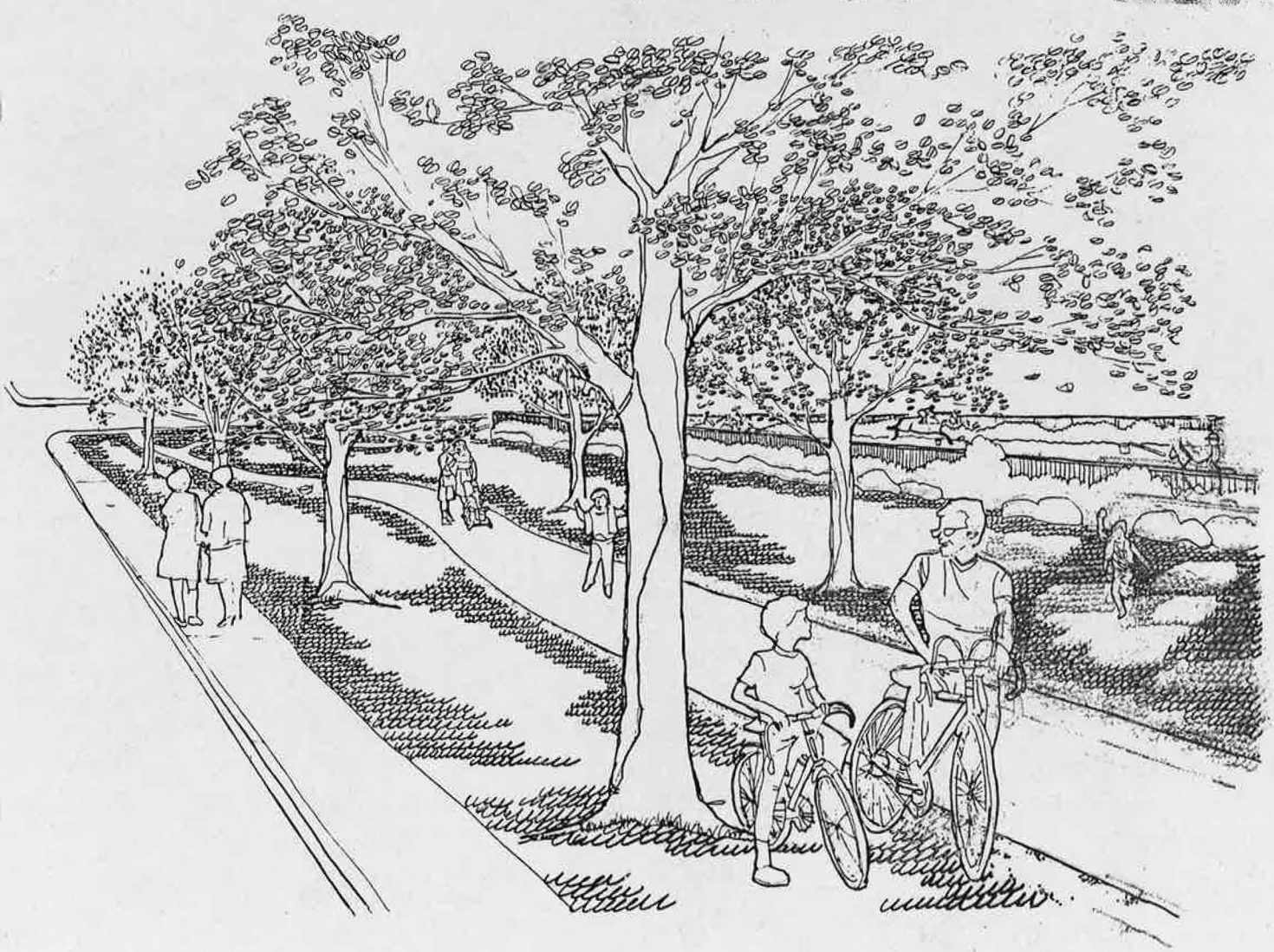


North Sea-Tac Park Master Plan Update



A JOINT PLANNING EFFORT BY:

KING COUNTY

THE PORT OF SEATTLE

PREPARED BY:

TRIANGLE ASSOCIATES/JONES & JONES

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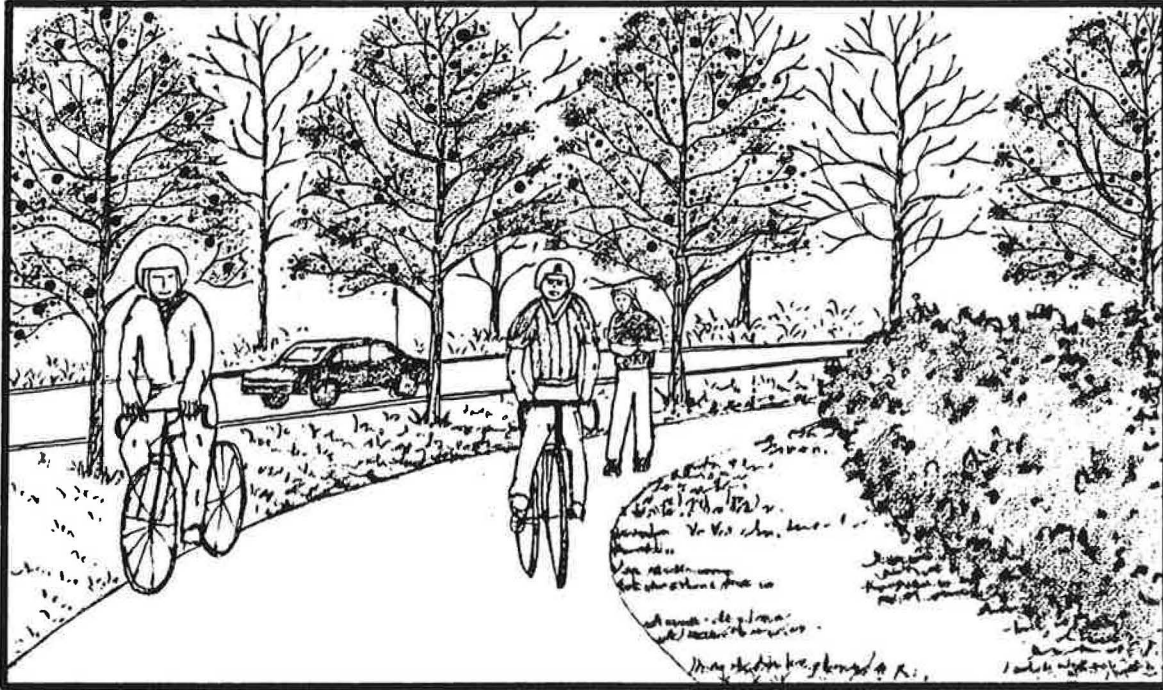
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THE MASTER PLAN UPDATE INCLUDES A PERIMETER TRAIL SYSTEM FOR JOGGING AND CYCLING.

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:

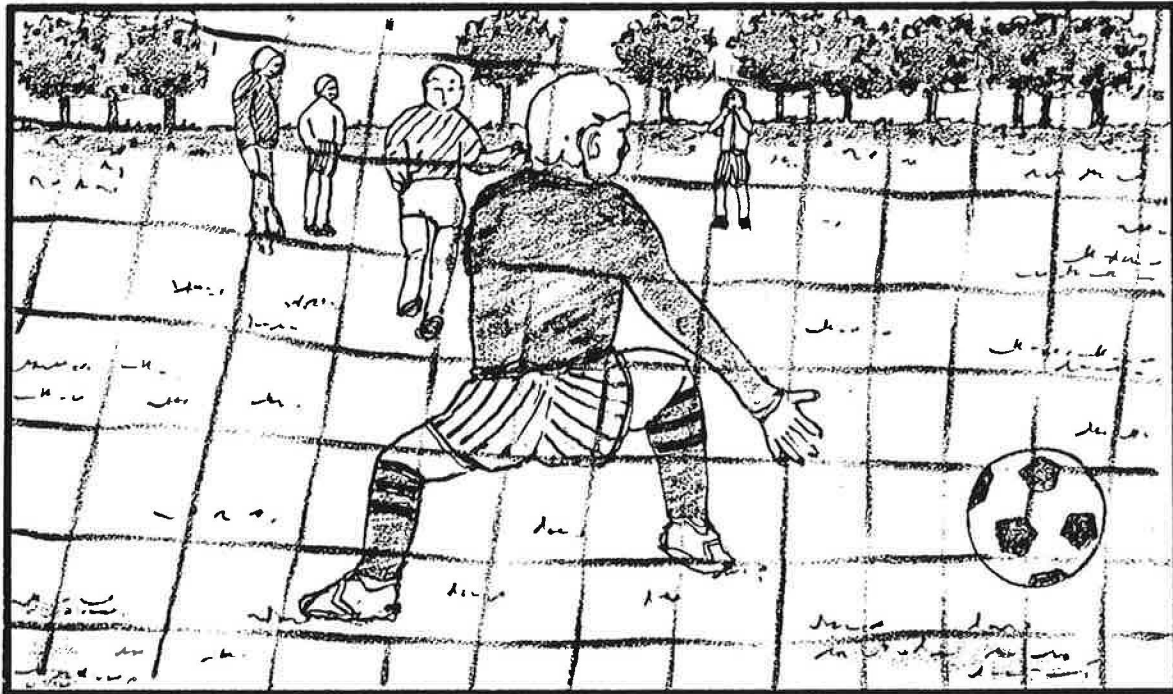
"Working with the citizens and the study team from Jongejan/Gerrard/McNeal, the FAA Northwest Regional Office developed density guidelines to aid the planners in the design of the North Sea Tac Park. While these densities are not regulations which require strict adherence, the figures do represent safe, 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."



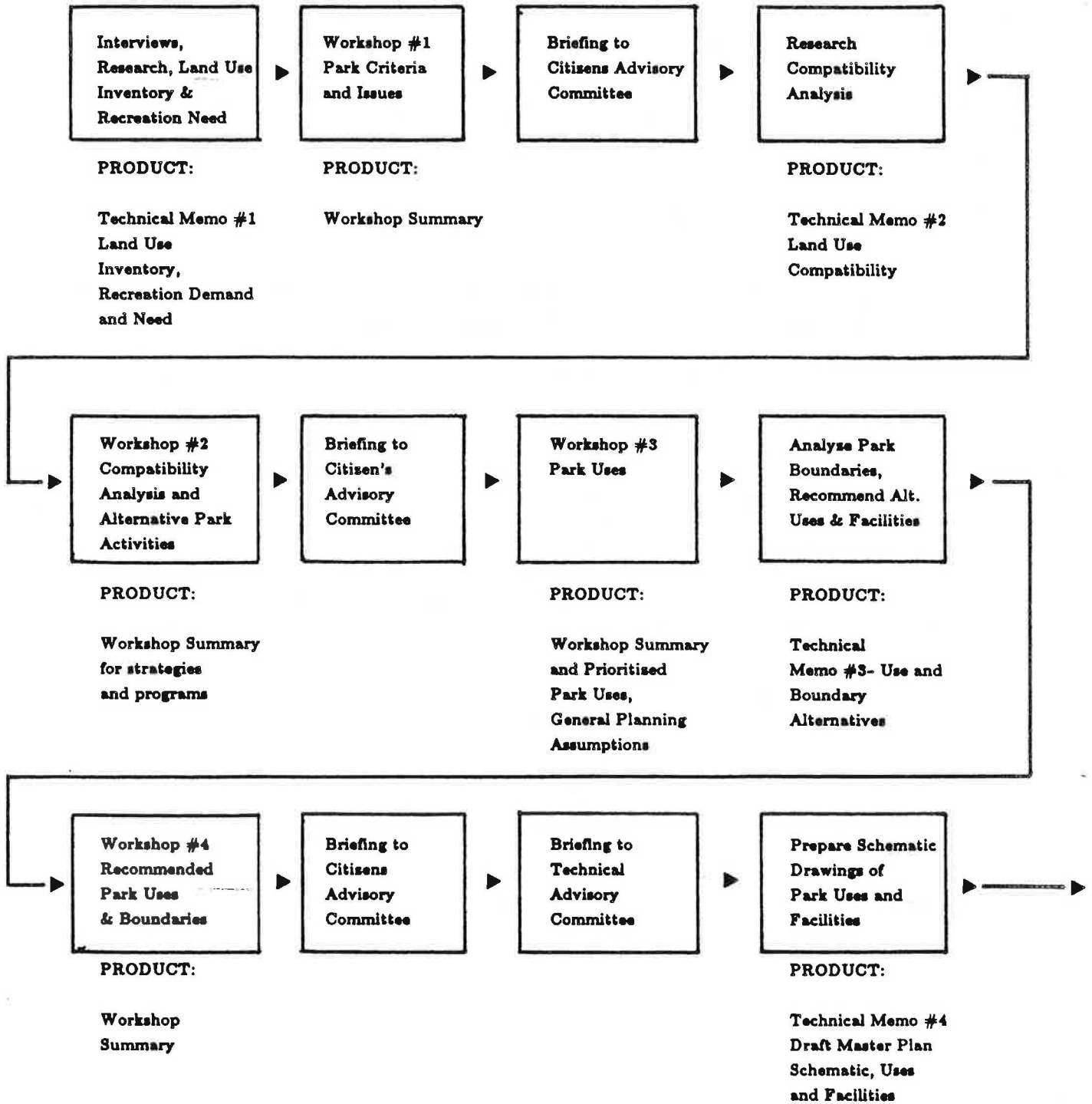
ADDITIONAL PLAYFIELDS WILL BE DEVELOPED FOR SOCCER AND BASEBALL.

II. PARK PLAN UPDATE DEVELOPMENT

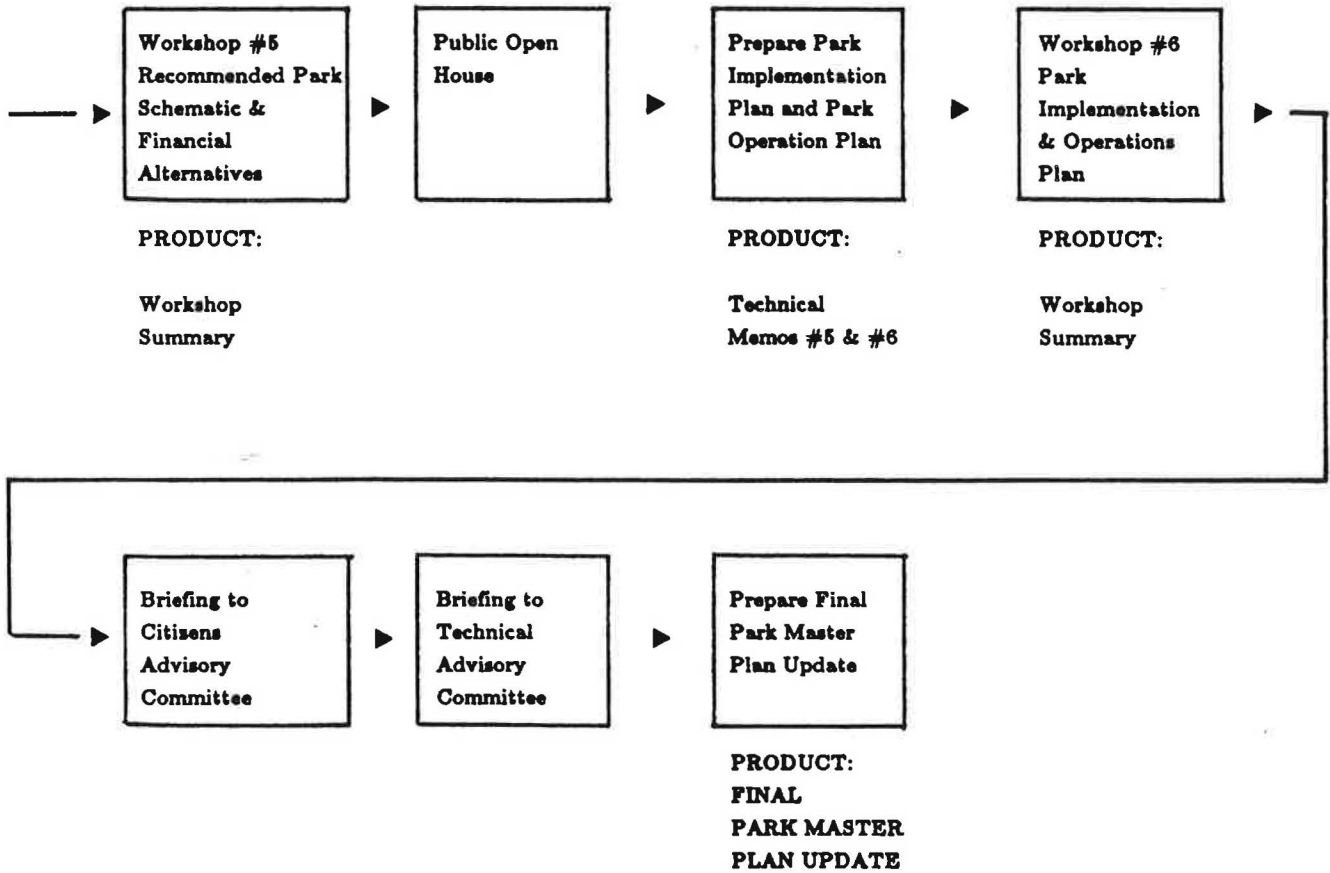
Triangle Associates and Jones & Jones initiated the park plan update by interviewing the various parties of interest and by organizing a structured workshop process, coordinated with the Sea Tac Area Update Citizens Advisory Committee. A workshop advisory group was organized, composed of a subcommittee 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."

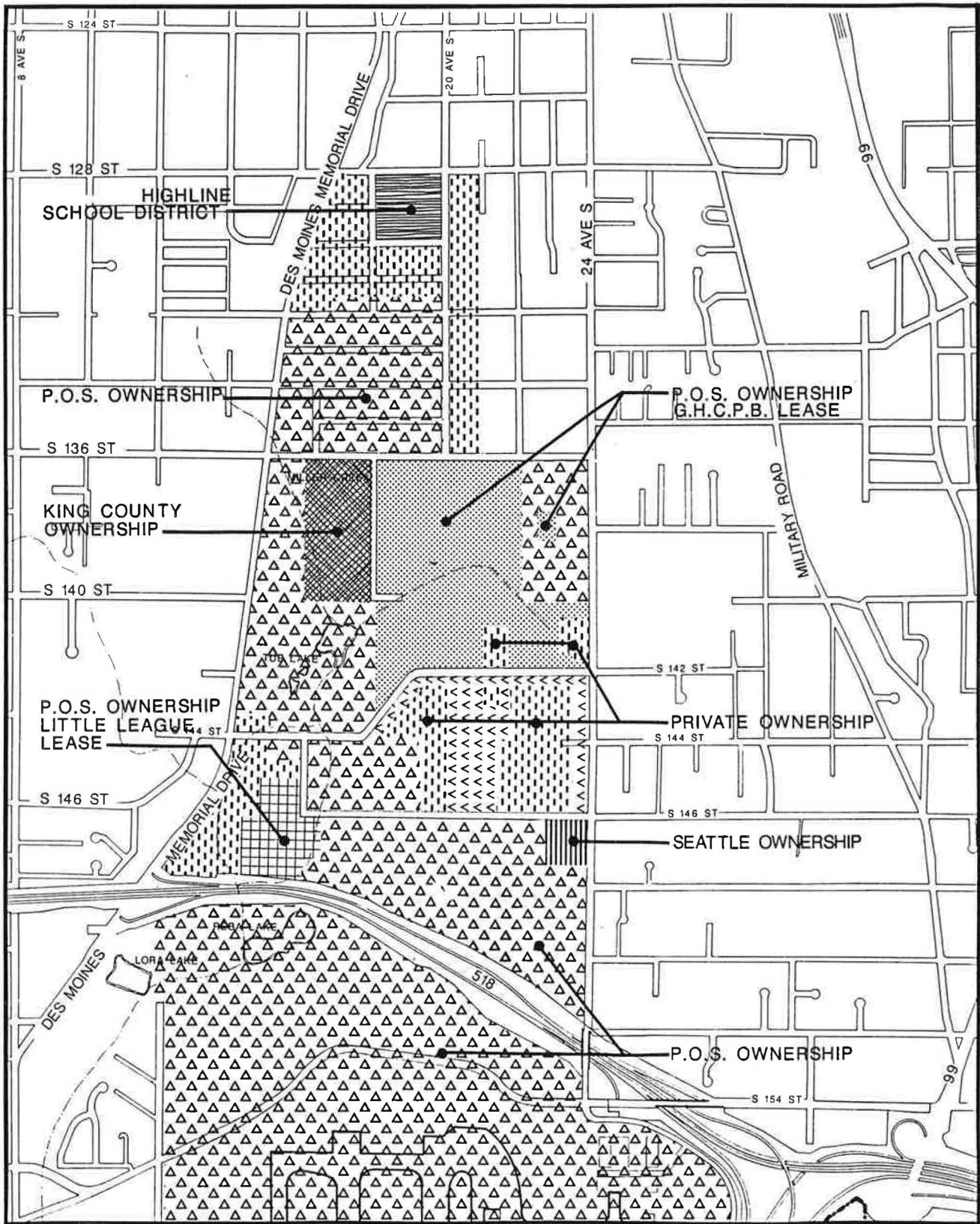
An element not included by the 1980 Master Plan has been developed - Equestrian Facilities developed by the North Sea Tac Park Equestrians, a private organization, on land owned by the Port of Seattle, under lease to the Greater Highline Community Parks Board. The equestrian element was not included 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.



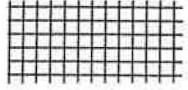
North Sea-Tac Park Existing Land Ownership



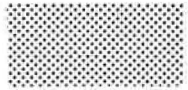
Legend for Existing Land Ownership



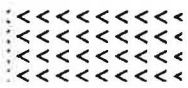
Port of Seattle



P.O.S. Lease to Little League



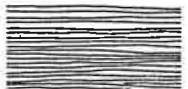
P.O.S. Lease to G.H.C.P.B.



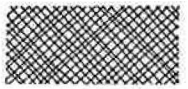
P.O.S. Lease to Business



City of Seattle



Highline School District



King County

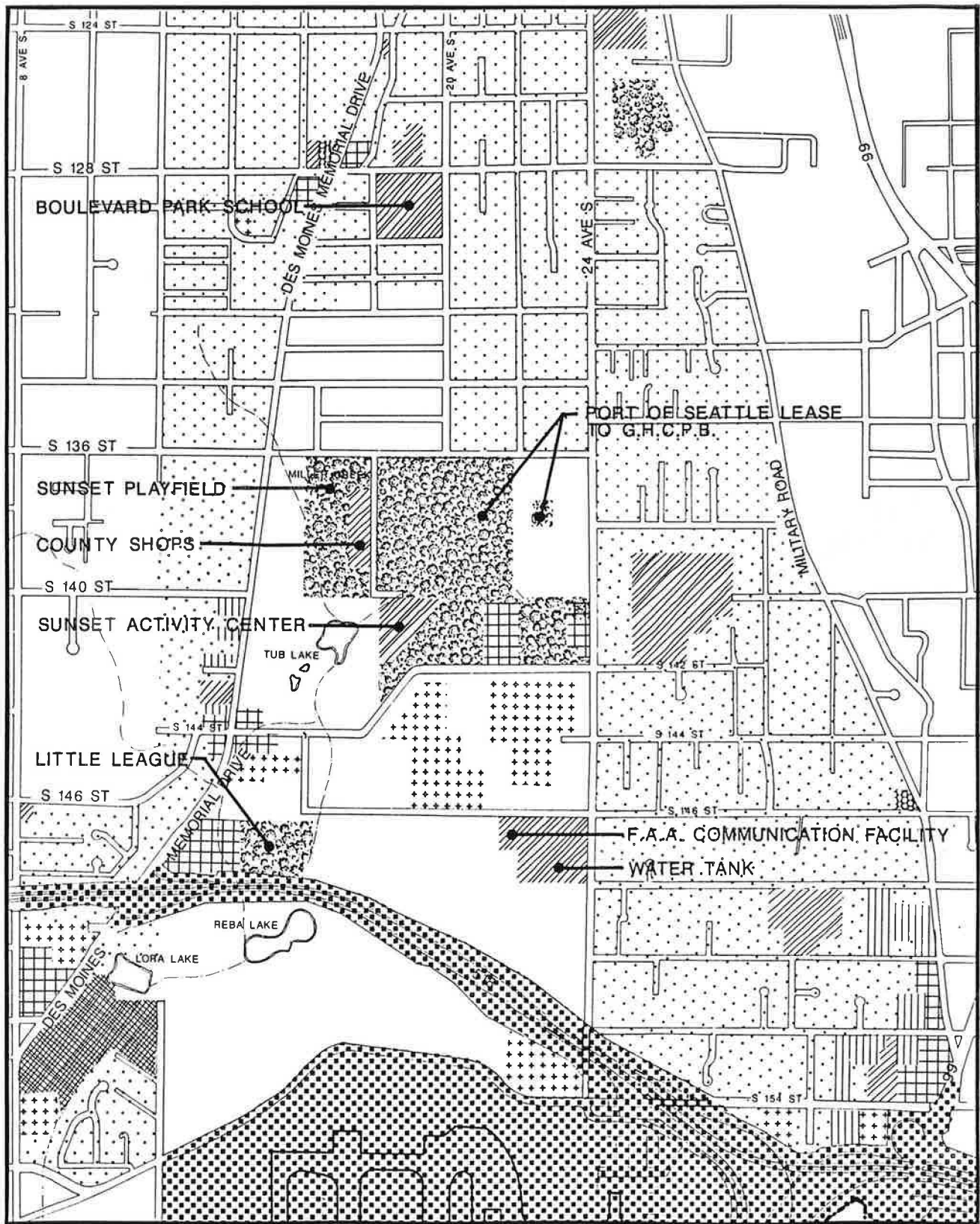


Private

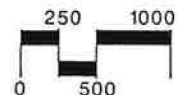
Abbreviations

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

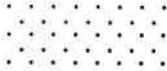
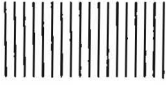

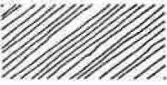
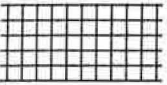
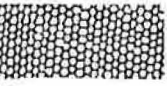
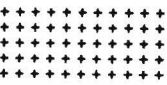
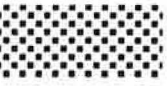

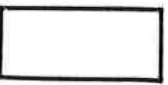
P.O.S.—Port of Seattle



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><303.4 Acres></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

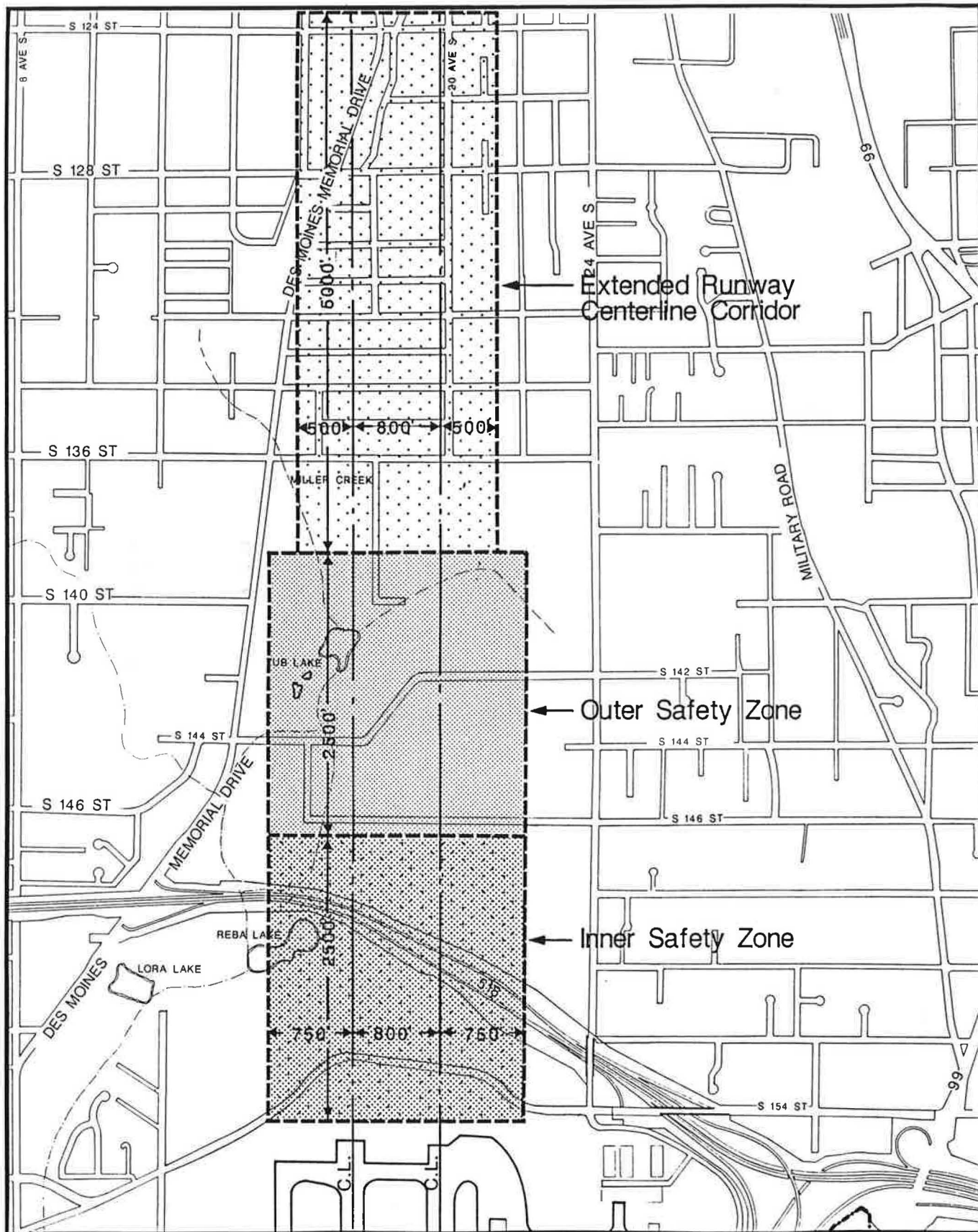
The issue to be reviewed in relation to safety and land-use compatibility is "What is responsible public policy and a reasonable approach to park land use and operation in an airport approach zone area?" King County and Port of Seattle have evaluated the benefits and burdens in pursuing this plan and 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.

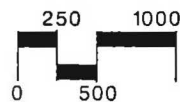
The consultants were directed by King County and the Port of Seattle in preparing the North Sea Tac Park plan update to analyze and determine the appropriate application of the "Airport Land-Use Planning Handbook" published by the California Department of Transportation in 1983 and distributed by the 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><65</u>	<u>65-70</u>	<u>70-75</u>	<u>75-80</u>	<u>> 80</u>
<u>RECREATIONAL USES</u>					
Outdoor Sports area and spectator sports	Y	Y ⁵	Y ⁵	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.

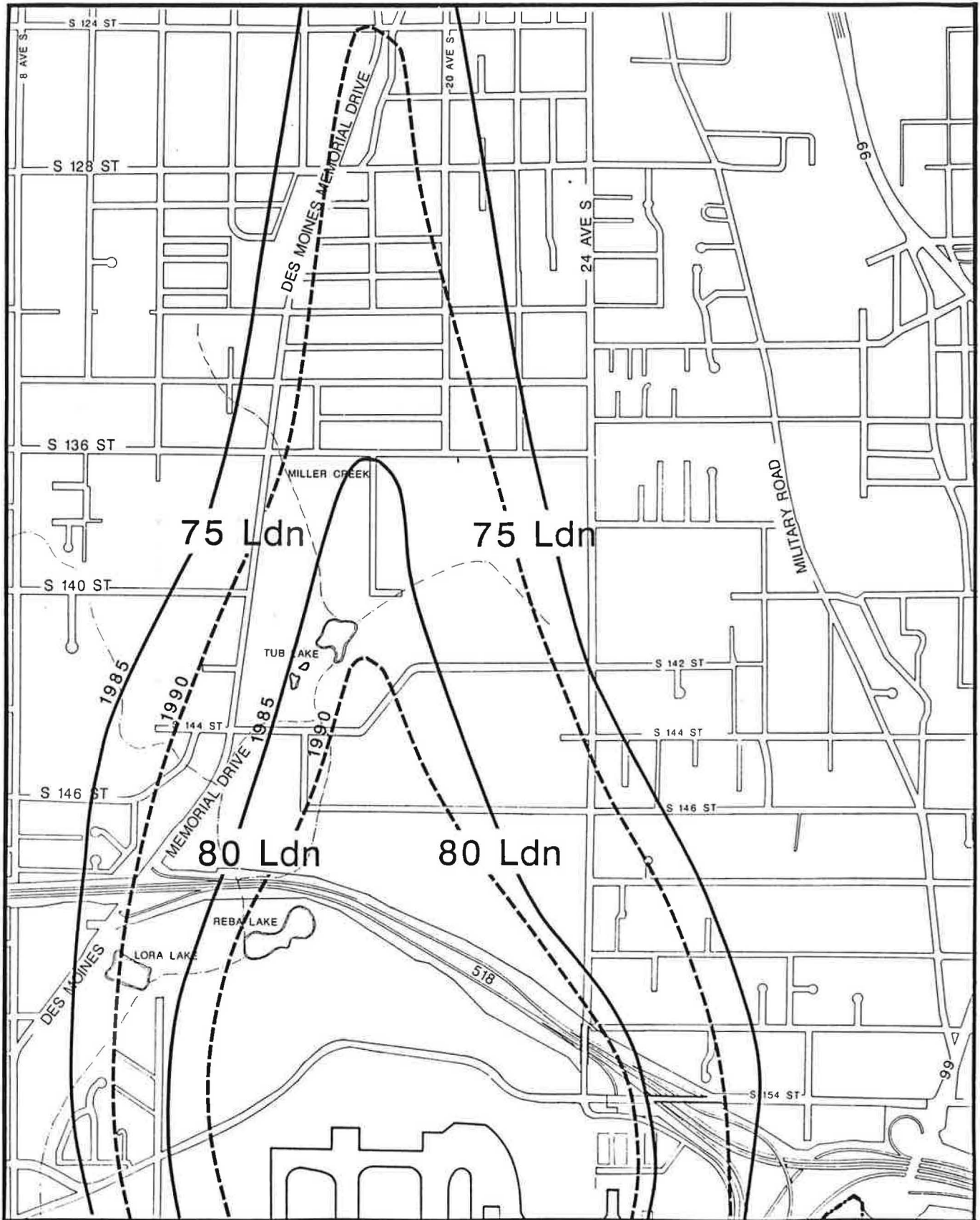
It is also possible that certain recreation uses could generate significant amounts of noise that would contribute to noise impacts on noise-sensitive land uses adjacent to the park, which primarily comprise residential uses. Likely sources of noise generation include the use of machines as part of a 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

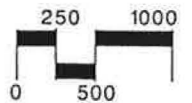
Traffic generation was used as another criterion to screen alternative park uses. The automobile traffic generated by the alternative park uses will vary with the characteristics of those uses in terms of volume, time of day and week, and associated parking demand. Certain uses could generate sufficient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

1980 M.P. Element	Recommendation	Current Status
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

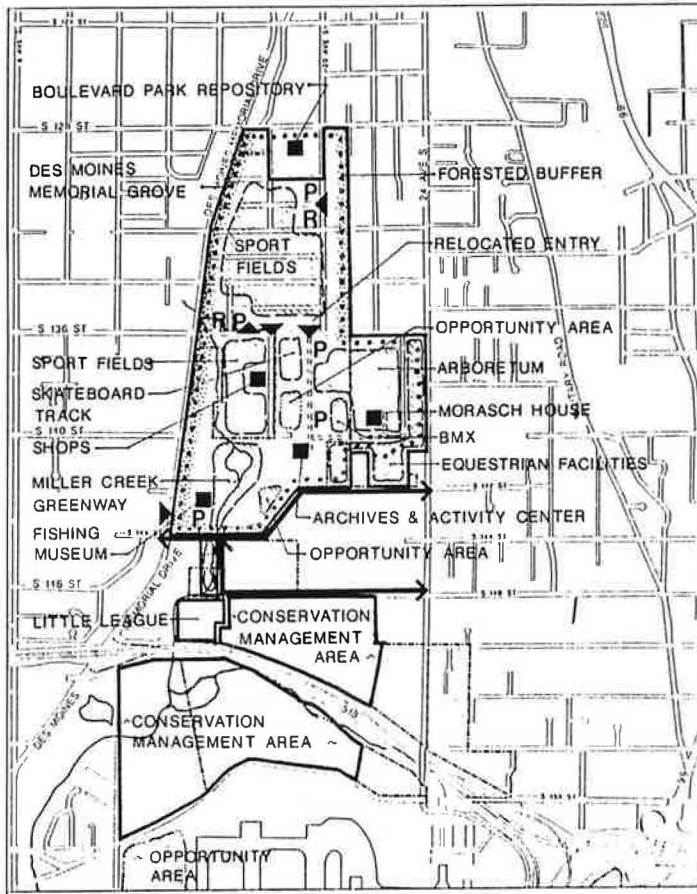
To ensure that the full range of potentially compatible recreation uses was considered in the plan update, a separate list of potential recreation uses was developed by the consultant team. This list included uses that would normally be provided by commercial operators, as well as by public agencies 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

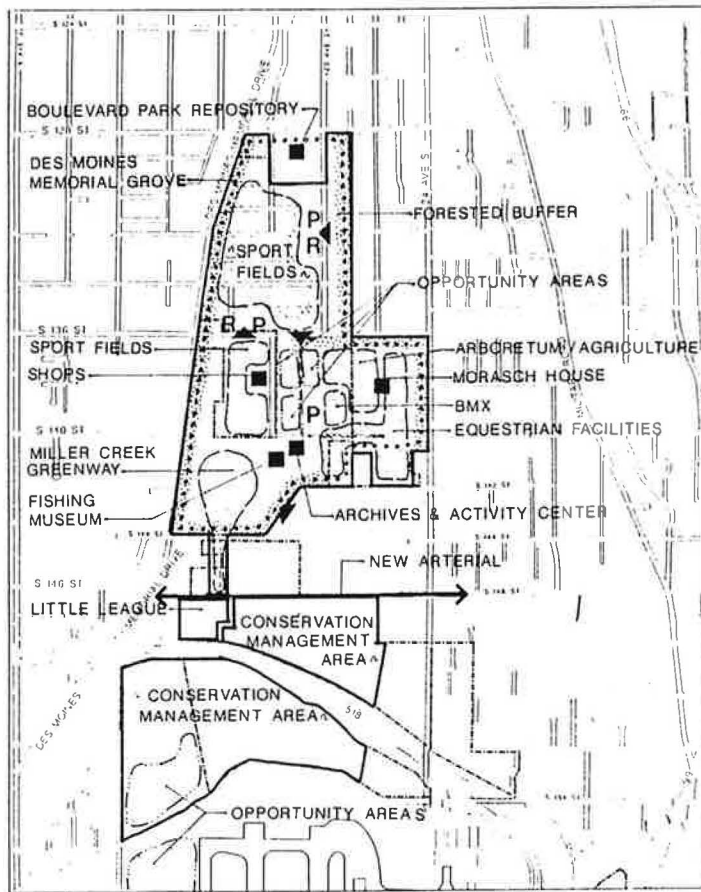
From the palette of potential uses described above, four alternative use programs were developed for the park plan update and reported in Technical Memorandum 3. The compatibility criteria discussed earlier in this report (safety, noise, traffic, security) were used to evaluate the potential uses included 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:

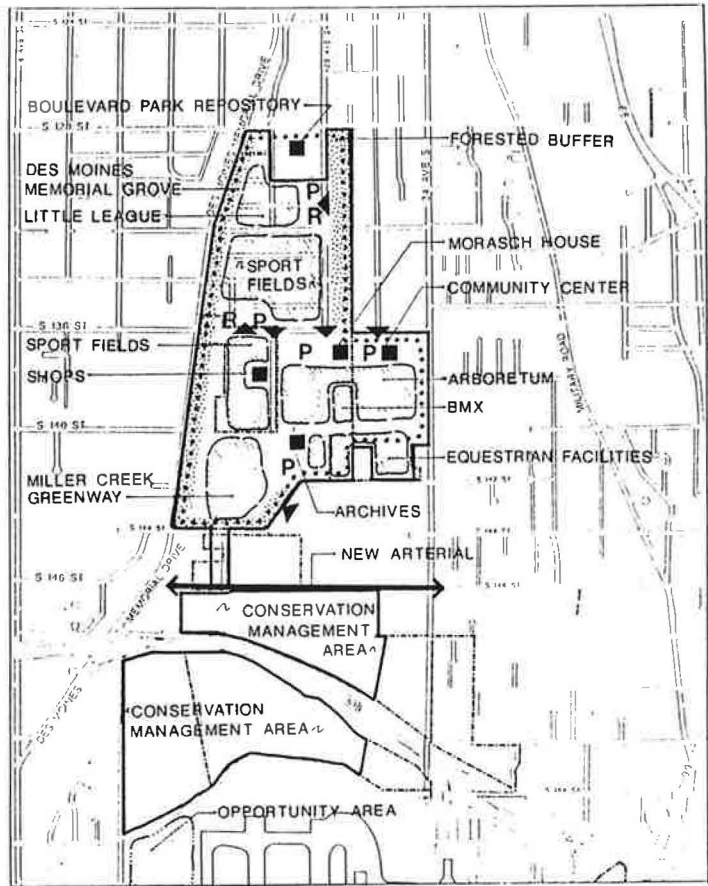
-  PROPOSED BOUNDARY
-  FORESTED BUFFER
-  PERIMETER TRAILS
-  RESTROOM
-  PARKING
-  ACCESS POINT
-  INTERNAL ROAD
-  STRUCTURE
-  ACTIVITY AREA
-  OPPORTUNITY AREA
-  MAJOR ARTERIAL

Use & Boundary Alternative A

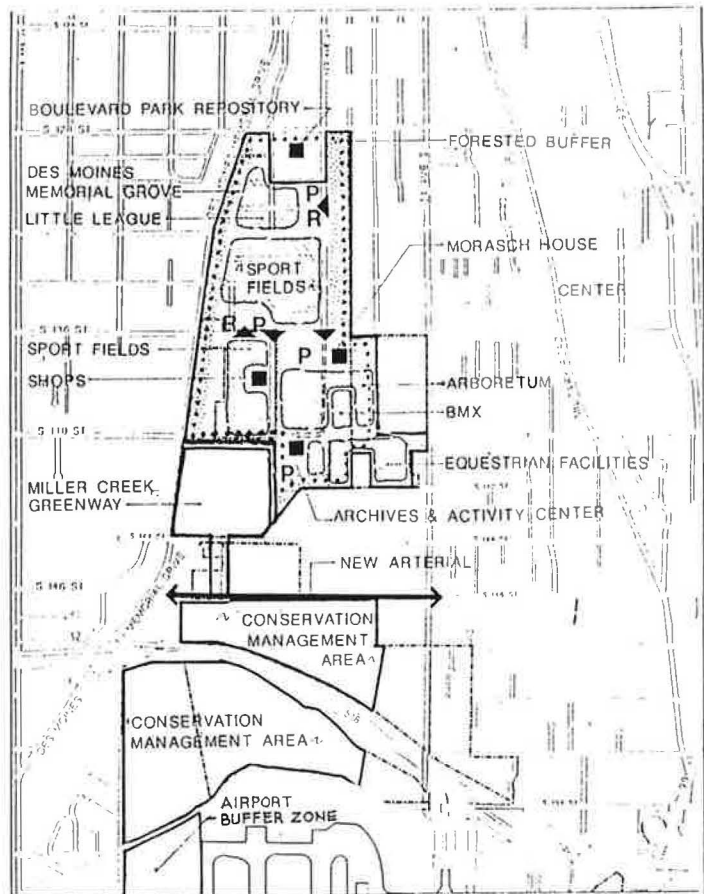


Use & Boundary Alternative B

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

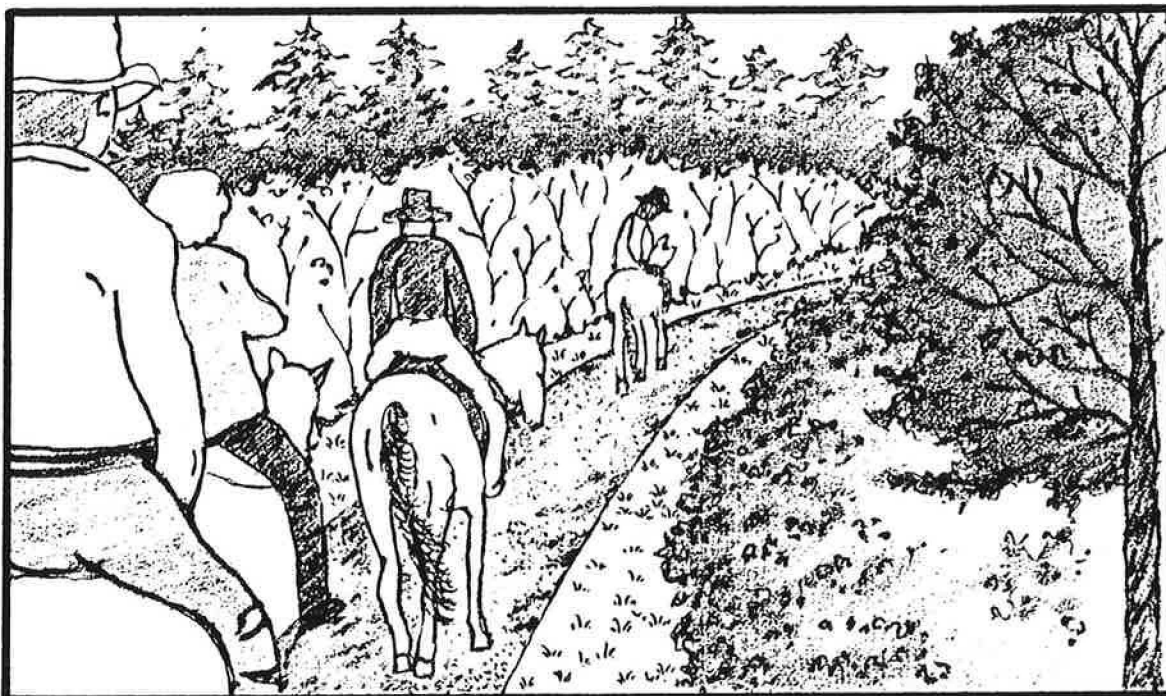
Two water districts serve the area of the North Sea Tac Park Plan Update: Water District #125 and Water District #20. The park plan update process included a review of the portions of the water systems that these districts continue to maintain within the proposed park site. Technical Memoranda 3 and 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.

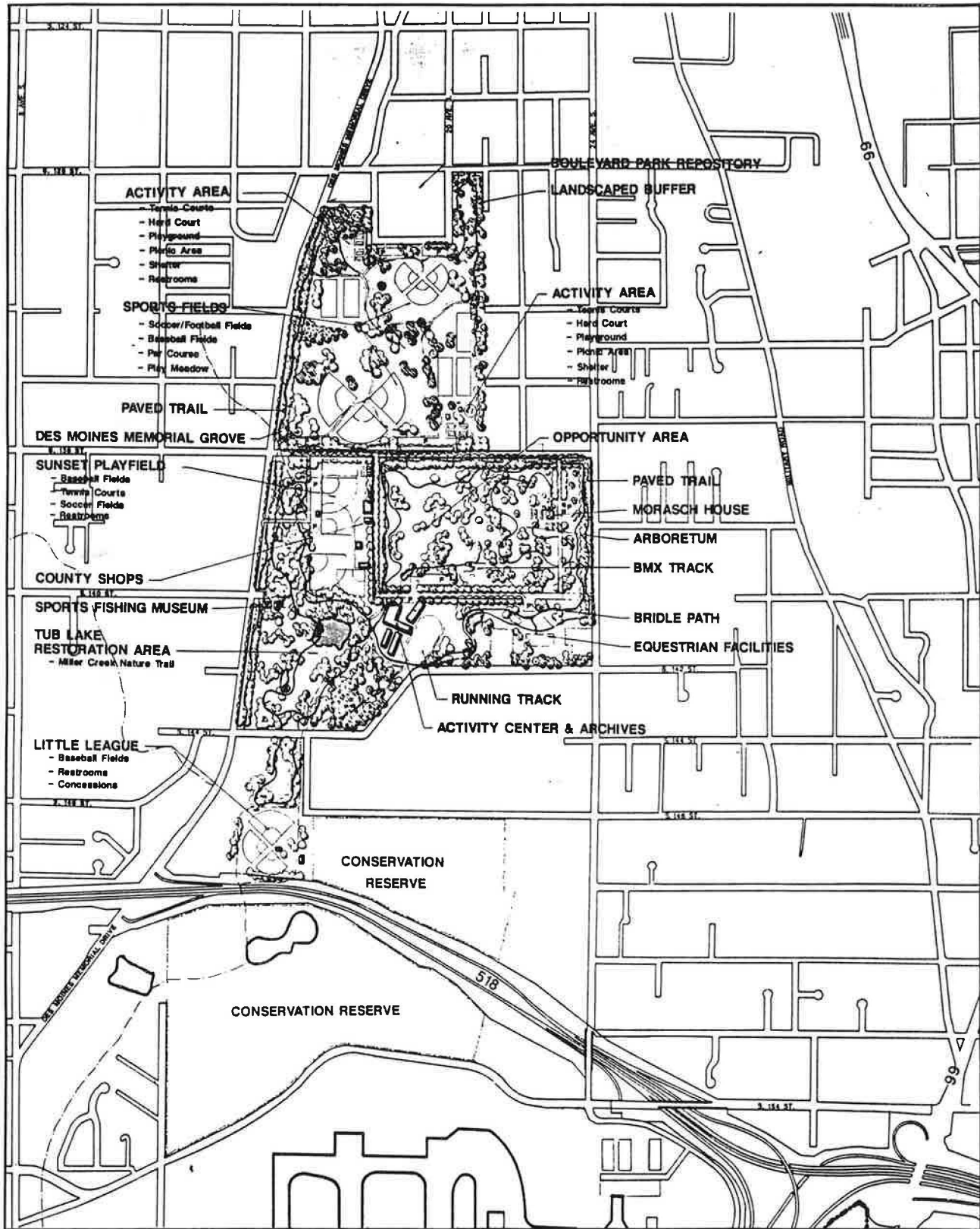
The proposed schematic plan map was adopted by consensus, "in concept" by the Workshop Group and by a majority of the Sea Tac Area Update Citizens Advisory Committee.

RECOMMENDED PARK USES AND FACILITIES

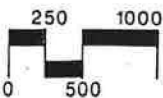
LANDSCAPED BUFFER

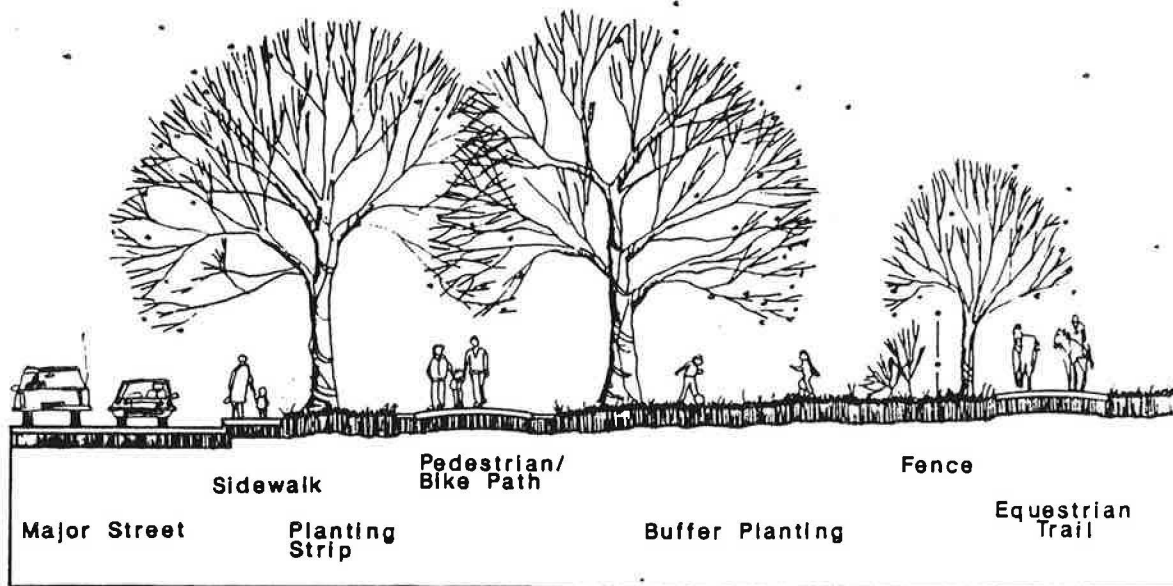
A continuous landscaped buffer would be developed around the perimeter of the actively developed park area. This buffer would be provided with a continuous paved trail for walkers and cyclists, with a separated trail for joggers. A separated horse trail system could be developed with cooperation of horse 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

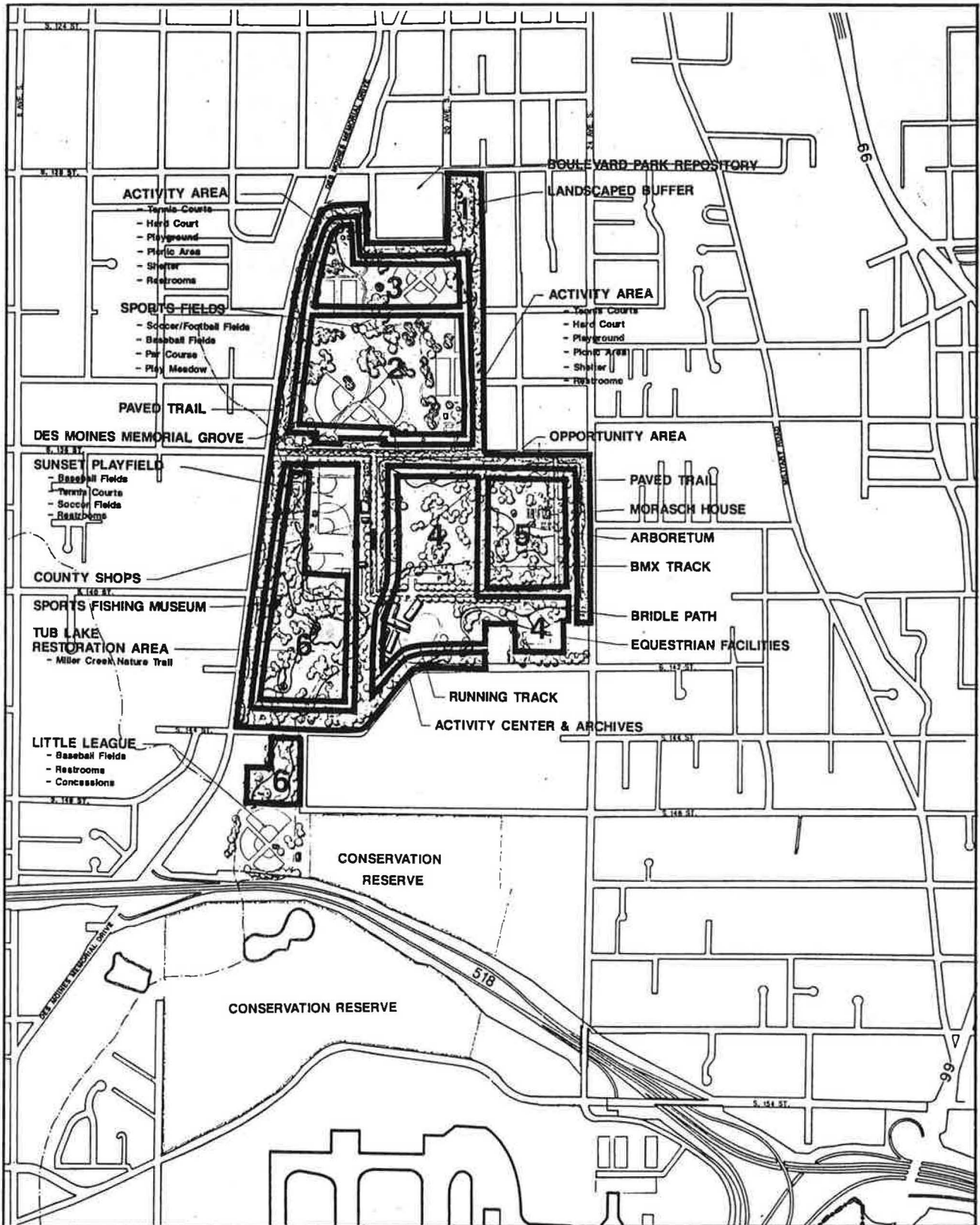
Phase V - development of an arboretum featuring native plants

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

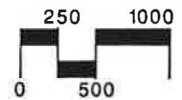
Phase VII - special enhancement projects throughout the park area, such as ornamental plantings and park furnishings

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
Subtotal	<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>
TOTAL		\$9,087,660.00

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.

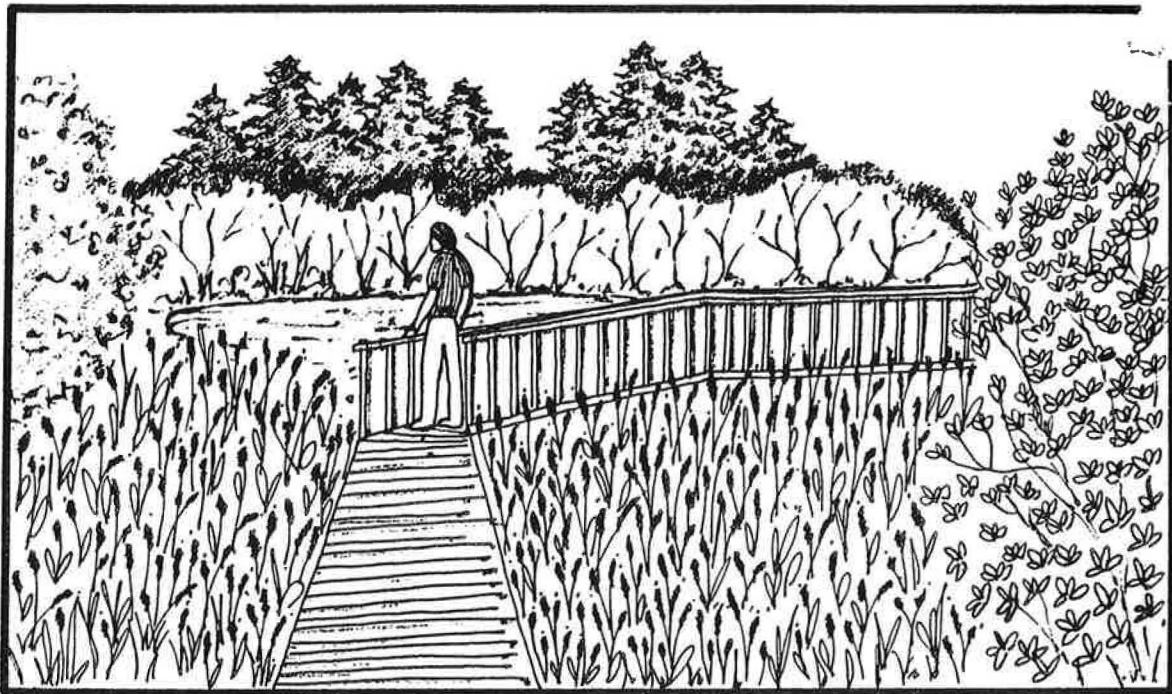
Based on the County park maintenance plan (1985), it is estimated that the Natural Resources and Parks Division would have to add approximately two to three full-time maintenance positions to maintain Phases II and III, and possibly another position to maintain Phases I and V. This is based on the proportional 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 ¹		D		
III (sports fields)	D,O,M ¹		D		
IV (area currently leased by GHCPB)			D	D,O,M	D,O,M ²
V (arboretum)	D,O,M		D	D,O,M	D,O,M ²
VI (Tub Lake)	D,O,M	D,O,M	D,O,M		D,O,M ³
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**

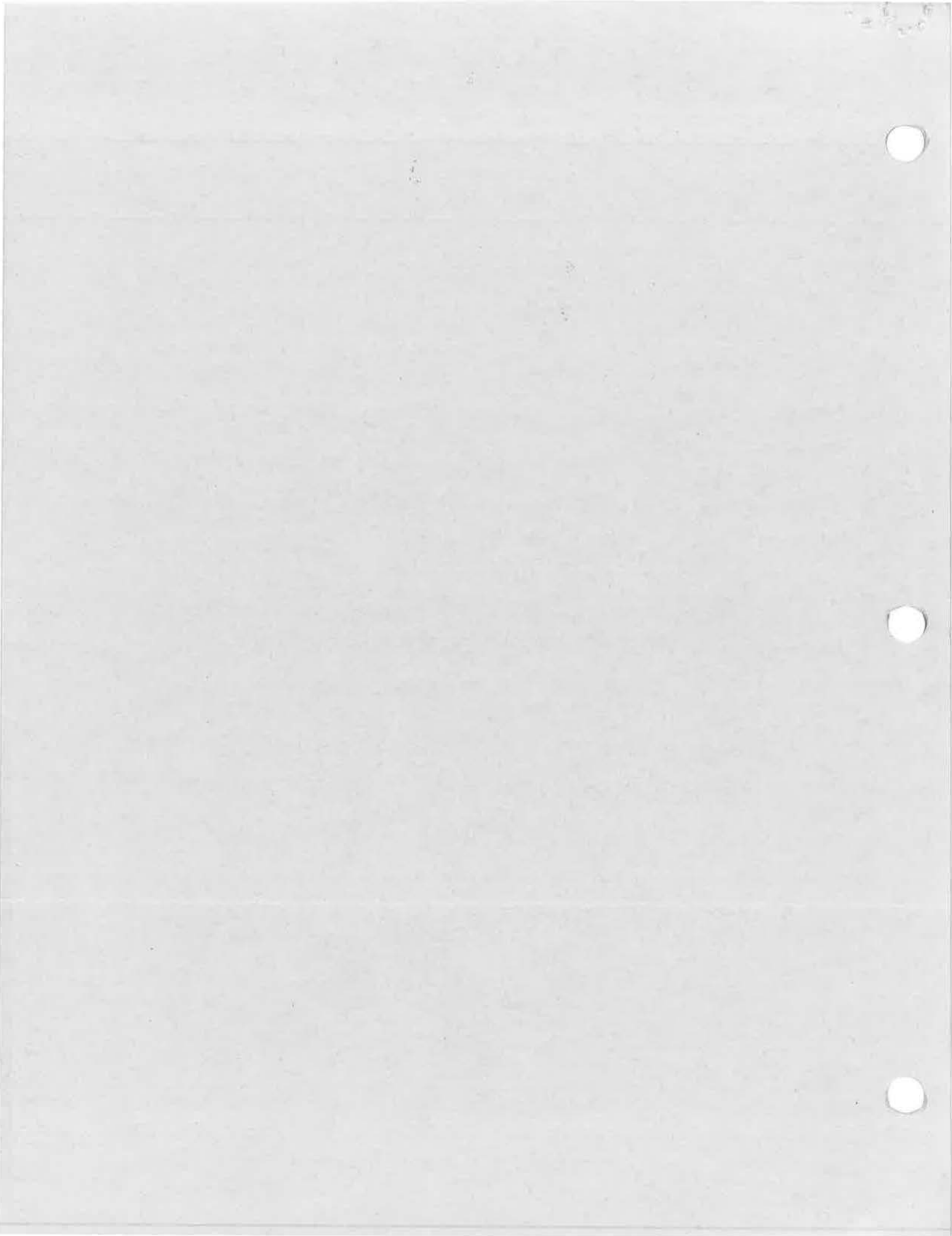
Members of the workshop advisory group and Citizens Advisory Committee were asked to comment on the consultant report. The most frequently mentioned issue was safety and the California Airport Land Use Report. There was agreement with the plan's intent to limit assemblies of people in the park, and one 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.

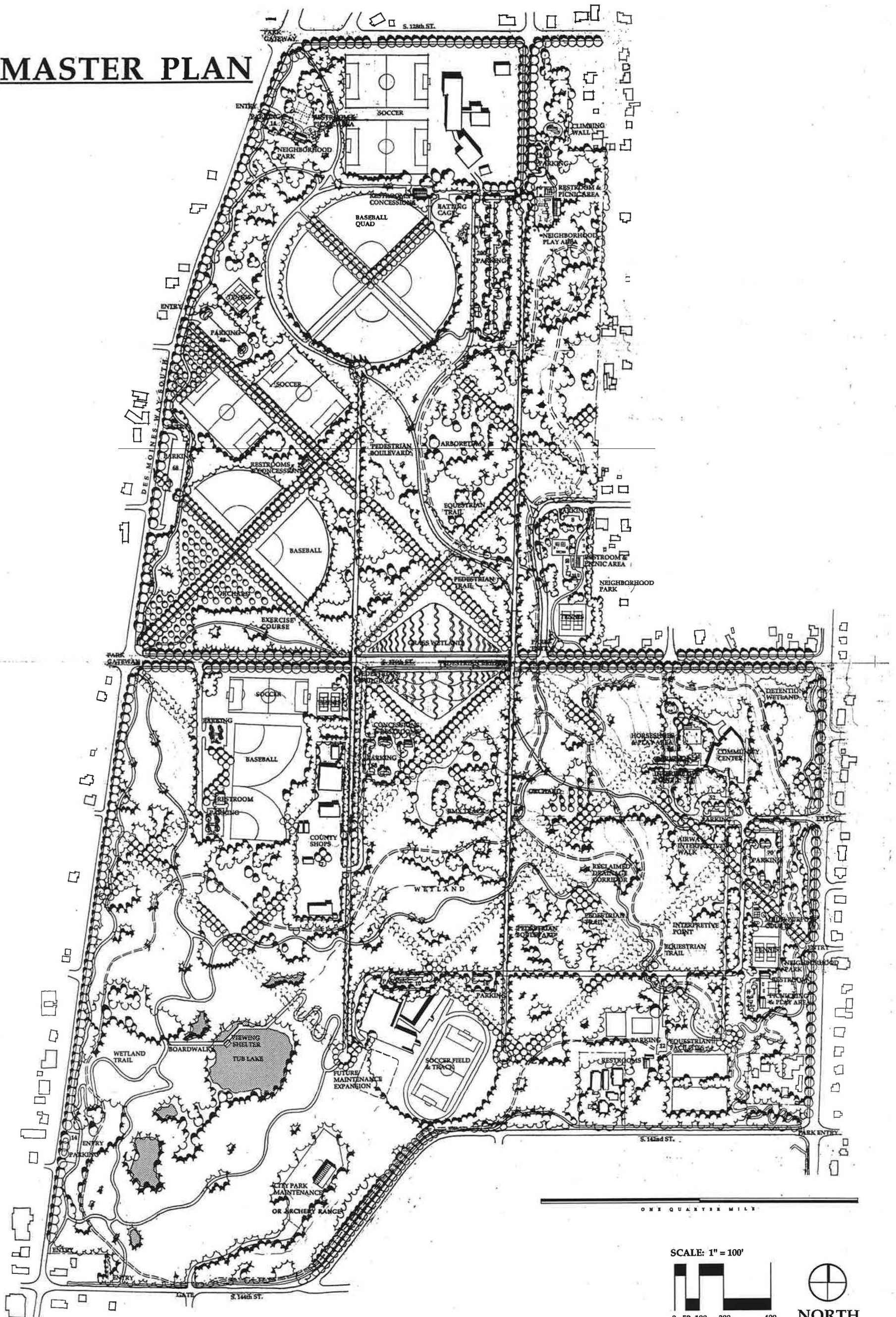
Advisory group members emphasized the importance of proceeding with implementation of the park plan. Two people advocated King County taking control of the operation of the entire park and others specified that one jurisdiction accountable to the taxpayer should administer the park. A number of the members 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.

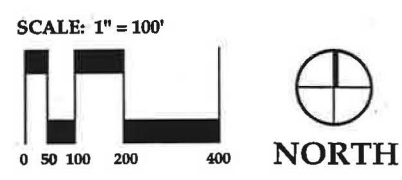
Several members discussed the responsibility of the Port of Seattle to mitigate the airport's impact on the community and the importance of cooperation between the Port, King County, and the community in achieving park implementation.



MASTER PLAN



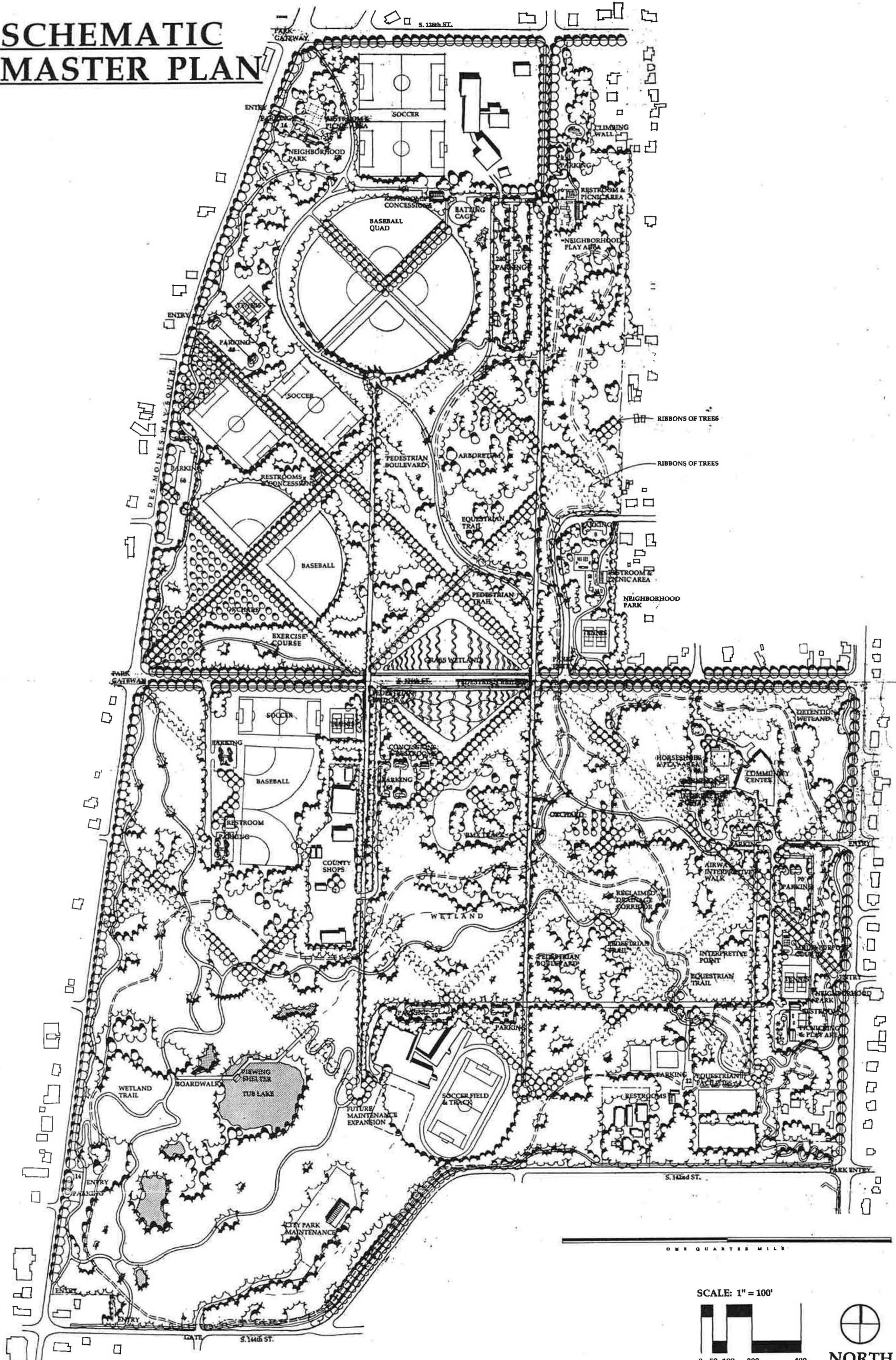
ONE QUARTER MILE



NORTH SEATAC PARK

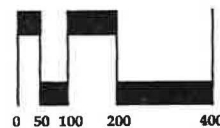
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 106 SOUTH MAIN STREET
 SEATTLE, WASHINGTON 98104
 (206) 424-4700

SCHEMATIC MASTER PLAN



ONE QUARTER MILE

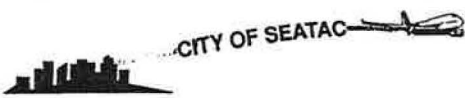
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NORTH SEATAC PARK

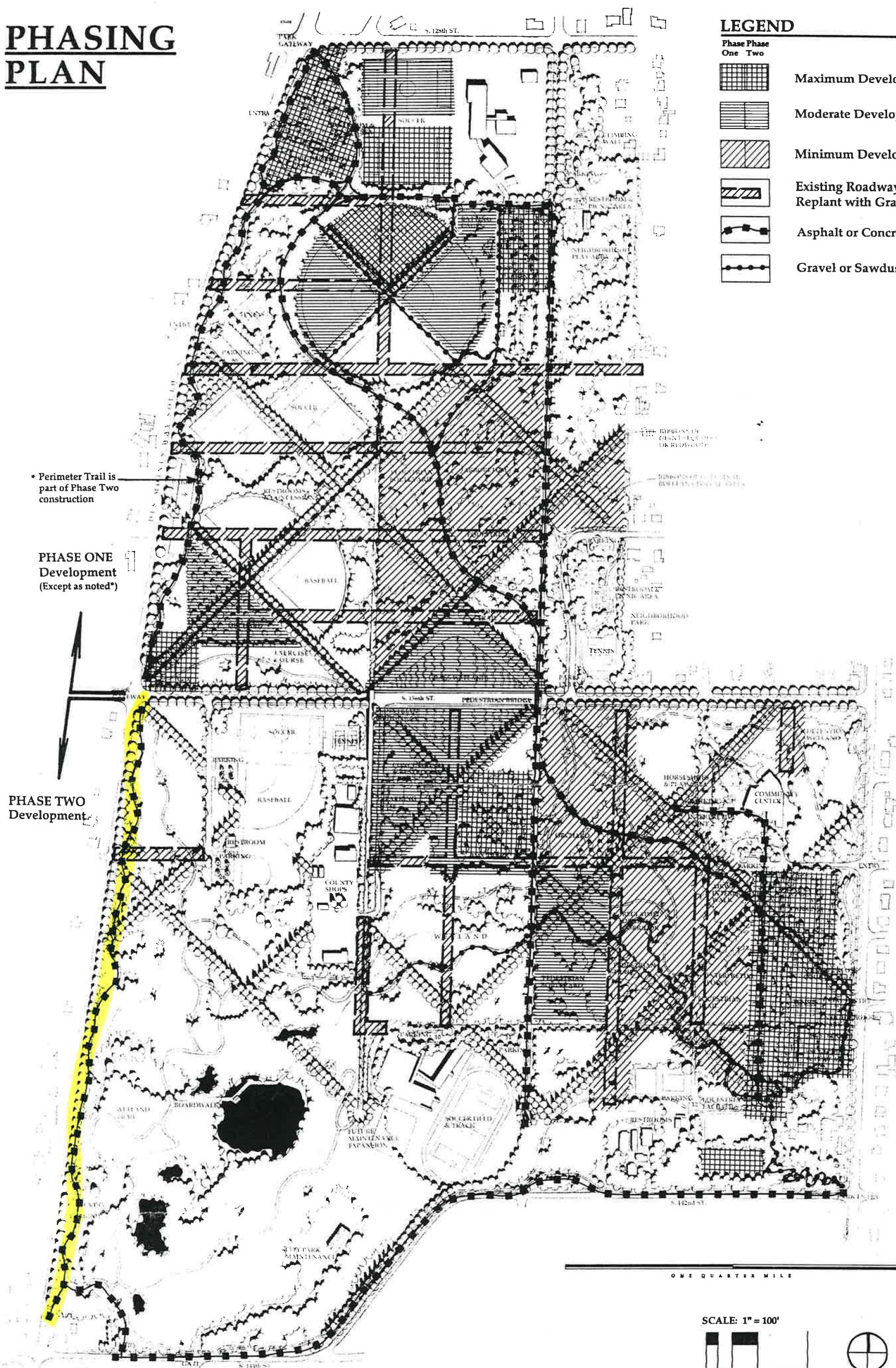
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 80 SOUTH MAIN STREET
 SEATTLE, WASHINGTON 98101
 (206) 454-4700



PHASING PLAN

LEGEND

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



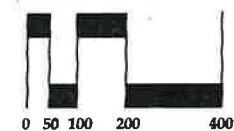
* Perimeter Trail is part of Phase Two construction

PHASE ONE Development (Except as noted*)

PHASE TWO Development

ONE QUARTER MILE

SCALE: 1" = 100'







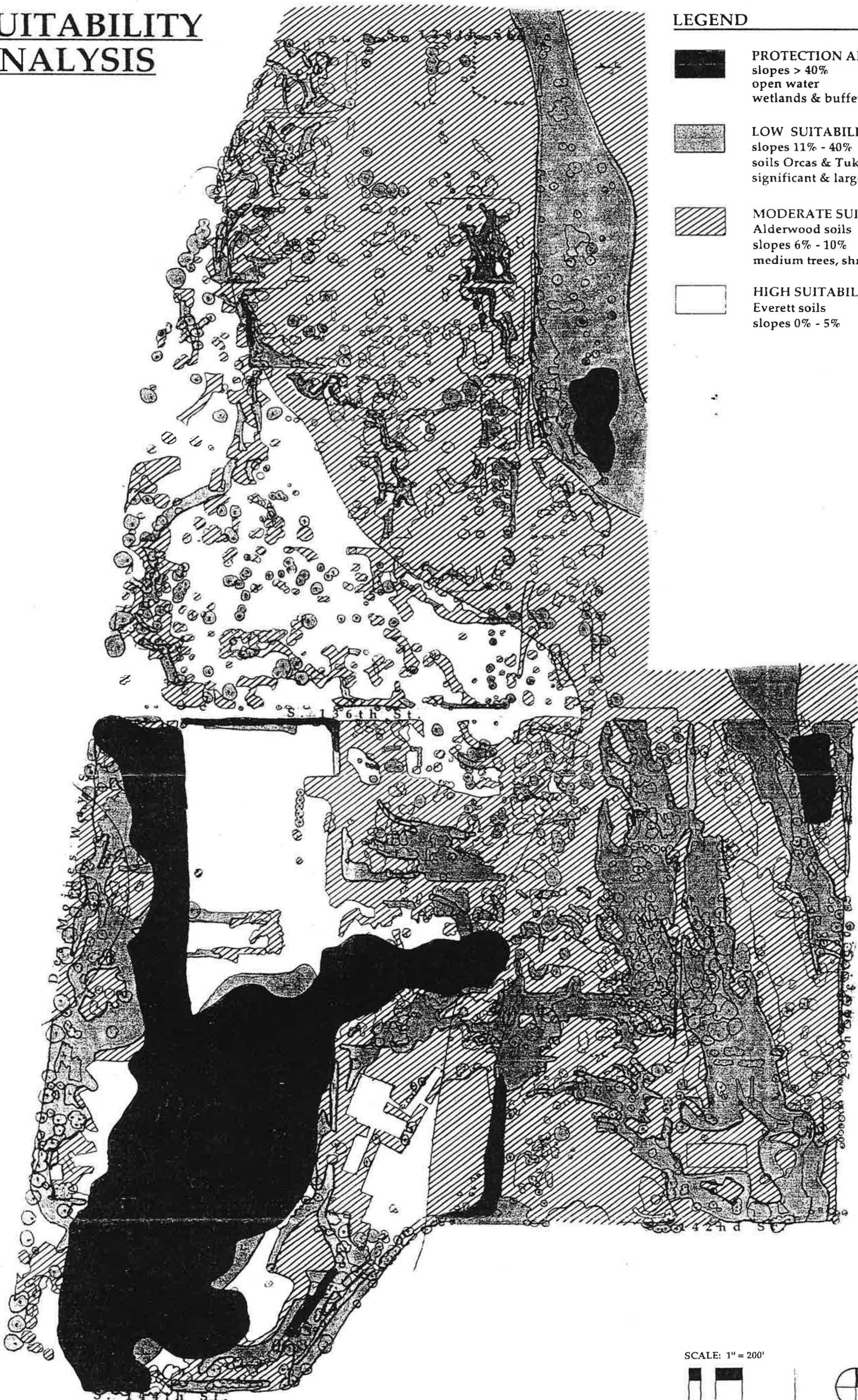
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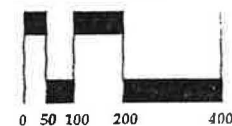
SUITABILITY ANALYSIS

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'



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