain and operate the park.



#### COMMUNITY INVOLVEMENT

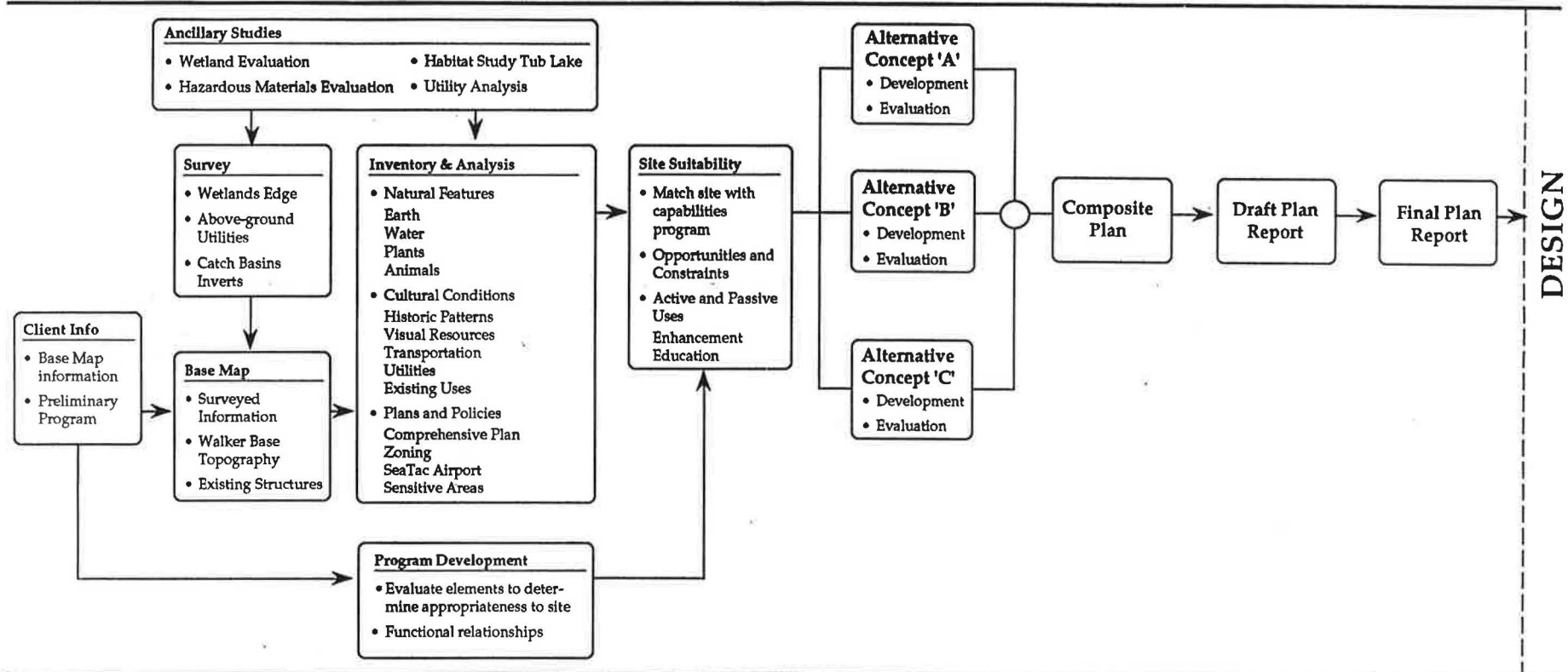
The Greater Highline neighborhood took an early interest in uses that might occur in the area that the Port was acquiring at the north end of the runways. The desire for open space and park facilities took form during the development of the SeaTac Communities Plan in 1977. A Steering Committee, made up of local citizens, was involved in the development of the first master plan and a Workshop Group helped with the formula-

tion of the second plan.

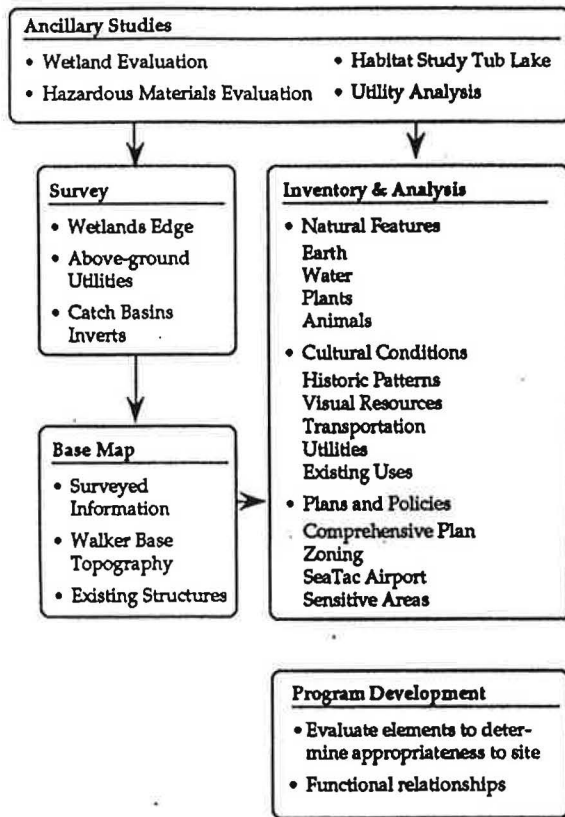
In 1989, the County established a nine member Citizens' Advisory Committee with four additional members being appointed by the City. The purpose of this Committee has been to advise the City, County and Port on development of the park site. In addition, the committee was an integral member of the design team for the Master Plan, providing insight into the history of the site, finalizing the recreation program, and reviewing and commenting on consultants work at each stage of the design process. In addition, the Committee recommended the Master Plan to City Council and the rest of the community and generally became the strongest advocates for the park.



**North SeaTac Park Master Plan Process**



<b>ADVISORY COMMITTEE</b>		Program Definition Review Inventory Start Suitability	Input into & Review of Suitability	Input into & Review of Alternatives	Input into & Review of Composite	Review Draft	Review Final
<b>OTHER MEETINGS &amp; PRESENTATIONS</b>	Client Meeting	Client Meeting	Client Meeting	Client Meeting	Client Meeting Community Dev. Subcommittee	Client Meeting City Council	Client Review



## MASTER PLAN PROCESS

The Master Plan design process was begun in July, 1991. The design team consisted of representatives from the City of SeaTac Planning and Community Development Department, King County Parks Department, the consulting firm of Jones & Jones Architects and Landscape Architects and their subconsultants, and the North SeaTac Park Citizens Advisory Committee. The process consisted of several distinct tasks: generation of a base map, development of a program of recreation activities and facilities, an inventory of natural resources and cultural conditions, analysis of this information for their suitability for recreation uses, the development and evaluation of alternative plans which evolved into the final plan. The method is represented in Figure 9: North SeaTac Park Master Plan Process chart and explained in more detail below.

The Plan Process Chart was a useful tool, not only in graphically depicting the steps involved in developing a plan for the park, but in making clear the input, feedback, and interactions of the Advisory Committee, City and County staff and consultants.

The development of a base map for the park site started with the interpretation of aerial photography with additional surveyed information added. The final map contained topography at two foot intervals, the location of existing struc-

tures, tree masses, roads, and above-ground utilities. All wetland areas were field located on site, their boundaries surveyed and added to the base map.

A preliminary recreation program of activities and facilities was developed by the North SeaTac Park Citizens Advisory Committee. The Development Program document provides a historical summary of the evolution of the park, documents the planning which had been previously conducted and describes direction given by the agencies which are providing funding. It outlines the physical requirements for new development, addressing activities to be accommodated, facilities, sizes, and numbers. It also discusses budget, regulatory and review issues and a design and construction schedule. The program document has been a constant resource to the planning team in guiding design of the master plan for the park. The program was revised and added to throughout the planning process. Advocates for specific recreation uses; such as archery, model speed boat racing, a miniature train and others, made frequent presentations to the Advisory Committee for inclusion into the park. These proposals were given due consideration (i.e.: appropriateness of the use in the park, community support, financial backing) before being accepted into the program or rejected.

An inventory was conducted to gather infor-

mation on the natural features, cultural conditions and regulatory requirements associated with the park site. Natural resources and cultural information were gathered through the use of existing maps, aerial photography and reports provided by various state and local agencies, along with field studies and research conducted by the consulting team. Additional studies provided information on: the wetlands found on the site; the viability of wildlife habitat, particularly related to Tub Lake and wetlands and riparian corridors; an inventory and analysis of existing utilities and a hazardous materials evaluation of the south end of Sunset Park. This information, along with data on soils, slope, elevation, vegetation, land uses, traffic, utilities, and visual character is discussed in more detail below.

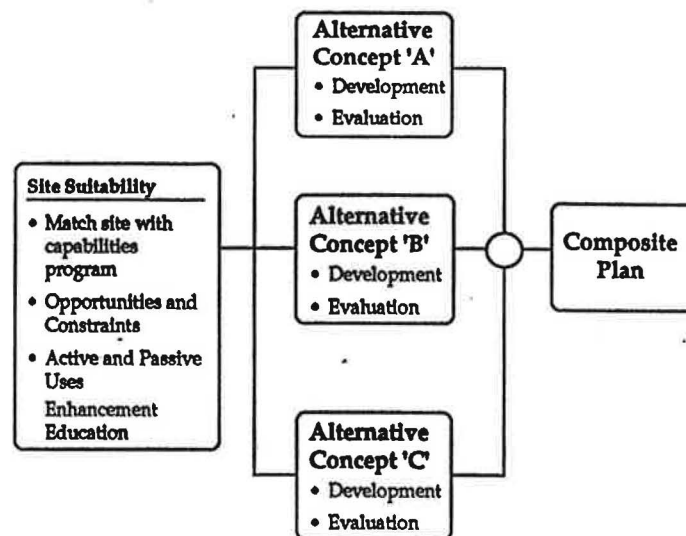
The inventoried items were compiled into a suitability analysis. The analysis integrates the site with the recreation program elements by representing appropriate areas for development of active recreation facilities, given the physical requirements of the facilities and the limitations of the site features to that development. The suitability analysis and results are discussed in detail below.

Park development alternatives were developed which covered a range of development options for the site, from maximizing all uses presented in the development program, to alternatives that

emphasized active uses and passive uses. The alternatives were tested for their compatibility with the site and their potential development costs. City and County staff and Advisory Committee members recommended changes, deletions and additions.

These recommendations were added to the positive elements of each of the alternatives and composited into a final Master Plan for the site. The Master Plan for the park was then divided into three development phases. The first two phases are funded and will be constructed by 1995.

The Master Plan and Phasing Plan have been reviewed by City and County staff, the Advisory Committee and by the City of SeaTac Planning Commission and recommended for adoption by the City Council. The Master Plan process will be completed with adoption. Design of the first two phases of the plan will commence upon that approval.



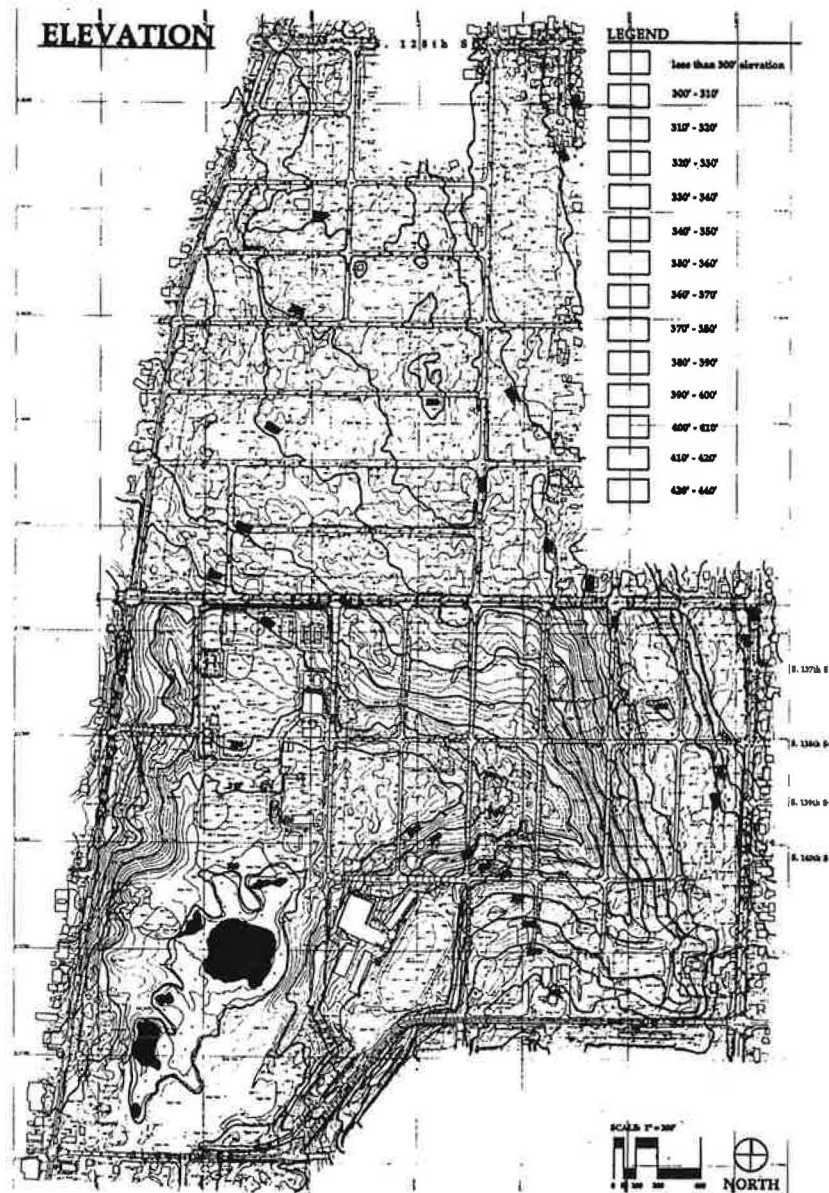


Figure 10: Elevations

## SITE RESOURCES AND ANALYSIS

A necessary ingredient in the development of a Master Plan for a site is understanding the resources on and in proximity to that site. These resources will have an important role in determining the appropriateness and location of recreation uses on the site. A discussion of the natural systems and cultural resources of the site which were researched, inventoried and analyzed follows.

### NATURAL HISTORY — OVERVIEW

The physiographic characteristics of the site vary from low-lying depressions to rolling and moderately steep slopes. The formations are typical of the Puget Lowlands, being glacial in origin, with major land forms running generally north and south. A major ridge line runs through the eastern portion of the site in a northwest to southeast direction. See Figure 10: Elevation Map.

Drainage patterns generally follow this same directionality. Miller Creek, as an intermittent stream, enters the site from the northwest, at the corner of Des Moines Memorial Way and S. 136th Street and flows south into Tub Lake. The stream then exits the lake at its south end and leaves the site at S. 144th St. A major drainage swale flows north along the eastern boundary of the site to the east of the ridge mentioned above. Another swale enters Tub Lake from the northeast after bisecting a southern portion of the site.

## TOPOGRAPHY AND SLOPE

The park site is a diverse landscape in terms of slope (see Figure 11: Slope Map) and topography (see Figure 10). It contains a wide range of land forms, from relatively flat expanses to fairly steep and rolling terrain. South 136th Street divides the site into two topographically distinct areas. North of S. 136th, the site consists of a gently rolling landscape and clearly defined terraces which are remnants of previous residential development as well as natural processes. These terraces are clearly defined by surrounding slopes and, in conjunction with the vegetation, create a sense of separate distinct spaces. South of S. 136th Street, land forms are dominated by steeper slopes which add interest, character and private spaces to the site. These steeper slopes, generally 6 - 20 %, are limiting in terms of accommodating active recreation uses. However, linear facilities such as walking paths and horse trails as well as other more passive uses can be accommodated in this landscape.

Some of the steepest slopes found in the park are associated with previous earth moving activities for development, i.e.: south of S. 136th St. at Sunset Park between the road and soccer field, east of the running track at the Sunset Activity Center, and east of an old gravel extraction area south of Sunset Activity Center. The lowest elevation on the site, at 300 ft., is the outlet of Tub Lake, where Miller Creek passes under S. 144th

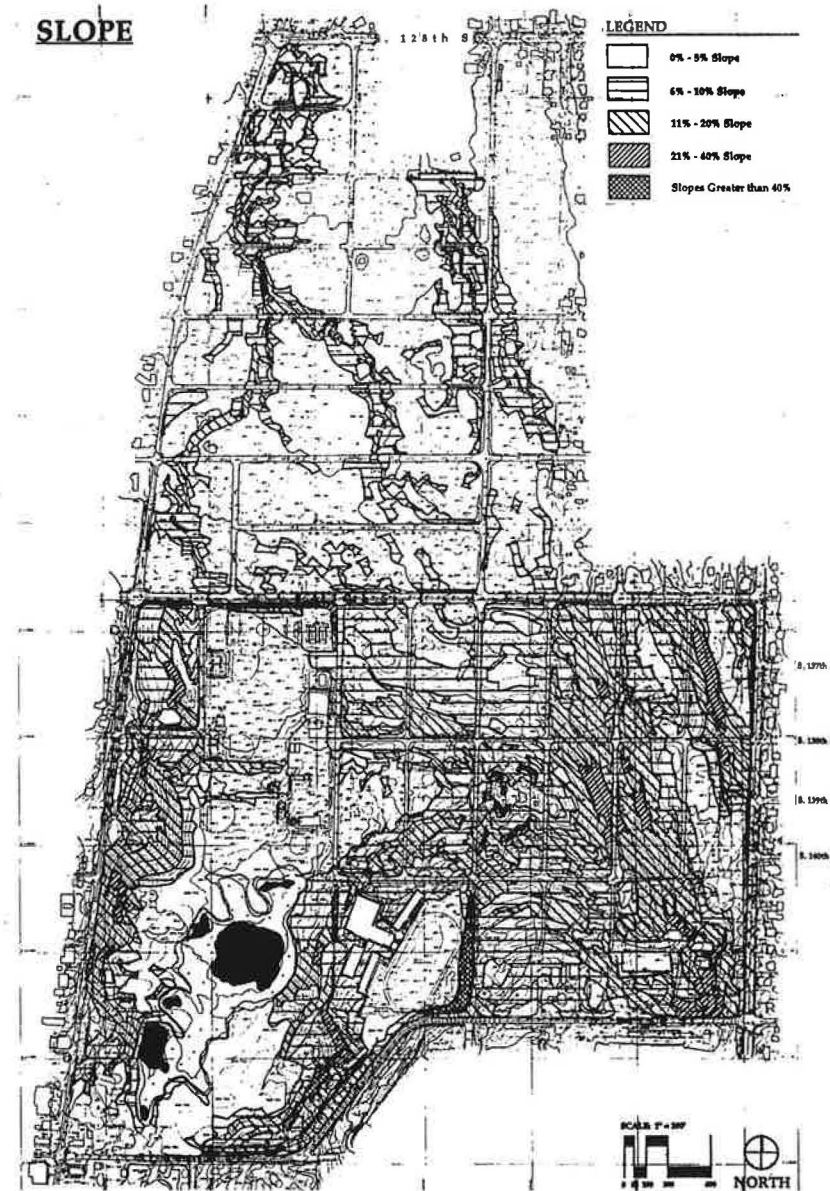


Figure 11: Slope

## SOILS

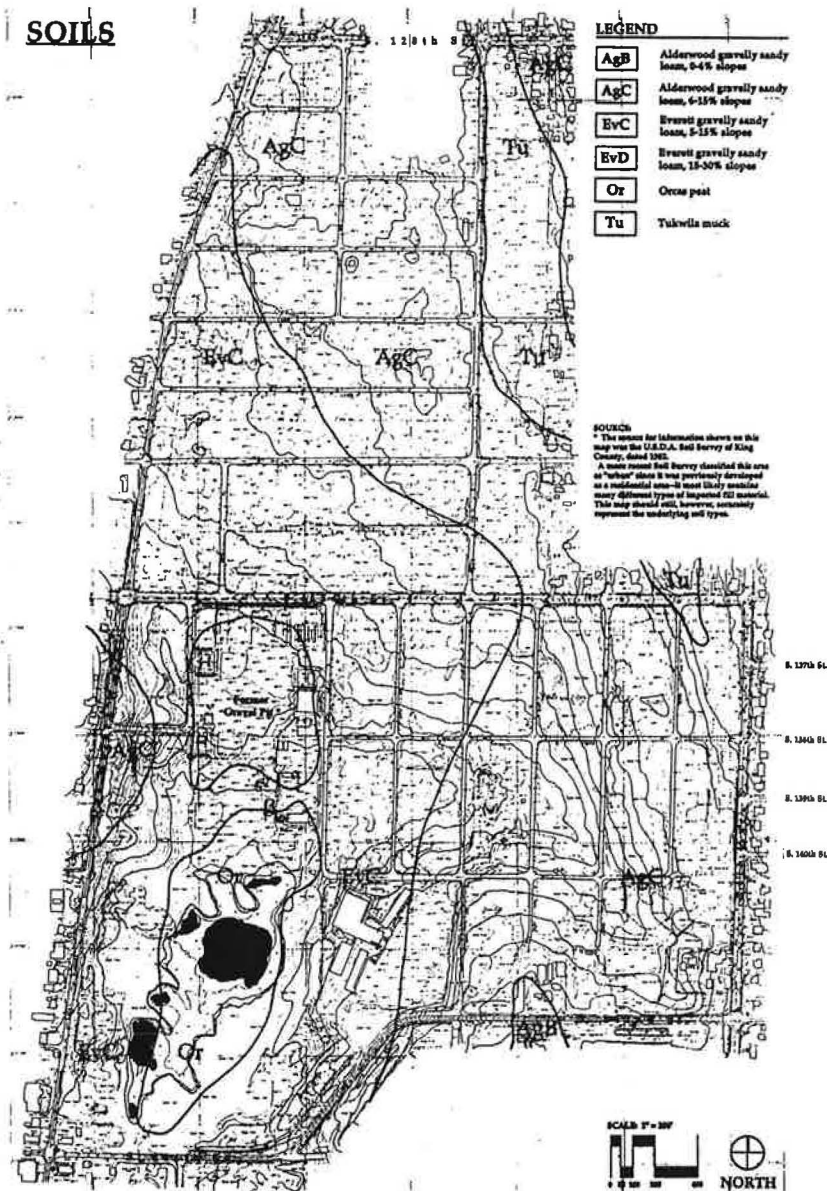


Figure 12: Soils

Street. The highest elevation, at 410 ft. occurs at the northwest corner of the intersection of S. 142nd Street and 24th Avenue South.

## SOILS

The U.S.D.A. Soil Conservation Service, Soil Survey of King County (1952) shows that four types of soil predominate the park site. See Figure 12: Soils. They are primarily derived from glacial deposits. The most prevalent soils, Alderwoods and Everetts, are sandy and gravely with moderate to high permeability.

Alderwood gravely sandy loam is located throughout the north and east portion of the site. Alderwood soil on slopes of 6-15%, has moderately rapid permeability in the surface layer and subsoil, but very slow permeability in the consolidated substratum. This condition can cause a seasonal high water table, and on steeper slopes, a potential for erosion. On these steep slopes (greater than 15%) the erosion potential is more severe and the potential for slippage is moderate. This soil type is moderately restrictive for recreational development.

Everett gravely sandy loam is located on the south and west half of the site. Everett soil is a well drained soil, being underlain by a gravely, sandy substratum to a depth of 60 inches or more. The erosion potential is slight on more gentle slopes and moderate on steeper slopes (above 15%). This

soil has fewer restrictions in terms of development of recreational activities.

Orcas peat and Tukwila muck were formed in glacial depressions and are very restrictive due to a high water table at or near their surfaces for several months during the year. Orcas peat is associated with Tub Lake and its wetlands in the southwest corner of the site. Tukwila muck is located in a shallow drainage along the northeast border of the site. These soils are composed of poorly drained organic soils and are subject to high compressibility limiting their use for development.

#### WETLANDS

A wetland evaluation of the North SeaTac Park site (Figure 13: Wetlands) delineated the boundaries and described the existing conditions of on-site wetlands. Wetlands and their buffers (as defined by the City of SeaTac – Sensitive Area Ordinance) are a major constraint to development of active park and recreation facilities. The general methodology for delineating wetlands outlined in the *Federal Manual for Identifying and Delineating Jurisdictional Wetlands* (1989) was followed. This procedure is generally known as the “Triple Parameter Method” and involves analysis of vegetation patterns, soils, and hydrology in making a determination of wetland conditions. The Tub Lake basin is the major wetland system

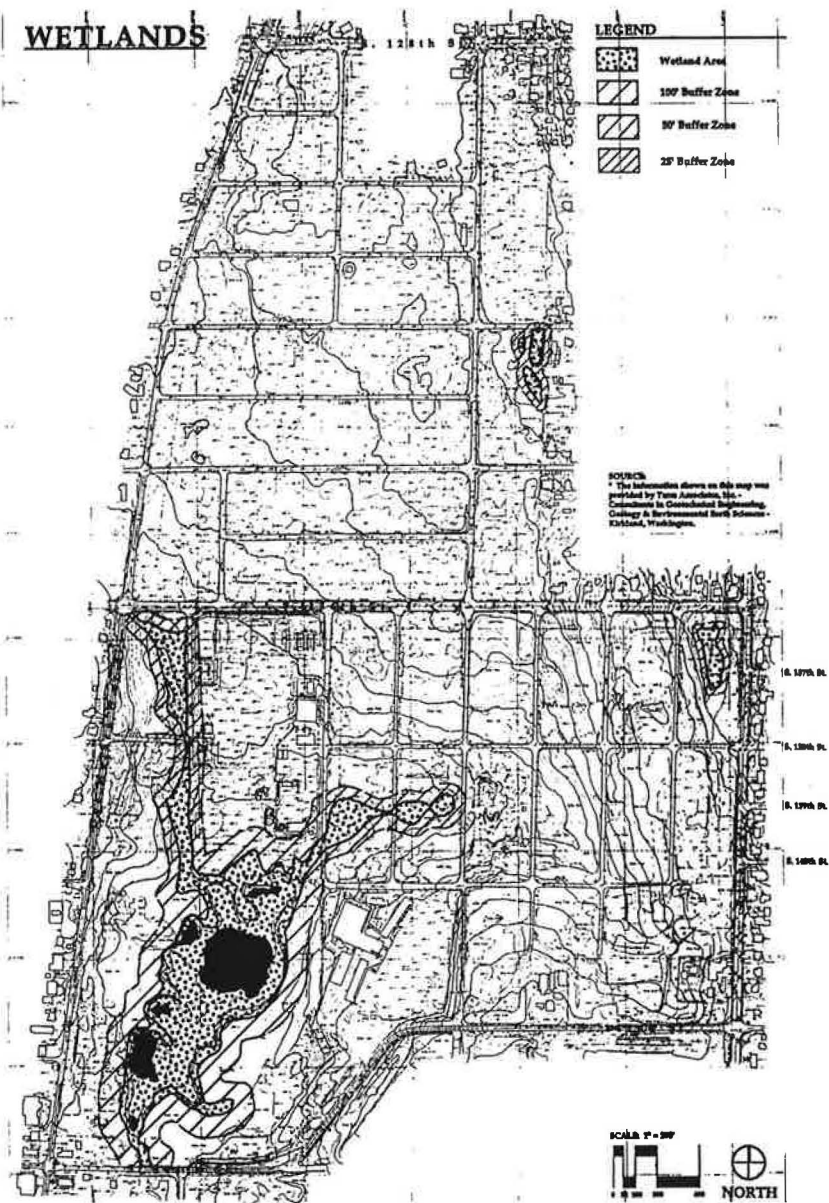


Figure 13: Wetlands

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on the site, with tributary swales from the northwest and from the northeast. There are also four small wetlands in an extensive swale along the eastern property boundary.

#### **Tub Lake Wetland**

The most prominent aquatic and topographic feature on the park site is Tub Lake and its surrounding wetland. The Tub Lake basin occupies an area of approximately 12 acres in the southwest portion of the site. The lake represents one of the few remaining examples in the Lower Puget Sound Basin of a bog lake, which were once common throughout the Lower Puget Sound Basin prior to development. Surrounding urban development has encroached on the outer margins of the wetland area although the central portion remains relatively undisturbed.

The main surface tributary to Tub Lake is Miller Creek which passes through a riparian corridor from the northwest. A wetland located in a swale is a tributary to Tub Lake which it enters from the northeast. There is also a small tributary on the southeast side of Tub Lake. Miller Creek exits Tub Lake at the southwest end of the basin. A culvert beneath S. 144th Street carries water from this outlet off-site to the south. Hydrologically, the lake and wetland area is supported by subsurface seepage and seasonal surface flows into the basin from the tributaries and adjacent areas.

The Tub Lake basin is shown to include Palustrine forested seasonally flooded (PFOC), Palustrine scrub-shrub seasonally flooded (PSSC), Palustrine emergent semi-permanently flood (PEMF), and Palustrine open water permanently flooded (POWH) wetlands on the *National Wetland Inventory Map* (Des Moines, 7-1/2', U.S. Fish and Wildlife Service, 1987). Tub Lake and the surrounding area consists of several diverse vegetative communities. Tub Lake is fringed by a cattail marsh. There are also areas with yellow water-lily (*Nuphar luteum*) and American water-lily (*Nymphaea odorata*) bordering the lake. On the west edge of the lake are remnants of peat bog vegetation, where the dominant species is Labrador tea (*Ledum groenlandicum*). Other species scattered throughout the bog include red alder (*Alnus rubra*), western hemlock (*Tsuga heterophylla*), paper birch (*Betula papyrifera*), hardhack spirea (*Spiraea douglasii*), and soft rush (*Juncus effusus*).

#### **Miller Creek Wetland**

This wetland area is located in the west central portion of the site. It is part of an extensive swale that originates off the property, northwest of the intersection of South 136th Street and Des Moines Memorial Drive. The area has been highly disturbed with fill and trash having been dumped into the swale. The swale is culverted in two places and channelized at its southern end. This





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swale and wetland is the main surface tributary to Tub Lake and is a poorly defined channel running south through the area. This wetland area is associated with and represents the flood zone of the channel. There is a topographic basin at the head of this swale, which probably holds water during the winter and spring rainy seasons.

Hydrologically, this area is supported by surface flows down the swale during heavy periods of rain and subsurface seepage from the upper reaches of the swale particularly in the spring months. In the late summer and fall there is no surface water moving through the area.

Using the U.S. Fish and Wildlife system of wetland classification, this area includes two vegetation classes: Palustrine forested seasonally flooded (PFOC) and Palustrine scrub-shrub seasonally flooded (PSSC) type wetlands.

#### East/West Swale Wetland

This wetland area is located in the central portion of the site south of S. 136th Street. The area is part of an extensive, broad swale that originates to the east and is a tributary to Tub Lake. It has been highly disturbed as part of the past residential use when it was graded and cleared, and portions of the area were filled. Various remnants of concrete foundations and fences are evident. This swale has been culverted in at least two places and channelized at its southwest end.

This wetland extends from west of 20th Avenue South, across from the BMX track, to west of 18th Avenue South. A culvert beneath 20th Avenue South drains into the area. There is a small excavated basin at the head of this area that holds water during periods of heavy rain. A culvert at the base of the swale runs below 18th Avenue South and into an excavated channel that feeds into Tub Lake. Hydrologically, this area is supported primarily by surface flows down the swale during heavy periods of rain.

This area includes two vegetation classes: Palustrine scrub-shrub seasonally flooded (PSSC) and Palustrine emergent seasonally flooded (PEMC) wetlands.

#### North SeaTac Community Center Wetland

This wetland is located in the eastern central portion of the site near the intersection of 24th Avenue South and S. 136th Street. It is near the head of an extensive swale that runs northwest along the eastern park site boundary. This area was historically a residential neighborhood and has been highly disturbed. It has been cleared and graded, and an undetermined thickness of fill material covers much of the area. This wetland is near an inlet to a storm sewer that runs beneath S. 136th Street and flows to the north.

Hydrologically, this area is supported by surface flows down the swale during heavy periods





of the rain, and there may be some subsurface seepage from the upper reaches of the swale. This area is predominantly a palustrine emergent seasonally flooded (PEMC) type wetland. Tree species include Lombardy poplar (*Populus nigra*) and paper birch (*Betula papyrifera*) that were planted in rows along the edge of this area.

#### Northeast Wetland Areas

A small clustering of wetlands are located in the northeastern portion of the site, south of S. 132nd Street and east of 20th Avenue S. These areas are associated with the eastern swale that originates near the Community Center Wetland. The wetlands are small, isolated, and closely situated areas which may have been part of a larger contiguous area at one time. This area has been highly disturbed in the past, having been cleared, graded, and filled with an undetermined thickness of material.

These areas include two vegetation classes: palustrine scrub-shrub (PSSC) and palustrine emergent (PEMC) type wetlands. Tree species present at the margins of this area include willows, red alder, black cottonwood, and hawthorn (*Crataegus monogyna*).

#### VEGETATION AND HABITAT FOR WILDLIFE

Trees and vegetation masses on the North SeaTac Park site were surveyed in order to determine:

- which trees were significant and should be considered for possible retention
- which areas are sufficiently open and therefore most suitable for active recreation development,
- what existing vegetation structuring and character attributes can influence the design of the park in a positive way.

Vegetation that appeared on a 1991 aerial photo was field checked, and trees of moderate to mature size were identified and evaluated based on size, health, visual attributes, value of species, pattern, and visual structuring potential. Selected mature shrub masses with valuable characteristics were also noted. Masses and individual species which were rated as significant then became indicators for low and moderate development suitability. Those targeted for possible retention were generally mature, healthy specimens without major defects. Rare or unusual species (though there were few) were rated significant even if they were a relatively young age, while native plants such as Douglas Fir and California Black Cottonwood became more significant if they were mature or part of a healthy established grove. Dis-

eased or dying trees were identified for future removal. The Pacific Dogwoods on site are infected with anthracnose to varying degrees. Mature Dogwoods with slight to no health problems were rated as significant.

The site was generally divided into two sections, north of S. 136th Street, where each tree was identified individually, and south of S. 136th Street, where trees were evaluated more as part of massed groupings. See Figure 14: Vegetation.

#### North of South 136th Street

The vegetation covering the area north of S. 136th Street differs significantly from the area south of S. 136th Street in character, variety, and dominance of species. The northern section is much more open with more individual and introduced species of trees, versus the more densely growing natives on the sloping terrain south of S. 136th Street.

The flatter, terraced areas of this section are primarily vegetated with trees typical of residential plantings. These trees are generally 20-50 years old and commonly occur in an East-West linear pattern in the middle of blocks and along the existing street frontages. There is some scattering of vegetation through the blocks. The species are a mix of introduced plants and upland native trees, all of which have been able to survive, and in some cases naturalize. Most signifi-

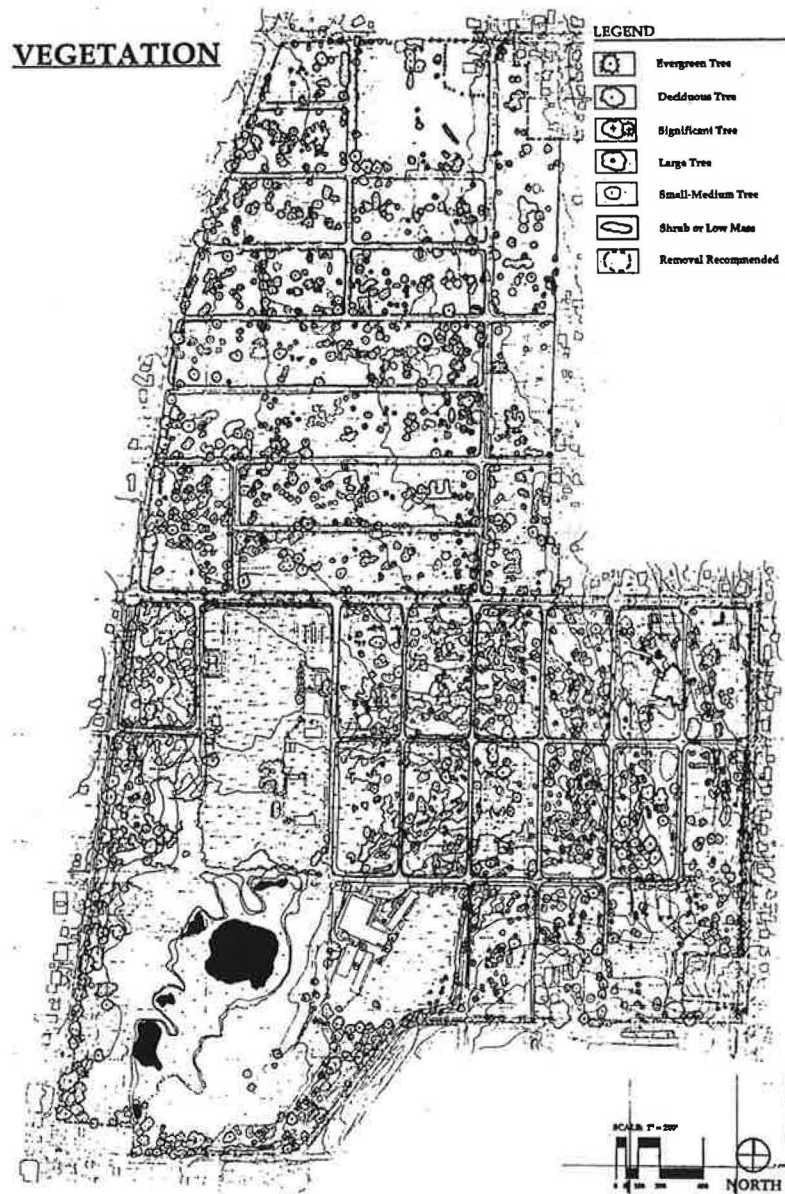


Figure 14: Vegetation

cant on these flat areas are several groves of tall, mature conifers, composed mainly of native Douglas Firs and Western Red Cedars, occasionally mixed with pines (Ponderosa Pine, Eastern White Pine, Scots Pine), Pacific Dogwood, and Pacific Madrone. Occasional large ornamental specimen trees such as London Plane, Elm, Pin Oak, Red Maple, and Norway Maple are scattered randomly throughout the this section. Other visually significant trees are tall lines of Lombardy Poplars marking the landscape. Black Locust groves have been quite successful, vigorously self-seeding into dense thickets. Only a few of the mature locust groves were rated highly, in such places where they create a strong and distinct space. There are many single and small groupings of apples, pears, plums, and cherry trees. Few of these are healthy, but they are producing valuable fruit for wildlife. Numerous healthy mature Hazelnuts fill in understory spaces, and linear hedge sections such as English and Portugal Laurel are scattered over the area as well, often forming dense enclosures.

The north-south swale along the eastern park boundary, which is part of the eastern drainage, supports fruit and nut trees and small orchard remnants. Alders and Black Locusts have also colonized this area, while ornamental conifers, such as Port Orford Cedars, tell of past residential use. A loose grove of seven mature Blue Atlas

Cedars line up across a portion of the southeastern corner of this section, forming one of the most valuable groupings of ornamental trees.

The short sloped areas which separate the flatter terraced areas are the most densely vegetated, primarily with mature natives such as Douglas Firs, Western Red Cedars, California Black Cottonwood, Pacific Madrone, and Pacific Dogwoods. Some ornamentals are also mixed in the massings growing on the slopes. These densely vegetated slopes provide strong edges to the terraces which they define.

The park edges North of S. 136th Street provide different environments for vegetation. Des Moines Memorial Drive to the West has 70-year old American Elms lining both sides of the street. According to the 1989 *Tree Inventory* compiled by the Center For Urban Horticulture at the University of Washington, the majority of the Elms on the east (park) side of the street have specimen ratings, with good potential for survival and normal crown development, while those on west side of the street have been topped for power lines with no possibility for future crown development. Other trees and shrubs, mostly mixed conifers, grow along this edge providing protection from the street traffic for part of the way. The Northern edge along S. 128th Street is generally open but with some plantings of Scots Pines and Austrian Pines, and young Red Maples as a street tree.

#### **South of South 136th Street**

In the section south of S. 136th Street, vegetation was evaluated as part of larger massings, with prominent specimens identified. The southern section is predominantly covered with wetland vegetation and upland, native trees, with introduced conifers and deciduous trees mixed in.

The south-facing slopes are dominated by black locusts, both maturing groves and thick brushy seedling areas, mixed with native Douglas Firs, Western Red Cedar, Big leaf Maple, some Alder, a few Pacific Dogwood, and Cottonwoods. Remnants of Lombardy Poplar (generally in lines or L-shaped plantings, also in thickly self-seeded beds) grow on this slope, as do several species of Pines, Port Orford Cedar, Birch, and fruit trees. The overall impression is of irregular, open plantings interspersed with thickets.

On the north-facing slope, a tall forest of mature Douglas Fir is dominant, mixed with a few Pacific Madrone, mature Alder, and, on the lower slope, Cottonwood. A limited number of introduced species (i.e. birch, pine, spruce, Norway Maple) are also growing here.

Thick brushy natives, 20-60' high, surround a wetland meadow across 18th Avenue from the County Shops. These are generally typical native wetland trees: Alder, Cottonwood, Willow, and some Maples. Three large healthy Weeping Wil-

lows mark three corners of the meadow.

Mature native species ring the wetland area encompassing Tub Lake. Douglas Fir and Pacific Madrone occur on the upper slopes, while Cottonwood and Alders are along the edges and buffer zones of the wetland. A remnant orchard sits immediately to the west on a small plateau above the wetland. Similar patterns continue in the area surrounding Miller Creek and the ridge-line to the west along Des Moines Memorial Drive.

Memorial Elms along Des Moines Memorial Drive form a western edge to the side. As in the North, Elms across the street from the park have been topped and will never achieve normal crown development. Of the Elms on the park side in this stretch of Des Moines, only half have good enough health and growth potential to warrant specimen rating.

The eastern edge along 24th Ave. S. varies, with the block between S. 136th and S. 138th Streets sparsely planted. This area has flooded in the past, and the adjacent wetland supports medium-sized and seedling Lombardy Poplars. To the south, the street edge is thickly vegetated with mostly conifers: Pine, Fir, Port Orford Cedar, with some Mountain Ash. Young Norway Maples are planted as a street tree on 24th Ave. S. between S. 142nd and S. 140th Streets.

The southern boundary of the park site along S. 144th St. is mostly covered by tall, open natives

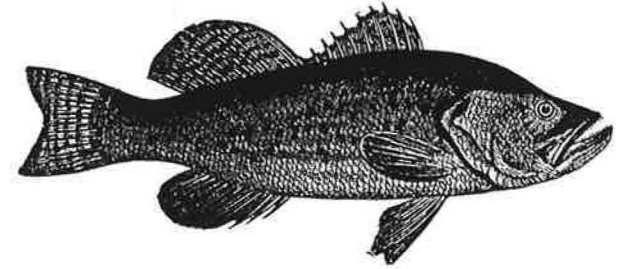
species—Douglas Fir, Pacific Madrone, and Cottonwood—which allow filtered views down the slope and into the park site.

#### Habitats of Tub Lake and Associated Wetlands

The on-site wetlands are fairly uncommon within the local area of South King County and the habitats are rather unique. Four well defined plant communities provided available habitat types within the Tub Lake/Miller Creek system. Defined plant communities include:

1. Small open water pockets.
2. A forested intermittent stream corridor.
3. A labrador tea bog.
4. A mixed forest riparian edge.

*Small Open Water Pockets:* Three small pockets of open water are located within the Tub Lake System. These small pockets, created by past peat excavation contain water throughout the entire year. Vegetation observed within these open water areas included: white pond lily (*Nymphaea odorata*), yellow pond lily (*Nuphar polysepala*), duckweed (*Lemna minor*), and pondweed (*Potamogeton natans*). These open water pockets provide habitat for numerous wildlife species. Observed species include migratory and resident waterfowl, shorebirds, small perching birds, raptors, warm water game fish, small mammals, and amphibians.



Open water of Tub Lake



Labrador Tea Bog



Mixed forest edge

*Mixed Forest Stream Corridor:* The plant community along the intermittent Miller Creek system north of Tub Lake is composed of a mixture of several wetland edge and upland tree species and understory shrub vegetation.

This plant community appears to have been altered by past residential development. In addition, silt loading associated with upstream urbanization is adversely impacting this plant community.

*Labrador Tea Bog:* This plant community is located generally west and south of the open water area of Tub Lake. This bog area is relatively undisturbed and is dominated by labrador tea, bog laurel, cranberry and peat moss (*Sphagnum sp.*).

Small distinct areas within this bog contain pockets of common cattail communities. These communities appear to be the result of past, shallow peat extractions. In addition, a few sparse stunted stands of Western hemlock (*Tsuga heterophylla*) were present within the bog area, particularly at the southern end.

*Mixed Forest Riparian Edge:* This plant community is located generally along the eastern and southern edges of the Tub Lake Bog Area. This area is composed of a mixture of wetland and upland tree species within disturbed and undisturbed areas.

Of special importance within this area is the large number of dead topped and snag trees along the bog wetland edge. These trees provide habitat for cavity-nesting bird species, as well as several perching areas for raptor species with good site visibility across the wetland bog. Other important habitat elements provided by the mixed forest area are the contributions of large woody debris and detrital materials to the wetland community.

These four vegetation community provide a wide range of habitats available for resident and migratory wildlife species. Available habitats vary from open water areas to very dense understory cover. The majority of the wildlife species observed utilize a combination of vegetation communities for different life history functions. For example, hooded mergansers (*Lophodytes cucullatus*) use the open water areas for feeding and brood rearing and utilize the snags and old trees within the adjacent mixed forest plant community for cavity nesting.

This same requirement, for a diversity of plant communities, is a common characteristic for almost every species observed within the Tub Lake / Miller Creek System. In addition, the interactions between plant communities is very important to the natural system. For example, the painted turtle (*Chrysemys picta*) utilizes large wooded debris which has fallen into the open water area from adjacent forest and riparian communities for rest-

ing. The observed fish populations also use these large trees and limbs for cover and to feed on attached insects.

There is no documented evidence of endangered, threatened, or sensitive wildlife or fish species within the study area. However, the relatively uncommon occurrence of a bog wetland system and associated wetland riparian systems within this portion of Southern King County indicates that the Tub Lake/Miller Creek system is relatively unique. Priority species observed on-site included one bird species, Great Blue Heron (*Ardea herodias*), presently on the Washington State monitored list and two bird species, bufflehead (*Bucephala albeola*) and hooded merganser, presently on the Washington State species of concern list. Prior reported investigations also noted that an additional State monitored species (black-crowned night heron, *Nycticorax nycticorax*) has also been observed within the Tub Lake area.

#### Habitats of Upland Plant Communities

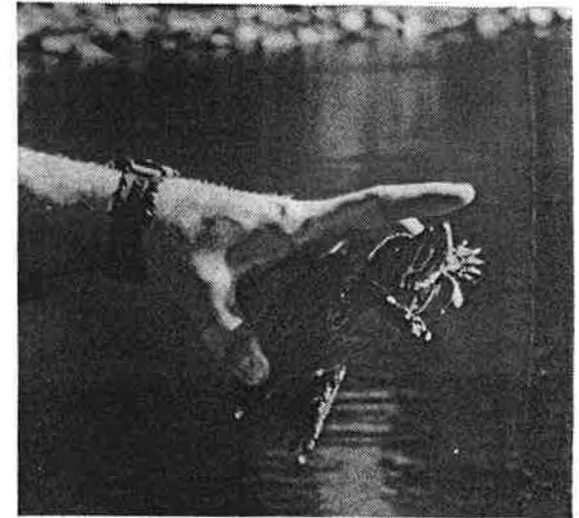
The upland portions of the site were at one time residential neighborhoods landscaped with a mix of native and ornamental plants. Since the removal of houses, native and ornamental plants, lawns, and gardens have not been maintained. As a result, the present upland vegetation is dominated by three plant communities, all exhibiting a mixture of these native and ornamental species.

The first plant community association occurs in limited areas where cut and fill, foundation removal, or other soil disturbance has occurred. These areas are dominated by a perennial herbaceous/shrub community composed of various grasses, thickets of blackberries and Scot's broom. Typical examples of this community are found on the west slope above Tub Lake and where house foundations have been removed or filled in.

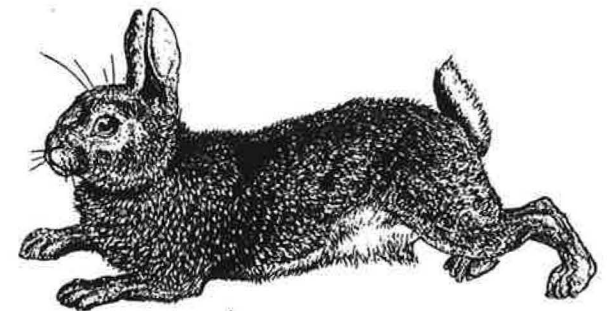
A second, allied community occurs adjacent to the first community. This community has a sapling red alder overstory with an understory and groundcover very similar to the first community. This second community is also found where soil disturbance has recently occurred.

The third plant community association is dominant, occurring throughout the site where residential neighborhoods once stood. This area has three significant components, including ornamental species, site-specific native species, and introduced native species. The ornamental species were established as residential landscaping, primarily from nursery stock. The site-specific native species are remnants of the original coniferous-deciduous forest. The introduced, native species are plants endemic to other regions of Washington State that were established on this site as part of residential landscaping.

With the removal of homesites over the past 10 years, the upland plant community is reverting to



*Painted Turtle in Tub Lake*





a more natural, mixed forest plant community. This community is composed of remnants of the original coniferous-deciduous forest intermixed with both coniferous and deciduous non-native and ornamental species. While many of these introduced species would not normally provide habitats for native wildlife species, many provided at least a limited amount of functional value. For example, unmaintained domestic apple trees provide food for numerous insects and bird species.

Perhaps the most important feature of the upland plant community is that invader species as well as native species are becoming dominant. Dense brush has replaced mowed lawns and resulted in greater food and cover for wildlife species. Habitats provided by this upland area includes nesting and perching trees for birds and small mammals, and sources of food and cover for a variety of wildlife species.

Wildlife species of special note identified on the site include: Downey woodpecker (*Picoides pubescens*), California quail (*Lophortyx californicus*), rufous-sided towhee (*Pipilo erythrophthalmus*), coyote (*Canis latrans*), and Douglas squirrel (*Tamiasciurus douglasii*).

#### VISUAL CHARACTER

Due to topographic and vegetation differences, the existing visual character of the park site north of S. 136th St. is distinct from the southern portion of S. 136th St. See Figure 15: Visual Character.

The northern section is a series of flat terraces that occur as "benches," divided by short, sometimes steep, slopes. This landscape type is semi-open, with a variety of trees and shrubs in places creating edges, and occasionally coalescing in cohesive groves and dense mixed pockets of trees. A ridge runs northwest to southeast through the site which affords, from its highest points, glimpses to the Cascade Mountains to the east and interesting linear views along the existing roads that follow the dips and stretches of the slopes and terraces. From the higher locations, the openness pulls the eye to the sky, especially to the planes overhead. A eerie cracking, rippling sound sometimes following an overhead flight reinforces the feeling that the planes are a dominant force on the site.

This northern portion of the site feels more connection to and impact from surrounding uses, with views from its edges out to the neighborhoods and to S. 128th Street and Des Moines Memorial Drive. This part of the site feels much like a deserted residential area, with many remnant elements and patterns still present: streets, power lines, driveways, garden walls, trees,



hedges, steps, and a rhythm of empty spaces from absent houses. The chainlink fence enclosing this part of the site further contributes to this “ghost neighborhood” feeling.

The section south of S. 136th Street is much more varied in character and terrain than the northern section. Here, the sometimes steep slopes predominate, balanced by the bottomland of the two distinct drainages which they feed. The vegetation is generally more mature, dense, wild, and native with a spotting of ornamentals. Some semi-open slopes and meadows exist at the highest and lowest elevations. The combination of slope and dense cover nearly masks the previous residential uses, despite the remaining arid pattern of streets.

The high ridge extending along the eastern edge of this section is the highest part of the park site. With an orientation towards the sky, this ridge affords views out to the Cascades, downslope towards Tub Lake and the wetland bowl, and across to aircraft which seem to be at your own eye level as they are approaching or taking off from the airport. Ridges along the southern and western edges provide viewpoints as well. Together, these ridges contribute to a sense of containment to the interior of the site and minimize influences from adjoining uses. Dramatic north-south linear views follow the existing streets down the slope of the southern ridge to the bottom of the

## VISUAL CHARACTER

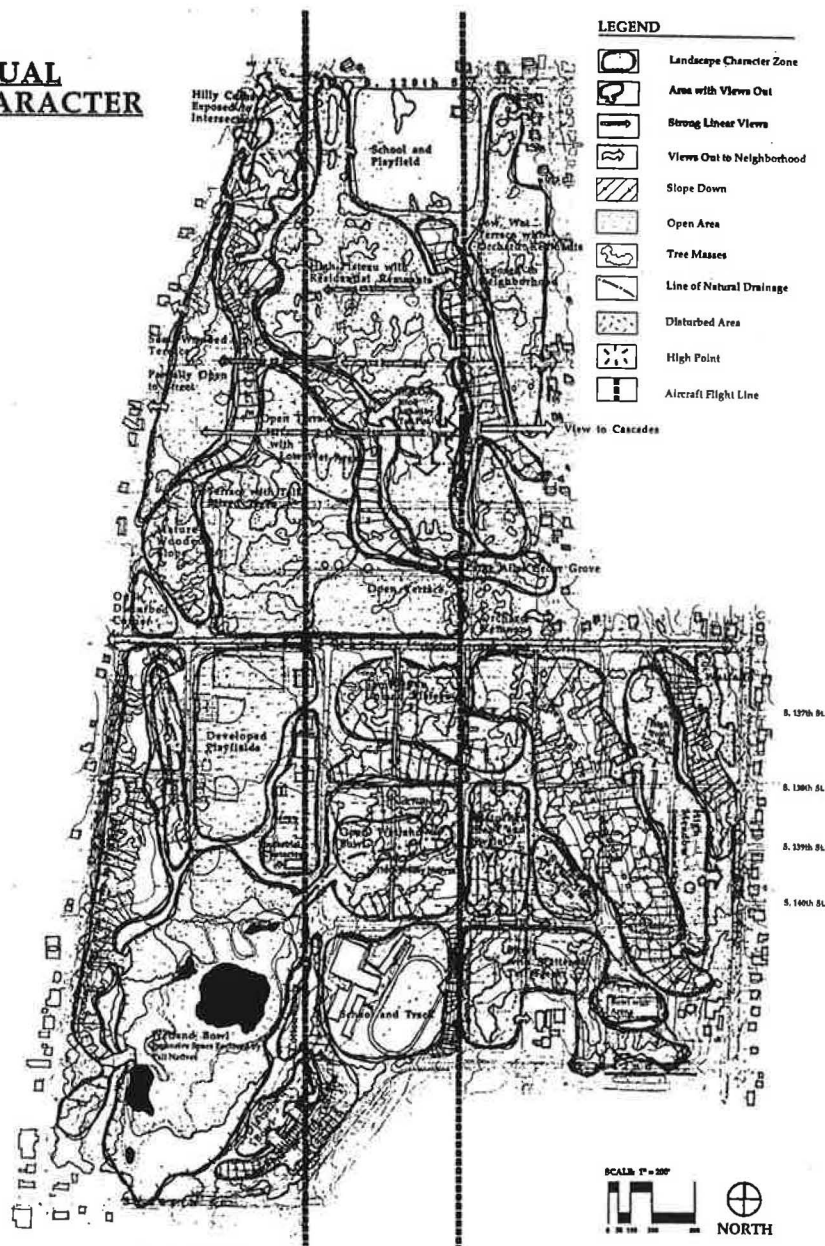


Figure 15: Visual Character

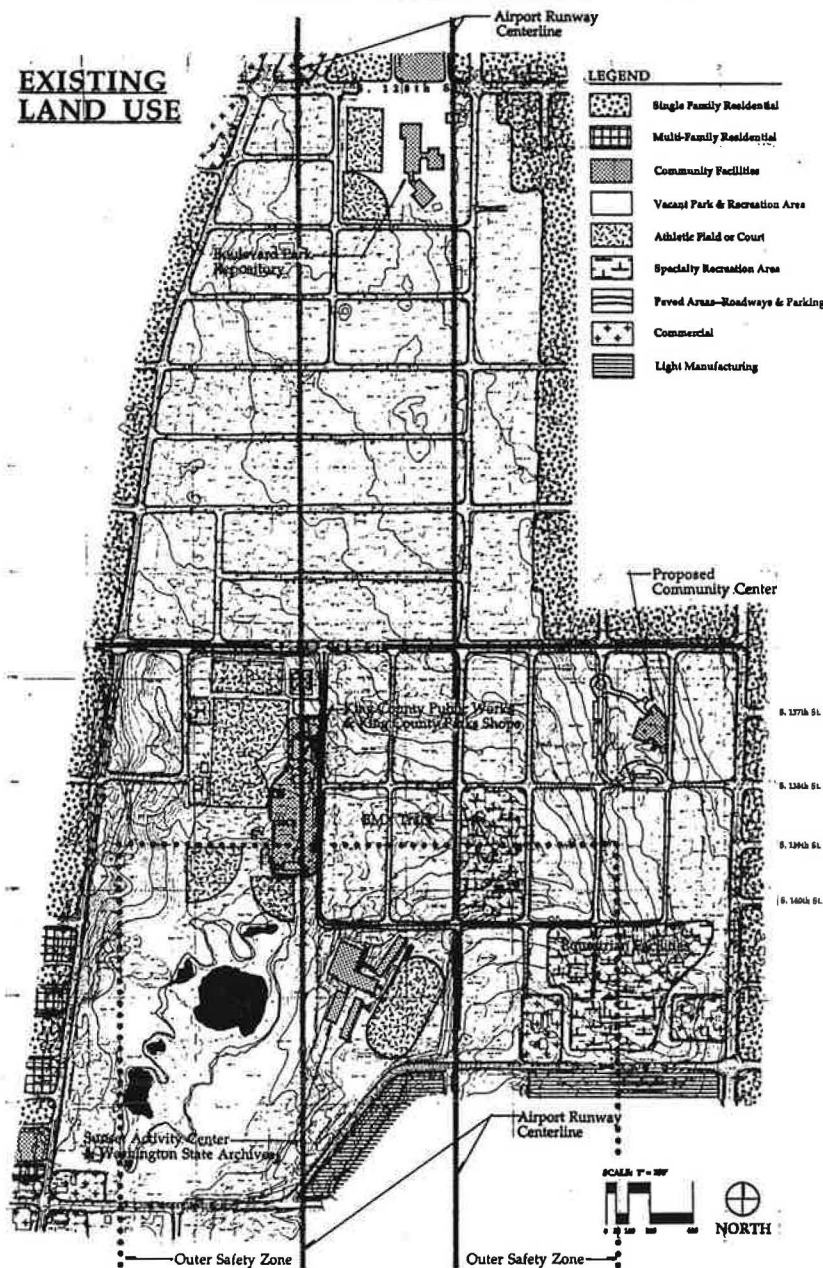


Figure 16: Existing Land Use

drainage and back up again. From other vantage points of the site, the open space of the low wetland bowl that contains Tub Lake draws the eye, superseded in focus only, by the quick, angled, movement and intense noise of planes approaching and leaving the airspace of the park.

### EXISTING LAND USE

North SeaTac Park is predominantly surrounded by residential development to the west, north and south. The majority of housing is single-family detached, but there are a few multi-family structures along the southern portion of Des Moines Memorial Drive. While the development of the park will be a recreational asset to the immediate neighborhood and the region, the uses need to be integrated into the site to avoid disruption of neighborhood functions. The remainder of the site's surrounding uses consist of a few community facilities, some commercial activities near the major intersections, and light industrial and warehouse development directly to the south. See Figure 16: Existing Land Use.

Several publicly owned buildings and recreational facilities reside within the park boundaries and a new community center is currently under construction. The public facilities on site are the King County Public Works and King County Parks Shops, the Sunset Activity Center and Washington State Archives (this facility lies

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within the Outer Safety Zone of the airport), and the proposed Community Center. The Boulevard Park Repository operated by the Highline School District, occupies a block at the north end of the Park along S. 128th St.

Sunset Park, a King County recreation facility, is located just north of Tub Lake. The park features four baseball/softball diamonds (of varying size), one soccer field and two tennis courts. Two paved parking facilities with roughly thirty spaces each, a gravel lot with space for twenty additional vehicles and a restroom, support these fields and courts. A running track and grass field are adjacent to the Sunset Activity Center and within the airport Outer Safety Zone. There is one additional baseball/softball diamond and one soccer field on the block which the Boulevard Park Repository occupies along S. 128th St.

A community club built BMX track is located on one of the former residential blocks south of S. 136th Street within a drainage swale. Surface water flows through the swale causing problems to the groomed dirt race track. Several simple buildings support the use of this facility. The block immediately west of the track contains an extremity of the Tub Lake Wetland. The track could be relocated out of the swale if another location is found to be more suitable.

The equestrian facilities southeast of the BMX track at the southeast corner of the site consist of

one large riding ring (250' x 100'), and one smaller one (approx. 60' x 80'). There are open areas for parking and informal riding, a supply trailer and a small network of trails supporting this activity.

The remaining park site is vacant. Houses have been removed but the land remains divided by residential-width paved streets, groupings of trees and shrubs which formerly helped to separate residences from one another, and a grid (both above and below ground) of utility lines and pipes.

#### **Land Use Compatibility**

This discussion about land uses on or in proximity to the park site would not be complete without a review of land use compatibility issues associated with locating recreation facilities along centerlines of runways and near the end of an airport. The land use issues that are considered include safety and noise. The information presented below is taken from the *North Sea-Tac Park Master Plan Update (DRAFT)* dated 2/24/87.

*Safety:* The issue to be reviewed in relation to safety and land-use compatibility is "What is a reasonable approach to park land use and operation in an airport zone area?" King County and the Port of Seattle have evaluated the benefits and burdens in recommending that a location such as this be developed for recreation use.





No specific national standards have been developed for the safe use of land in airport clear zones and approach areas. The FAA has determined that it does not have the statutory authority to develop and issue such standards, and that this authority properly belongs to the local governments with land-use planning jurisdiction over each airport. However, the FAA and other agencies have issued various advisory circulars and handbooks that describe the safety issues associated with land use near airports, and alternative approaches to dealing with those issues. Local government agencies and airport sponsors must consider this information and come to reasoned decisions on land-use compatibility near airports in terms of the safety of persons on the ground.

The *Airport Land-Use Planning Handbook* published by the California Department of Transportation in 1983 provides a useful introduction to the consideration of safety of persons on the ground for the park site. The conclusions in the handbook are based on a statistical analysis of National Transportation Safety Board data on aircraft crash locations for both general and commercial air carrier airports.

The handbook states:

“The purpose for establishing land use restrictions in safety zones is to minimize the number of people exposed to aircraft crash hazards. The two principle methods

for reducing the risk of injury and property damage on the ground are: 1) limit the number of persons in an area, and 2) limit the area covered by structures occupied by people so that there is a higher chance of aircraft landing (in a controlled situation) on vacant land. Unlike airport noise impact areas, where structural sound insulation can be used to reduce excessive exterior noise, there are few practical methods available for permitting increased population in safety zones without increasing safety risks; that is to say each additional person in a safety zone becomes subject to a certain crash hazard risk by virtue of being located in the safety zone.”

After discussion and review of safety zone regulations in California, Minnesota, and New Jersey, the Workshop Group, convened for the 1987 Master Plan Update, adopted the following statement: “For park planning purposes, the study will use an ‘inner safety zone and an outer safety zone’ modeled after the California Airport Land Use Planning Handbook (1983). Unless there are overriding liability considerations for doing something else, these assumptions will be used.”

The Inner Safety Zone would be equivalent to the clear zone (at SeaTac, 2,500 feet in length and already cleared of developed land uses, except for S.R. 518 and a portion of the Little League fields).

The Outer Safety Zone would extend an additional 2,500 feet north of the existing clear zone. This Outer Safety Zone falls within the park boundaries, encompassing an area from north of S. 144th and S. 142nd Streets to approximately S. 139th Street and bounded on the west by Des Moines Memorial Way and on the east by 22nd Ave. South. The handbook also recommends the establishment of a third zone along the extended centerline of the airport runway(s).

Within the Inner Safety Zone, the Airport Land Use Planning Handbook recommends no structures and no people; if persons are to be permitted, "the lowest density is preferable — 10 persons per acre at any one time." Within the Outer Safety Zone, the handbook recommends that uses in structures be restricted to "no more than 25 persons at any one time, with no more than 150 people in any one building." Outdoor uses are recommended to be restricted to no more than 50 persons per acre at any one time. General use restrictions are recommended to include prohibitions of schools, concert halls, and auditoriums.

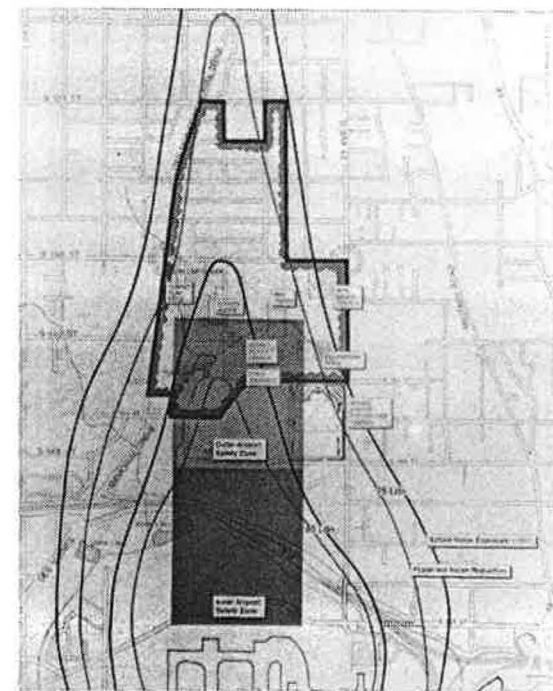
*Noise:* To help achieve compatibility between the airport and its environs, the 1975 *Sea-Tac Communities Plan* and the Noise Remedy Program committed the Port of Seattle to acquiring land areas adjacent to the airport that are subject to severe noise impacts and that are (or were) occupied by

noise-sensitive uses. Thus, the mitigation of noise impacts has been a primary reason for land acquisition by the Port of Seattle in the park planning area, although acquisition also helps the Port to meet other airport development and operation objectives, such as safety on the ground.

Acquisition for the Noise Remedy Program has been linked to actual and predicted noise levels on the ground, which are documented in the Noise Exposure Update maps in the Airport Noise Compatibility Program for Sea-Tac International Airport (Port of Seattle, 1985). On these maps, noise exposure on the ground is expressed by contour lines that represent estimated yearly Day-Night Average Sound Levels (Ldn). Contour values near airports usually range from less than 55 Ldn for lightly impacted areas to more than 75 Ldn for heavily impacted areas (FAA, Airport Land-Use Compatibility Planning, 1977).

A look at these maps show that two sets of noise contours traverse the park planning study area, representing the estimated location of 80 Ldn and 75 Ldn thresholds. In 1990, the northern tip of the 80 Ldn contour is expected to be located in the vicinity of the Sunset Activity Center, while the tip of the 75 Ldn contour will be located near S. 128th Street. Noise levels are expected to drop due to improved aircraft engine technology and noise mitigation measures.

Most of the adverse effects of excessive noise



Noise Contours

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are related to interference with human activity, which can be correlated with land use. For example, sleeping is an activity that is essential to residential land use, so this an incompatible use on lands subjected to high noise levels. Another example is speech; land uses that are dependent on speech or other sound, such as dramatic performances, conferences, or music lessons, are also incompatible with high noise levels.

A number of federal and state agencies have developed guidelines for land-use compatibility with noise exposure. These guidelines are discussed in detail in the 1987 North SeaTac Park Master Plan Update. In general, the guidelines suggest that areas exposed to high levels (greater than 75 Ldn) be reserved for manufacturing, transportation, trade, resource production and extraction, and undeveloped land areas.

#### TRAFFIC AND CIRCULATION

The park site is located in close proximity to State Routes 518, 509 and 99. It is bordered on the north by South 128th Street, to the west by Des Moines Memorial Drive, to the south by South 144th and 142nd Streets, and to the east by 24th Avenue South up to South 136th Street, and by 22nd Avenue South from South 136th Street to South 128th Street. South 136th Street bisects the park site into a northern and southern section.

The grid of roads that once served the residen-

tial uses on the site are still apparent. Several roads are still open to provide access to specific uses. These include: 20th Avenue South between South 134th and 136th Streets (access for the local residential area); 16th Avenue South (access to Sunset Park); and 18th Avenue South (access to the County Shops, Sunset Activity Center, BMX track and equestrian area). South 138 Street, from 24th Avenue to 22nd Avenue South, will provide access to the new North SeaTac Community Center.

A Level of Service (LOS) analysis was conducted for major road segments and intersections around the park. LOS is a concept used to describe the quality of traffic operating conditions on a roadway segment and at intersections. The results of this analysis indicate that there are acceptable operating conditions at all of the major access points to the park site.

A fence, which encircles the site, reduces unauthorized use of the site by motor vehicles while allowing people access on foot and horseback. Pedestrian use of the site is fairly random, with most of the walking taking place on the abandoned roads or on "desire" paths across fields and through wooded areas. An equestrian club has built arena facilities at the southeast corner of the site and riding paths that weave throughout.



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## UTILITY ANALYSIS

An analysis of existing utilities performed in conjunction with the master planning process investigated the condition and location of water, sanitary sewer, gas, electric, telephone and cable TV systems on the park site. The analysis focused on which portions of the existing utility systems could be used for park functions (e.g. sewer and water connections for a restroom) removed, relocated or abandoned and identified factors that could affect development.

### Water

The on-site water system is operated by Water Districts #20 and #125. Water District #20 has pipe in the northern portion of the project, typically 8-inch with a 16-inch main in S. 132nd Street. The 16-inch main must remain in service to serve the inter-tie with Water District #125, but may be relocated or sagged to accommodate future park development. Water District #125 serves the southern portion of the site with 6-, 8- and 10-inch lines that need to remain to provide looping for fire flow and to maintain their system.

Abandonment of lines is dependent on which hydrants, if any, may be taken out of service. Those lines that provide service or fire coverage for existing structures need to remain. The decision of which will be removed from service will be based on recommendations by the City of

SeaTac Fire Marshall and Public Works Department upon review of the final Master Plan documents and during detail design for the park facilities. Necessary easements will range from 15 feet to 30 feet (16-inch main). All abandonment, relocation or new water service will be carried out as a cost for park development.

### Sanitary Sewer

The sanitary sewer system on-site is operated by Rainier Vista Sewer District. Most of the existing system has been or is being abandoned due to infiltration problems from storm water with the old clay tile and concrete pipe system. There is no ability to reactivate abandoned sewer, therefore, new sewer lines will be required for park uses.

The only existing sanitary sewer to remain will be a trunk line along Des Moines Memorial Drive continuing to the Miller Creek Interceptor. A portion of 10-inch sewer located between S. 132nd and S. 133rd Streets on the park site, can be relocated to Des Moines. The portion of the interceptor built on piles through the Tub Lake wetlands cannot be moved. Also, a sewer running north from S. 136th Street along 20th Avenue S. must remain in place along with the 10-inch line in S. 134th Street, the 8-inch in S. 132nd Street and the private 6-inch line just north of S. 130th Street.

The sewer in 20th Avenue S. is approximately 6 feet deep north of S. 132nd Street with a shallow



(2 feet deep) private sewer crossing the site to the east just north of S. 130th Street. These lines may limit depth of excavation in this area. All other sanitary sewers are typically 10 to 15 feet deep and do not appear to affect development of the park. Required sanitary sewer easements for pipe outside of established right-of-way should be 15-foot wide.

#### Gas

Washington Natural Gas has no requirements to keep active gas service within the site, except those to serve the new North SeaTac Community Center and other existing buildings. All other lines may be abandoned or removed. If abandoned, and not removed, it is possible to reactivate these lines at a later date.

If the 2-inch line in S. 134th Street is abandoned, an off-site connection would be required in 22nd Avenue S. with an estimated development cost of \$3,000. This connection is needed to provide gas to off-site users. Washington Natural Gas will cut, purge and cap the gas lines at the property line at their expense. Relocations or new services is at the developer's expense. Gas mains outside of right-of-way requires a 10-foot easement. Typical depth of gas mains is 30 to 36 inches.

#### Power

The overhead power lines located within the park limits are operated by Seattle City Light and consist of local distribution and feeders. There is a 4 kV feeder along S. 132nd Street which will be upgraded to a 26 kV line at some future time. A 26 kV feeder runs along S. 134th Street. The existing poles along S. 136th Street are framed for 26 kV service and will be reused as a through feeder. These lines must remain in service, but there is the possibility of undergrounding or relocating them. With the exception of those lines needed to service existing uses, all other lines can be abandoned.

Relocations or undergrounding of the overhead lines will be a cost of developing the park. Removal is done by City Light at their expense, taking approximately 6 months to complete. Any remaining lines located outside of a right-of-way would require a 30-foot wide easement.

#### Cable Television

TCI Cablevision (CATV) lines that cross the site are aerial on joint use poles with City Light and U.S. West and consist of both local distribution and trunk lines. The two trunk lines run along S. 132nd St. and S. 136th St. Local distribution can be removed. All other lines remaining could be relocated or undergrounded at TCI's expense and would typically be located either



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within a right-of-way or in a joint use easement with power and/or telephone.

#### Telephone

U.S. West's telephone lines are overhead on joint use poles with City Light. Of the lines that are located on-site, most are local distribution that can be removed. U.S. West is planning to begin removal after coordination with the City of SeaTac and the Port. Removal could take up to 6 months to complete and will be at U.S. West's expense. U.S. West would also want to retain a 10-foot easement along S. 132nd Street if the right-of-way is abandoned, even through the telephone line will be removed.

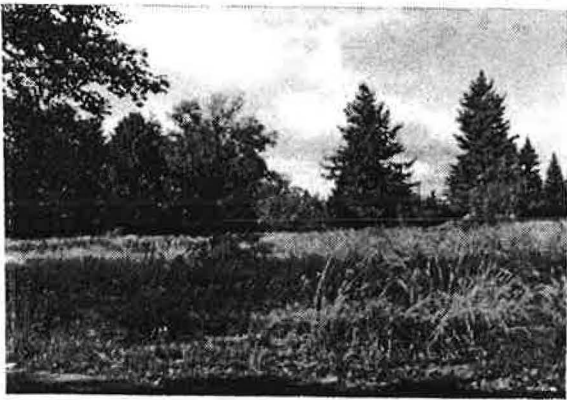
The telephone line that runs along the east side of Des Moines Memorial Drive will be relocated to the City Light poles on the west side and the poles and wire removed at U.S. West's expense. Relocation or undergrounding of remaining telephone lines will be a cost of park development. New service for park facilities will be a single direct-bury wire.

#### ENVIRONMENTAL TESTING

Over the years, neighbors in the area have expressed concern about oils having been historically dumped in the vicinity of the King County Public Works maintenance shop. For the past 20 years, the Washington Department of Ecology (WDOE) has expressed similar concerns about the potential presence of hydrocarbons in the soil. Following testing, WDOE has determined that the ditch that enters Tub Lake from the northeast, south of the shop area, has a slightly elevated level of Cadmium present in the soil. WDOE, King County and the City are presently discussing measures for clean-up of the ditch.

In addition, field sampling of soils from 23 locations at the play fields in Sunset Park and a water sample of Tub Lake were tested for metals, pesticides, PCB's, hydrocarbons and cyanide. None of the compounds of interest were detected within the stated detection limits except for the metals. Of the metals, only cadmium exceeded Model Toxics Control Act action levels and was sampled from the ditch mentioned above. Based on the test results, it appears that the surface soils of the play fields have not been affected by chemicals that may have been dumped in the area.





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## SITE SUITABILITY FOR RECREATION DEVELOPMENT

The inventoried information described above gives a clear indication of the appropriateness of the park site to accommodate recreation use. In the suitability analysis, active recreation uses, e.g. baseball and soccer fields, were the development determinants because they are the most restrictive with respect to their land area requirements, construction and maintenance costs and impacts to site resources. Another way of looking at the suitability analysis process is as an indication of the best locations for development of active uses at minimum cost and with a minimum of negative environmental effect.

Resource factors, such as the different slope categories, soil types, vegetation types, etc. were grouped into four different suitability classes, ranging from the most restrictive to the most suitable.

The recreational suitability classifications are as follows:

*Protection Areas:* This is the most restrictive classification. The inventoried factors that are in this rating correspond to the City of SeaTac's Sensitive Areas Ordinance. These include open water, designated wetlands and their buffers, and slopes over 40%. Almost all development is excluded from these areas. Facilities for passive uses, such

as trails, boardwalks, nature viewing and interpretive opportunities may be allowed in wetland areas and their buffer, provided impacts are mitigated

*Low Suitability:* The factors that went into this classification are; slopes of 11 - 40 %, Orcas peat and Tukwila muck soil types and significant and large trees. These factors place restrictions on active uses in terms of the cost to construct facilities and effects on the environment. Passive uses such as paths, picnic areas, and nature study are compatible with the environmental factors that make up this classification.

*Moderate Suitability:* The factors that went into this classification are; slopes of 6 - 10%, Alderwood soils and medium trees and shrub masses. Active recreation uses can take place in areas with this rating, however there are costs associated with development, such as cost in construction dollars and costs in mitigating effects on the environment

*High Suitability:* The factors that went into this classification are; slopes of 0 - 5% and Everett soils. These areas are most suitable for intense, active recreational development and would require a minimal amount of manipulation of land forms, have the fewest problems with soils and remove the least amount of vegetation.

Protection Areas occur mostly south of S. 136th Street. A large area is located in the southwest corner of the park site and is associated with Tub Lake, its tributaries and surrounding wetlands. The steep slope east of the Sunset Activity Center running track is also protected, as are several remote wetlands. One of these wetlands is located east of the new North SeaTac Community Center at the corner of 24th Avenue S. and S. 136th Street. The other wetland is north of S. 134th Street, and east of 20th Avenue S. at the eastern boundary of the site. See Figure 17: Suitability Analysis.

Low Suitability areas are scattered throughout the site, but are congregated in five general locations. Two of these locations are north of S. 136th Street. One extensive area of low suitability is associated with organic soils, the Tukwila muck soil type, which is located along the east boundary of the site. The second area parallels Des Moines Memorial Drive and is associated with sleeper slopes and significant vegetation which help define terraces in this landscape. South of S. 136th Street are large areas of low suitability. These areas are associated with steeper slopes and significant tree masses and are located along the major ridge in the eastern portion of the site, between Des Moines Memorial Drive and the Tub Lake wetland and south of the Sunset Activity Center at the old gravel extraction site.

Moderate Suitability areas are extensive and



Figure 17: Suitability Analysis



cover most of the east and north portions of the site, generally east of 20th Avenue S. and north of S. 133rd Street.

High Suitability areas are located north of S. 136th Street and east of Des Moines Memorial Drive. Another area encompasses the existing Sunset Park soccer, tennis and baseball facilities. It should be noted that the two lower baseball fields, to the south, are located within the Tub Lake wetland (Protection Area). Another high suitability area is around the Sunset Activity Center.

The suitability analysis allows for the integration of site features with the site program by answering the question, "How to best fit the recreation activities and their facilities onto the site in the most economical manner and with the minimum of disruption to the existing human and natural environment?" A review of the recreation program for the site will allow for this integration.

## RECREATION DEVELOPMENT PROGRAM

The initial recreation program for the park site was developed over a five month period by the North SeaTac Citizens Advisory Committee, and City, County and Port staff. This program was documented in the *North SeaTac Park : Draft 5 Development* report, dated May 23, 1991, which was a starting point for the master planning process. The development report documents the Committee's recommended list of activities to be accommodated in the park. Specific activities that the Committee wanted to consider locating in the park are presented in Table 1: North SeaTac Park – Master Plan Program. The Committee also developed a list for activities that required additional information and research and a third list of inappropriate uses that should not be in the park.

### ACTIVITIES AND FACILITIES

The recreation program for the Master Plan evolved throughout the planning process due to a number of factors. The Committee continued to hear proposals from representatives of different interest groups and made decisions on whether that group's activities were appropriate for the park. Examples of groups included; Archery (conditionally accepted), skateboard and go-cart area (conditionally accepted), model train (not accepted), and model speed boats (not accepted).

# North SeaTac Park

## Master Plan 1992

### Table 1: Master Plan Program

Activities	Passive/ Active	Facilities	Related Facilities	Other Potential Facilities	Locational Factors	
1 Baseball/Softball	A	1 quad: 3-60 ft/1-90 ft plus others	150 parking spaces/bleachers (30)/lighting	batting cages/ 1 playground	- near center of park, north of 136th	flat topography
2 Basketball	A	4 courts	40 parking spaces/ lighting	—	- scattered throughout park - near picnic area - on periphery visible from street	flat topography
3 Bicycling	P	Paved pathways, 12' wide	shared parking	—	- perimeter trail and throughout park	varied topography
4 BMX	A	existing facility	restroom/lighting/ 60 parking spaces	concession		varied topography
5 Cross Country	P	cross country course (WIAA approved)	bus parking spaces required	—		varied topography
6 Fitness Trails	P	1-2 mile loop trail	exercise stations/ shared parking	—	- throughout park	varied topography
7 Football	A	pickup games in open space	near parking		- in open space fields, turf	flat topography
8 Horseshoes	P	2 courts	Near Community Center for shoe storage	shaded seating area	- several scattered locations	flat topography
9 Jogging/Walking	P	different surfaces, loops	separate from bikes/equestrian/ low lighting/ shared parking		- throughout park - perimeter trail - track at Sunset Center	varied topography
10 Hopscotch & Shuffleboard	P	multi-purpose courts	Equipment could also be stored at Community Center	shaded seating area, some under cover	- near picnic areas - neighborhood park	flat topography

# North SeaTac Park Master Plan 1992

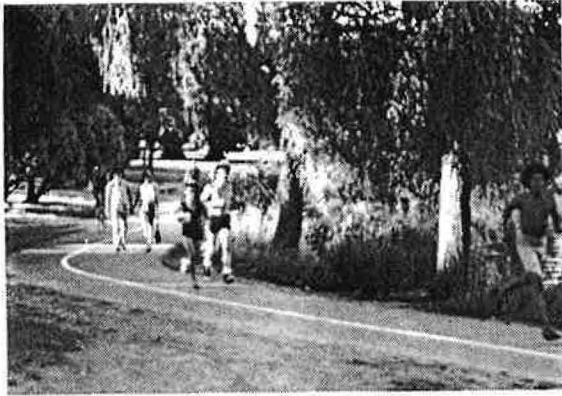
Table 1: Master Plan Program

Activities	Passive/ Active	Facilities	Related Facilities	Other Potential Facilities	Locational Factors	
11 Play	P	playgrounds, interpretive playground, other themes	Near picnic areas/ shared parking		- scattered near perimeter - near picnic areas	varied topography
12 Soccer	A	4 all-weather/ 2 grass	30-40 parking spaces per field (overlap w/ baseball?)/lighting	bleachers – drainage important	- near center of park or per design recommendations	flat topography
13 Tennis	A	2 x 4 (8) courts	32 parking spaces/ lighting	could share parking with basketball	- near center of park	flat topography
14 Arboretum	P		Pea Patch?/Compost Area/use other parking/Japanese Garden	greenhouse/ nursery/ material equipment storage	- throughout park	varied topography
15 Equestrian	A	existing arena 14.5 acres, need more, trails	parking/ lights/ barn?/bleachers/ judges' stand	concession/equipment storage/riding trails	- existing area south of 136th - access from 142nd and 18th - trails	varied topography
16 Picnicking	P	4 shelters	10 parking spaces per shelter	—	- throughout park	varied topography
17 Open Space	A – P	low grass and meadows	overlap informal play/football	—	- throughout park	varied topography
18 Aircraft Viewing	P	interpretive information		viewing mound?/ view point?/ tower?	—	high point
19 Visitor Support	A	restrooms/ drinking fountains	concentration points	neighborhood park	- throughout park	
20 Climbing	A	climbing wall 32' W x 18' H	5 parking spaces	—	—	—
21 Archery	P	100' x 12' shed, 100 m x 200 m area	40 parking spaces/ 40 people max., 80 people for special events	viewing blind	- needs hill for backstop - isolated location	—

# North SeaTac Park Master Plan 1992

**Table 1: Master Plan Program**

Activities	Passive/ Active	Facilities	Related Facilities	Other Potential Facilities	Locational Factors	
22 Group Performances	A	amphitheater			- north of 136th - isolated location	sloping topography
23 Golf Practice	A	driving range/ putting green	10 acres/60 parking spaces/ lighting	concession	- near entry road	flat topography
24 Mt. Bike	A - P	loop course, various surfaces	shared parking	—	—	varied topography
25 Dog Running	P	off-leash area	isolated location, shared parking	—	—	varied topography
26 Tub Lake	P	walkways on water and through wetlands	shared parking	—	- south of 136th - various habitats	—
27 Parking	—	—	Near concentration points	—	—	flat topography



Further research, discussion and a decision took place regarding a number of activities that had been left unresolved in the development document. These activities included; a Climbing Wall (accepted), Amphitheater (not accepted due to incompatibility with airport use noise), Driving Range (not accepted due to amount of area required and impacts to the environment), Mt. Bike Trails Course (not accepted) and Off Leash Dog Area (to be determined at a future time).

#### RELATIONSHIP TO SITE SUITABILITY

Table 1 not only lists the recreation activities and facilities that support those activities, but illustrates adjacency (functional) relationships between the activities and locational factors for each activity. Adjacency allows for an analysis of how the activities could work together, how facilities can overlap without impacting the function of the separate activities. For example, a parking lot could be sized to serve several baseball fields and also be used by soccer players if the baseball and soccer games took place at different times of the day or during different seasons. A second example is horseshoe play: pits could be located close to the community center so that the shoes could be stored at the center. Locational factors analyze the physical requirements of each facility in terms of site resources such as topographic

requirements, access to surrounding roads and location within the site.

A graphic representation of the footprints of the recreation program elements presented in Figure 18: North SeaTac Park Program – Spatial Requirements, and current uses in the park and the Tub Lake wetlands in Figure 19: North SeaTac Park – Existing Occupied Areas, illustrated the physical requirements of the uses. The area covered by existing and proposed facilities totaled approximately 135 acres or over 50% of the site and did not reflect site conditions that would constrain or impede development. The suitability analysis married the program elements to the physical resources on the site. The suitability of the site resources to accommodate the individual program elements has been discussed above and was a critical piece of information in the Committee's determination of whether a program element, or how many of one element, could be accommodated on the site.







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## IMPLEMENTATION: PHASING OF DEVELOPMENT/ CAPITAL COST ESTIMATES

Several phased development programs were devised to implement the recreation development program illustrated in the master plan. These alternatives were reviewed with City and County staff and the Advisory Committee and resulted in a recommended three phased plan for development. The first two phases are funded for design and construction. All remaining facilities not constructed in these first two phases are aggregated into a third or future phase. Facilities in this final phase will be built and maintained in the future as capital improvement budgets are provided, park bond issues are passed, and/or special interest groups implement those elements of the plan that are important to them.

### DEVELOPMENT PHASING

Phasing of park development is required because of the limitation on financial resources which does not allow the immediate construction of all the facilities called for in the master plan. The philosophy behind the recommended phasing considers:

- that the first two development phases produce "stand-alone" recreation facilities that are usable in themselves and are not dependent on elements of the future phase.

- that the first two development phases are capable of being funded out of the current money allocations.
- that the first two phases provide a strong framework for future development actions.
- that the first two phases mitigate the impacts of the acquisition and clearing of homes from the site, security concerns of the neighbors, and unauthorized uses
- that the first two phases provide an environment that demonstrates concrete evidence of progress in developing the park.

The areas, uses and facilities that are included in each of the phases are listed in Table 2: North SeaTac Park – Summary of Program and illustrated in Figure 20: Phasing Plan. The recommendations on phasing assumes that the development of Phases I and II occur over the next four years while the schedule for development of future phase elements is more flexible.

### Phase I

Phase I development is located in the north end of the park between S. 136th and S. 128th Streets. The most intense development will occur at the north end of the site. Grading for two soccer fields will occur at the flat site on the east side of the old Boulevard Park School building . One of these fields will be fully developed with an all-weather

# North SeaTac Park Master Plan 1992

**Table 2: Summary of Program**

Activity/Element	Phase I	Phase II	Future Phase	Existing to Remain	Total
<b>ATHLETIC FIELDS AND COURTS:</b>					
Baseball/ Softball Fields (with lights)	0	0	4	0	4
Baseball/ Softball Fields (w/o lights)	1	0	1	2	4
Basketball Courts	1	1	2	0	4
Batting Cage	0	0	1	0	1
BMX Track	0	1	0	1 (relocate)	1
Climbing Wall	0	0	1	0	1
Horseshoes	0	0	2	0	2
Multi-purpose Courts	1	1	2	0	4
Soccer Fields (with lights)	0	0	2	1	3
Soccer Fields (without lights)	1	0	1	1	3
Tennis Courts	0	2	4	2	8
<b>OTHER PARK ELEMENTS:</b>					
Aircraft Viewing/ Interpretive Points	0	2 stations	1 station	0	3 stations
Arboretum	0	0	1	0	1
Concession Pad	1	0	2	0	3
Equestrian Ring	0	1	0	1	2
Exercise Course	0	0	1.1 miles	0	1.1 miles

# North SeaTac Park Master Plan 1992

Table 2: Summary of Program

Activity/Element	Phase I	Phase II	Future Phase	Existing to Remain	Total
City Maintenance	0	0	1	1	2
Parking Spaces	114 spaces	138 spaces	323 spaces	160 spaces	735 spaces
Pedestrian Bridges over S. 136th St.	0	0	2	0	2
Picnic Shelters	1	1	2	0	4
Playgrounds	1	1	2	0	4
Restrooms	1	1	5	1	8
Go-Cart/ Skateboard	0	0	1	0	1
Archery Range	0	0	1	0	1
<b>TRAILS/PATHS:</b>					
Pedestrian/Cycling Paths	0.9 miles (4610 l.f.)	2.3 miles (11,900 l.f.)	0.8 miles (4300 l.f.)	0	4 miles
Gravel Paths	1.1 miles (5770 l.f.)	0.6 miles (2950 l.f.)	0.9 miles (4250 l.f.)	0	2.6 miles
Nature Trails (soft)	0	0.5 miles (2500 l.f.)	1.3 miles (6790 l.f.)	0	1.8 miles
Boardwalk	0	0	500 l.f.	0	500 l.f.
Equestrian Trail	0	0	3.2 miles	0	3.2 miles

playing surface while the other field will be seeded with grass and used for practices and warm-up. Just south of the soccer fields, three baseball fields of the Quad will be graded and one field will be fully developed. The other two fields will be seeded and used for practices and warm-up. In conjunction with the development of these athletic fields, half of the large parking lot (100 cars and room for buses) on the east side of the Quad will be constructed as will a 700 sq. ft. restroom and a concrete pad for a concession facility located between the baseball and soccer fields. The existing soccer field in Sunset Park will be rebuilt with an all-weather playing surface.

A local neighborhood park will be developed in the northwest corner of the site in close proximity to the athletic fields and the neighborhoods to the north and west. The neighborhood park facility consists of a picnic shelter, children's play area and a hard surface court area for multiple uses and basketball. Associated with this area is a small parking lot for 14 cars, that accesses from Des Moines Memorial Drive.

Several entry points, or gateways to the park are included in Phase I. One is at the corner of S. 128th St. and Des Moines Memorial Drive and the second is the northeast corner of S. 136th St. and Des Moines. Each gateway will have a special treatment that announces entry to the park. For example the entry at S. 136th and Des Moines will

## PHASING PLAN

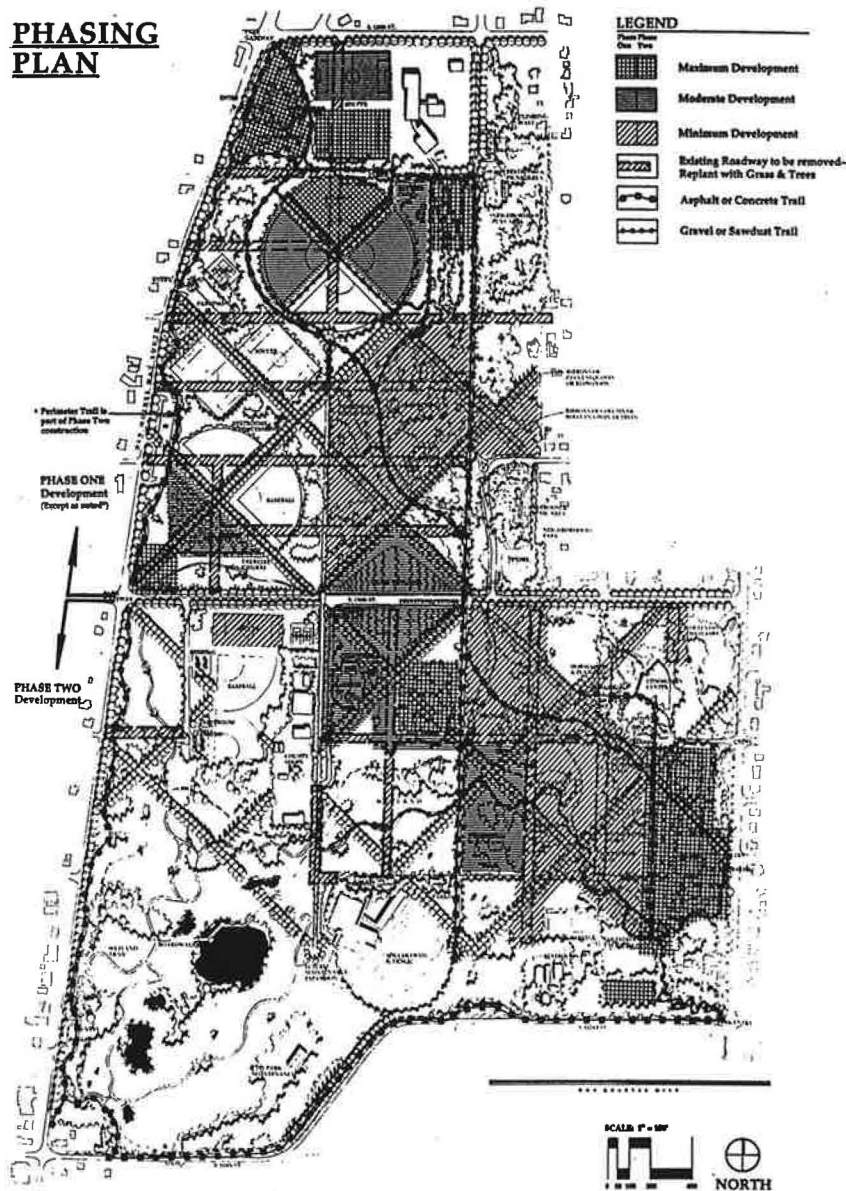
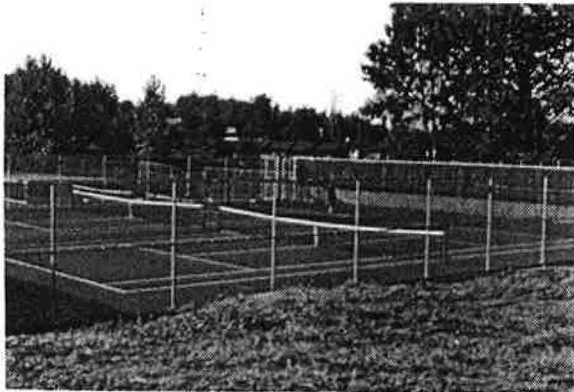


Figure 20: Phasing Plan



feature the re-establishment of an orchard, a historic use in the Highline area. This orchard will cover an area of approximately four acres at this corner of the park.

A hierarchy of trail types will link facilities constructed during this first phase with the surrounding neighborhoods. The northern portion of the ridge trail, from S. 128th to S. 136th, and the easternmost pedestrian boulevard, following the alignment of 20th Ave. S., will be paved. Another paved trail connects the large parking lot east of the Quad with the small parking lot along Des Moines and the soccer and baseball fields. Gravel or soft paths will supplement the primary trail system and link various park areas together. A total of approximately 2 miles of trails and paths will be built in Phase I.

Included in the development of Phase I will be the demolition of all interior roads north of S. 136th St. not required for park use, and the removal of old foundations and oil tanks found in the construction zone.

Landscaping and landscape restoration will not only accompany development and where roads have been removed, but a large portion of the site in Phase I will be lightly graded, smoothed and landscaped to a "park-like" setting. Landscaping and landscape restoration will take place on approximately 75 acres.

## Phase II

Phase II development is located at the south end of the park site between S. 142nd and S. 136th Streets, except for a segment of the perimeter trail along Des Moines Memorial Drive, north of S. 136th Street. The perimeter trail, along Des Moines, and paralleling S. 144th and 142nd from Des Moines to 24th Ave. S. will be 12 foot wide and paved and located within a landscaped corridor.

A local neighborhood park will be developed south of the North SeaTac Park Community Center. This facility will support the activities of the Community Center because of its close proximity to it and the surrounding neighborhoods. The neighborhood park will contain a picnic shelter, small restroom (200 sq. ft.), children's play area, a paved court area for multiple uses and basketball, and two tennis courts. A parking lot for 70 cars is associated with the area and will provide overflow parking for activities at the Community Center.

A major north/south, paved trail links the elements of the neighborhood park with the Community Center. Two aircraft viewing/ interpretive stations are located along this trail. These stations are located on high points in the park and provide interesting views of the aircraft while being outside of the safety zone of the airport runways.

The existing BMX track is located in a major

east/west swale, a tributary of Tub Lake. This facility will be relocated immediately to the northwest of its current location, out of the swale. The old site will be regraded and landscaped and wetlands rehabilitated. A new gravel parking lot will be built for users of the new BMX facility.

An additional equestrian riding ring is to be added to existing facilities in the southeast corner of the park site. Riding trails are to be developed by the equestrian club members and should follow the general layout as shown in the master plan.

The development of the pedestrian boulevard will continue south of S. 136th St. and terminate on a ridge above the running track at the Sunset Activity Center. The ridge trail will continue to the southeast, pass between the Community Center and neighborhood park and terminate on 24th Ave S. at S. 140th Street. Both trails will cross S. 136th Street at the same location at a new pedestrian cross-walk. A soft-surfaced nature trail will follow the east/west swale from S 18th St. to the equestrian area passing through the restored landscape of the former BMX track.

Included in the development of Phase II is the demolition of all interior roads south of S. 136th St. not required for park use and access, and the removal of foundations and oil tanks found in the construction zone.

Approximately 20 acres of landscaping and

landscape restoration will accompany road removal and development of recreation facilities during this phase.

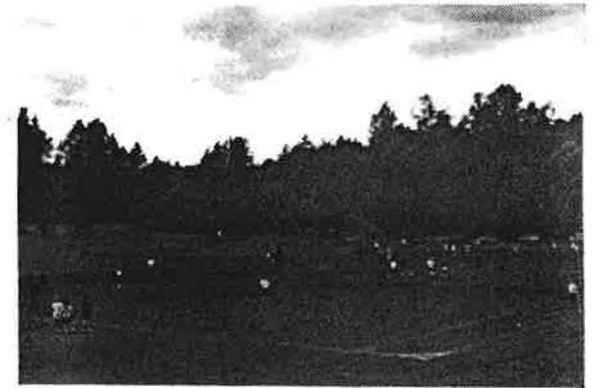
#### Future Phase

The remainder of the development program elements are allocated to a future phase. At this time the elements of this phase have no funding sources and no schedule for development. These facilities will be developed over time as demand for the facilities grow and capital improvement budgets for recreation facilities are added to the Cities budget, park bond issues are voted on and passed, and/or special interest groups implement portions of the master plan according to their needs, desires, and capabilities.

#### SCHEDULING

An overall development schedule for North SeaTac Park was organized by City and County staff and the Citizens Advisory Committee. This schedule was made part of the *North SeaTac Park: Draft 5 Development* program document, dated May 23, 1991.

This schedule has been altered slightly to accommodate the requirements of the SEPA Environmental Review process, final master plan approval, and the phasing program presented above. The new schedule calls for detailed park design and the development of construction documents





of the first two phases to take place during the remainder of 1992 and 1993. The Contract Documents could be bid simultaneously or at separate times depending on the results of the Permit Review process. Construction could begin as early as the end of 1993. Construction is expected to take place over a 14 month time period for each phase. The schedule calls for portions of the park to be opened to the public in Spring/ Summer of 1995.

#### ESTIMATED DEVELOPMENT COSTS

The probable costs of constructing Phase I and II are based on quantity take-offs from the Master Plan and assumptions made about materials and methods of construction to be used in development of park facilities. Phase I is expected to cost approximately \$4,760,000 and Phase II approximately \$3,440,000 for a total of \$8.2 million. The cost breakdown for each phase is presented below.





**Phase 1 – North of S. 136th Street**

Baseball		
Earthwork, Demo – 3 field areas	467,730	
Develop 1 field (no lights)	199,350	
Fine grade, seed, irrigate – 2 fields	<u>114,360</u>	
		781,440
Soccer		
Earthwork, Demo – 2 field areas	191,060	
Develop 1 field (no lights)	160,190	
Fine grade, seed, irrigate – 1 field	47,500	
Resurface existing field (Sunset Park)	<u>65,000</u>	
		463,751
Restroom @ Quad (700 S.F.)	150,000	
Concession Pad (sewer, water, electrical)	9,000	
Neighborhood Park – North	225,000	
Parking – 1/2 Quad & Neighborhood Park (114 spaces)	175,000	
Entry – NW Corner	15,000	
Gateway (Des Moines & S. 136th)	71,700	
Road Demo – North (27,045 sq. yd. @ 5.50)	148,750	
Smoothing of Land (32 acres @ 8,000)	256,000	
Landscaping (38 acre @ 8,000)	304,000	
Paved Trails (4,500 L.F.)	125,660	
Gravel Paths (6,000 L.F.)	60,000	
Other Landscape Restoration around Facilities (5 acre @ 20,000)	<u>100,000</u>	
<b>Subtotal – Phase I North</b>	<b>\$2,885,300</b>	
Contractor OH & Profit (15%)	432,800	3,318,100
Contingency (20%)	663,600	3,981,700
WSST (8.2%)	326,500	4,308,200
Design/Survey/Testing (10%)	398,200	4,706,400
Administration (1%)	39,800	4,746,200

**Phase II – South of S. 136th Street**

Parking for Community Center & Grading for Neighborhood Park		
		301,830
Neighborhood Park – South		330,100
Relocate BMX		111,400
Perimeter Trail Corridor		
Des Moines (136 – 128)	209,850	
Des Moines (144 – 136)	205,850	
Along 142 – 144	<u>254,650</u>	
		670,350
Aircraft Interpretive		
Entry (24th Ave. & S. 140th)		140,000
		10,000
Road Demo – South (13,600 sq. yd. @ 5.50)		74,800
Landscaping (11 acre @ 8,000)		88,000
Paved Trails (3,600 L.F.)		100,520
Gravel Paths (5,500 L.F.)		55,000
Equestrian Area Grading		79,000
Other Landscape Restoration around Facilities (6 acre @ 20,000)		<u>120,000</u>
<b>Subtotal Phase 2 – South</b>	<b>2,081,000</b>	
Contractor OH & Profit (15%)	312,150	2,393,150
Contingency (20%)	478,630	2,871,780
WSST (8.2%)	235,490	3,107,270
Design/Survey/Testing (10%)	287,180	3,394,450
Administration (1%)	28,720	3,423,170

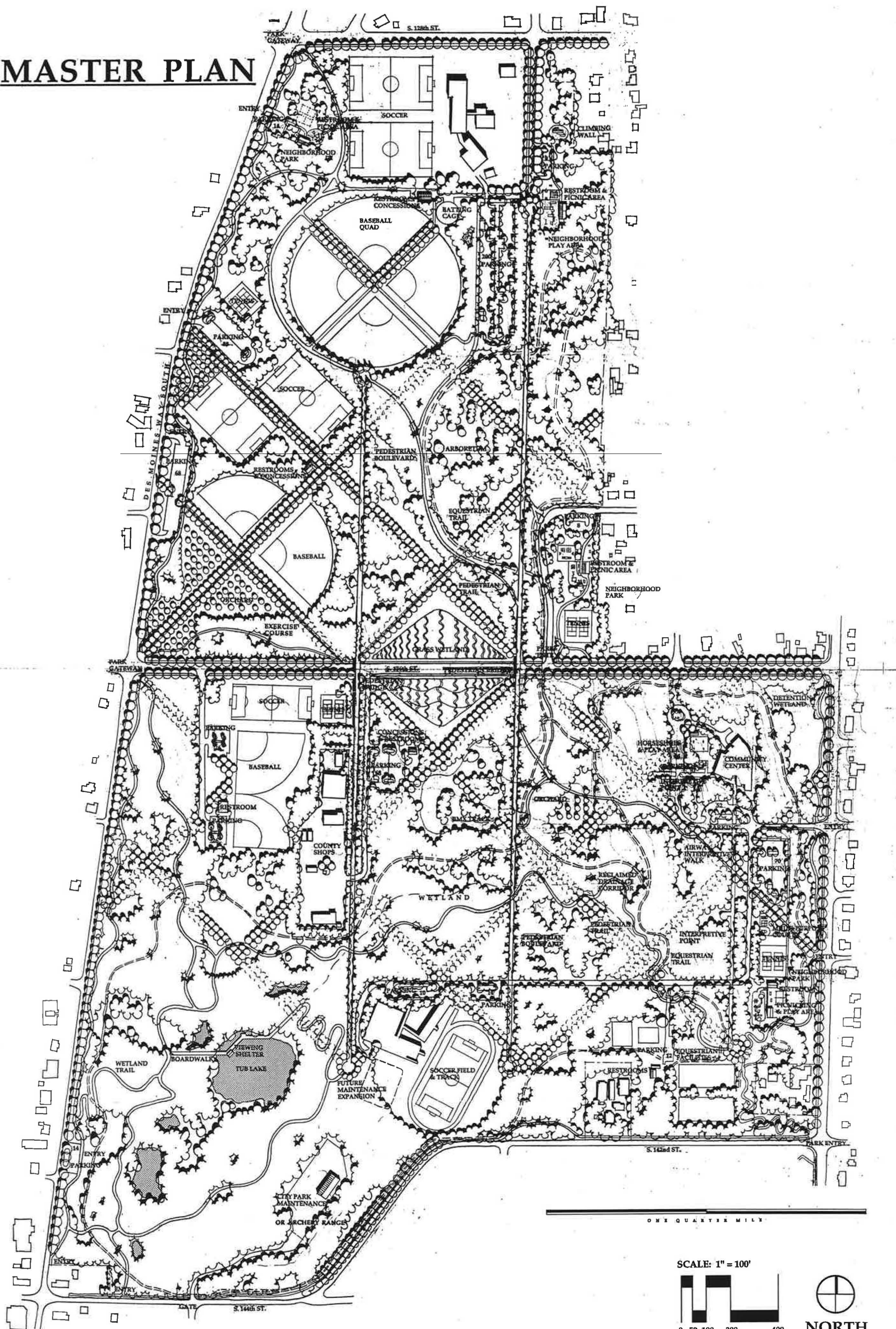




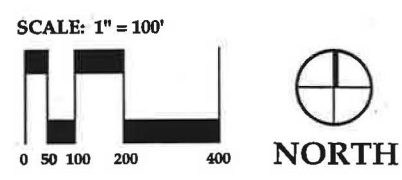


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# MASTER PLAN



ONE QUARTER MILE

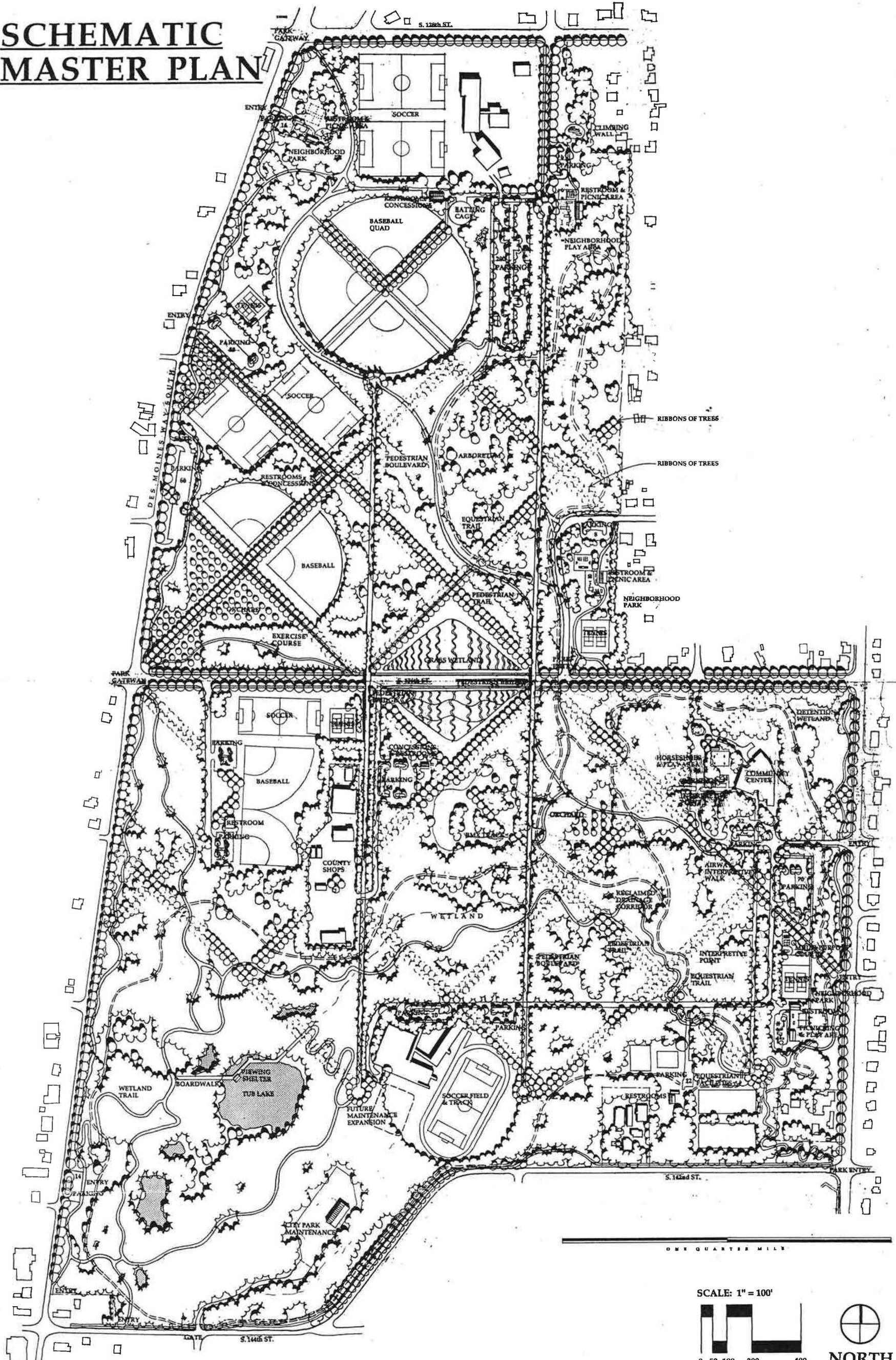


# NORTH SEATAC PARK

**JONES & JONES**  
106 SOUTH MAIN STREET  
SEATTLE, WASHINGTON 98104  
(206) 424-4700

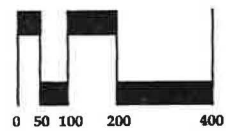
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# SCHEMATIC MASTER PLAN

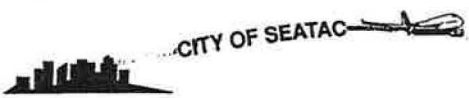


# NORTH SEATAC PARK

SCALE: 1" = 100'

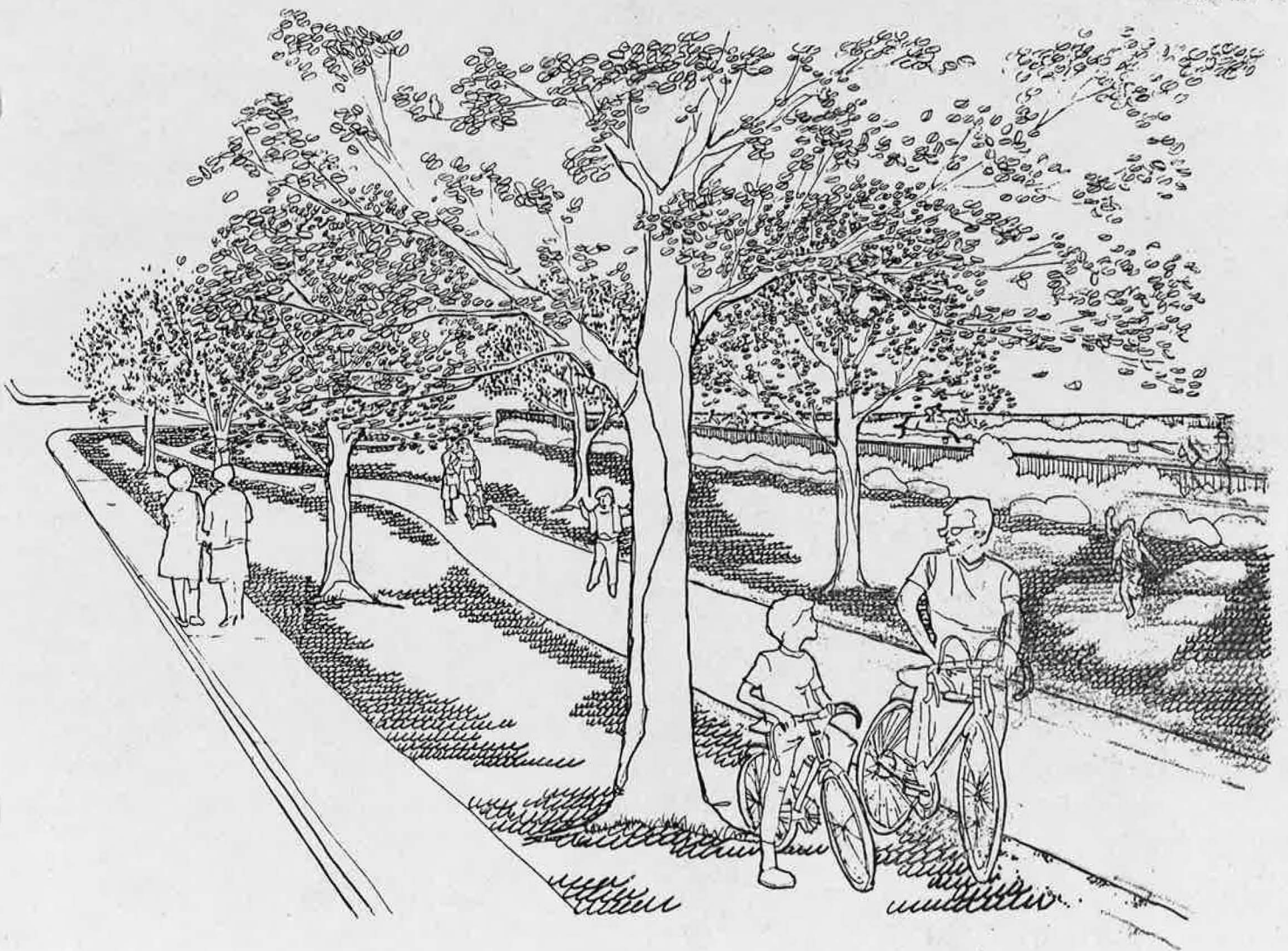


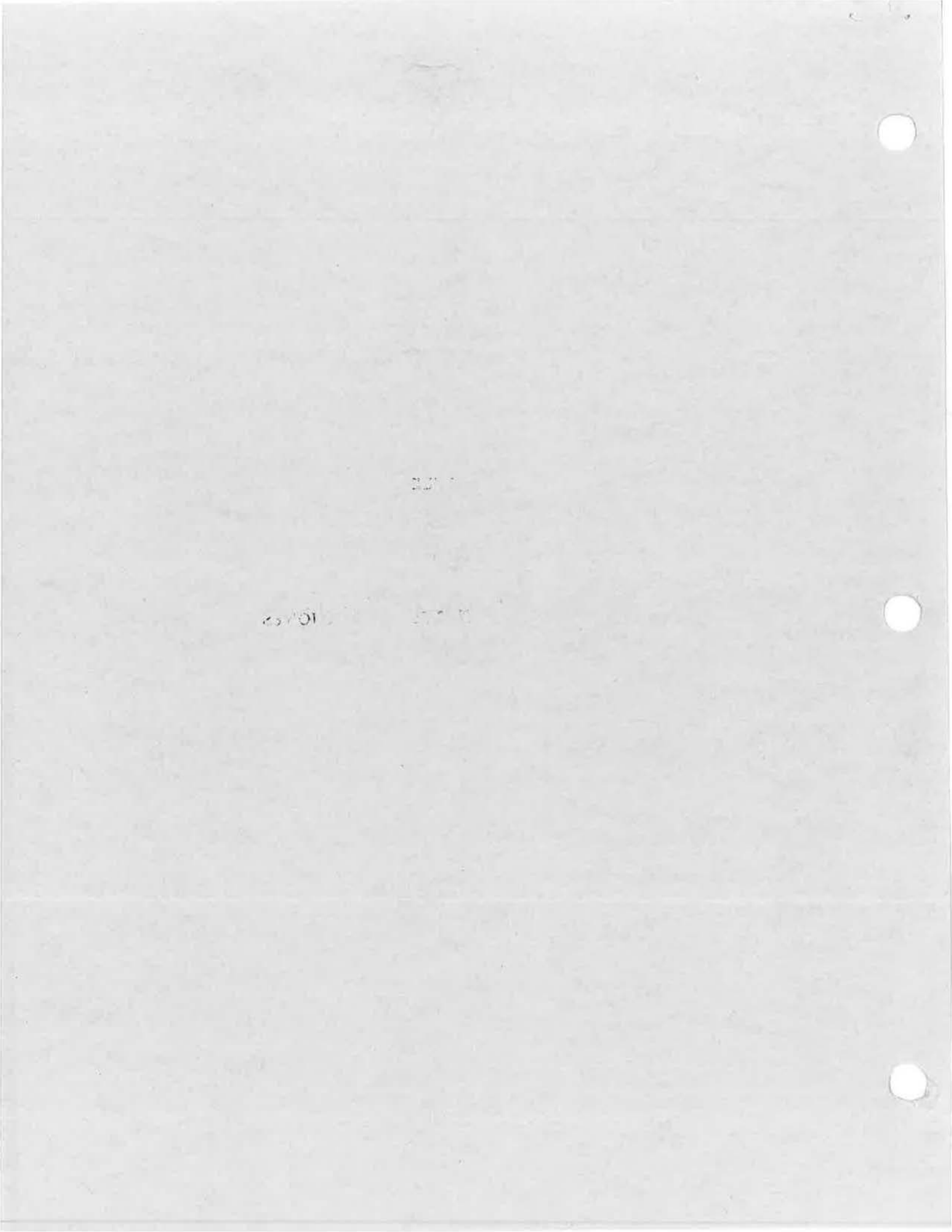
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# North Sea-Tac Park Master Plan Update

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**A JOINT PLANNING EFFORT BY:**

**KING COUNTY**

**THE PORT OF SEATTLE**

**PREPARED BY:**

**TRIANGLE ASSOCIATES/JONES & JONES**

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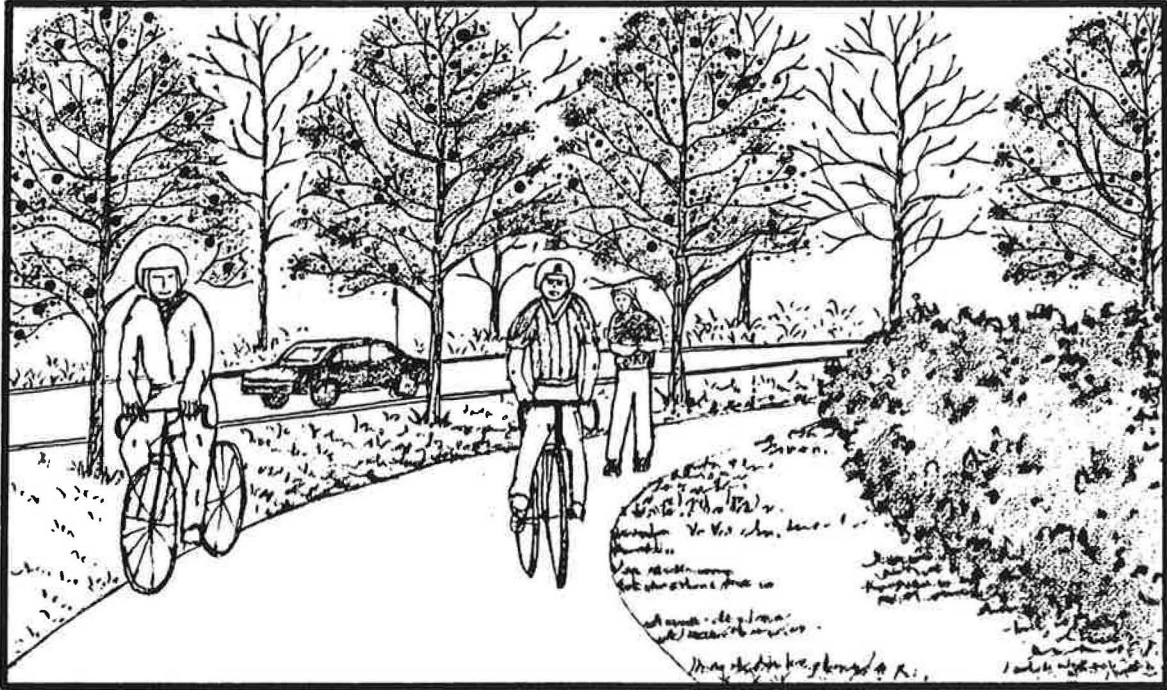
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**THE MASTER PLAN UPDATE INCLUDES A PERIMETER TRAIL SYSTEM FOR JOGGING AND CYCLING.**

## **I. INTRODUCTION**

The North Sea Tac Park Master Plan Update Study was initiated by King County and the Port of Seattle as part of the Sea Tac Area Update of the Highline Community Plan for the area immediately to the north and south of Sea Tac Airport. The park master plan is an update to the North Sea Tac Park Plan, prepared by Jongejan/Gerrard/McNeal, Inc., in 1979 and adopted by the Port of Seattle Port Commission and the King County Council in 1980 (hereinafter referred to as the 1980 Master Plan). This report, with accompanying technical memoranda and workshop summaries, is a documentation of the process leading to the recommended park master plan update and implementation strategies.

The site of North Sea Tac Park is directly north of the Seattle-Tacoma International Airport in King County, Washington. Most of the land has been acquired or is being acquired by the Port of Seattle, through the Noise Remedy Program. Other property owners include King County, City of Seattle, and private parties.

The park study began in June, 1986, when the sponsoring agencies, King County and the Port of Seattle, retained the services of Triangle Associates, a planning and public involvement firm, and Jones & Jones, landscape architects. The direction given to the consultants was to bring together for discussion the interests and concerns of the various parties and viewpoints in the Sea Tac area, develop consensus where possible on the purpose and policies of the park plan, adapt and apply the findings of the "Airport Land-Use Planning Handbook," California Department of Transportation, 1983, (hereinafter referred to as the Airport Land Use Planning Handbook) to the North Sea Tac Park Master Plan Update, recommend boundaries for North Sea Tac Park, and update the 1980 Master Plan to cover park uses and facilities, implementation, and operations.

The study has been coordinated with the community plan update being carried out by King County with the cooperation of the Port of Seattle. The County and the Port are being assisted by the Sea Tac Area Update Citizens Advisory Committee. The park plan update has been advised by a workshop advisory group (hereinafter referred to as the Workshop Group), composed of a subcommittee of the Citizens Advisory Committee, area residents, and representatives from King County, the Port of Seattle, and the Federal Aviation Administration, to provide community participation. Briefings were given to the full Citizen Advisory Committee and a Technical Advisory Committee for the Sea Tac Area Update. Public comment was solicited at all meetings and at a public open house.

## **BACKGROUND**

The Port of Seattle began developing a new airport in South King County in 1942 on a 906 acre site that was rural in character. Through a series of improvements, the Sea Tac Airport facilities grew in size and efficiency. Simultaneously, a suburban community was established in the surrounding area. By 1987, the Sea Tac Airport has grown to encompass approximately 2,400 acres. The Port of Seattle, King County and concerned citizens have been engaged in ongoing planning efforts to improve compatibility between the airport and adjacent communities. The 1980 Master Plan for the park was developed as part of those efforts.

However, the 1982 failure of a Countywide Pro Parks bond issue which included funds for development of the North Sea Tac Park was the loss of a potential funding source recommended in the 1980 Master Plan.

The process of preparing the park plan update began with reviewing previously prepared plans. The plans that apply directly to North Sea Tac Park are the Sea Tac Communities Plan, the Highline Community Plan, and the North Sea Tac Park Plan. Following is a summary of each plan:

### **The Sea-Tac Communities Plan**

The purpose of the Sea Tac Communities Plan was to develop a master plan for future development of the Sea Tac area. The Port of Seattle and King County worked together on this project, which was funded in part by the Federal Aviation Administration. One of the actions of the Sea Tac Communities Plan was the "establishment of a comprehensive noise remedy program....," the "provision of maximum financial assistance by the FAA for such noise remedy actions," and "implementation of extensive drainage, water quality, park and recreation program improvements by King County." The noise remedy program identified the site of the proposed North Sea Tac Park as an acquisition area with open space as the planned land use.

The Sea Tac Communities Plan was the stimulus for the development of a North Sea Tac Park Plan. The Communities Plan makes the following general statements regarding the airport acquisition areas:

- The areas should be in open space use.
- Uses should not further degrade the environment or residential character of neighborhoods.



Regarding the North Acquisition Area (North Sea Tac Park), the Sea Tac Communities Plan supports these policies:

- The area surrounding Tub Lake should be reserved for wetlands and development along Miller Creek should be limited to a footpath.
- Sunset Park (Playfield) should remain in its present active use.
- A golf course should be included in the program, consideration given to using Boulevard Park Elementary School as a clubhouse. Access and parking for the golf course should be near the commercial concentration on Des Moines Memorial Drive and South 128th Street.
- Sunset Jr. High and Boulevard Park Elementary School buildings should be used as community facilities.

### The Highline Community Plan (1977)

The Highline Community Plan is the set of policies by which King County judges land use decisions in the Highline area. The Sea Tac portion of this plan is currently being revised in a joint planning effort by King County and the Port of Seattle. The Highline Community Plan reinforces the Sea Tac Communities Plan with a few additional recommendations:

- Development of an athletic complex north of SR 518 on the North Acquisition Area, consisting of 3 baseball and 5 soccer fields.
- Improvements to Sunset Park for parking, drainage, and irrigation.
- Preservation of the historic elm grove along Des Moines Memorial Drive.

### The North Sea-Tac Park Plan (1980)

The immediate foundation for the work of the plan update is the 1980 North Sea Tac Park Plan prepared by Jongejan/Gerrard/McNeal, Inc. and adopted by the Port of Seattle Port Commission and the King County Council. The 1980 plan inventoried the existing conditions of the 420-acre park planning area, and reported this information in maps and narrative descriptions of the site climate, slope, hydrology, vegetation, wildlife, and soils. The study team inventoried previous plans including the Sea Tac/Communities Plan, the Highline Community Plan, and a list of recreation proposals developed by the Highline Recreation Council, a private citizens organization. The study team rated the subareas within the planning area for a "Recreational Development Capacity Composite" by overlaying maps for hydrology, soils, vegetation, and wildlife. Some conclusions of this section include:

- The areas around Tub Lake and Lake Reba are highly sensitive to development and should be protected.
- North of Sunset Jr. High, "the major factors influencing the rating of the composite are soils and wildlife...erosive Alderwood soil predominates with proper precaution to avoid soil erosion and adequate concessions to wildlife habitat...recreational development may be appropriate here."

The 1980 Master Plan also includes a visual assessment of the planning area landscape, a review of manmade factors on the site such as the ownership, acquisition sequence, utilities, existing buildings, zoning, vehicular and pedestrian access, and air support facilities, which are described in maps and narrative text.

A section of the 1980 Master Plan describes the development of FAA Density Guidelines for the site. At the time, no specific national standards had been established for uses of airport clear zones, but FAA literature recommended such compatible uses as "...agriculture, playgrounds, parks (types which do not generate assemblies, automobile parking), industry (types which do not create smoke or electronic interference) and similar use" (FAA order 5100.17). The 1980 Master Plan describes the development of Density Guidelines as follows:

"Working with the citizens and the study team from Jongejan/Gerrard/McNeal, the FAA Northwest Regional Office developed density guidelines to aid the planners in the design of the North Sea Tac Park. While these densities are not regulations which require strict adherence, the figures do represent safe, sensible numbers of people to allow in clear zones. If an airline mishap should occur, an even greater tragedy could be averted by following these guidelines."

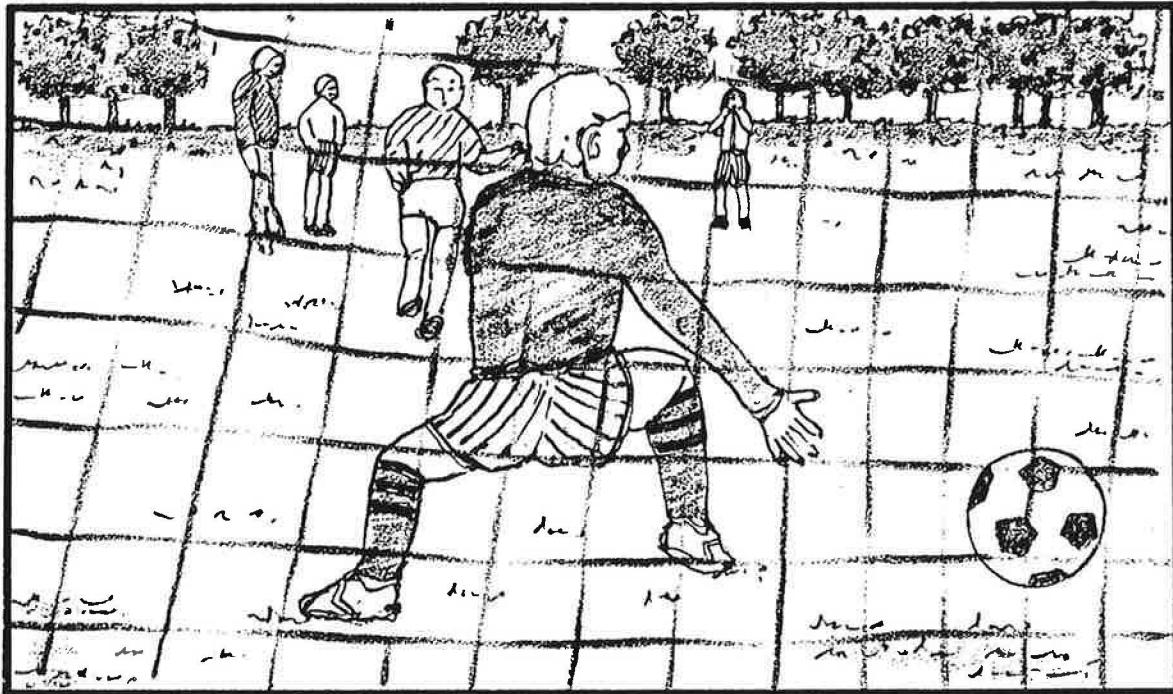
The Density Guidelines were mapped to show 1.5 people per acre in the clear zone, 2 people per acre in the extended clear zone and 60 people at games, 40 people per acre in the area surrounding the extended clear zone, north of S. 142nd Street.

The 1980 Master Plan includes the following elements:

- **Soccer/Football Fields** - With the proviso "no spectator seating should be provided in order to discourage large assemblies of people."
- **Existing Little League Baseball Fields** - "The facility should be retained, serves a useful purpose and demonstrates the possibilities of user maintenance."
- **Golf Course** - A nine-hole golf course surrounding Lake Reba, with expansion of another nine holes in the airport acquisition area south of 154th. The planning team did not conduct a site-specific study of the expansion area, as this was not included within the study boundaries.
- **Airport Viewpoint** - A four-car turnout on South 154th Street to take advantage of the view of approaching planes.
- **Path System** - A multi-purpose path system, some paved and some of cinder, gravel or dirt surface.
- **Bicycle Moto-Cross** - Dirt track with earth jumps and banks; fenced limits should be planted with dense buffers of shrubs and trees.

- **Buffer Areas** - Passive areas reserved between "adjacent housing areas and the active areas of the park to buffer the residents from any park-generated noise and to provide a pleasing landscape to view from their homes."
- **King County Public Works and Park Department Shops** - Located in "a highly visible and awkward situation within the park. Immediate steps should be taken to screen the facility with a fast-growing planted buffer. In the long range, the facilities should be relocated.."
- **Sunset Park (Playfield)** - An existing facility with two tennis courts, one soccer field and three baseball diamonds.
- **Private Ownerships** - "Must be screened from the park to obtain mutual privacy."
- **Sunset Junior High School** - The 1980 Master Plan stated that four issues influenced the final recommended use for Sunset Junior High: extensive expensive acoustical modifications, handicapped access requirements, FAA density guidelines limitations on total number of people to 60, and availability of other surplus schools in the vicinity, any of which would be more desirable as recreational facility because they are removed from high noise levels and FAA density restrictions. The Master Plan noted that "for these reasons, the use of Sunset Jr. High as an indoor recreational facility should be on an interim basis until a more suitable facility can be found. Interim activities would include 'pick-up' basketball and similar low-key activities." Another section stated that "none of the facilities...should be used for spectator events." The Plan recognizes that "While Sunset is impractical as a recreation facility, it is well suited for storage uses."
- **Boulevard Park Elementary School** - "Future uses for the school building should be integrated with activities and facilities of North Sea Tac Park."
- **Optional Motorcycle Training Area** - A facility proposed for training for on-road motorcycle riding and maintenance. This generated a lot of controversy and was included in the plan with the proviso that "the need for such a facility has been demonstrated as have potential adverse effects" and provided a sponsor could be found to operate "under guidelines and conditions that do not adversely impact adjacent neighborhoods with noise."





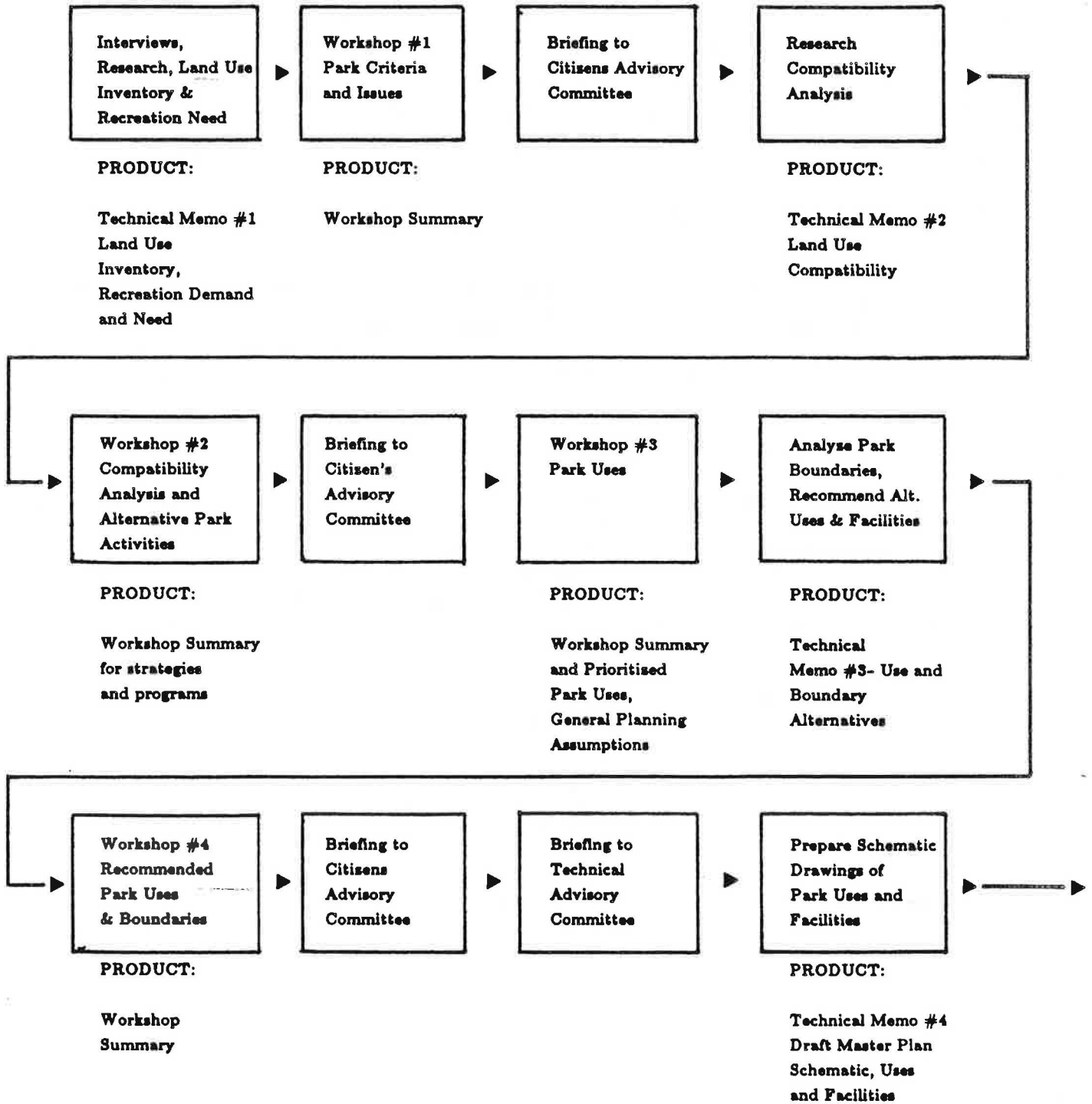
**ADDITIONAL PLAYFIELDS WILL BE DEVELOPED FOR SOCCER AND BASEBALL.**

## **II. PARK PLAN UPDATE DEVELOPMENT**

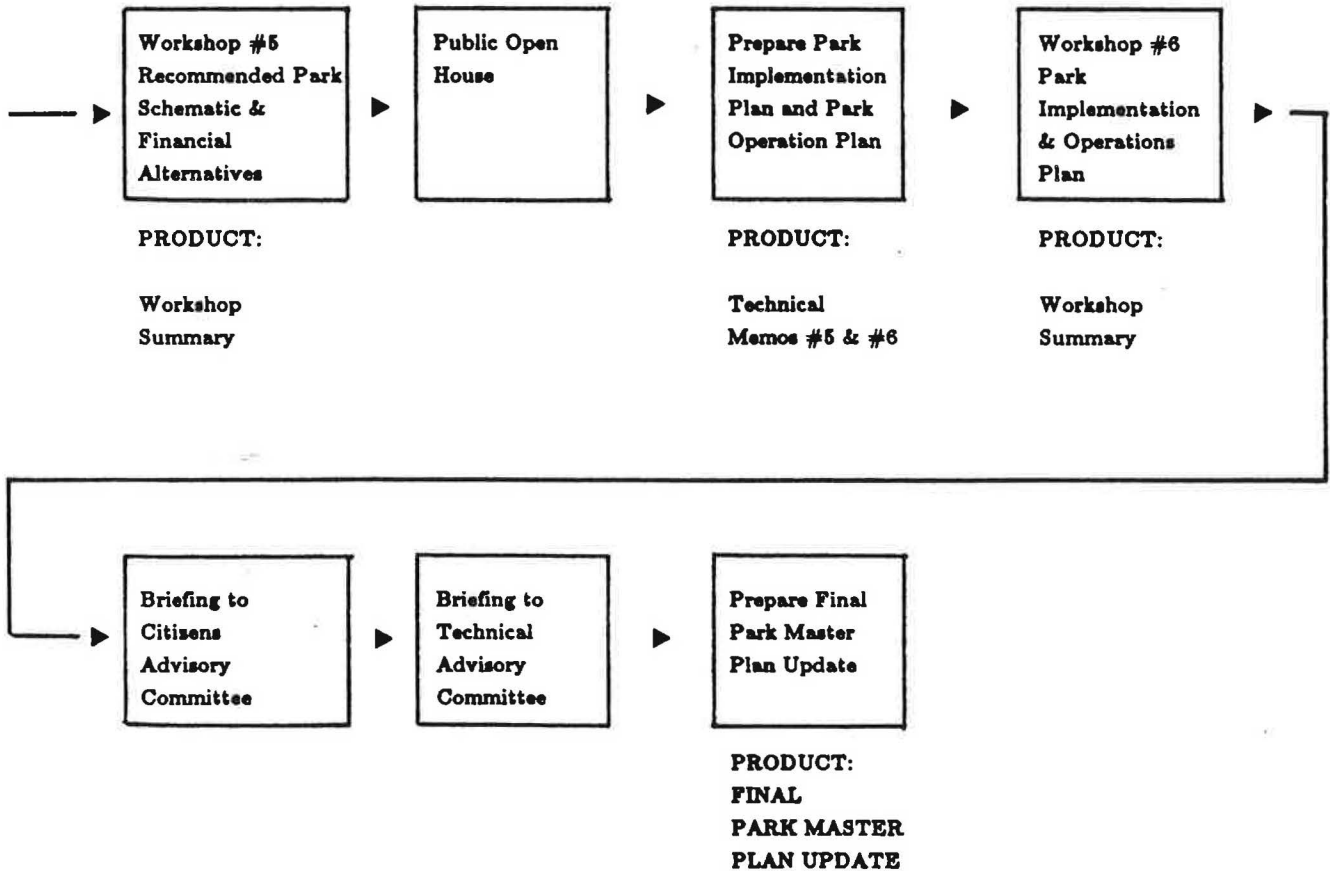
Triangle Associates and Jones & Jones initiated the park plan update by interviewing the various parties of interest and by organizing a structured workshop process, coordinated with the Sea Tac Area Update Citizens Advisory Committee. A workshop advisory group was organized, composed of a subcommittee of the Citizens Advisory Committee, area residents, and representatives from King County, the Port of Seattle, the Federal Aviation Administration, and the Greater Highline Community Park Board (hereinafter referred to as the Workshop Group).

Triangle Associates and Jones & Jones carried out a study process that is shown in the chart "North Sea Tac Park Plan Update Study Process." Working closely with the Workshop Group, King County, and the Port of Seattle, the consultants researched criteria and issues for the park plan update design; prepared a review of recreation needs in the area; prepared an analysis of compatibility issues, including noise, safety, traffic, and security; evaluated and recommended recreation and open space uses for the updated plan; recommended boundaries for the park update; identified and evaluated potential uses and prepared alternative use programs; recommended a schematic and park use program; prepared cost information for the recommended program development, maintenance, and operation. The consultants prepared technical memoranda on each of these topics which were reviewed and discussed in a series of six workshops.

## NORTH SEA-TAC PARK PLAN UPDATE STUDY PROCESS



STUDY PROCESS (Continued)



The topics which were covered in the study process are discussed in the following narrative:

#### **LAND-USE INVENTORY AND RECREATION NEED UPDATE**

The consultants reviewed changes in existing conditions within the park planning area and determined that the natural features information contained in the 1980 park plan could be re-used since soils, vegetation, hydrology and wildlife conditions have not changed significantly within the park planning area over the past six years. However, the land use, noise impact, and population estimates have changed to varying degrees.

#### **EXISTING LAND OWNERSHIP**

Since the 1980 park master plan was prepared, the Port of Seattle has proceeded with the Noise Remedy Program and has acquired most of the homes within the park planning area.

The Port Commission has placed a higher priority on funds for direct airport impact mitigation (acquisition, relocation, and insulation of homes) than on indirect mitigation such as landscaping and amenities. The total budget for land acquisition and clearing in the North Sea Tac Park plan area is more than \$32 million, of which the Port of Seattle contribution has been \$7.7 million; the FAA has provided the balance of the funds. Another \$5 to \$6 million will be required to complete the land acquisition in the North Sea Tac Park plan area, slated for 1987.

The current extent of ownership by the Port of Seattle within the park planning area is illustrated on the map titled "Existing Land Ownership". At the time of writing, Port of Seattle acquisition has proceeded north to the vicinity of South 132 Street. Acquisition will continue north to 128th.

As the map indicates, the Port has leased portions of the lands that it has acquired in the park planning area; the lessees include the Highline-East Little League, the Greater Highline Community Parks Board, and several airport-related businesses. Both organizations lease the underlying ground from the Port of Seattle. A number of public agencies other than the Port also own land within the park planning area, including King County, the City of Seattle, and the Washington State Department of Transportation.



## EXISTING LAND USE

Since the development of the 1980 Master Plan, a considerable amount of airport-related development has occurred in the park planning area. A number of other land-use actions have also occurred within this area.

The current land-use patterns are depicted on the map titled "Existing Land Use." Of the elements in the 1980 Master Plan, the Little League Baseball Fields remain and are operated under a lease between the Port of Seattle, land owner, and the Highline-East Little League, operator of the facility; the Bicycle Moto-Cross track is operated under a lease between the Port of Seattle, land owner, and the Greater-Highline Community Parks Board, operator of the facility; the King County Public Works and Park Dept. Shops remain and have not been screened with plantings as recommended in the 1980 plan; the Sunset Playfield owned and operated by King County remains; the Sunset Junior High School buildings have been divided into two ownerships--Buildings B and C, owned and purchased for a nominal fee and operated by the Washington State Archives, a division of the Office of Secretary of State, and Buildings A and D, purchased for a nominal fee and owned and operated by the Greater Highline Community Parks Board, a private nonprofit organization made up of sports and activity associations. Both organizations lease the ground beneath the buildings from the Port of Seattle. The archives use was recommended by the 1980 plan and the activity center was recommended only on "an interim basis until a more suitable facility can be found."

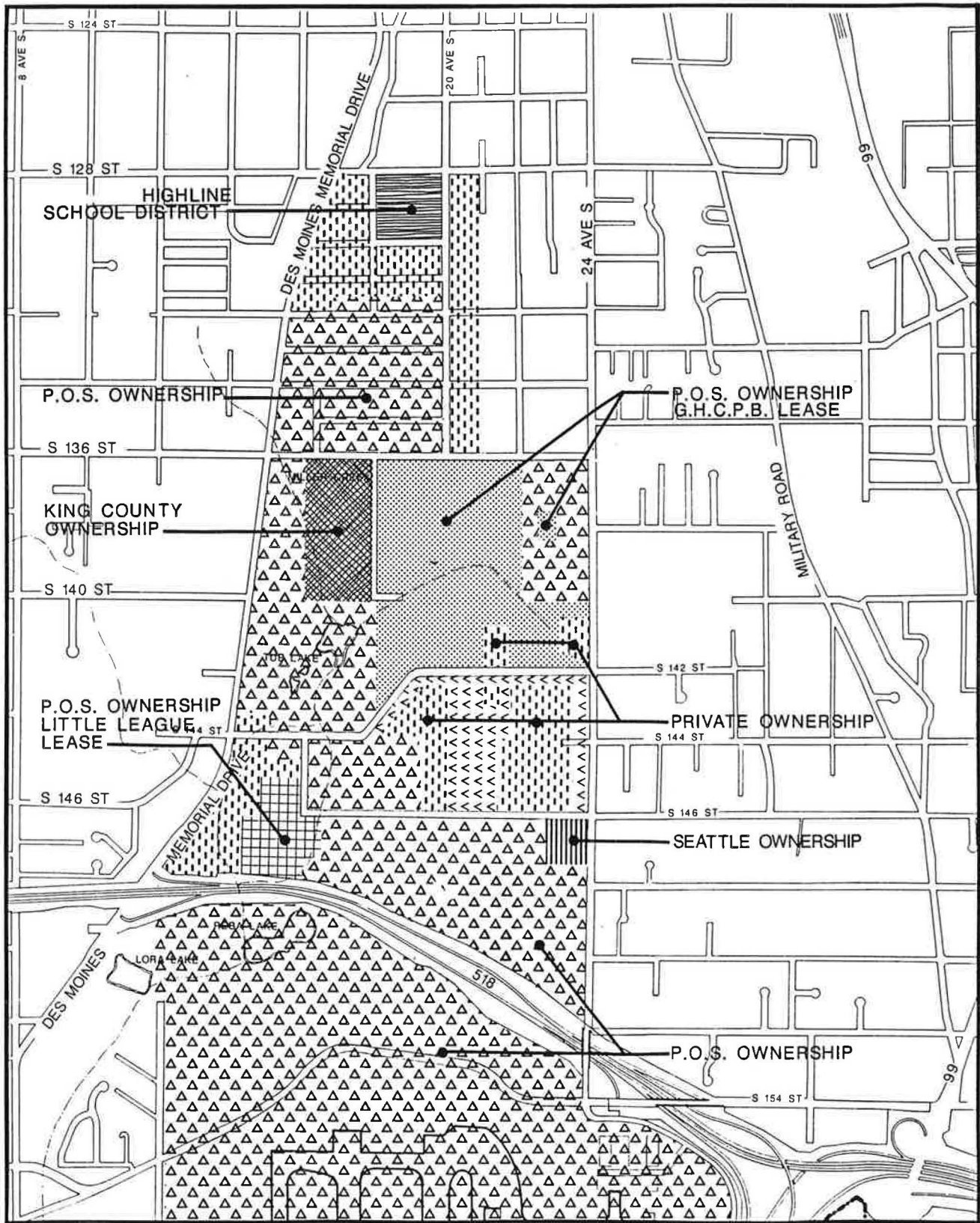
An element not included by the 1980 Master Plan has been developed - Equestrian Facilities developed by the North Sea Tac Park Equestrians, a private organization, on land owned by the Port of Seattle, under lease to the Greater Highline Community Parks Board. The equestrian element was not included in the 1980 plan, because there was not sufficient interest and the plan stated "with future interest the decision should be re-evaluated."

## RECREATION NEED

Recreation need in the Highline area was also reviewed for the park plan update to help ensure that recreation facilities developed as a result of the update will meet recreation needs in the park's service area and will be fully utilized. The results of this review were reported in Technical Memorandum 1 and are summarized in the following paragraphs.

One index of recreation need is population size and growth rate. The 1980 Master Plan used population information included in the 1977 Highline Community Plan. The latter plan reported that a comparison of a 1975 mid-census population estimate for the Highline area with the 1970 U.S. Census indicated an estimated population decrease of 2%. However, the community plan also cited projections from 1970 to 1990 that were developed by the Puget Sound Council of Governments, which estimated future population growth at 17% in the Highline area.

For the park plan update, these population estimates and projections were reviewed by reference to the 1985 Annual Growth Report prepared by the King County Planning Division. The following estimates were derived from the Annual Growth Report: the 1970 population of the Highline area is estimated at 137,900 and the 1980 population is estimated at 128,850, representing a population decrease of approximately 6-1/2%. Population is projected to continue to decline through 1990 and then to increase to 135,100 by 2000. This population level would be approximately the same as the 1970 population.



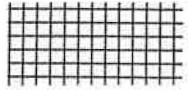
# North Sea-Tac Park Existing Land Ownership



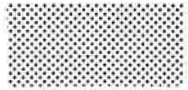
## Legend for Existing Land Ownership



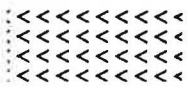
Port of Seattle



P.O.S. Lease to Little League



P.O.S. Lease to G.H.C.P.B.



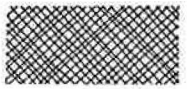
P.O.S. Lease to Business



City of Seattle



Highline School District



King County

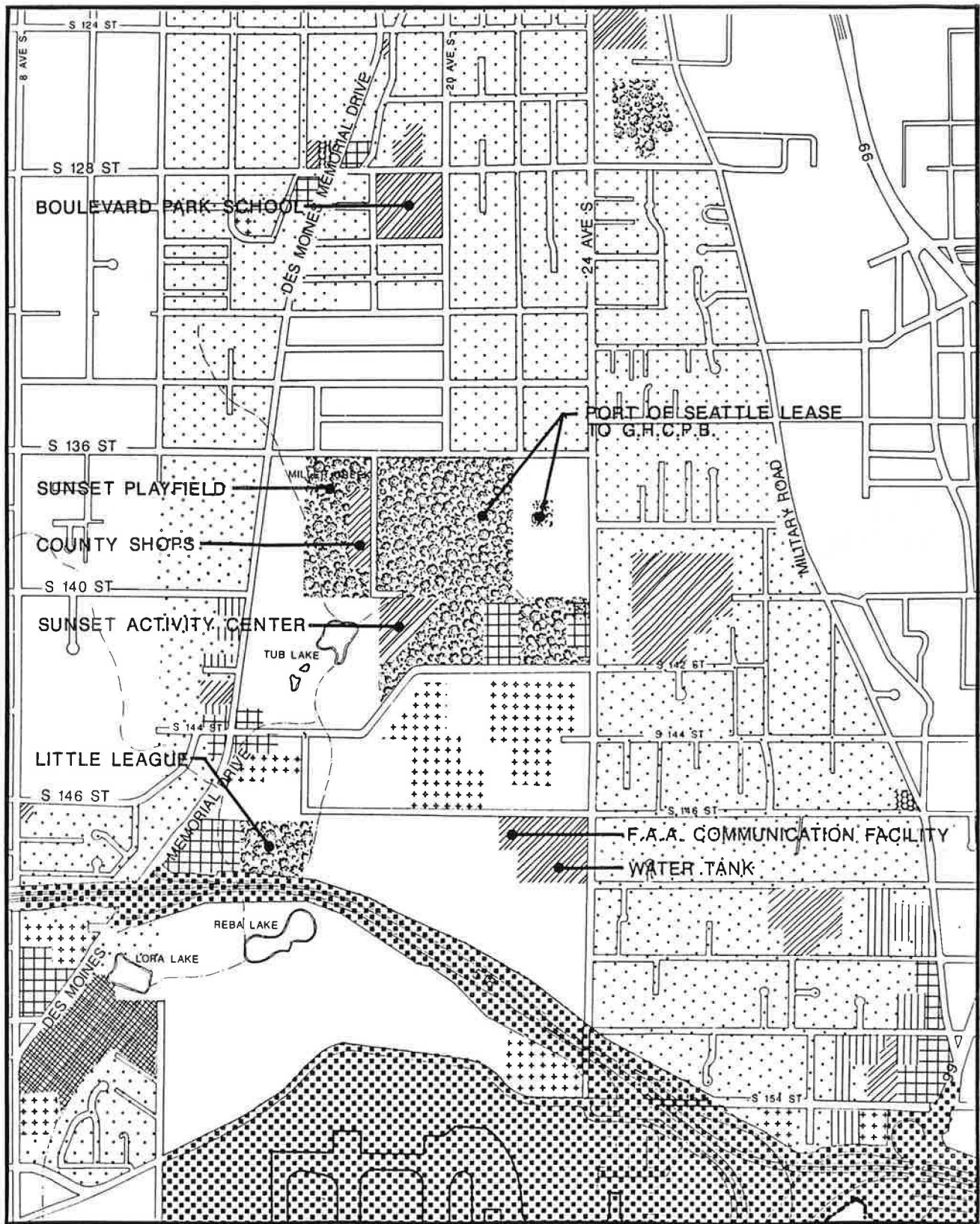


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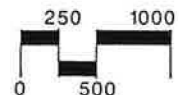
## Abbreviations

G.H.C.P.B.—Greater Highline Community Parks Board

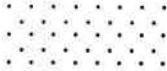
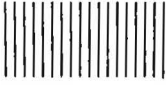

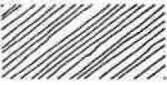
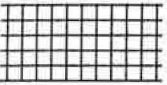
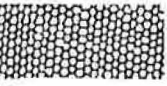
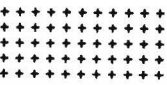
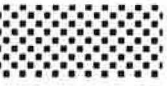

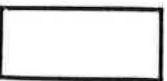
P.O.S.—Port of Seattle



# North Sea-Tac Park Existing Land Use



## Legend for Existing Land Use

	Single Family Residential
	Multi-Family Residential
	Park and Recreation
	Community Facilities
	Commercial
	Office
	Light Manufacturing
	Transportation
	Agriculture
	Vacant

## Abbreviations

F.A.A.—Federal Aviation Administration

G.H.C.P.B.—Greater Highline Community Parks Board

P.O.S.—Port of Seattle

The population of the Highline area appears to be stable or declining slightly, rather than growing. The primary reason for this is probably smaller average family size. While the Noise Remedy Program has removed a significant number of single-family residences north of the airport, King County issued approximately 1,430 building permits for new single-family residences in the Highline Planning Area between 1978 and 1984.

Another index of recreation need is the relationship between recreation demand and existing recreation facilities and programs. Recreation need is usually defined as the difference or shortfall between these. The 1980 Master Plan tabulated findings and recommendations on recreation need that had been included in preceding planning studies. The update process reviewed these findings and recommendations by comparing them with current information from the King County Natural Resources and Parks Division, the Greater Highline Community Parks Board, the Highline-East Little League, and other sources.

The King County Natural Resources and Parks Division uses the boundaries of the County community planning areas for recreation inventory and planning purposes. Within these planning areas, the Division identifies recreation needs by using standards that were incorporated in the Open Space Development Policies by King County Ordinance 3813 in 1978.

The County standards distinguish among four types of parks and establish size ranges, acreage-to-population ratios, service areas, and development guidelines for each type of park. Three of these park types appear relevant to planning for North Sea Tac Park: neighborhood parks, community parks, and major urban parks. The fourth type, resource-based parks, are based on the "specific quality of the site" and the presence of "a unique resource." The need for this type of park usually occurs in rural areas; in developed areas, such as Highline, the need for such parks is usually deemed to be met by community parks. The standards for the three relevant types of parks are summarized in the following table.

<u>PARK TYPE</u>	<u>SIZE RANGE</u>	<u>SERVICE LEVEL</u>	<u>SERVICE RADIUS</u>
Neighborhood	5 - 10 Ac.	1.25 Ac./1000	1/2 mile
Community	20 - 40 Ac.	1.25 Ac./1000	2 miles
Major Urban	100 Ac.+	5 Ac./1000	6 - 10 miles

Based on the adopted standards for park acreage in relation to population, the Highline community planning area is deficient in its acreage of Neighborhood & Major Urban Parks, while it has a surplus in community parks. These standards are merely meant to be guidelines and are not precisely met anywhere. Local demand for facilities may still not be met in areas that have more than the target number of facilities. The standards are illustrated in the following table.

<u>PARK TYPE</u>	<u>ADOPTED STANDARD</u>	<u>1985 ACREAGE</u>	<u>SURPLUS/ DEFICIENCY</u>
Neighborhood	148.6 Acres	82.9 Acres	<65.7 Acres>
Community	148.6 Acres	179.4 Acres	30.8 Acres
Major Urban	<u>594.5 Acres</u>	<u>291.1 Acres</u>	<u>&lt;303.4 Acres&gt;</u>
Totals	891.7 Acres	553.4 Acres	<338.3 Acres>

In 1978, the County also adopted targets based on population for the provision of outdoor athletic facilities in unincorporated areas "to insure the equitable distribution of facilities." These targets include consideration of school district facilities. When these facilities are included, the Highline area appears to meet or exceed the targets.

In addition to operating outdoor recreation facilities, the County also operates indoor and outdoor recreation programs.

The outdoor programs largely consist of scheduling the use of athletic fields for team play. The indoor programs comprise a wide range of performance events, arts programs, and educational classes. Currently, the County has three full-time recreation staff at the Highline Community Center and three more staff in the Federal Way-Des Moines area.

The Highline Community Center, located within about one mile of the North Sea Tac Park plan area and built as an elementary school, is used for community classes, and classes in the crafts and fine arts. The County also operates the Moshier Arts Center in the Highline area, and facilities in White Center Park. County staff observe that there appears to be a particular shortage of gymnasium space in the Highline area, perhaps due to the extensive school closures of the past decade. The County operated the Sunset Activity Center for several years and still rents the gymnasium on occasion for County recreation programs.

The Greater Highline Community Parks Board (GHCPB), formed in 1981, is a non-profit tax-exempt organization. The GHCPB currently leases 57 acres from the Port of Seattle, including the site of the Sunset Activity Center, as well as an additional one-acre interim site for the Morasch House, the same as the recommended site in this report. The GHCPB lease is for 5 years with 3 options to renew for additional five year periods, the original lease was signed April 28, 1981. The GHCPB accommodates indoor activities and programs accommodated in the Sunset Activity Center and the outdoor activities and programs accommodated on the grounds, including the equestrian and bicycle motocross facilities developed by groups who have sublet areas from the GHCPB.

The Highline-East Little League organization is also currently leasing space from the Port of Seattle within the boundaries identified in the 1980 Master Plan for North Sea Tac Park. The lease was initiated in January 1, 1974 for a period of 5 years with 2 five year renewal options. The leased area totals seven acres, with part located in the north clear zone. The group has developed children's baseball fields on this property and operates them for organized league play.

The Highline School District has placed a certain number of public school facilities sites on a surplus list. If these sites are sold, there could be a loss of existing playfields. As a result of a recent bond issue, the Highline School District will provide some soccer or baseball field renovations in the area.

## LAND-USE COMPATIBILITY

To provide a context for identifying appropriate park uses and boundaries, the update process included a review of land-use compatibility issues. This review focused on compatibility with airport operations and with adjacent land uses. In both cases, land-use compatibility was considered in terms of potential impacts on park uses, as well as potential impacts of park uses. The land-use compatibility issues that were considered include safety, noise, traffic, and security. Technical Memorandum 3 reported on these issues and is summarized in this section.

## SAFETY

The issue to be reviewed in relation to safety and land-use compatibility is "What is responsible public policy and a reasonable approach to park land use and operation in an airport approach zone area?" King County and Port of Seattle have evaluated the benefits and burdens in pursuing this plan and recommending that a location such as this be developed for recreation use. A park can be a valuable neighborhood/community amenity if it is planned with safety as the foremost consideration.

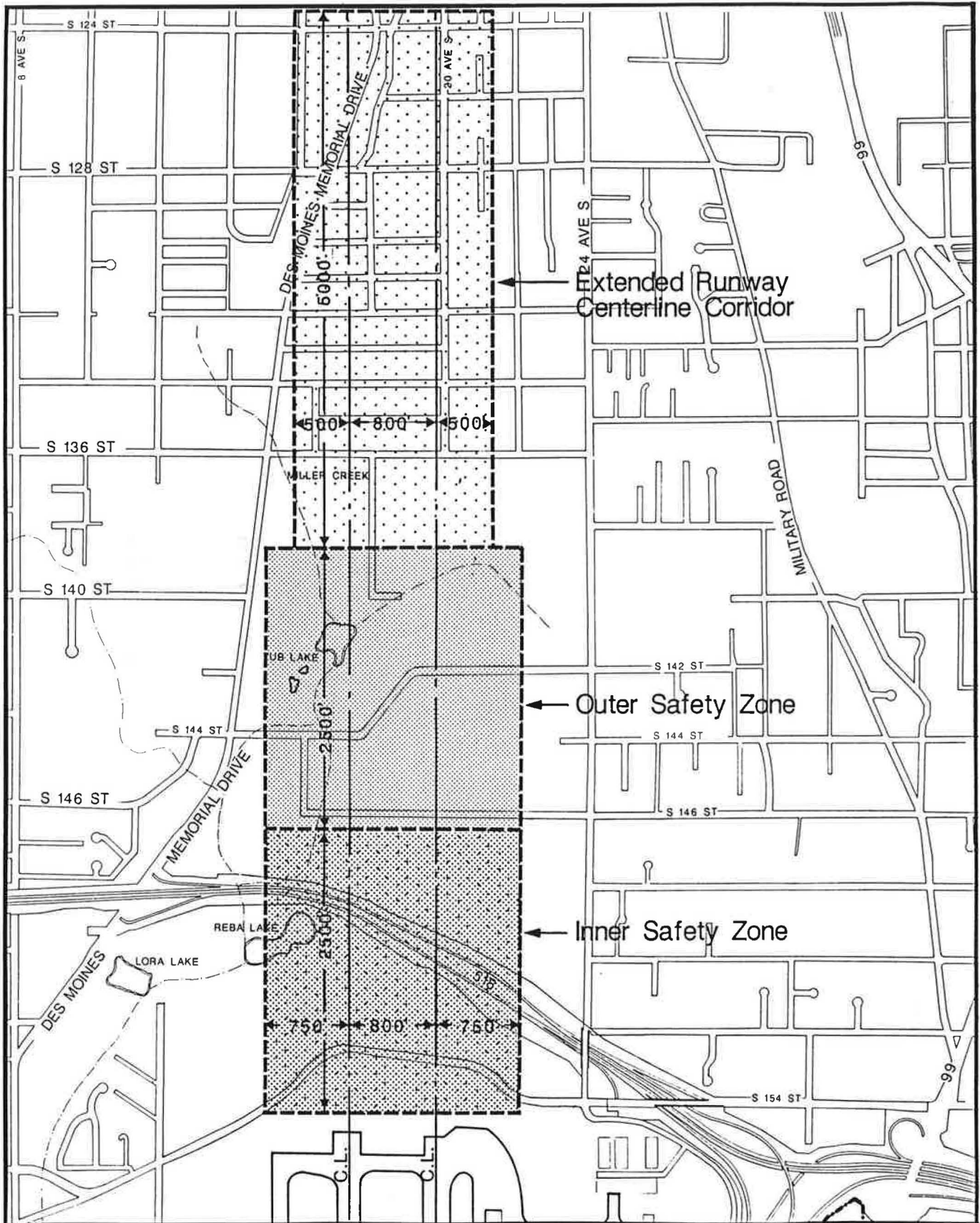
No specific national standards have been developed for the safe use of land in airport clear zones and approach areas. The FAA has determined that it does not have the statutory authority to develop and issue such standards, and that this authority properly belongs to the local governments with land-use planning jurisdiction over each airport. However, the FAA and other agencies have issued various advisory circulars and handbooks that describe the safety issues associated with land use near airports, and alternative approaches to dealing with those issues. Local government agencies and airport sponsors must consider this information and come to reasoned decisions on land-use compatibility near airports in terms of the safety of persons on the ground.

The consultants were directed by King County and the Port of Seattle in preparing the North Sea Tac Park plan update to analyze and determine the appropriate application of the "Airport Land-Use Planning Handbook" published by the California Department of Transportation in 1983 and distributed by the National Technical Information Service (referred to as the Airport Land Use Planning Handbook).

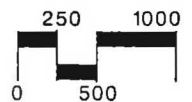
The Airport Land-Use Planning Handbook provides a useful introduction to the consideration of safety of persons on the ground for the North Sea Tac Park Master Plan update. The conclusions in the handbook are based on a statistical analysis of National Transportation safety Board data on aircraft crash locations for both general and commercial air carrier airports.

The handbook states that "areas near airports are exposed to various levels of accident potential depending on the type of aircraft using the airport, the frequency of aircraft overflights, and local weather conditions. Historically the risk of being killed or injured on the ground near an airport is quite small." Nevertheless, the report then points out that there have been several major near-airport accidents in recent years, with significant loss of life on the ground, as well as among air passengers. The handbook also points out that "the physics of a crash suggests that land-use restrictions should reflect the type of aircraft using an airport, since a crash of a large commercial airliner would have substantially greater damage potential than that of a small single-engine general aviation aircraft."





# North Sea-Tac Park Airport Safety Zones





The handbook states "The purpose for establishing land use restrictions in safety zones is to minimize the number of people exposed to aircraft crash hazards. The two principal methods for reducing the risk of injury and property damage on the ground are: 1) limit the number of persons in an area and 2) limit the area covered by structures occupied by people so that there is a higher chance of aircraft landing (in a controlled situation) or crashing (in an uncontrolled situation) on vacant land. Unlike airport noise impact areas, where structural sound insulation can be used to reduce excessive exterior noise, there are few practical methods available for permitting increased population in safety zones without increasing safety risks; that is to say each additional person in a safety zone becomes subject to a certain crash hazard risk by virtue of being located in the safety zone."

The handbook concludes that "while the chance of an aircraft injuring someone on the ground is historically quite low, planners must remember that an aircraft crash is a high consequence event. This is why a number of safety studies do not attempt to estimate accident probabilities in specific areas, but rather address the acceptability of different land-use densities and lot-coverage restrictions assuming a crash did occur."

The original 1980 Density Guidelines developed by the FAA Northwest Regional Office during preparation of the 1980 North Sea Tac Park Master Plan were intended to be used as guides, not as regulations, for recreational planning to determine "safe, sensible numbers of people to allow in clear zones." The purpose of the 1980 Density Guidelines was to assure public safety and to encourage airport-compatible land use, as recommended by the Airport Land-Use Planning Handbook. The handbook also offers guidelines for airport compatible land uses by summarizing existing national safety statistics and safety regulations adopted by a number of California jurisdictions. It then recommends the establishment of two safety zones.

The consultants reviewed other safety zone alternatives from Minnesota and New Jersey which are reviewed in Technical Memorandum #2. In addition, the Port of Seattle provided National Transportation Safety Board's Seattle-Tacoma International Airport "occurrences" from 1964-81 and 1983-84. There were no occurrences in 1982, and 1985. The Sea Tac data is attached as Appendix C to this report.

After discussion and review of safety zone regulations in California, Minnesota, and New Jersey the Workshop Group adopted the following statement by consensus: "*For park planning purposes, the study will use an 'inner safety zone and an outer safe zone' modeled after the California Airport Land Use Planning Handbook. Unless there are overriding liability considerations for doing something else, these assumptions will be used.*"

The Inner Safety Zone would be equivalent to the clear zone (at Sea Tac, 2500 feet in length and already cleared of developed land uses, except for S.R. 518 and a portion of the Little League fields). At Sea Tac the outer portion of the clear zone extends 875 feet from the runway centerline extended, whereas the inner safety zone extends only 750 feet (see Airport Safety Zones map following page 12). The Outer Safety Zone would consist either of a portion of the Part 77 approach surface or a second rectangular area, extending beyond the Inner Safety Zone. At Sea Tac, this zone would extend an additional 2500 feet north of the existing clear zone. The handbook also recommends the establishment of a third zone along the extended centerline of the airport runway(s).

Within the Inner Safety Zone, the Airport Land Use Planning Handbook recommends no structures and no people; if persons are to be permitted, "the lowest density is preferable -- 10 persons per acre at any one time." Within the Outer Safety Zone, the handbook recommends that uses in structures be restricted to "no more than 25 persons per acre at any one time, with no more than 150 people in any one building." Outdoor uses are recommended to be restricted to no more than 50 persons per acre at any one time. General use restrictions are recommended to include prohibitions of schools, concert halls, and auditoriums. Careful review is recommended for uses proposed to be located within the extended runway centerline zone, rather than any specific restrictions.

After considering these and other alternatives for determining safe types and levels of use near airports, the Workshop Group recommended that the approach proposed by the California handbook be used for park planning purposes for the North Sea Tac park planning area. The boundaries of the safety zones are depicted on the map, "Airport Safety Zones."

## NOISE

To help achieve compatibility between the airport and its environs, the 1975 Sea Tac Communities Plan and the Noise Remedy Program committed the Port of Seattle to acquiring land areas adjacent to the airport that are subject to severe noise impacts and that are (or were) occupied by noise-sensitive uses. Thus, the mitigation of noise impacts has been a primary reason for land acquisition by the Port of Seattle in the park planning area, although acquisition also helps the Port to meet other airport development and operation objectives, such as safety on the ground.

Acquisition for the Noise Remedy Program has been linked to actual and predicted noise levels on the ground, which are documented in the Noise Exposure Update maps in the Airport Noise Compatibility Program for Sea Tac International Airport (Port of Seattle, 1985). On these maps, noise exposure on the ground is expressed by contour lines that represent estimated yearly Day-Night Average Sound Levels (Ldn). Contour values near airports usually range from less than 55 Ldn for lightly impacted areas to more than 75 Ldn for heavily impacted areas (FAA, Airport Land-Use Compatibility Planning, 1977).

As shown on the map titled Estimated Noise Exposure, two sets of noise contours traverse the park planning study area, representing the 80 Ldn and 75 Ldn thresholds. In each case, the solid line indicates the estimated location of the Ldn Contour in 1985, while the dashed line indicates the predicted location of the Ldn Contour in 1990, after certain noise reduction measures have been implemented. In 1990, the northern tip of the 80 Ldn contour will be located in the vicinity of the Sunset Activity Center, while the tip of the 75 Ldn contour will be located near South 128th Street. Lands south of the 80 contour are subject to noise exposures above 80 Ldn; lands between the 80 and 75 contours are exposed to noise levels between 80 and 75 Ldn, and lands north of the 75 contour are exposed to noise levels below 75 Ldn.

Most of the adverse effects of excessive noise are related to interference with human activity, which can be correlated with land use. For example, sleeping is an activity that is essential to residential land use, so this is an incompatible use on lands subjected to high noise levels. Another example is speech; land uses that are dependent on speech or other sound, such as dramatic performances, conferences, or music lessons, are also incompatible with high noise levels.

A number of federal and state agencies have developed guidelines for land-use compatibility with noise exposure, measured in terms of Ldn. These guidelines served as a starting point for evaluating the compatibility of alternative park uses with the noise environment in the park study area and for establishing the boundaries of the actively developed portions of the park.

A 1977 FAA publication, "Airport Land-Use Compatibility Planning", suggests the establishment of four Land Use Guidance Zones (LUGs), based on Ldn exposure:

<u>LUG</u>	<u>Noise Exposure Ldn</u>
A	Minimal Exposure 0 to 55
B	Moderate Exposure 55 to 65
C	Significant Exposure 65 to 75
D	Severe Exposure 75 & higher

In general, the report suggests that LUG zones C and D be reserved for manufacturing, transportation, trade, resource production and extraction, and undeveloped land areas. The recommended highest Land Use Guidance Zones for parks are A-C, recreational activities B-C with "individual appraisal recommended."

A subsequent FAA publication, "Noise Control and Compatibility Planning for Airports", also contains a table, based on Federal Aviation Regulations Part 150, that identifies land uses that are "normally compatible" or "noncompatible" with various levels of outdoor noise exposure in terms of Ldn. The portions of this table that deal with recreational uses are excerpted below, with Y = normally compatible and N = noncompatible.

<u>Land Use Name</u>	<u>LDN Range</u>				
	<u>&lt;65</u>	<u>65-70</u>	<u>70-75</u>	<u>75-80</u>	<u>&gt; 80</u>
<u>RECREATIONAL USES</u>					
Outdoor Sports area and spectator sports	Y	Y <sup>5</sup>	Y <sup>5</sup>	N	N
Outdoor music shells and amphitheaters	Y	N	N	N	N
Nature exhibits and zoos	Y	Y	N	N	N
Amusements, parks, resorts, and camps	Y	Y	Y	N	N
Public assembly	Y	Y	Y	N	N
Golf courses, riding, stables, & water resources	Y	Y	25	30	N
Other cultural, entertainment & recreation	Y	Y	Y	N	N

- 
- 5 = land use compatible provided special sound reinforcement systems are installed.
  - 25 = land use and related structures generally compatible, provided Noise Level Reduction of 25 is achieved in structures.
  - 30 = land use and related structures generally compatible, provided Noise Level Reduction of 30 is achieved in structures.

Another set of noise compatibility guidelines is suggested in the California "Airport Land-Use Planning Handbook." These guidelines are based on the Community Noise Equivalent Level (CNEL), a measure that is essentially the same as Ldn. The guidelines for recreation and open space uses are excerpted in the following table.

<u>CNEL Range</u>	<u>Sugg. Criteria for Noise Compatibility</u> <u>RECREATION/OPEN SPACE</u>
65 - 70	- Satisfactory, with little noise impact and requiring no special noise insulation requirements for new construction. - Outdoor music shells and amphitheaters should not be permitted.
70 - 75	- Parks, spectator sports, golf courses and agricultural generally satisfactory with little noise impact. - Nature areas for wildlife and zoos should not be permitted.
75 - 80	- Land uses involving concentrations of people (spectator sports and some recreational facilities) or of animals (livestock farming and animal breeding) should not be permitted.

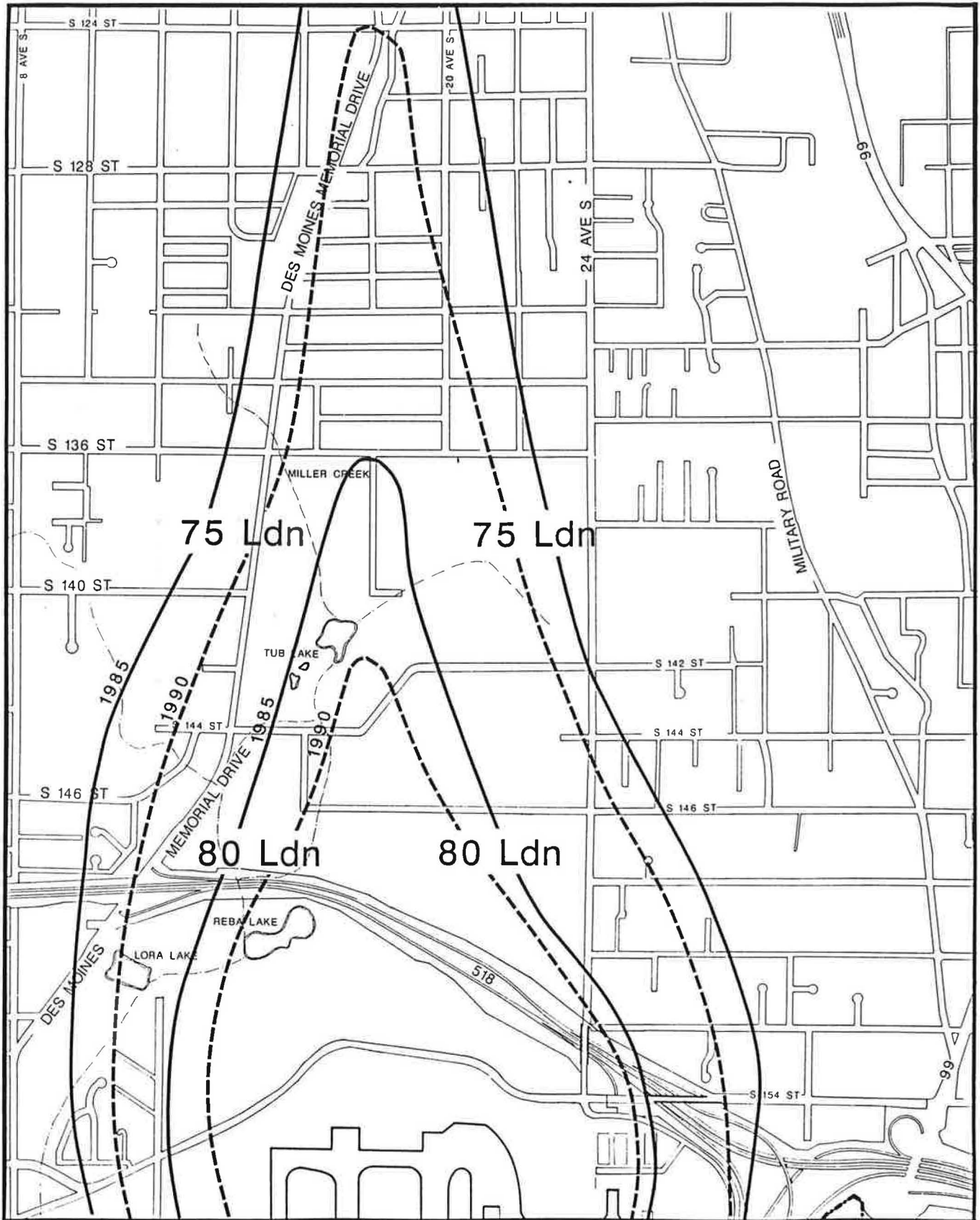
It is also possible that certain recreation uses could generate significant amounts of noise that would contribute to noise impacts on noise-sensitive land uses adjacent to the park, which primarily comprise residential uses. Likely sources of noise generation include the use of machines as part of a recreation activity (e.g., motorcycles), sound amplification systems (e.g., rock concerts), and crowd noise associated with spectator events. The likelihood of significant noise generation was used as another criterion for evaluating alternative park uses.

#### TRAFFIC

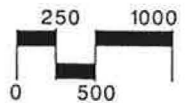
Traffic generation was used as another criterion to screen alternative park uses. The automobile traffic generated by the alternative park uses will vary with the characteristics of those uses in terms of volume, time of day and week, and associated parking demand. Certain uses could generate sufficient traffic to impose adverse effects on adjacent land uses, particularly residential use.

The automobile and truck traffic generated by adjacent land uses and carried on the street system in the study area may also have adverse impacts on park uses, in terms of noise and safe access. The latter is particularly important in relation to pedestrian and bicycle access for park uses that would serve the local neighborhoods and/or community. Future land uses in the area surrounding the park will be determined as part of the Sea Tac Plan Update. These uses could impose traffic impacts on the park. For example, areas excluded from the updated park boundaries could be designated for commercial or industrial uses.

South 154th/156th, South 136th Street, S.R. 518, and South 142nd/144th are all busy east-west routes, heavily used by trucks, that cross the park planning area and tend to separate it into distinct zones. As part of the Sea Tac Plan Update, King County transportation planners are also considering a new east-west route along South 146th to divert truck traffic from South 142nd/144th. To differing degrees, all of these routes would interfere with safe foot or bicycle access between portions of the park located on either side.



# North Sea-Tac Park Estimated Noise Exposure







Des Moines Memorial Drive and 24th Avenue South are both busy north-south arterials that border the park planning area. While these arterials give good access to the site from S.R. 518, they also tend to serve as barriers to foot and bicycle access from the residential areas to the east and west of the park planning area. 24th Avenue South carries more traffic, particularly trucks, than Des Moines Memorial Drive, because it leads directly from the South Park industrial area to the Sea Tac air cargo area.

The arterial system around the park planning area suggested a need for safe access be used as one of the criteria for screening alternative recreation uses and that the configuration of the surface transportation network be used to help determine the updated park boundaries.

## SECURITY

The need for security within parks and within neighborhoods adjacent to parks was also identified as an issue for consideration in establishing alternative park uses and boundaries. In general, both types of security tend to improve as park use goes up. However, the types of users attracted to a park or recreation facility also affect security. Both characteristics can be appraised for alternative park uses. Finally, security is also a function of design measures (such as lighting and fencing), as well as operational measures (such as park closing hours). These issues were addressed during the preparation of the updated master plan, once the site uses and boundaries were determined.

## PARK PLAN POLICIES AND CRITERIA

After reviewing more detailed versions of the preceding information, the Workshop Group adopted a series of policy statements to guide the selection of uses for the park, their location within the park, and the evaluation of implementation alternatives. These are presented below:

*For park planning purposes, the study will use an "inner safety zone" and an "outer safety zone" modeled after the "Airport Land Use Planning Handbook" prepared for the California Department of Transportation Division of Aeronautics, (July, 1983). Unless there are overriding liability considerations for doing something else these assumptions will be used.*

*As a general guide in planning the park, the farther away the area is from the end of the runway, the more intense uses may be. Uses with dispersed numbers of people will be encouraged closer to the airport. Uses which involve large assemblies of people will be discouraged.*

## CRITERIA

To guide the park plan update development, the Workshop Group prepared the following criteria during the first meeting which were adopted by consensus at the second meeting:

### Financial

The park plan which includes land acquisition, development, continued operations and maintenance, must be financially feasible.

A park plan must include a phased development and funding plan that is found to be financially feasible. A part of the phased development plan should be interim measures for maintenance of undeveloped areas.

### **Parking, Transportation, Bicycle, and Pedestrian Access**

The park plan will provide adequate parking, transportation and pedestrian access.

### **Land use and land acquisition requirements**

Lands in the proposed North Sea Tac Park area have been acquired under various Federal Aviation Administration programs. The federal programs involve regulations which may affect the use and the acquisition of the park lands.

If federal or state funding is obtained, the park plan shall comply with appropriate regulations.

### **Community Compatibility**

The park plan will be compatible with the North Sea Tac community. It will address the concerns of the neighbors and the community-at-large with issues such as traffic, parking, lighting, noise, security, and safety associated with park activities.

### **Airport Compatibility**

Park uses will be compatible with the operations of the airport which will include issues of noise and safety.

### **Park Development**

It is envisioned that the park could be developed by one of the following entities or a combination thereof: King County Natural Resources and Parks Division, Port of Seattle, Greater Highline Community Parks Board, Park and Recreation Service District, or a Park and Recreation Service Area, and private non-profit or for-profit organizations.

The park plan should consider the impacts of park development and operation on the various utility systems and associated service districts.

### **Park Maintenance**

It is envisioned that the park could be maintained by one of the following entities or a combination thereof: King County Natural Resources and Parks Division, Greater Highline Community Parks Board, Park and Recreation Service District, a Park and Recreation Service Area, Port of Seattle, and private non-profit or for-profit organizations.

The park plan update will address the issue of maintenance of buffer and park areas to help ensure that the park presents a safe, inviting, attractive facility.

Buffer areas may be considered together with the park area or separately.

### **Park Operations**

It is envisioned that the park will be operated by one of the following entities or a combination thereof: King County Natural Resources and Parks Division, Greater Highline Community Parks Board, Park and Recreation Service District, or a Park and Recreation Service Area, private non-profit or for-profit organizations.

The responsibility for park development, maintenance, and/or operations will be based on the following criteria:

- Financial wherewithal
- Commitment to follow through over time
- Responsiveness to community
- Maximizing community and volunteer participation and marketing
- Accountability with a constituency

**Park Uses and Activities**

The park should provide uses which are open to the general public (at no charge or on a fee basis) and a mixture of activities - passive, active, or a combination of both.

**Cooperative Spirit**

A proposal should reflect cooperation between Port of Seattle, King County, the Community, and the proposed park operators.

**USE AND BOUNDARY ALTERNATIVES**

**PREVIOUSLY PROPOSED PARK USES AND FACILITIES**

The 1980 Master Plan recommended that a variety of uses and facilities be included as major elements of the plan. These elements and their current status in the following table:

<b>1980 M.P. Element</b>	<b>Recommendation</b>	<b>Current Status</b>
soccer/football fields	develop	undeveloped
Little League fields	retain	retained
golf course	develop	undeveloped
aircraft viewpoint	develop	undeveloped
path system	develop	part. developed
bicycle motocross	retain & screen	unscreened
buffer areas	reserve	part. estab.
King County shops	screen; relocate	retained
Sunset Playfield	retain & renovate	not renovated
private ownership	retain & screen	not screened
Sunset Jr. High School	interim use only	ongoing rec.use
Boulevard Park School	recreation use	storage
motorcycle training	conditional use	undeveloped
parking (on periphery)	develop	undeveloped
restrooms	develop	undeveloped

These elements were considered for inclusion in the updated master plan. However, the status of several of the elements has changed since the preparation of the 1980 plan:

- the Boulevard Park School is owned by the Highline School District and is currently being used as a textbook repository.

- the golf course originally appeared feasible in large part because of the potential relocation of the Tye golf course at the south end of the airport and private sector interest. The alternative would be a publicly operated course, which appears economically infeasible because of the proximity of the Tye course. At the present time, there appears to be no interest in developing a golf course by the public or private sector.
- the 1980 plan recommendation to relocate the County shops and the Sunset Activity Center operating these facilities. No effort has been made to date to relocate.
- new safety information has become available to King County and the Port of Seattle including publication of the California "Airport Land Use Planning Handbook."
- the optional motorcycle facility was not developed.

#### EXISTING PARK USES AND FACILITIES

There are a number of existing recreation uses and facilities within the park planning limits, as well as several non-recreation uses that could be compatible with long-term park development. These uses were also considered in updating the 1980 Master Plan. With the exception of local utilities, these uses are summarized in the following table.

<u>Organization</u>	<u>Existing Use or Facility</u>
KC Parks	Sunset Shop
KC Parks	Sunset Playfield
KC Public Works	maintenance shops
KC Surf. Water Mgmt.	storm retention facilities
Washington State	regional archives
GHCPB	Sunset Activity Center
GHCPB	running track
GHCPB	jogging trails
GHCPB	BMX track
North Sea Tac Equestrians	equestrian facilities & trails
Highline East Little League	baseball fields
Highline School District	Boulevard Park book repository
Highline School District	playfields
Seattle Water Dept.	water reservoir
Port of Seattle	clear zone & navigational facilities
Port of Seattle	buffers
Private owners/Port lessees	light industrial and commercial development

## POTENTIAL USES AND FACILITIES

Since the 1980 Master Plan was developed, additional proposals have emerged for uses and facilities within the park planning limits that would be devoted to recreation or could be compatible with it. The uses or facilities that are currently being actively proposed are summarized in the table below.

<u>Organization</u>	<u>Planned Use or Facility</u>
Normandy Park Equestrians	stables and pastures
WA Amateur Skateboard Assn.	skateboard track
Intl. Sportfishing Institute	fishing museum
Intl. Sportfishing Institute	Tub Lake restoration
GHCPB	Morasch House
GHCPB	arboretum
Seattle Water Dept.	Highline well field
KC Surf. Water Mgmt.	storm retention improvements
KCSurf. Water Mgmt.	Miller Creek restoration
KC Public Works	street revisions
Port of Seattle	light industrial development

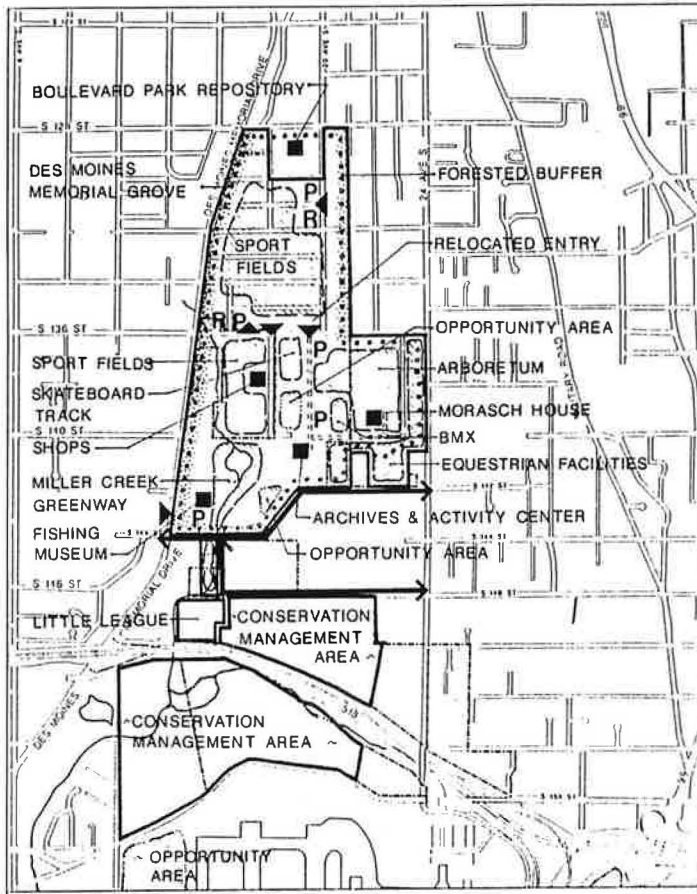
To ensure that the full range of potentially compatible recreation uses was considered in the plan update, a separate list of potential recreation uses was developed by the consultant team. This list included uses that would normally be provided by commercial operators, as well as by public agencies and/or non-profit groups. The list was reviewed with the Workshop Group for potential compatibility with both the airport and the adjacent neighborhoods. In general, commercially operated recreation uses and facilities were eliminated from further consideration, because they would tend to attract large numbers of people in an area where use should be limited for safety considerations.

## PRIORITY PARK USES AND FACILITIES

The full range of existing, proposed and potential park uses and facilities was reviewed with the Workshop Group to eliminate inappropriate uses and facilities. In addition, each member of the Workshop Group was asked to identify three uses and facilities that he or she felt should receive the highest priority in the plan update. Trails, an arboretum, and sport fields were given the highest priority. Other uses listed by the group were fishing museum, picnic areas, golf course, open use fields, playgrounds/areas, skateboard area and open opportunity area.

## ALTERNATIVE USE PROGRAMS

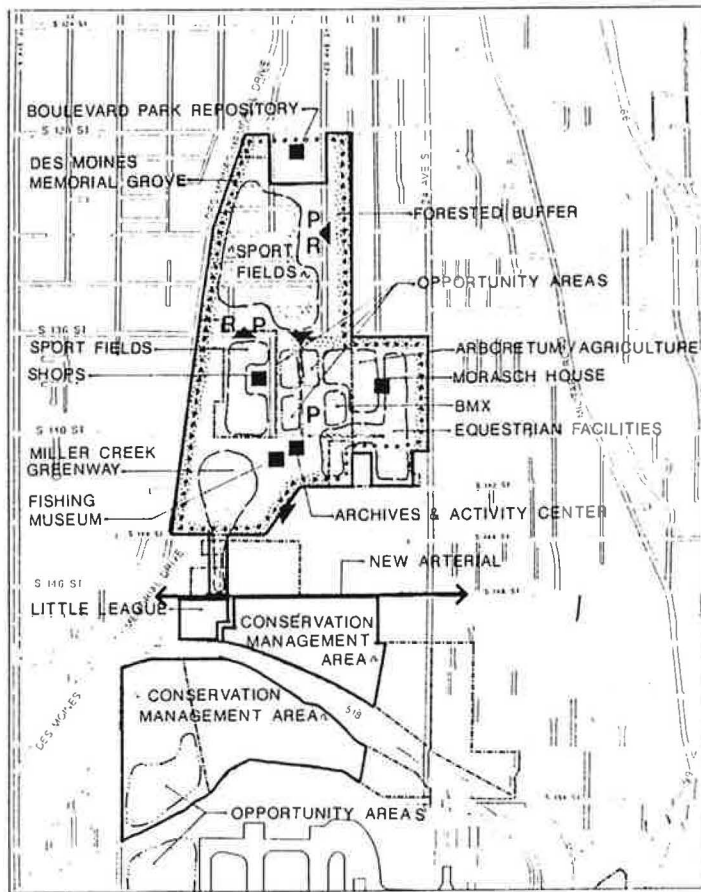
From the palette of potential uses described above, four alternative use programs were developed for the park plan update and reported in Technical Memorandum 3. The compatibility criteria discussed earlier in this report (safety, noise, traffic, security) were used to evaluate the potential uses included in these alternatives, along with the updated recreation need information, community acceptability, and preference. Diagrams of these alternatives are reproduced on the following pages.



**LEGEND:**

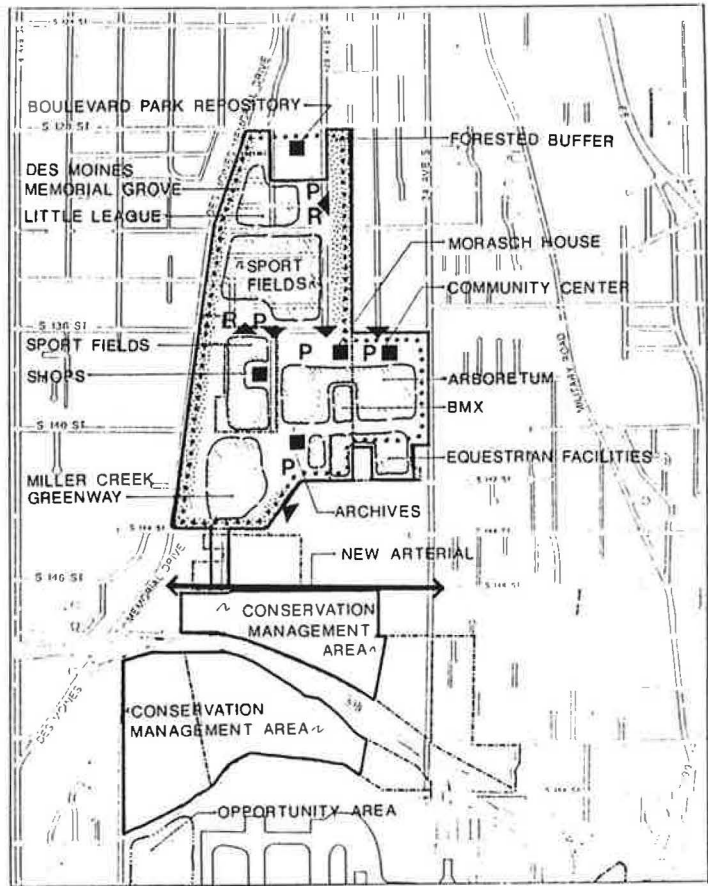
-  PROPOSED BOUNDARY
-  FORESTED BUFFER
-  PERIMETER TRAILS
-  RESTROOM
-  PARKING
-  ACCESS POINT
-  INTERNAL ROAD
-  STRUCTURE
-  ACTIVITY AREA
-  OPPORTUNITY AREA
-  MAJOR ARTERIAL

**Use & Boundary  
Alternative A**

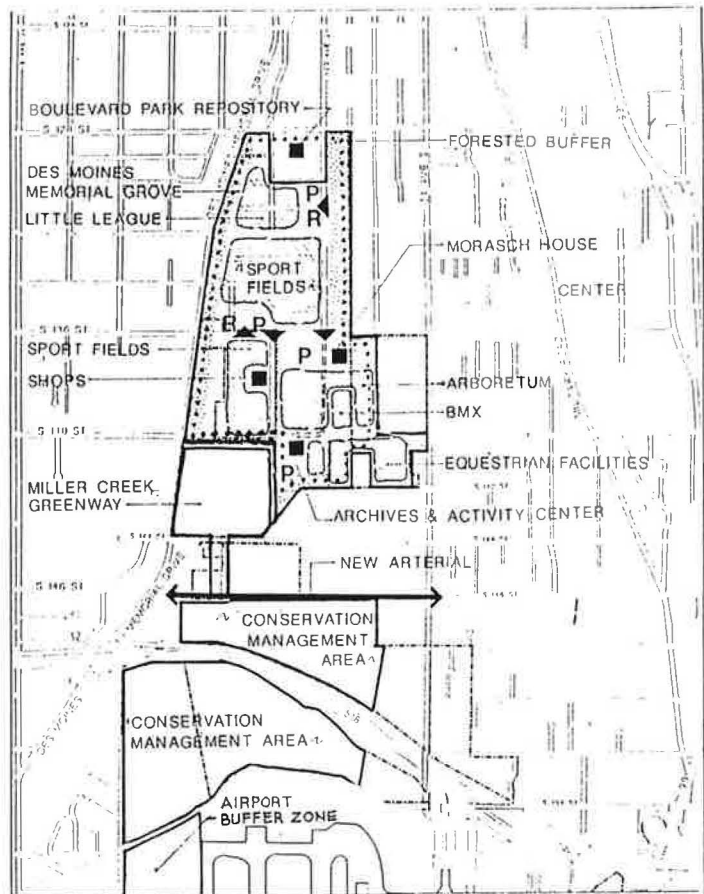


**Use & Boundary  
Alternative B**

## Use & Boundary Alternative C



## Use & Boundary Alternative D



All four alternatives would provide a similar level of support facilities, including access, parking, restrooms, and a perimeter trail system. All four alternatives were also based on the assumption that the clear zone will be maintained as a conservation reserve, providing open space values, but without public access. This area would continue to be fenced to provide security and prevent unauthorized dumping. Finally, all four alternatives assumed that the golf course is not feasible and that active park development will be limited to the portion of the planning area that is north of 146th or 144th/142nd Streets.

Alternative A would recognize or "grandfather" all existing recreation uses and facilities within the park planning area, at their present locations and levels of development. It would also grandfather other existing compatible non-recreation uses, including the maintenance shops and archives. Further, this alternative would give preference to the recreational proposals that have already been advanced for additional equestrian facilities, skateboard facilities, and a fishing museum -- in the locations currently identified by the proponents of these facilities.

The resulting arrangement would place several facilities that could attract fairly large numbers of users within the proposed Outer Safety Zone; these facilities would also be subject to extreme noise impacts. In addition, the new equestrian facilities would constrain the development of the arboretum.

Alternative B would also recognize existing and previously proposed uses, but would adjust the locations of several of these. This alternative would emphasize the provision of a heavily wooded buffer around the perimeter of the actively developed park area. The buffer would be provided with a separated system of trails for horses, cyclists, and joggers. The inside perimeter of the buffer would be securely fenced to prevent unauthorized access and separate uses. Within the fence, the eastern and southern portions of the area now leased to the Greater Highline Community Parks Board would be treated as "opportunity areas", meaning that lands would be made available for compatible recreational development by groups with demonstrated support and financial resources. This alternative assumed that the fishing museum and additional equestrian facilities would be accommodated, but that the proposed skateboard facility would be an incompatible use because of the number of people it would attract. This alternative also assumed that the Sunset Activity Center would stay in its current location, but would receive a relocated entry.

Alternative C assumed that existing uses and facilities would receive preference in the updated master plan, but that their locations may require adjustment to improve overall land-use compatibility. This alternative assumed that proposed uses would be evaluated on the same terms as other potential uses. Thus, the Sunset Activity Center would be relocated to 136th Street, outside the proposed Outer Safety Zone, where it would also be able to better accommodate noise-sensitive uses such as meetings and classes. The fishing museum would be deleted from this alternative, while the associated lake and stream restoration would be retained. The skateboard proposal would also be deleted, in both cases because the intensity of use appears inappropriate in the Outer Safety Zone. The proposed horse stables, which appear likely to serve a small number of persons, would be deleted in favor of a more generous arboretum area. The Morasch House would be located along 136th to serve as a interpretive facility for this area; this location would also improve its visibility to the community and reduce utility development costs. Finally, this alternative assumed that the Little League Fields would be relocated to the northern portion of the park planning area. The State Archives and the maintenance shops were assumed to be compatible with park development and would remain in their present locations, although a new entrance would be developed for the archives, off 144th/142nd.



Alternative D also assumed that existing uses and facilities would receive preference in the updated master plan, but may warrant relocation for better land-use compatibility. Again, proposed uses would be evaluated on the same terms as other potential uses. The Little League fields would be relocated to the north end of the park planning area to improve safety and reduce noise impacts. The Sunset Activity Center, however, would remain in its present location, with a relocated entry along the line of 20th Avenue South. The Morasch House would be located along 136th to serve as a interpretive facility for the arboretum area. The eastern portion of the planning area that is not now leased by the Greater Highline Community Parks Board (bounded by 136th and 140th on the north and south, and by 24th and 22d Avenues on the east and west), was excluded from the plan to account for the possibility that development and operation of the park might be split among two or more organizations.

This alternative also assumed that the skateboard proposal would be deleted because of the probable intensity of use. The fishing museum would be deleted from this alternative for the same reason. The Tub Lake and Miller Creek restoration would be retained as general environmental improvements; however, these areas would be maintained in a near-natural state, with little or no development of conventional park facilities. The proposed horse stables would be deleted because of lack of room; if the area currently leased by the Greater Highline Community Parks Board were expanded, the stables could be added back into this alternative, although a more generous arboretum area would appear to offer more general public benefit. The State Archives and the maintenance shops were again assumed to be compatible with park development and would remain in their present locations, with a new entrance for the archives from 144th/142d. The strip of land to the west of the airport was proposed as a passive buffer zone in this alternative, rather than as an opportunity area.

The four alternative use programs were reviewed with the Workshop Group, which concluded that:

- the conservation reserve concept was acceptable
- the Little League facilities should be relocated to the north, if new and comparable facilities could be provided
- the perimeter buffer should not be heavily forested in all locations
- the group was split in its preferences for the alternatives, with a number of suggestions for combinations and modifications.

## PARK BOUNDARIES

In workshop discussions of boundary alternatives, it appeared that constraints on recreation uses become progressively more severe with increasing proximity to the north end of the runways. However, the Workshop Group also expressed concern over the community impacts of commercial or industrial development on any lands excluded from the park master plan update. Consequently, there was general agreement that the largest possible area, given financial and safety considerations, should be included within the park plan update.

All four alternative use programs recognized these concerns and resolved the potential contradiction of developing recreation facilities in unsuitable areas by proposing conservation and surface water management uses in the clear zones and/or in the other safety zones.

The area along the west side of the airport was identified as a potential opportunity area for recreation use because it is not subject to the same constraints as the clear zone and also includes terrain more suitable for development. No specific uses were recommended for this area as part of the update process, because it is completely separated from the area recommended for active park development by roads, topography, and the clear zone; therefore, it was assumed to be excluded from the park boundaries. If it were eventually to be actively developed, it would appear appropriate to then consider it as an entirely new and separate park.

## SUPPORT FACILITIES

### Road Access

As part of all the use alternatives, the principal road access to the actively developed portion of the park planning area was recommended along South 136th Street. This location would take advantage of the traffic signal on Des Moines Memorial Drive and would reduce cross-traffic turning movements on both that street and 24th Avenue South. In addition, it would preserve the integrity of the buffer and perimeter trail system along both north-south arterials.

Secondary access was recommended along 20th Avenue South for the northern portion of the park planning area. While little access was proposed from 144th/142d Street, the diversion of truck terminal traffic to South 146th Street could improve the compatibility between the actively developed portion of the park planning area and adjacent commercial/industrial uses. However, representatives of the Highline-East Little League organization expressed concern over the potential impacts of this traffic revision on their facility. Access to the potential "opportunity area" along the west side of the airport should probably be developed off 12th Avenue South if and when required.

### Water System

Two water districts serve the area of the North Sea Tac Park Plan Update: Water District #125 and Water District #20. The park plan update process included a review of the portions of the water systems that these districts continue to maintain within the proposed park site. Technical Memoranda 3 and 5 reported the results of this review in maps and text. The memoranda also recommended that certain water lines be retained, with the balance to be abandoned. The memorandum concluded it to be unlikely that any loads placed on the existing water systems will exceed their capability unless large communal facilities are located where there were previously no such facilities. If communal facilities are placed in the same general location of previously existing communal facilities (e.g. Sunset Junior High School) the water system should not have to be upgraded.

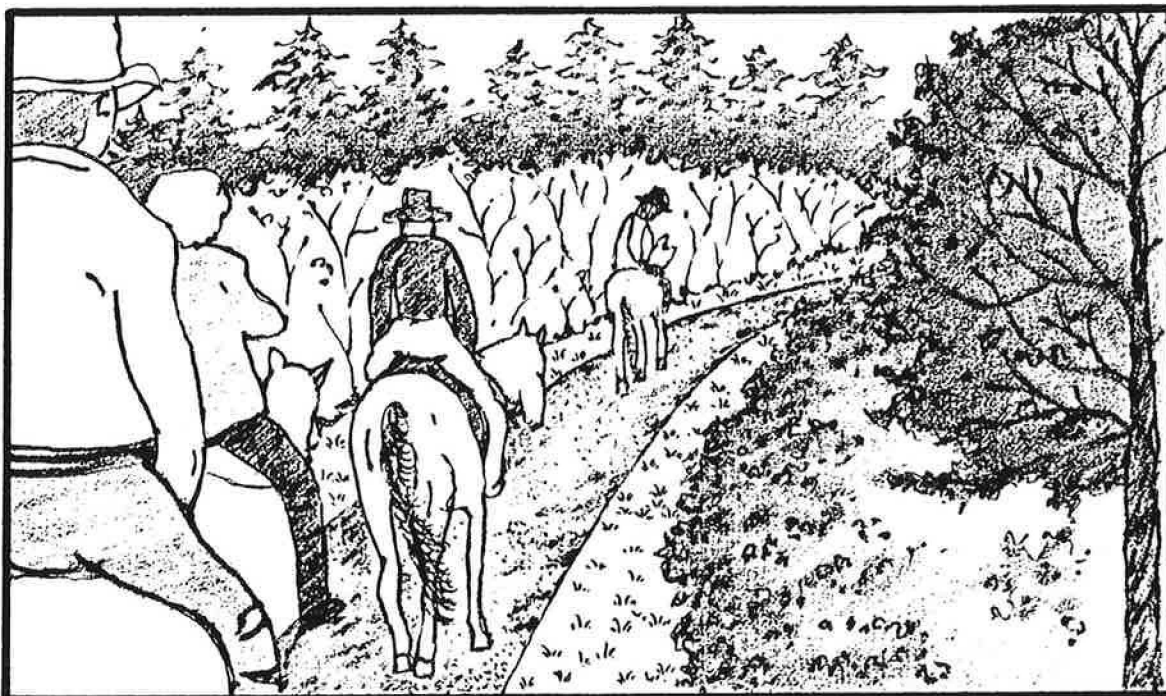
### **Sewer System**

Two sewer districts also service the area of the North Sea Tac Park Plan Update: Southwest Suburban Sewer District and Rainier Vista Sewer District. Technical Memoranda 3 and 5 also reviewed the portions of the sewer systems that these districts continue to maintain within the proposed park site. Again, the memoranda recommended that certain sewer lines be retained, with the balance to be abandoned, and concluded it to be unlikely that any loads placed on the existing water systems will exceed their capability.

### **Other Services**

The park plan update process also included reviews of the capacity of other site services and utilities, including storm drainage, telephone, and power. No system abandonment was found to be proposed and no capacity problems were identified for these services and utilities.





**FACILITIES DEVELOPED BY THE EQUESTRIAN GROUPS WILL BE RETAINED AND EXTENDED.**

### **III. RECOMMENDED MASTER PLAN UPDATE**

The consultants developed a first draft of the master plan update map on the basis of the comments on the alternative use and boundary alternatives. The draft map alternatives and policies then went through several cycles of review and revision that included meetings with the Workshop Group, the full Citizens Advisory Committee, the Port of Seattle, King County, and a public open house. Technical memoranda on issues of land-use inventory, recreation demand and needs, land-use compatibility, use and boundary alternatives, draft master plan schematic, park implementation plan, and park operation plan were circulated to the Workshop Group for review and comment. This report section summarizes the recommended Master Plan Update that emerged from the review and consultation process.

The time horizon of the recommended Master Plan Update is assumed to be fifteen years. By the end of that period, most of the facilities envisioned in the plan should have been developed and the plan itself should be ready for re-evaluation and revision to accommodate changed conditions and recreation needs.

The proposed plan update designates the portion of the planning area that is north of 144th/142d Streets for development of park facilities to accommodate recreation uses. South of 144th/142d, the proposed plan retains the clear zone as a conservation reserve, providing open space but not public access.

The proposed plan recognizes or "grandfathers" all existing recreation uses and facilities within the park planning area, at their present locations and levels of development. The proposed plan also grandfathers other existing compatible non-recreation uses, including the maintenance shops and archives. The proposed plan is a composite of the alternative use programs. It recognizes safety concerns and proposes no additional major structures except restrooms and necessary maintenance facilities. Due to the cost of the plan, a phased development program is included so that park segments can be funded out of the normal operating budgets of local and/or special governments or private sector organizations.

The proposed plan is based upon the policy criteria -

*For park planning purposes, the study will use an "inner safety zone" and an "outer safety zone" modeled after the "Airport Land Use Planning Handbook" prepared for the California Department of Transportation Division of Aeronautics, (July, 1983). Unless there are overriding liability considerations for doing something else these assumptions will be used.*

*As a general guide in planning the park, the farther away the area is from the end of the runway, the more intense uses may be. Uses with dispersed numbers of people will be encouraged closer to the airport. Uses which involve large assemblies of people will be discouraged.*

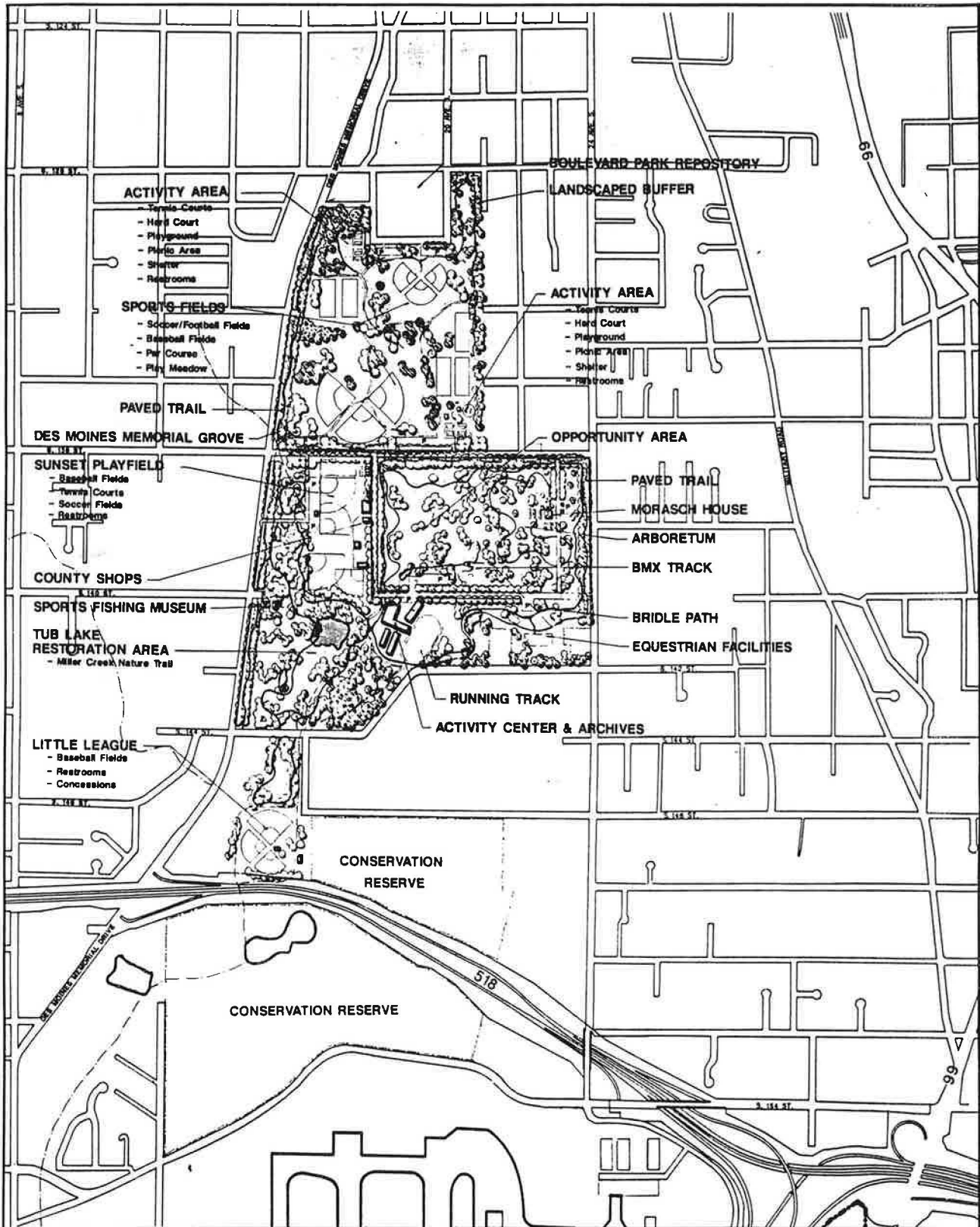
The proposed schematic plan map was adopted by consensus, "in concept" by the Workshop Group and by a majority of the Sea Tac Area Update Citizens Advisory Committee.

## **RECOMMENDED PARK USES AND FACILITIES**

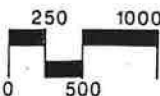
### **LANDSCAPED BUFFER**

A continuous landscaped buffer would be developed around the perimeter of the actively developed park area. This buffer would be provided with a continuous paved trail for walkers and cyclists, with a separated trail for joggers. A separated horse trail system could be developed with cooperation of horse groups within the portion of the buffer and park that is south of 136th and east of 18th Avenue South. Street trees would be planted or added to existing plantings along 136th Street and 24th Avenue South; the historic tree planting scheme along Des Moines Memorial Drive would also be reinforced.

The continuous buffer and trail system would be located along the portion of the park that is proposed for development and along South 136th Street. Trees and other plantings would also be provided along the existing entrance road on 18th Avenue South to screen views of the County shops; a trail system would not be provided in this area. A conceptual cross-section of the buffer is provided here to illustrate its principal features.

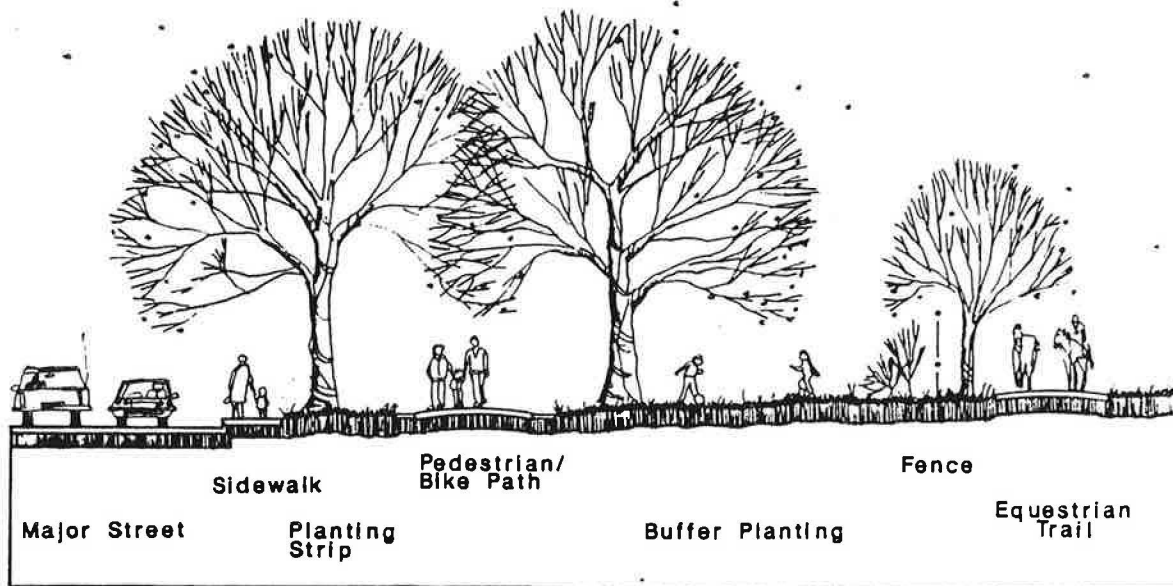


# North Sea-Tac Park Master Plan Update









### LANDSCAPED BUFFER AND PERIMETER TRAIL SYSTEM

The buffer area would be 100 feet wide and would include a wide irrigated turf area, street trees, a paved trail that could be used by by walkers and bicyclists (with a gravel shoulder for runners and joggers), and a shrub hedge. The buffer would also include a perimeter security fence, except along Des Moines Memorial Drive. Thus, the buffer would initiate the restoration of Des Moines Memorial Drive, provide an attractive and finished visual edge to the entire park area, help to control unauthorized uses, enhance security both within and adjacent to the park, and would also accommodate regional recreation use for cycling, walking, and running. The actual location of the fence would be dictated by topography and existing features, but would generally be at least 30 feet from the curb. Inside the fence trails and other facilities for low-intensity use would be allowed as part of subsequent park development, but park buildings and facilities for high intensity use would be precluded. A portion of the buffer would be located within existing road rights-of-way; for estimating purposes, this width is assumed to be 20 feet.

### SPORTS FIELDS

Following the policy that "As a general guide in planning the park, the farther away the area is from the end of the runway, the more intense the uses may be...", the plan recommends that the active sports fields be located north of North 136th. The plan recommends a layout with two sets of soccer, football, and baseball fields with restrooms and a play meadow located between the fields, under the extended center line of the safety zone.

The sports fields would include five combination football/soccer fields and six baseball fields. These fields would accommodate community wide recreation users, who would generally arrive by car. Therefore, the plan includes the development of the necessary parking facilities for these uses, approximately 230 spaces and restroom facilities. This number is based on the assumption that use will be limited to actual participants in field sports by eliminating seating and by scheduling procedures.

The fields would not be lit for night time use and no spectator seating should be provided in order to discourage large assemblies of people.

#### ACTIVITY AREAS

Two activity areas are recommended in the plan. The first activity area at the intersection of south 136th Street and 21st Avenue South would accommodate walk-in recreation use by residents to the east of the park and would also include a restroom structure that would serve general park use. The recreation facilities within the activity area would include a playground, picnic area and shelter, four tennis courts and a small amount of parking (approximately 25 spaces).

The second activity area, at the northwest corner of the park area, would serve walk-in recreation use by residents of the neighborhood to the west of the park. This activity area would include similar facilities to those in the north east activity area, including a restroom.

#### CONSERVATION RESERVE

The clear zone would be maintained as a conservation reserve, providing open space values but without public access. This area would continue to be fenced to provide security and prevent unauthorized dumping.

#### MORASCH HOUSE

The Morasch House, a 1909 community historic farmhouse, owned by the Greater Highline Community Parks Board (GHCPB) is proposed to be sited within the area specified in the current license agreement between the Port of Seattle and the GHCPB. Commitments to obtain utility connections have been secured for this site and it would provide an appropriate location for the house as a community museum and as a central feature in an arboretum devoted to wild-flowers and native plants, as well as a small area for display gardens.

#### ARBORETUM

A native plant arboretum is recommended for incremental development. The recommended plan envisions an arboretum emphasizing native plant communities, including wildflowers. Buildings would be limited to the Morasch House, which would serve as the arboretum headquarters and offices, and potting sheds.

#### OPPORTUNITY AREAS

West of the proposed site for the Morasch House and North of the Sunset Activity Center, a large portion of the area presently leased by the GHCPB is identified as an "opportunity area", meaning that lands within this area would be made available for recreational development by groups with demonstrated support and financial resources, as long as the proposed uses and facilities would be compatible with the surrounding community and with airport operations and subject to lease negotiations with the Port of Seattle. In particular, this means that these uses and facilities:

- ° should be relatively insensitive to aircraft noise

- should encourage activities that disperse users
- should not attract or be capable of accommodating large concentrations of people \*
- should not pose a potential hazard to safe aircraft operations by incorporating elements such as electronic equipment, tall structures or intense, unshielded exterior lighting
- should not pose the potential of adverse impacts on adjacent residential areas due to such factors as noise generation, excessive on-street parking, heavy traffic, etc.
- should be open to the general public for a significant portion of the time (reasonable admission or user fees are not precluded by this criterion)

\* It is implied that construction of additional new buildings is discouraged.

#### TUB LAKE AND MILLER CREEK

The plan also proposes that Tub Lake and the portion of Miller Creek between 136th and 146th be restored and provided with nature trails, in conjunction with the King County Department of Public Works Division of Surface Water Management. However, concern about the possibility of pollutants in the ground in this area require investigation. A site for the proposed Sport Fishing Museum is included in the proposed park plan, on a fill area along Des Moines Memorial Drive, opposite 140th Street. However, it should be noted that a major new building is inconsistent with the intent to discourage assemblies of people close to airports. In particular, public assembly areas or meeting facilities should not be provided in a building.

Development would include restoration and enhancement of Tub Lake and Miller Creek for fisheries, and provision of nature trails and related facilities for low-intensity public access and use.

#### GRANDFATHERED EXISTING USES

##### KING COUNTY PUBLIC WORKS AND PARKS DEPARTMENT SHOPS

Within the park plan area, the existing park and road maintenance shops and related uses could be retained in their present locations. The shops should be screened with a planted buffer to prevent their visibility from other parts of the park.

##### SUNSET PARK PLAYFIELDS

King County Natural Resources and Parks Division operates an existing park with two tennis courts, one soccer field and three baseball diamonds. It is recommended that these uses be continued, with the policy that no spectator seating nor additional night lighting be provided.

##### BICYCLE MOTO-CROSS (BMX) TRACK

The BMX track was recommended in the 1980 park master plan, was developed and is being operated under sub-lease from the Greater Highline Community Parks Board. The plan recommends continuation of this use, but a dense buffer of shrubs and trees should be planted around the facility.

## EQUESTRIAN FACILITIES

Since the adoption of the 1980 Master Plan, a private sports organization, the North Sea Tac Equestrians, have developed equestrian facilities on Port of Seattle-owned land, leased to the Greater Highline Community Parks Board. The plan recognizes the equestrian facilities.

## TRAILS

A system of trails was built by the Kennedy High School cross country team members and the North Sea Tac Joggers Club for runners and walkers. The plan recognizes the trail system.

## WASHINGTON STATE REGIONAL ARCHIVES

The Washington State Regional Archives purchased for a nominal fee and are currently located in Buildings B and C of the Sunset Junior High School complex. Underlying ground is leased from the Port of Seattle. The archives building use is appropriate for buildings and is consistent with the 1980 Master Plan recommendation that "the building should be continued to be used as a storage facility, and is recommended to continue in this plan update. It is recommended that as the buildings are remodeled, signage be installed that is consistent with the design vocabulary recommended in the 1980 Master Plan.

## LITTLE LEAGUE FIELDS

The existing Little League ballfields are recommended to be retained in their current location, as recommended in the 1980 Master Plan. However, if it is financially feasible, it should be considered for relocation because of risks at the present location. The location of the Little League fields drew a considerable amount of discussion at the Workshop Group, and at the Sea Tac Area Update Citizen Advisory Committee.

A portion of the Little League fields fall within the Inner Safety Zone, which poses a concern about the numbers of people that are drawn to Little League events. Initially, the draft North Sea Tac Park Master Plan update recommended the Little League fields be relocated to an area north of 136th but the Highline-East Little League indicated the desire for exclusive use of field facilities which is incompatible with public park use.

At the sixth workshop, all Workshop Group participants except one, agreed that the Highline-East Little League fields should be considered for relocation because of potential risks exist. However, some participants felt that the phrase "if financially feasible" should be added to the relocation statement.

The Workshop Group adopted the following consensus statement at its sixth meeting: "The Highline-East Little League fields provide an important community service and the Workshop Group recognizes the potential hazard to the Highline-East Little League of the proposed arterial extension at South 146th. When the proposed arterial extension is planned, the agencies involved must give serious consideration to provide for the safety of the children who use the Little League fields or for re-location of the facilities."

## SUNSET ACTIVITY CENTER

After the adoption of the 1980 Master Plan, King County began operating limited recreational programs in Buildings A and D of the Sunset Junior High complex. The County did not renew its lease with the Port of Seattle for the underlying ground in 1983; ownership of the buildings reverted to the Port. The Greater Highline Community Parks Board, which had operated programs in the Activity Center when it was under County ownership, subsequently purchased the buildings from the Port for a nominal fee and currently owns and operates the facility as a community activity center.

No single issue has been more controversial during the planning process than the issue of the operation of the Sunset Activity Center under lease agreement to the Port of Seattle. The issue is one of application of the Density Guidelines developed during the 1980 Master Plan to the operations of the Sunset Activity Center buildings. For the Port of Seattle as the landowner and lessor, the issue is one of monitoring "Safe, sensible numbers of people" in an area within an outer safety zone. For the Greater Highline Community Parks Board (GHCPB), the issue is one of financial viability and the desire to draw numbers of people to the buildings to raise funds to support maintenance and operations of the buildings.

The 1980 Master Plan recommended the Sunset Junior High School be used as a recreation facility "only on an interim basis for safety and economic reasons" and "none of the facilities at the Gymnasium should be used for spectator events."

When applying the compatibility criteria as adopted by the Workshop Group, including the safety zones (shown on the Airport Safety Zone map), the Activity Center buildings fall within the Outer Safety Zone.

All Workshop Group participants at Workshop #6 agreed, "the Sunset Activity Center provides an important service to the greater Highline community." All participants except one agreed that the Sunset Activity Center should be considered for relocation because potential risks exist. However, some participants felt that the phrase "if financially feasible" should be added to the relocation statement. All acknowledged the issue to be one of public policy for the Port of Seattle, the FAA, and the GHCPB to negotiate.

The following statement was discussed and developed during several meetings of the Workshop Group, and the group did not reach consensus:

"An instrument should be applied to grandfather the uses of the Sunset Activity Center and the Highline-East Little League. As long as the Greater Highline Community Parks Board owns the Sunset Activity Center buildings, the current uses will continue with activity levels in a formula with the goal of economic viability and safety. This formula will be worked out by the Port of Seattle, Highline-East Little League, Greater Highline Community Parks Board, and the Federal Aviation Administration. These uses may be continued by an immediately available successor organization. Negotiations should begin immediately."

The plan recommends that the Sunset Activity Center be retained in its current location because current political and financial realities make its relocation appear difficult. However, if it is financially feasible, it should be considered for relocation because of risks at the present location. The track should be retained in its current location.

## BOULEVARD PARK SCHOOL

Boulevard Park School is not included in the park planning area. The 1980 Master Plan recommended that "Future uses for the school building should be integrated with activities and facilities of North Sea Tac Park." The school is currently being used as a textbook repository.

## SPECIAL PROJECTS

A number of individual, special projects that would be sponsored by community organizations and service groups are included in the plan. These include such items as park benches, flagpoles, drinking fountains, and tree plantings. An issue raised by members of the Citizens Advisory Committee and the Workshop Group was the need to have a number of park projects "on the list" that could be carried out by community organizations.

## PARK ACCESS

The principal road access to the actively developed portion of the park planning area is recommended along South 136th Street. This access route would take advantage of the traffic signal on Des Moines Memorial Drive and would reduce cross-traffic turning movements on that street and on 24th Avenue South. In addition, it would help preserve the integrity of the buffer and perimeter trail system along both north-south arterials. Secondary access points are recommended along South 140th Street at Des Moines Memorial Drive (for the Tub Lake area) and 24th Avenue South (a gated access for emergency vehicles only). Marked cross walks should be provided at South 136th Street and at 24th Avenue South and Des Moines Memorial Drive. If possible, a pedestrian light should be installed at the South 136th Street cross walk to accommodate foot traffic between sport fields. Facilities will accommodate requirements for handicapped access.

The recommended locations of the access roads and associated parking areas are indicated on the schematic plan of the recommended master plan update. In general, these have been laid out to reduce interior roads to the minimum necessary for park operations and emergency services, and to facilitate separate access control for each of the major activity areas. The paving on any existing roads within the park area that are not recommended for retention should be removed and the road beds regraded to a natural, free-draining condition, that is suitable for re-planting. The roads within any of the major park activity areas that are not necessary for park or emergency use should be removed.



**A NATIVE WILDFLOWER ARBORETUM CAN BE DEVELOPED AROUND THE MORASCH HOUSE.**

#### **IV. RECOMMENDED PHASED DEVELOPMENT PROGRAM**

In Technical Memorandum 5, the consultants drafted a phased development program for the recommended master plan update and presented it to the Workshop Group for review and comment. This section of the report summarizes the revised and recommended program for the phased development of the recreation facilities included within the North Sea Tac Park Master Plan Update.

#### **DEVELOPMENT PHASES**

The total park development program included in the recommended master plan update has been divided into seven distinct areas or phases for implementation, including construction, operation and maintenance, on the assumptions that it may not be possible to construct all the facilities at one time because of financial constraints and that different groups could implement various portions of the park. The philosophy behind the recommended phasing includes the following considerations:

- each development phase should produce "stand-alone" recreation facilities that are usable in themselves and are not dependent on future phases
- the basic development phases should be capable of being funded out of the normal capital budget programs of local and/or special governments, without requiring special levy or bond elections (although such elections may be desirable, nevertheless)
- the initial development phase(s) should provide a strong framework for subsequent development actions
- where possible, the initial development phase(s) should also mitigate some of the impacts of the acquisition and clearing of homes from the area (including security concerns, unauthorized uses, dumping, and aesthetic impacts) and should provide demonstrable evidence of progress in developing the park

The areas, uses, and facilities that are included in each of the recommended phases are described briefly below. The recommendations on phasing assume that Phases I, II, and III could occur in successive years, in the budget cycle following adoption of this plan by King County and the Port of Seattle. The timing of development Phases IV - VII is more flexible. Any of these phases could be accomplished independently if funded separately by different agencies or groups, and development could be concurrent with development of Phases I-III.

**Phase I** - continuous buffer and trail system around the perimeter of the entire developed park area

**Phase II** - neighborhood activity area, restroom building, and sports fields between S. 136th and 132d Streets

**Phase III** - second neighborhood activity area, restroom building, and additional sports fields between S. 132d and 128th Streets

**Phase IV** - basic improvements, such as access and parking, in the area that is presently leased by the Greater Highline Community Parks and Recreation Board

**Phase V** - development of an arboretum featuring native plants

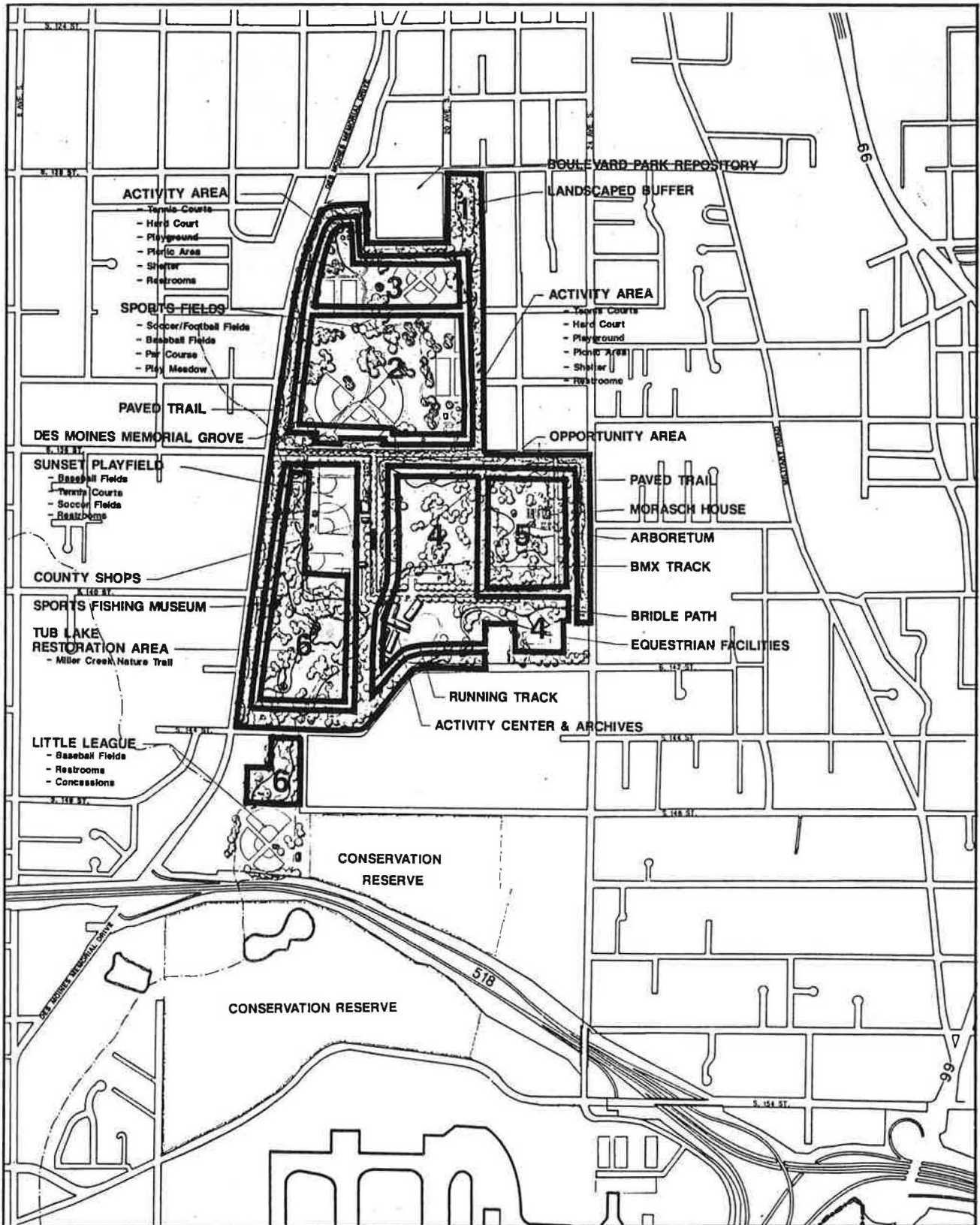
**Phase VI** - restoration and enhancement of Tub Lake and Miller Creek, and provision of nature trails and public access

**Phase VII** - special enhancement projects throughout the park area, such as ornamental plantings and park furnishings

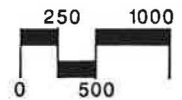
## **CAPITAL COST ESTIMATES**

Capital cost estimates were developed in 1986 dollars and were developed for each recommended phase of the master plan update. The costs of the elements included in each phase were based on unit costs and preliminary estimates of quantities, taken from the schematic drawing of the recommended master plan update. The unit costs were derived from compilations of construction costs published in 1986 (Means, Dodge, Kerr, etc.) and also from recent bid costs on Jones & Jones projects. These preliminary cost estimates are summarized below for each recommended phase, for budgeting purposes. The estimates include itemized costs for major park elements, plus all anticipated additional elements, i.e., contractor's overhead and profit, state and local sales taxes, contingency allowances, design fees, administrative costs, and a one percent allowance for the arts, as required by King County practice.





# North Sea-Tac Park Phased Development Program





PHASE I

Landscaped Buffer - Des Moines Memorial Drive (100' wide)	
Clearing and Grubbing	8,300.00
Rough Grading, scarify, fine grading	58,500.00
Grass area	42,900.00
Trees - 4" caliper installed 30' O.C.	67,500.00
Shrubs/hedge	6,600.00
Ground Cover	5,300.00
Irrigation	112,700.00
Asphalt, path	84,400.00
Subtotal	<u>\$386,200.00</u>
Landscaped Buffer - South of So. 136th St (100' wide)	
Clearing and Grubbing	13,300.00
Rough grading scarify, fine grading	92,400.00
Grass area/seed, soil enhancement-hydroseed	67,800.00
Trees - 3" caliper installed 30' O.C.	75,400.00
Shrubs/hedge	11,000.00
Ground Cover - 1' O.C.	10,500.00
Irrigation	178,000.00
Asphalt path - 10' wide, packed rock edge	126,000.00
Soft path	4,200.00
Fence - chain link, 6' high, gates	77,600.00
Subtotal	<u>\$656,200.00</u>
Landscaped Buffer - remainder of site (100' wide)	
Clearing and Grubbing	17,400.00
Rough grading, scarifying, fine grading	113,400.00
Grass area	83,200.00
Trees - 3" caliper 30 O.C.	103,500.00
Shrubs/hedge	16,500.00
Ground Cover	15,800.00
Irrigation	218,500.00
Asphalt path	174,000.00
Fence	26,400.00
	<u>\$768,700.00</u>
Subtotal	\$1,811,100.00
Overhead & Profit (10%)	181,110.00
Tax (7.9)	143,080.00
Contingency (20%)	<u>362,220.00</u>
Phase I Subtotal	\$2,497,510.00
Art (1%)	24,980.00
Design Consultant Fee (10%)	249,750.00
Administrative (6%)	149,850.00
PHASE I TOTAL	\$2,922,090.00

PHASE II

Demolition - (4-6" asphalt) existing roads	52,100.00
Clearing and Grubbing	11,600.00
Rough grading, scarifying, fine grading	19,700.00
Grass area	14,400.00
Trees - 3" caliper	22,500.00
Shrubs	4,400.00
Irrigation	411,800.00
Asphalt Path 6' wide 3600' long	32,400.00
Parking - concrete curb	35,000.00
- grade, gravel, asphalt	203,000.00
Catch Basin - 1 per parking	5,400.00
Baseball fields, subdrainage, seeded	165,000.00
Soccer/Football fields -	249,000.00
Subtotal	<u>\$1,226,300.00</u>

South Activity Area

Clearing and Grubbing	2,300.00
Rough grading, scarifying, fine grading	18,200.00
Grass area	13,300.00
Trees - 3" caliper	6,800.00
Irrigation	35,000.00
Tennis Court	34,000.00
Hard Court - Asphalt	26,800.00
Playground	25,000.00
Picnic Area	10,500.00
Benches	4,600.00
Waste Receptacles	4,000.00
Shelter - 25' x 25'	37,500.00
Restroom	200,000.00
Subtotal	<u>\$418,000.00</u>

Subtotal \$1,644,300.00

Overhead & Profit (10%)	164,430.00
Tax (7.9)	129,900.00
Contingency (20%)	<u>328,860.00</u>

Phase II Subtotal \$2,267,490.00

Art (1%)	22,670.00
Design Consultant Fee (10%)	226,750.00
Administrative (6%)	<u>136,050.00</u>

PHASE II TOTAL \$2,652,960.00

PHASE III

Demolition	35,000.00
Clearing and grubbing	7,500.00
Rough grading, scarifying, fine grading	19,700.00
Grass Area	14,400.00
Trees - 3" caliper	16,900.00
Shrubs	3,300.00
Irrigation	202,300.00
Asphalt Path 6' wide 3100' long	27,900.00
Parking - concrete curb	27,200.00
- grade, gravel, asphalt	171,800.00
Catch Basin - 1 per parking	3,600.00
Par Course	15,000.00
Baseball fields	165,000.00
Soccer/Football fields	166,000.00
North Activity Area (see cost for South Activity Area)	<u>418,000.00</u>
Subtotal	\$1,293,600.00
Overhead & Profit (10%)	129,360.00
Tax (7.9)	102,190.00
Contingency (20%)	<u>258,720.00</u>
Phase III Subtotal	\$1,783,870.00
Art (1%)	17,840.00
Design Consultant Fee (10%)	178,390.00
Administrative (6%)	107,035.00
PHASE III TOTAL	\$2,087,135.00

Phase IV - Land Leased by GHCPB South of S. 136 St, east of 18 Ave. S.  
and west of 24 Ave. S.

Demolition	56,600.00
Clearing and Grubbing	2,500.00
Trees - 3" caliper 30' O.C.	22,500.00
Equestrian Path	8,300.00
Parking - concrete curb	10,800.00
Parking - grade, gravel, asphalt	<u>67,800.00</u>
Subtotal	\$168,500.00
Overhead & Profit (10%)	16,850.00
Tax (7.9)	13,310.00
Contingency (20%)	<u>33,700.00</u>
Phase IV Subtotal	232,360.00
Art (1%)	2,320.00
Design Consultant Fee (10%)	23,240.00
Administrative (6%)	13,945.00
PHASE IV TOTAL	\$271,865.00

Phase V - Arboretum (Initial Phaso)

Demolition	57,000.00
Clearing and grubbing	15,000.00
Rough grading, scarifying, finegrading	117,600.00
Grass Area	86,200.00
Transplant specimen trees & shrubs	30,000.00
Parking - concrete curb	13,600.00
- grade, gravel, asphalt	<u>85,900.00</u>

Subtotal \$405,300.00

Overhead & Profit (10%) 40,530.00  
 Tax (7.9) 32,020.00  
 Contingency (20%) 81,060.00

Phase V Subtotal 558,910.00

Art (1%) 5,590.00  
 Design Consultant Fees (10%) 55,890.00  
 Administrative (6%) 33,535.00

PHASE V TOTAL 653,925.00

Phase VI - Miller Creek/Tub Lake Area Surface Water Management\*

Miller Creek Restoration	108,600.00
Tub Lake Restoration	160,000.00
Nature Trail/Interpretation	24,500.00
Viewing Blind	4,000.00
Board Walks	12,600.00

Subtotal 309,700.00

Overhead & Profit (10%) 30,970.00  
 Tax (7.9) 24,470.00  
 Contingency (20%) 61,940.00

Phase VI Subtotal 427,080.00

Art (1%) 4,270.00  
 Design Consultant Fee (10%) 42,710.00  
 Administrative (6%) 25,625.00

PHASE VI TOTAL \$499,685.00

\* These cost figures are estimates based upon 1986 capital cost estimates of the King County Surface Water Management Division for Miller Creek and Tub Lake and assumes enhancement of Tub Lake for retention of additional surface water. The Nature Trail, Viewing Blind and Board Walk Cost Estimates are based on Jones & Jones experience.

Phase I TOTAL	\$2,922,090.00	
PHASE II TOTAL	2,652,960.00	
PHASE III TOTAL	2,087,135.00	
PHASE IV TOTAL		271,865.00
PHASE V TOTAL		653,925.00
PHASE VITOTAL		<u>499,685.00</u>
<b>TOTAL</b>		<b>\$9,087,660.00</b>

Technical Memorandum 6 presented information on possible operation and maintenance of the recreation facilities recommended for the North Sea Tac Park Master Plan Update, including recommended maintenance standards.

Most of the new facilities identified in the schematic plan would not require major new staffing for park operation. Police and fire protection services are already provided to the park planning area by King County and the Port of Seattle. Nevertheless, some additional staffing would be required by the new facilities, principally for facility scheduling and perhaps also for facility surveillance by one or more resident caretakers. Since the recommended schematic plan includes the Sunset Activity Center for the foreseeable future, continued operations staffing for this facility would also be required.

On the other hand, the new park facilities would require significant commitments to ongoing maintenance. Staffing and cost requirements for operation and maintenance of the recommended park facilities will depend in large part on the identity and capabilities of the agencies and/or groups that undertake the responsibility for developing, operating, and/or maintaining the various park phases.

For example, the King County Natural Resources and Parks Division has well-developed expertise and capabilities in operating and maintaining recreation facilities of the type envisioned in Phases II and III (sports fields, restrooms, and activity areas), as well as Phase I (buffer and trail system) and Phase VI (Tub Lake). The Natural Resources and Parks Division has adopted a regional approach to parks maintenance, with specialized crews and equipment operating out of several centers to maintain adjacent parks. One of the centers, of course, is located within the park area - the existing Sunset Shops. This would further enhance the efficiency of Natural Resources and Parks Division operation and maintenance of Phases II and III. However, the Natural Resources and Parks Division is not currently staffed or equipped to handle the high-intensity horticultural maintenance that would be associated with Phase V (the arboretum). Because this phase is physically separate from Phases II and III, the Natural Resources and Parks Division would also lose efficiency in maintaining it.

Based on the County park maintenance plan (1985), it is estimated that the Natural Resources and Parks Division would have to add approximately two to three full-time maintenance positions to maintain Phases II and III, and possibly another position to maintain Phases I and V. This is based on the proportional relationship between the developed park acreage in these phases and the total developed park acreage in the County park system, multiplied by the 1985 staffing levels reported in the County park maintenance plan. At 1985 salary levels, this would translate into an initial annual budget

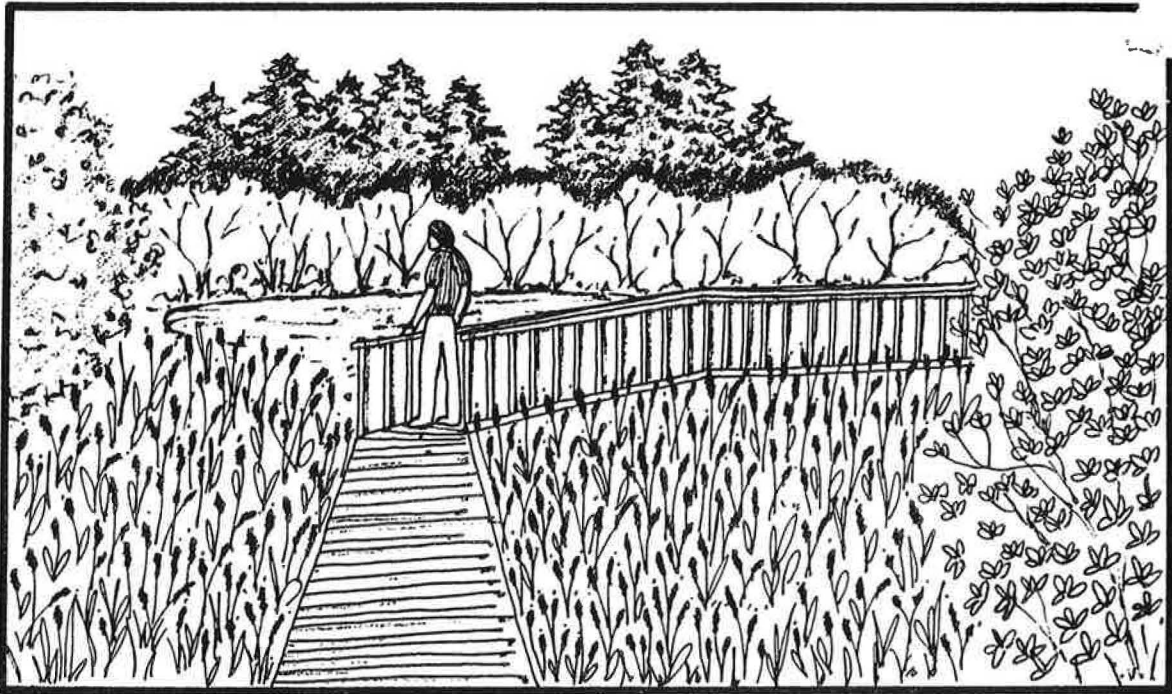
requirement of \$63,000 to \$84,000, including benefits, which would grow into an annual requirement of from \$87,000 to \$116,000 with raises stipulated in union contracts. The County does not currently budget equipment maintenance and replacement costs on an annualized basis, but it appears that no additional equipment would be required initially. It appears appropriate that the King County Division of Surface Water Management share a portion of the development, operation, and maintenance costs associated with the Tub Lake restoration.

The length of the perimeter buffer and landscaped development along the existing entry road (18th Avenue) would be approximately 3.9 miles and its area would be approximately 47 acres. This area is roughly equivalent to that along the airport approach roads, which in 1986 dollars were maintained in an annual contract of approximately \$100,000.

Whenever possible, user groups should be considered for maintenance of the park grounds.

The Greater Highline Community Parks Board currently employs one person to supervise volunteers in maintaining the grounds that it leases from the Port of Seattle. It appears that the equivalent of at least two full-time persons would be required to gradually develop and maintain the proposed arboretum area. The GHCPB would also require additional full-time persons or their equivalent in part-time or volunteer staff to deal with the maintenance requirements of the areas that the organization leases from the Port of Seattle.





**A BOARDWALK AND NATURE TRAIL CAN BE DEVELOPED THROUGH THE WETLANDS THAT RIM TUB LAKE.**

#### **V. ALTERNATIVE IMPLEMENTATION STRATEGIES**

Technical Memorandum 6 presented a range of alternative implementation strategies for the phased development, operation, and maintenance of the recommended master plan update. These were reviewed and discussed by the Workshop Group. Rather than recommending a single strategy, the Workshop Group recommended that negotiations begin immediately among King County, the Port of Seattle, and the Greater Highline Community Parks Board to establish appropriate implementation roles for each. These roles could be selected from the possibilities outlined in this concluding section.

The development, operation, and maintenance of the various phases of the recommended master plan update could be carried out by one or more of the following groups:

- King County Natural Resources and Parks Division (KCNRPD)
- King County Surface Water Management Division (KCSWM)
- Port of Seattle (POS)
- Greater Highline Community Parks Board (GHCPB)
- Other groups or agencies (OTHER)

In workshop meetings, King County Natural Resources and Parks Division has indicated that it is interested at this time in developing, operating, and maintaining only the area north of S. 136th Street. The County may, in the long term, entertain involvement in the area south of S. 136th outside safety zones providing it is free of all encumbrances, including leases. The Port of Seattle has indicated that it is not interested in being the park operator.

It also appears possible, at least theoretically, that a given park phase could be developed by one group or agency, operated by a second, and maintained by a third. The more feasible combinations are presented in the following table for discussion. In this table, D indicates a group or agency that appears to be a feasible potential developer, O indicates a potential operator, and M indicates a potential maintenance provider.

PHASE	AGENCIES OR GROUPS				
	KCNRPD	KCSWM	POS	GHCPB	OTHER
I (buffer)	D,O,M		D,O,M		
II (sports fields)	D,O,M <sup>1</sup>		D		
III (sports fields)	D,O,M <sup>1</sup>		D		
IV (area currently leased by GHCPB)			D	D,O,M	D,O,M <sup>2</sup>
V (arboretum)	D,O,M		D	D,O,M	D,O,M <sup>2</sup>
VI (Tub Lake)	D,O,M	D,O,M	D,O,M		D,O,M <sup>3</sup>
VII (special projects)				D,O,M	D,O,M

- Notes
- 1 The King County Natural Resources and Parks Division has indicated strong interest in developing, operating, and maintaining Phases II and III as soon as approval and funding can be secured.
  - 2 Development, operation, and/or maintenance of these phases could be carried out by other groups as sublessees to the greater Highline Community Parks Board, with Port of Seattle approval.
  - 3 Development, operation, and maintenance of this phase, including the possible addition of a sport fishing museum, could be carried out by a private, non-profit group as a lessee to the Port of Seattle. At workshop #6 one person associated with the Greater Highline Community Parks Board indicated interest in the possibility of GHCPB developing the Tub Lake Area.

## FINANCIAL ALTERNATIVES

The consultants reviewed a number of methods of financing the development, operations, and maintenance of the North Sea Tac Park. These alternatives were summarized in Technical Memorandum #5 and discussed in Workshop #5 and with the Citizens Advisory Committee. The 1980 Master Plan envisioned that a Countywide bond issue for parks and recreation would be on the ballot. Bond funds were recommended for park development. However, the 1982 Countywide parks bond issue failed. Other recommendations of the 1980 plan included "The subcommittee encouraged volunteer donations of labor and equipment by user groups to develop facilities on land presently owned by the Port."...and "utilize a revenue bond offered by King County to assure long-term funding for potential revenue-generating facilities such as the golf course." The issue of financial feasibility has been an important element throughout this study. The Port of Seattle and King County initiated a park plan update process in part to explore financially feasible alternatives. Community representatives on the Workshop Group, members of the Citizens Advisory Committee, and attendees at the public open house all expressed the desire to have a financially feasible park proposal so that commitments to park implementation could be made.

The consultants explored a variety of financial alternatives including King County General Fund, Grants in Aid, Port of Seattle Aviation Budget, King County bond issues, private non-profit, park and recreation service district or service area, and gifts and voluntarism. These alternatives are described in detail in Technical Memos 3 and 5. Recent history with parks and recreation service areas and districts has shown that this methods of parks funding to be unreliable. During 1986, King County and the City of Issaquah proposed an 85 square mile recreation service area for Issaquah to sell voter-approved general obligation bonds to finance a community center. The ballot issued failed. The financial alternatives of bond issues were determined by the consultants to be infeasible because the likelihood of success of the general obligation bonds require a turnout of 40% of the voters in the previous November election, plus a Yes vote of at least 60%. In conclusion, though a bond issue is a good method of raising large amounts of capital for a project, it is not dependable because voter support is not guaranteed.

The consultants presented the financial alternatives to the Workshop Group where the alternatives were rated: King County General Fund, Port of Seattle Airport Funds, private non-profit, and citizen participation/voluntarism were all seen as having good potential. The workshop participants noted that grants should not be depended upon for the major part of the funds and all potential funding sources should be explored with a cooperative spirit. In discussion with the Citizens Advisory Committee, it was recommended that involvement of community colleges, universities, and chambers of commerce be encouraged in the financial package.

**SUMMARY OF ADVISORY GROUP COMMENTS  
ON  
NORTH SEA TAC PARK MASTER PLAN UPDATE CONSULTANT REPORT**

Members of the workshop advisory group and Citizens Advisory Committee were asked to comment on the consultant report. The most frequently mentioned issue was safety and the California Airport Land Use Report. There was agreement with the plan's intent to limit assemblies of people in the park, and one member wrote that the Little League and Sunset Activity Center should be relocated because of safety concerns. Others felt that grandfathering existing park uses near the airport conflicts with the plan's policy to discourage assemblies. Several others questioned the applicability of the data from the California report to conditions at Sea Tac, and one reviewer cautioned that the same standards on uses and density should be applied to the area south of the airport as well.

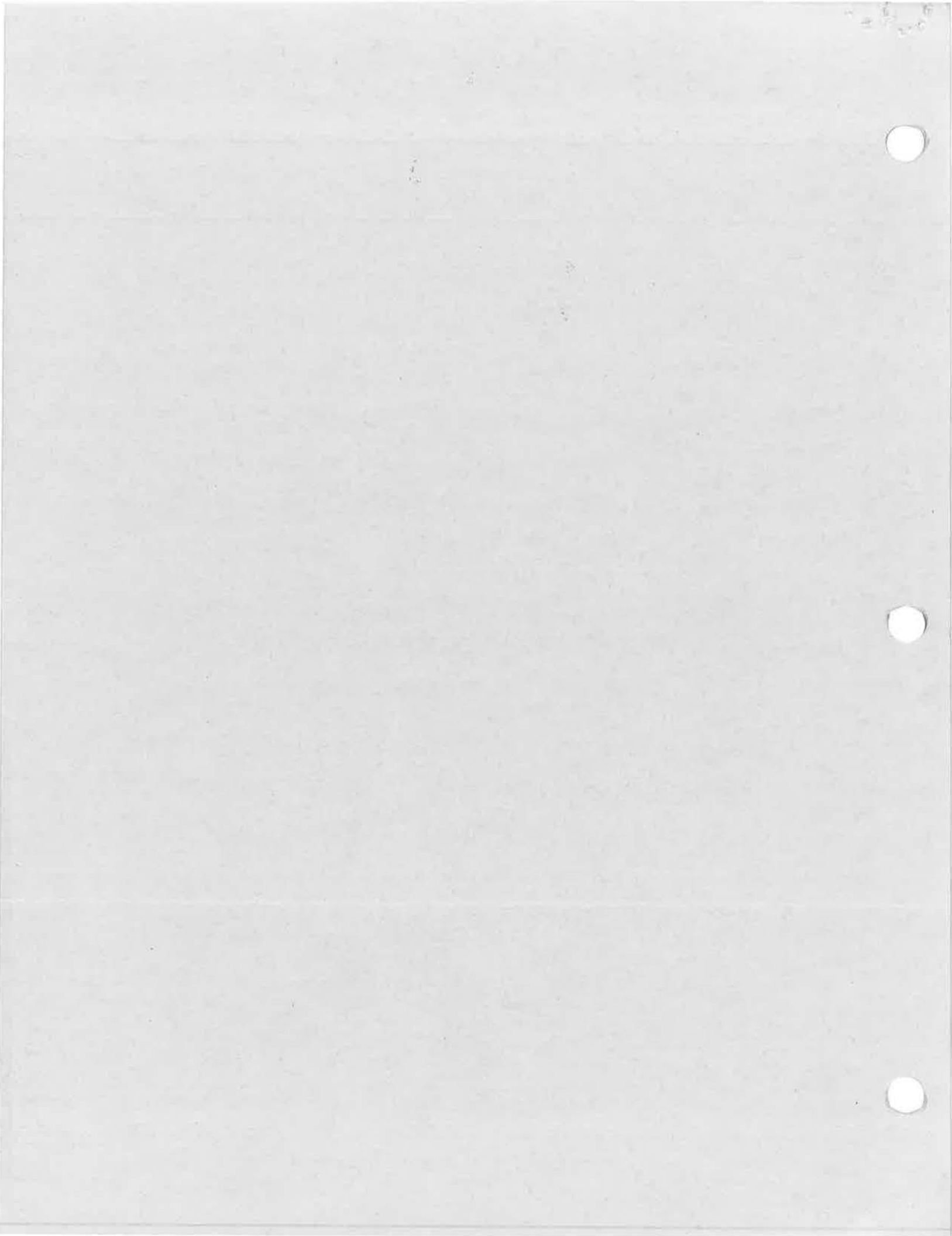
A nine-hole golf course was deleted from the updated Master Plan, but two people believed that this possible use had not received sufficient consideration in this study, citing the fact that only one source of information was used by the consultants. The demand for public golf courses is increasing and the reviewers suggested that a golf course not be ruled out as a potential use in the park.

Advisory group members emphasized the importance of proceeding with implementation of the park plan. Two people advocated King County taking control of the operation of the entire park and others specified that one jurisdiction accountable to the taxpayer should administer the park. A number of the members prioritized development of the perimeter landscaping and trail system. Fencing and park security were mentioned by several reviewers.

The screening of King County Department of Public Works maintenance shops was noted as a recommendation of the 1980 Plan which has not been accomplished.

Several members discussed the responsibility of the Port of Seattle to mitigate the airport's impact on the community and the importance of cooperation between the Port, King County, and the community in achieving park implementation.

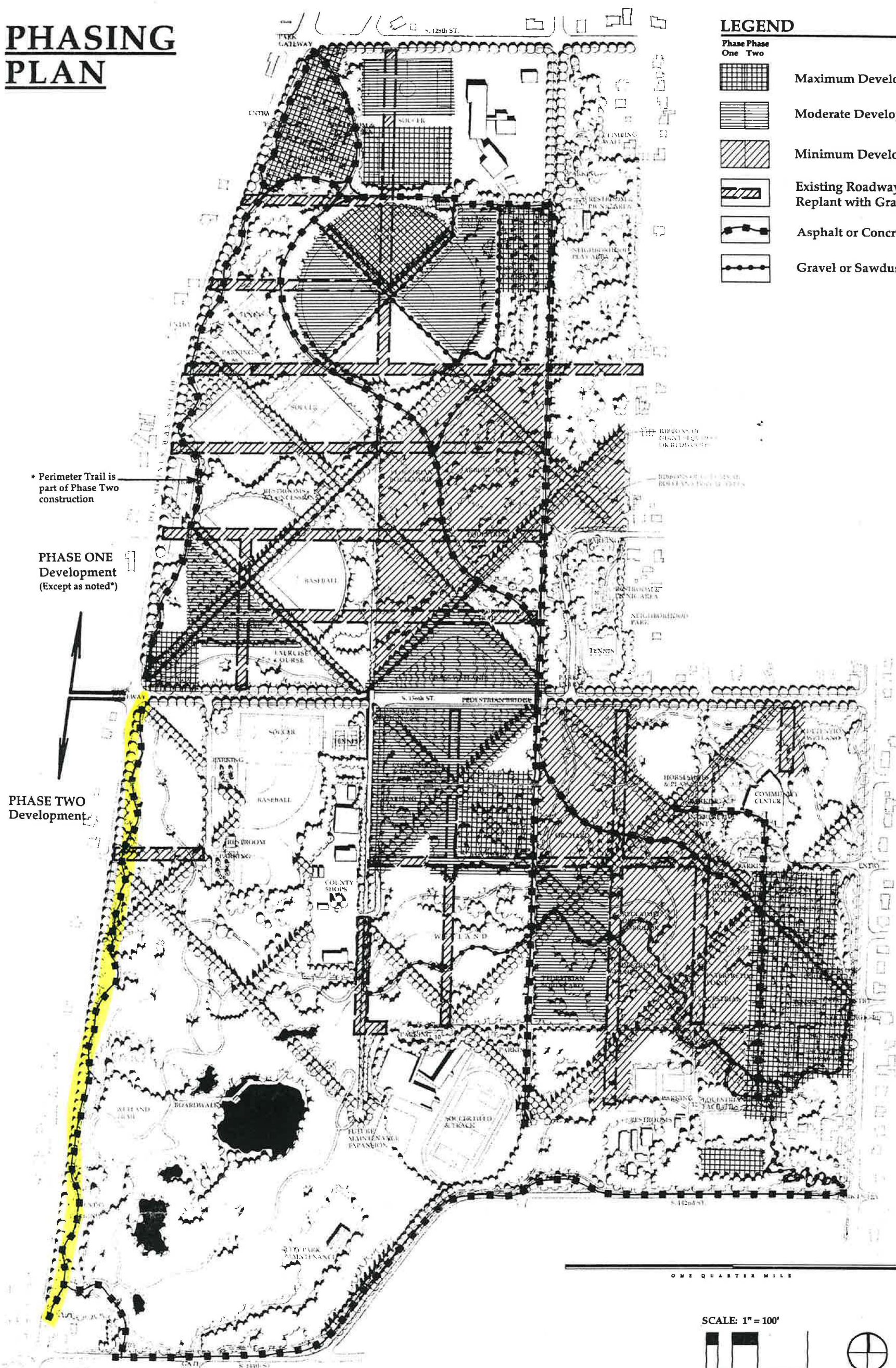




# PHASING PLAN

## LEGEND

- |           |           |  |
|-----------|-----------|--|
| Phase One | Phase Two |  |
|           |           | Maximum Development  |
|           |           | Moderate Development   |
|           |           | Minimum Development  |
|           |           | Existing Roadway to be removed--<br>Replant with Grass & Trees |
|           |           | Asphalt or Concrete Trail                                      |
|           |           | Gravel or Sawdust Trail  |



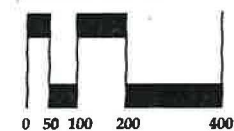
\* Perimeter Trail is part of Phase Two construction

PHASE ONE Development (Except as noted\*)

PHASE TWO Development

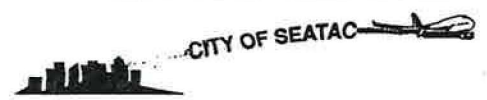
ONE QUARTER MILE

SCALE: 1" = 100'







# NORTH SEATAC PARK

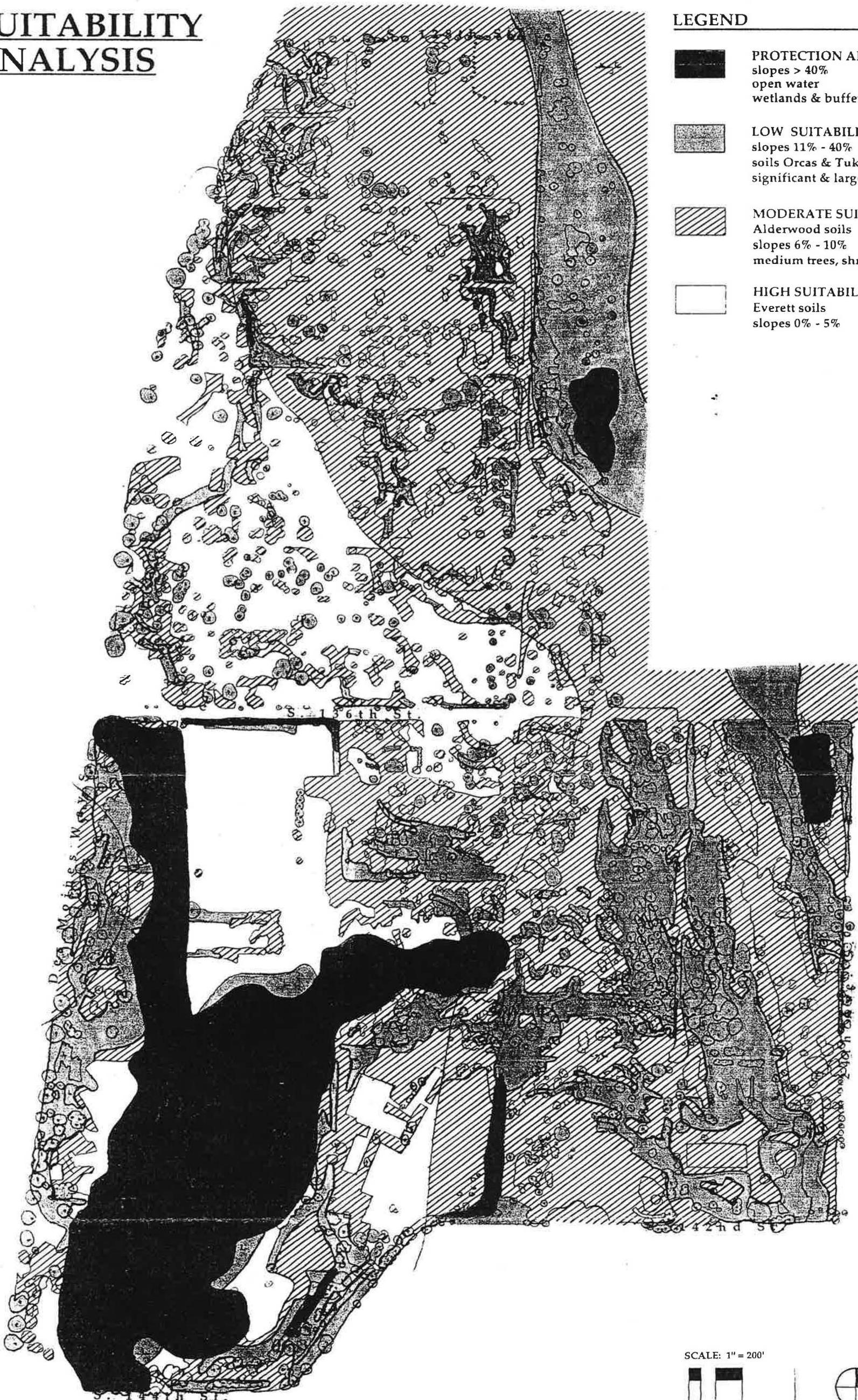
**JONES & JONES**  
108 SOUTH MAIN STREET  
SEATTLE, WASHINGTON 98104  
1206 524-4702



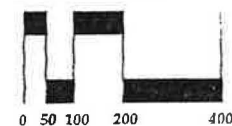
# SUITABILITY ANALYSIS

## LEGEND

-  PROTECTION AREAS  
slopes > 40%  
open water  
wetlands & buffers
-  LOW SUITABILITY  
slopes 11% - 40%  
soils Orcas & Tukwila  
significant & large trees
-  MODERATE SUITABILITY  
Alderwood soils  
slopes 6% - 10%  
medium trees, shrub masses
-  HIGH SUITABILITY  
Everett soils  
slopes 0% - 5%



SCALE: 1" = 200'



NORTH

# NORTH SEATAC PARK

JONES  
&  
JONES  
100 SOUTH MAIN STREET  
SEATTLE, WASHINGTON 98101  
206/424-5723