



Draft Environmental Impact Statement Reuse of Naval Station Puget Sound, Sand Point Seattle, Washington

Volume 1

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COVER SHEET
Draft Environmental Impact Statement
Reuse of Naval Station Puget Sound, Sand Point

Responsible Agencies:

Lead Agency: United States Navy

Cooperating Agencies: City of Seattle
Muckleshoot Indian Tribe

Action: In response to Congressional direction resulting from the 1991 Base Realignment and Closure process, the Naval Station Sand Point will be closed and base property disposed of for reuse. Naval Station Sand Point is located in Seattle, King County, Washington.

Designation: Draft Environmental Impact Statement (DEIS)

Abstract: This statement assesses the potential environmental impacts from the reuse of Naval Station Sand Point located in Seattle, Washington. Two reuse plans and a No-action Alternative are evaluated. The reuse plans are the November 1993 *Community Preferred Reuse Plan for Sand Point* (City Plan) and the June 1993 *Muckleshoot Indian Tribe Proposed Reuse Plan for the Naval Station Puget Sound, Sand Point* (Muckleshoot Plan). The City Plan (152 acres/61.5 hectares) is the preferred alternative. Land uses proposed in the City Plan include arts, cultural activities, open space/recreation, education, community activities, housing, and institutional applications. Land uses proposed in the Muckleshoot Plan (152 acres/61.5 hectares) include recreation, education, administration, recreational/commercial, warehousing, light industrial, and institutional. Under the No-action Alternative, the Navy would continue to be caretaker of the base, but there would be no use of the site. Although both reuse plans have the potential for significant impacts, appropriate mitigation measures by the reuser would reduce the impacts.

Status of Alternatives: On September 30, 1995, the Navy closed Naval Station Sand Point and placed it in caretaker status. Following submittal of the original November 1993 City Plan, the City continued to refine it. Revisions to the 152-acre plan were submitted on February 22, 1996. The Seattle City Council adopted these revisions by resolution. In March 1996, the City submitted a request to negotiate an interim lease. The main purpose of the lease was to return unused Navy property to productive use as quickly as possible and utilize support from U.S. Department of Housing and Urban Development (HUD) monies. A portion of the options presented in February 1996 were considered as a part of the proposed interim lease negotiated on July 10, 1996. The activities proposed in the interim lease were evaluated in an environmental assessment

released in June 1996. A finding of no significant impact (FONSI) was adopted, and it was determined that the uses (lease options) evaluated under the proposed lease would not have a significant impact on the environment. These options, as well as other minimal proposed changes to the original plan, are included in this EIS as part of the City Plan. The Muckleshoot Plan for 152 acres (61.5 hectares) was submitted by the Muckleshoot Indian Tribe (Tribe) and an 85-acre (34-hectare) portion of that plan was subsequently sponsored by the Bureau of Indian Affairs (BIA). On September 7, 1995, the BIA withdrew its support of the 85-acre (34-hectare) portion of the Muckleshoot Plan. The full 152-acre (61.5-hectare) Muckleshoot Plan is analyzed in this DEIS, because it was considered during the scoping process, and it represents a range of potential reuse concepts.

Send Comments to:

Mr. Don Morris
Code 232 DM
Engineering Field Activity, Northwest
Naval Facilities Engineering Command
19917 Seventh Avenue N.E.
Poulsbo, Washington 98370-7570
e-mail: envpln@efanw.navfac.navy.mil

SUMMARY

PROPOSED ACTION

The proposed administrative action analyzed in this environmental impact statement (EIS) is the disposal of real property made available by the closure of Naval Station Sand Point, located in Seattle, Washington. The process to determine which Department of Defense (DoD) installations to close and/or realign was established in the Defense Base Closure and Realignment Act of 1990 (1990 Base Closure Act), Public Law 101-510. On July 1, 1991, the Base Realignment and Closure (BRAC) Commission recommended closure of Naval Station Sand Point. The recommendation was approved by Congress, and the Navy closed the Naval Station Sand Point on September 30, 1995.

This EIS will give decisionmakers and the public a full and fair discussion of the environmental impacts that could result from the reuse alternatives proposed for Naval Station Sand Point.

Three alternatives are considered in this draft environmental impact statement (DEIS): the *City of Seattle Community Preferred Reuse Plan for Sand Point* (City Plan), adopted by the Seattle City Council on November 22, 1993, and revised on February 22, 1996 (option to the City Plan); the *Muckleshoot Indian Tribe Proposed Reuse Plan for the Naval Station Puget Sound, Sand Point* (Muckleshoot Plan) [152 acres (61.5 hectares)], published in June 1993; and the No-action Alternative. The Bureau of Indian Affairs (BIA) supported 85 acres (34 hectares) of the 152-acre (61.5-hectare) Muckleshoot Plan during the federal screening process. On September 7, 1995, however, the BIA withdrew its support of the 85-acre (34-hectare) plan (Appendix M). The No-action Alternative is a closed and unoccupied base with the Navy as caretaker.

HISTORY AND BACKGROUND

Sand Point Naval Station is on the western shore of Lake Washington, approximately 6 miles (10 kilometers) northeast of downtown Seattle. The Navy established the base in 1929 on land acquired from King County. Sand Point Naval Station was initially named Naval Air Station (NAS) Seattle at Sand Point. It served as a Naval Air Reserve training facility until December 7, 1941.

During World War II, NAS Seattle supported air transport and ship outfitting for the Alaskan and Western Pacific areas of operation. In 1945, at the peak of its activity, the base supported more than 4,600 Navy, Marine Corps, and civilian personnel. After the war, the base was designated a Naval Reserve Air Station. From 1945 to 1970, the station maintained Naval Reserve squadrons to supplement active duty forces in the

continental United States and abroad. Aviation activities officially ceased on June 30, 1970, and NAS Seattle was decommissioned.

On July 1, 1970, NAS Seattle was redesignated Naval Support Activity, Seattle. Three years later, the Navy surplused much of the property. The National Oceanic and Atmospheric Administration (NOAA) received 116 acres (47 hectares), including one-third of the runways and 3,500 feet (1,067 meters) of waterfront property. The City of Seattle received approximately 198 acres (80 hectares) comprising the southeast portion of the base, including approximately 1 mile (1.6 kilometers) of waterfront property; this area became Magnuson Park in 1977. The Navy retained the remainder of the base. From 1970 until April 1982, the base provided logistic services to the 13th Naval District, U.S. Department of Defense (DoD), and other federal agencies.

In April 1982, Naval Support Activity, Seattle, was redesignated Naval Station, Seattle, and on October 10, 1986, was redesignated Naval Station Puget Sound. Until recently, the base functioned as a support and billeting facility for the Northern Pacific Fleet.

Given the authority under the 1990 Base Closure Act, the BRAC Commission on July 1, 1991, recommended closure of Sand Point Naval Station. Congress approved the recommendation and the naval station closed in September 1995. The Navy has maintained the base in caretaker status since that time. All of the Navy's scheduled environmental cleanup actions at the Sand Point Naval Station are complete. Functions formerly housed at Sand Point have been transferred to other facilities, including Naval Submarine Base, Bangor, and Naval Station Puget Sound, Everett.

The City of Seattle has proposed immediate reuse of a portion of the property through an interim lease. The purpose of the interim lease is to support local redevelopment in attaining funds for assistance to persons who are homeless, put unused Navy property to productive use as quickly as possible, and support the Seattle School District's space requirement for temporary relocation of Ballard High School. An environmental assessment (EA) was prepared to evaluate impacts of the Navy's proposed action to lease to the City of Seattle (City) for immediate use of approximately 136 acres (55 hectares) of the former Naval Station Sand Point. A National Environmental Policy Act (NEPA) finding of no significant impact (FONSI) was issued in June 1996.

In November 1993, the City passed resolution 28832 establishing the *City of Seattle Community Preferred Reuse Plan* as the statement of City policy on reuse of Naval Station Sand Point. The resolution endorses the general objective of the City gaining ownership of the property.

On July 15, 1996, the City released a draft EIS evaluating amendments to the Comprehensive Plan, zoning, and a physical development management plan.

SUMMARY OF THE ALTERNATIVES

The alternatives for reuse of the Naval Station Sand Point are more fully described in Section 2.0, Appendix C (City Plan and options), and Appendix D (Muckleshoot Plan).

The preferred alternative, the City Plan, proposes the following uses, to be located within five functionally distinct subareas:

- Housing and social services for homeless and low-income persons
- A community center and an outdoor amphitheater for community events, theatrical and dance performances, art exhibitions, and instruction in performing and fine arts
- Public open space and recreational facilities, including a tennis facility, a sailing center, and shoreline access
- A new entrance to Magnuson Park
- Restoration of former wetland habitat
- A commercial film studio
- Educational and community activities provided by nonprofit arts and education organizations, North Seattle Community College, and City departments
- Pedestrian, bicycle, and public transportation access
- Firefighter training center
- Options to the City Plan (proposed in February 1996) include low-income housing, community college classrooms, utility upgrades, training and administration, a senior center, and outdoor recreation as proposed uses by the City. To accommodate the proposed uses, the City would rehabilitate and use Buildings 224, 26N, 26S, 330, 331, 332 for housing. Buildings 9, 18, and 47 would be rehabilitated and used as temporary educational facilities. Building 5 would be used for vocational training, offices, and storage. Building 138 would be used as a temporary site project office, Building 67 for fire department training, and Building 406 for senior center activities. Building 222 would be demolished. Baseball fields would be improved and used for summer league play. Infrastructure, which includes water, sewer, drainage, electrical, natural gas, and telephone, would be upgraded as appropriate.

The Muckleshoot Plan proposes the following uses:

- A technical institute for 5,000 to 7,000 students
- Housing for some campus staff and approximately 600 students
- Social services, including an alcohol and drug treatment program, health clinic, seniors program, student counseling, and interim jail facility
- Light industrial and warehousing activities
- Recreational access for the general public
- A commercial marina for tribal fishing, fishing vessels, boating, and net storage
- Fisheries research
- Commercial activities
- A new entrance to Magnuson Park
- 1980 new jobs for Native Americans

The No-action Alternative proposes the following:

- The Navy would maintain its ownership of Naval Station Sand Point and the facility would not be used for any military or civilian purpose.
- The Navy would continue to serve as property caretaker, provide security, and maintain the facility to prevent deterioration.

SUMMARY OF ENVIRONMENTAL IMPACTS

Land Use

The land use section evaluated existing land uses and compared them with those proposed under the City Plan and options, the Muckleshoot Plan, and the No-action Alternative. Issues discussed included compatibility of the plans with the existing neighborhoods and comparative analysis with current property use. Evaluation of the issues revealed potential impacts from the proposed alternative uses.

Changes to land use as a result of the City Plan are a substantial increase in recreational and educational uses and a decrease in commercial and administrative uses from operational Navy activities. Increased recreational and educational uses are not anticipated to create an impact on site or in the surrounding neighborhoods. Residential increases of approximately 25 percent are anticipated under the City Plan. Because the general character of the surrounding area is single-family residential, residential land and building uses are not anticipated to create an adverse impact. Options to the City Plan diverge from the City Plan by increasing the educational land use area and correspondingly decreasing the housing land use area, thus increasing housing density. No impacts are anticipated under the City Plan and options. The Muckleshoot Plan proposes primarily recreational/commercial, commercial, educational, administrative/maintenance, and light industrial land uses. No residential land use area is proposed, with the exception of dormitory use. No impacts are anticipated due to the decreased residential use. The area proposed for "Recreational/Commercial" use would be open to the general public with only minor reservations during the fishing season. Changing the waterfront area from the current recreational boating use to a commercial use could impact the neighboring residential housing through increased activities. In addition, increased boat use could create potential public boating safety impacts if distance is not maintained from NOAA ships and machinery. The Muckleshoot Plan would not impact educational, administrative/maintenance, institutional, and light industrial uses. Under the No-action Alternative, the federal government would continue to pay to maintain the facility; however, the property would remain vacant and underused.

No mitigating measures are required as a result of the City Plan, its options, or the No-action Alternative.

Mitigating measures under the Muckleshoot Plan include restricting the marina's hours of operation and identifying water routes to and from the marina.

Historic and Cultural Resources

Issues discussed include potential archaeological and historical resources. Evaluation of the issues revealed that no archaeological resources have been identified at Naval Station Sand Point. Some resources may exist in subsurface undisturbed areas.

Historic surveys and analyses indicated that a number of structures are eligible for inclusion on the National Register as historic districts. The City Plan, its options, and the Muckleshoot Plan propose uses similar to the original building functions. This enhances the integrity of the proposed historic district by keeping building and architectural forms intact. The City Plan proposes demolition of some buildings if renovation and reuse are unfeasible after 10 years. These actions could have an adverse impact on buildings within the historic district.

Under the No-action Alternative, wherein the Navy retains the base, the Navy will continue to maintain the historic buildings to prevent their deterioration. No impact would result from the no-action alternative because the Navy would continue to follow its Historic and Archeological Resources Protection Act (HARP) plan. Under this plan, the Navy must comply with all federal laws on historic preservation.

The Navy will establish a programmatic agreement (in process) with the State Historic Preservation Officer (SHPO) to establish a process for property conveyance to preserve the historic district and its contributing elements.

As specified in the HARP plan, undisturbed subsurface excavation should be monitored by a professional archaeologist to ensure that any archaeological remains are identified and evaluated.

Socioeconomics

Issues include the potential for impacts to demographics, housing, economy, social services, schools, and environmental justice. Evaluation indicated potential impacts from proposed alternative uses.

The City Plan and the options would increase population in the study area by less than 2 percent and assisted housing by approximately 2 percent. There would be minimal impacts on jobs and property values and no significant effects on social services, although there could be an approximately 2 to 6 percent decrease in nearby property values, depending on the design of the buildings proposed under full buildout. There would be increased educational opportunities, and, under the options, a proposed temporary use of Building 9 by Ballard High School. Low income and minority populations would benefit. The Muckleshoot Plan would increase the population by approximately 2 percent and the Native American population in the Naval Station Sand Point area fourfold. This alternative will increase the student population by 5,000 to 7,000, causing housing pressure in the area. The alternative would create job opportunities but lower property values in the area from 3 to 6 percent due to increased traffic, and possibly 7 to 10 percent to one home near the marina due to the presence of fishing boats. There will be no significant impacts on social services and schools, and the alternative will create educational opportunities. Low income and minority populations will benefit.

Under the No-action Alternative, the population would be slightly smaller than when the Naval Station was operational. No significant impacts are expected from the No-action Alternative.

Proposed mitigating measures for the City Plan and options include designing new housing to preserve views and retain neighborhood character. Ballard High School students could be bused to minimize potential traffic and parking impacts. Proposed mitigating measures for the Muckleshoot Plan include reducing traffic congestion on

Sand Point Way to minimize property value impacts, reducing the number of boats or providing indoor storage at the marina, and providing more on-and-off campus housing for students. Increased housing demand in the Muckleshoot Plan is an unavoidable impact.

Recreation

Issues discussed under this topic include the potential for impacts on recreation in the Naval Station Sand Point vicinity. Evaluation of the issues indicated a positive effect on recreational opportunities in the area.

The City Plan and the options would increase the recreational area by 160 percent and would enhance public access to indoor and outdoor recreational facilities. The Muckleshoot Plan would increase the recreational area by 130 percent and would enhance open space available to the public, with minor restrictions during the fishing season.

Under the No-action Alternative, Naval Station Sand Point facilities will not be used. Opportunities to use open space and recreational facilities will not be available.

No mitigating measures are required.

Transportation

Issues discussed under this topic include an evaluation of the current traffic conditions and transportation systems, transit routes, high-occupancy vehicles (HOVs), nonmotorized modes of transportation, traffic volumes, traffic safety, and parking. Evaluation of the issues indicated potential impacts from proposed alternative uses.

The analysis indicated the Muckleshoot Plan would generate approximately 18,260 average daily trips (ADTs), whereas the City Plan would generate approximately 8,950 ADTs (inclusive of City Plan). The options would generate approximately 9,050 ADTs without the high school and 10,280 ADTs (inclusive of City Plan) with the high school. Under the No-action Alternative, only minimal (security and maintenance) traffic would enter or exit the site. None of the alternatives would cause the street network to operate at unacceptable conditions. Intersection levels of service (LOS) are expected to remain at LOS C or better except for N.E. 95th Street/Sand Point Way N.E., which is projected to operate at LOS F under the two reuse plans and the No-action Alternative. None of the volume to capacity (V/C) ratios exceeds the maximum allowed under the City's concurrency plan in any alternative.

The Muckleshoot Plan, the City Plan, and the options would increase transit ridership. This impact is not expected to be significant. The Muckleshoot Plan, the City Plan, and

the options will increase use of nonmotorized transportation; however, no impacts are anticipated. Parking and construction traffic is not anticipated to create an impact.

Mitigating measures for the reuse plans include signalization, signal timing, and potential intersection improvements. Signalization at the N.E. 95th Street/Sand Point Way N.E. intersection would alleviate vehicle movement impacts under the reuse alternatives. Additional mitigating measures include effective design and construction bicycle trails, facilities, and vehicle parking control measures. Special events should be limited to non-peak hour traffic times, and a traffic plan should be in place to expedite traffic in and out of the site.

Noise

Issues discussed under this topic include evaluation of existing noise levels that currently exceed City limits and potential increases due to this project. The evaluation of the issues revealed there is a potential for some impacts from the proposed alternative uses.

Noise associated with the reuse alternatives is expected to originate from four sources: (1) traffic (on and off site); (2) construction; (3) heating, ventilating, and other mechanical equipment; and (4) other sources (people, activities, equipment). Noise associated with the first three categories is expected to be similar under the City and the Muckleshoot Plans. The fourth category may create a greater impact under the City Plan, as specific uses are more clearly defined. Under the City Plan, outdoor music concerts at the amphitheater could create an impact. Similarly, the Muckleshoot Plan includes motorized fishing vessels that could significantly impact noise levels.

No use-related noise would occur under the No-action Alternative.

Regulation of operating hours and the orientation and design of the amphitheater would reduce impacts under the City Plan. Noise limits from the firefighter-training facility should be regulated. Under the Muckleshoot Plan, the speed of fishing vessels departing and arriving at the site should be limited within 400 feet (122 m) of the shoreline.

Public Services and Utilities

Issues discussed under this topic include the potential for impacts on on- and off-site public services and utilities. Evaluation of these issues indicated no significant impacts on public services or utilities.

The City Plan and options and the Muckleshoot Plan would present no significant off-site impacts. Utility systems will be upgraded as needed. Under the City Plan and options and the Muckleshoot Plan, the on-site utilities are adequate for the short term, although both alternatives propose upgrades to or replacements of utilities or services over the long term.

Under the No-action Alternative, the facilities on Naval Station Sand Point will not be used. No impacts to these facilities would occur.

No mitigating measures are necessary.

Public Health and Safety

Issues evaluated in this section included crime and law enforcement, fire protection, emergency and medical services, and environmental health, at and near Naval Station Sand Point. Evaluation of the issues indicated some potential impacts from the proposed alternative uses.

It is anticipated that crime will increase slightly on site under the reuse alternatives, as there will be more people. No increase in crime is anticipated in adjacent areas. Law enforcement is anticipated to change under all alternatives. Under the No-action Alternative, the Navy would continue to provide security. The City Police have concurrent jurisdiction and would respond.

Provision of fire protection services under the City Plan and options would create impacts similar to those presented by normal growth. Analysis indicated that the current services were adequate. All Seattle fire code requirements would be enforced. Under the Muckleshoot Plan, the clarification of fire jurisdiction is needed. The City would provide fire protection to the site under the No-action Alternative.

Under the City Plan, all emergency medical services would be provided by the Seattle Fire Department. No impact is anticipated due to increased emergency service needs. The Muckleshoot Plan would cause any impacts to City or private emergency services. Under the No-action Alternative, no emergency services would be required. Given the variety and number of medical care facilities in the vicinity, and the proposed medical facilities in the reuse plans, no impacts to medical services are anticipated.

Most of Naval Station Sand Point contaminants have been cleaned up as required by the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA). Areas with remaining contaminants are not likely to create an impact if they are left alone. The Washington State Department of Ecology (Ecology) has written a "No Further Action" letter. Ecology has recommended deed restrictions to limit site use and to notify future users of property conditions. Under the reuse plans, asbestos and lead paints could create an impact, if not adequately mitigated.

Appropriate measures have been applied to the reuse alternatives to mitigate any potential crime and law enforcement impacts. These mitigating measures include implementation of crime prevention activities. Under the City Plan and options, no increase in fire protection services are necessary. Deed restrictions should be applied to limit activities that could release contamination in areas that have not been adequately

cleaned up. Removal of asbestos in remodeling and demolition should be consistent with applicable laws. Buildings should be inspected regularly to identify chipping, cracking, or bubbling of paint that could contain lead.

Earth

Issues discussed under this topic include soils, geology, potential erosion hazards, topography, and seismic activity hazards.

Under all alternatives, there will be no significant impacts related to soils, geology, and topography. Seismic hazards (including potential liquefaction) are present. Structural damage or injury from an earthquake is possible under all alternatives but is not predictable.

Proposed mitigating measures include siting of new structures and evaluation and upgrades of existing structures consistent with current standards or codes, as they apply to soils or seismic hazards.

Biological Resources/Endangered Species

The City Plan with options and the Muckleshoot Plan would have minimal impacts on vegetation, wildlife, wetlands, and endangered species. No significant impacts are anticipated to occur.

No mitigating measures are required.

Water

Issues discussed under this topic include water quantity and water quality.

The City Plan will decrease impervious surface by 30 acres (12 hectares). This decrease would occur primarily at the south end of the project area, with the restoration of Mud Lake and the grassy recreational areas. Localized effects of nutrients in runoff could occur in landscape fertilizers. Additional excavation for housing could increase the potential for sedimentation to Lake Washington under the City Plan with options. The Muckleshoot Plan would also create a decrease in impervious surface, although not to the degree outlined in the City Plan. Under the Muckleshoot Plan, increased boating could affect water quality in the immediate marina area. Under the Muckleshoot Plan, pollutants (such as oil) resulting from increased traffic could affect water quality. No impacts are anticipated as a result of the No-action Alternative.

Mitigating measures under the Muckleshoot Plan include prohibiting on-site maintenance of boat engines and hulls. Reducing and controlling on-site traffic would decrease the

potential for traffic-related pollutants. Best management practices (BMPs) should be established to control potential sedimentation.

Air Quality

Issues discussed under this topic include air quality generated by construction and operation of the proposed activities. Evaluation of the issues indicated no significant impacts on air quality.

The proposed City and Muckleshoot Plans could result in air pollution during demolition and construction activities. These impacts could be short-term, temporary, and intermittent. The No-action Alternative would not result in air emissions as no demolition or construction is proposed. Air quality impacts could occur due to increased traffic. Even with increased traffic volumes, carbon monoxide (CO) would not exceed standards in the region. Therefore, no significant impacts are anticipated.

No mitigating measures are required.

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ABBREVIATIONS AND ACRONYMS

ADT	average daily traffic, average daily trips
aMW	average megawatt
AST	aboveground storage tank
avgas	aviation gasoline
BCP	BRAC Cleanup Plan
BCT	Base Closure and Realignment Act Cleanup Team
BEQ	bachelors' enlisted quarters
BIA	United States Bureau of Indian Affairs
BMP	best management practice
BOQ	bachelor officers' quarters
BRAC	Base Closure and Realignment
CAA	Clean Air Act
CAAA	Clean Air Act Amendments of 1990
CERFA	Community Environmental Response Facilitation Act
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act of 1980
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
cfs	cubic feet per second
City	City of Seattle
City Engineering	City of Seattle Engineering Department
City Light	Seattle City Light
City Parks	City of Seattle Parks and Recreation Department
City Plan	City of Seattle Community Preferred Reuse Plan for Sand Point
cm	centimeter
CM	conservancy management
CO	carbon monoxide
COMPLAN	Seattle's Park and Recreation COMPLAN
Comprehensive Plan	
CPTED	crime prevention through environmental design
CRF	Cumulative Reserve Fund
dB	decibel
dBa	adjusted decibel
°F	degree Fahrenheit
DEIS	draft environmental impact statement
DoD	United States Department of Defense
DPR	Department of Parks and Recreation (City of Seattle)
Ecology	Washington State Department of Ecology
EFA	Naval Facilities Engineering Command, Northwest

ABBREVIATIONS AND ACRONYMS (Continued)

EIS	environmental impact statement
EMS	Emergency Medical Services
EMT	emergency medical technician
EPA	United States Environmental Protection Agency
ESA	Endangered Species Act
FEIS	final environmental impact statement
Fg/m ³	micrograms per cubic meter
FONSI	finding of no significant impact
FOST	finding of suitability to transfer
FR	Federal Register
ft ²	square foot
FTE	full-time equivalent
GMA	Growth Management Act
HARP	Historic and Archeological Resources Protection Act
HCS	Highway Capacity Software
HHS	United States Department of Health and Human Services
HOV	high occupancy vehicle
HRA	Historical Research Associates, Inc.
HRRMP	historic resources reuse and management plan
HUD	United States Department of Housing and Urban Development
ID	identification
I&M	inspection and maintenance
ITE	Institute of Traffic Engineers
I-5	Interstate Highway 5
kV	kilovolt
kVA	kilovolt-ampere
kWh	kilowatt-hour
kWh/yr	kilowatt-hours per year
L _{dn}	day-night equivalent sound level
L _{eq}	equivalent noise level
LOS	level of service
LRA	local redevelopment authority
L/V	light to variable (winds)
Mgd	million gallons per day
mg/kg	milligram per kilogram
MOA	memorandum of agreement
msl, MSL	mean sea level
MTCA	Model Toxics Control Act
MTCA A	Model Toxics Control Act Method A
MTCA B	Model Toxics Control Act Method B

ABBREVIATIONS AND ACRONYMS (Continued)

Muckleshoot Plan	Muckleshoot Indian Tribe's Proposed Reuse Plan for the Naval Station Puget Sound, Sand Point
MW	megawatt
MWh	megawatt-hour
NAAQS	National Ambient Air Quality Standards
NAS	Naval Air Station
Navy	United States Navy
NBS	National Biological Service
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NEPA	National Environmental Policy Act
NFA	no further action
NHPA	National Historic Preservation Act
1990 Base Closure Act	Defense Base Closure and Realignment Act
NOAA	National Oceanic and Atmospheric Administration
NPDES	National Pollution Discharge Elimination System
NPL	National Priorities List
NPRA	National Parks and Recreation Association
NROTC	Naval Reserve Officer Training Candidates
NSCC	North Seattle Community College
NSPS	Naval Station Puget Sound
OSHA	Occupational Safety and Health Administration
PAH	polycyclic aromatic hydrocarbon
PDEIS	preliminary draft environmental impact statement
PFEIS	preliminary final environmental impact statement
P.L.	Public Law
PM ₁₀	particulate matter less than or equal to 10 micrometers in diameter
pph	pounds (of steam) per hour
ppm	parts per million
PSAPCA	Puget Sound Air Pollution Control Agency
PSI	Pollutants Standards Index
psig	pounds per square inch (gauge)
RAB	Restoration Advisory Board
RCRA	Resource Conservation and Recovery Act
RCW	Revised Code of Washington
Redevelopment Act	Base Closure Community Redevelopment and Homeless Assistance Act of 1994
Reuse Plans	The City Plan (above) and Muckleshoot Plan (above)
ROD	Record of Decision
SARA	Superfund Amendments and Reauthorization Act of 1986

ABBREVIATIONS AND ACRONYMS (Continued)

SCS	Soil Conservation Service
SCTP	Seattle Comprehensive Transportation Program
sec	second
SED	Seattle Engineering Department
SHPO	State Historic Preservation Officer
SIP	state implementation plan
SMA	Shoreline Management Act
SMC	Seattle Municipal Code
SMP	Shoreline Master Program
SPCLC	Sand Point Community Liaison Committee
SPIF	Shoreline Park Improvement Fund
SR 99	State Route 99
SWD	Seattle Water Department
TDM	transportation demand management
TPH	total petroleum hydrocarbon
TPH-G	total petroleum hydrocarbon-gasoline
Tribe	Muckleshoot Indian Tribe
TSCA	Toxic Substances Control Act
TSM	transportation system management
TSP	total suspended particulates
UBC	Uniform Building Code
U.S.C.	United States Code
USFWS	U.S. Fish and Wildlife Service
USGS	United States Geological Survey
UST	underground storage tank
U.S. WEST	U.S. WEST Communications
UW	University of Washington
V	volt
V/C	volume to capacity
WAC	Washington Administrative Code
WNG	Washington Natural Gas
WSA	Washington State Archives
µg/L	microgram per liter
µg/m ³	microgram per cubic meter

1.0 BACKGROUND

1.1 PURPOSE AND NEED FOR ACTION

This environmental impact statement (EIS) evaluates the environmental consequences (impacts) of the reuse of the 152-acre Naval Station Sand Point (Figure 1-1). Given the authority under the Defense Base Closure and Realignment Act (BRAC) of 1990, the Defense BRAC Commission on July 1, 1991, recommended closure of Naval Station Sand Point. Congress approved the recommendation, and the base closed in September 1995. Reuse plans have been prepared by the City of Seattle (City) and the Muckleshoot Indian Tribe (Tribe). The plans were submitted in November and June 1993, respectively, in response to the property disposal and reuse process established for closing military bases. Revisions to the plans were submitted in February 1996. Land use at the Naval Station Sand Point before closure is shown in Figure 1-2.

1.2 BASE CLOSURE AND REUSE PROCESS

Closure and reuse of a military base can be complex, involving a variety of processes that often overlap. The following text describes the EIS process, as well as disposal of surplus land and buildings and environmental cleanup.

1.2.1 Environmental Impact Statement Process

This EIS will provide decisionmakers and the public with a full and fair discussion of the environmental impacts of reuse alternatives for Naval Station Sand Point (Appendix A). The EIS will also inform decisionmakers and the public of the reasonable alternatives for avoiding or minimizing adverse impacts and enhancing environmental quality.

This EIS is being prepared by the United States Department of Defense (DoD); United States Navy (Navy), as required by the National Environmental Policy Act (NEPA) (42 U.S.C. 4371); the Council on Environmental Quality (CEQ) guidelines (40 CFR 1500); Navy environmental policies (OPNAVINST 5090.1B 2.4.4); and BRAC.

The CEQ guidelines were prepared to help implement NEPA. These guidelines include procedures for the following:

- Deciding whether to prepare an EIS
- Establishing a "lead agency" (the agency that supervises preparation of an EIS)

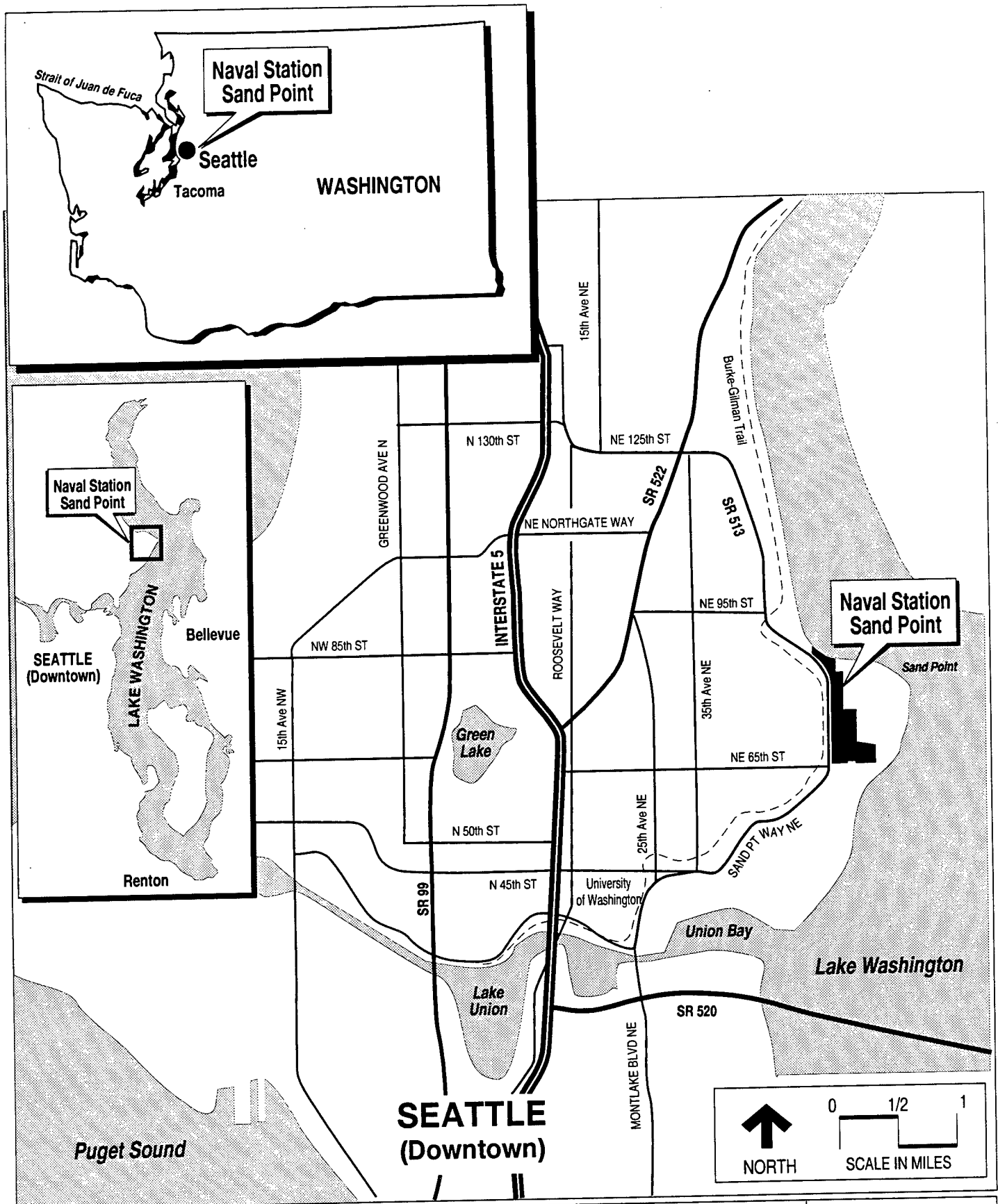
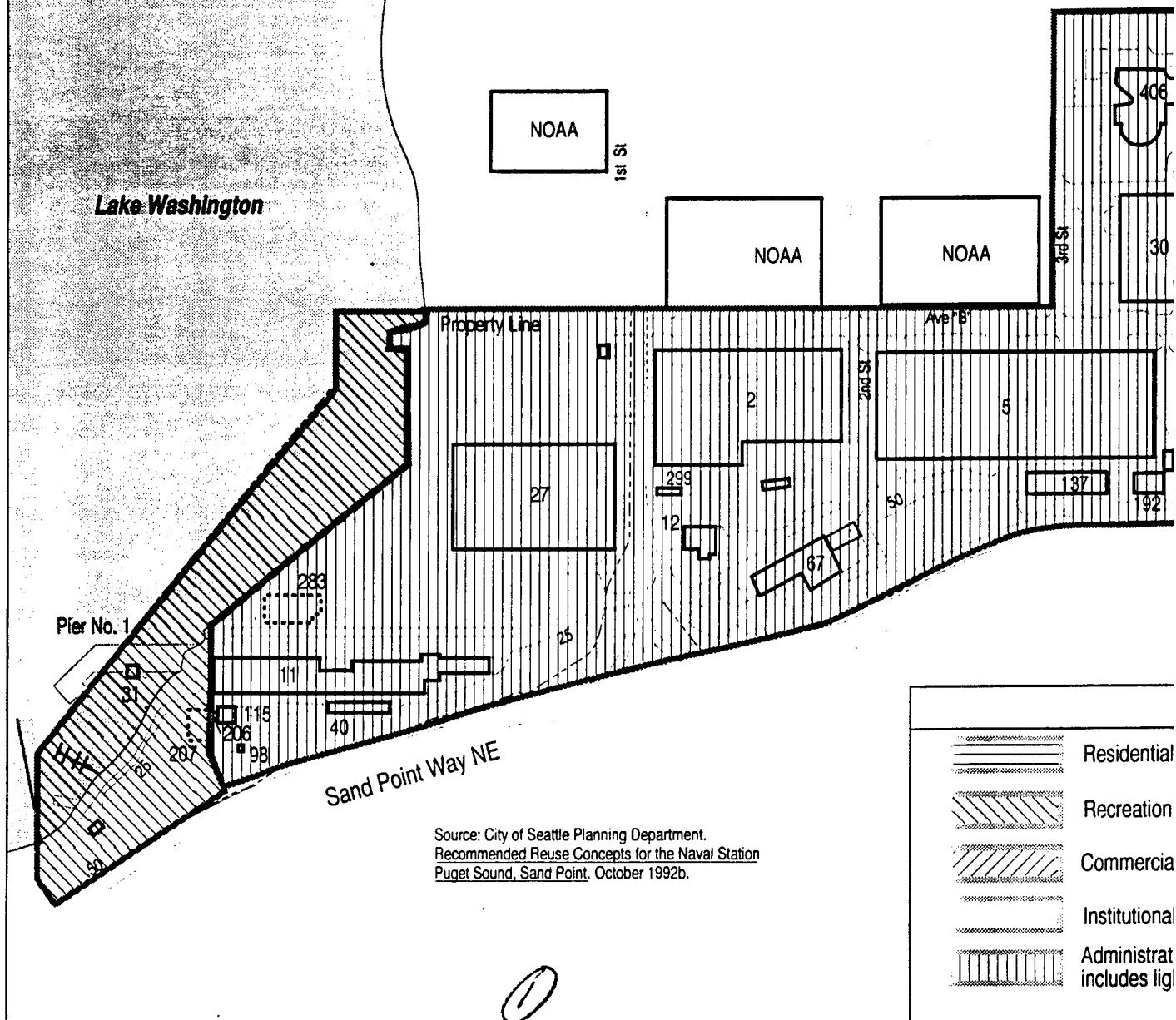


**Figure 1-1
Vicinity Map**

**NAVAL STATION
SAND POINT
Draft EIS
November 1996**

National Oceanic and Atmospheric Administration (NOAA)

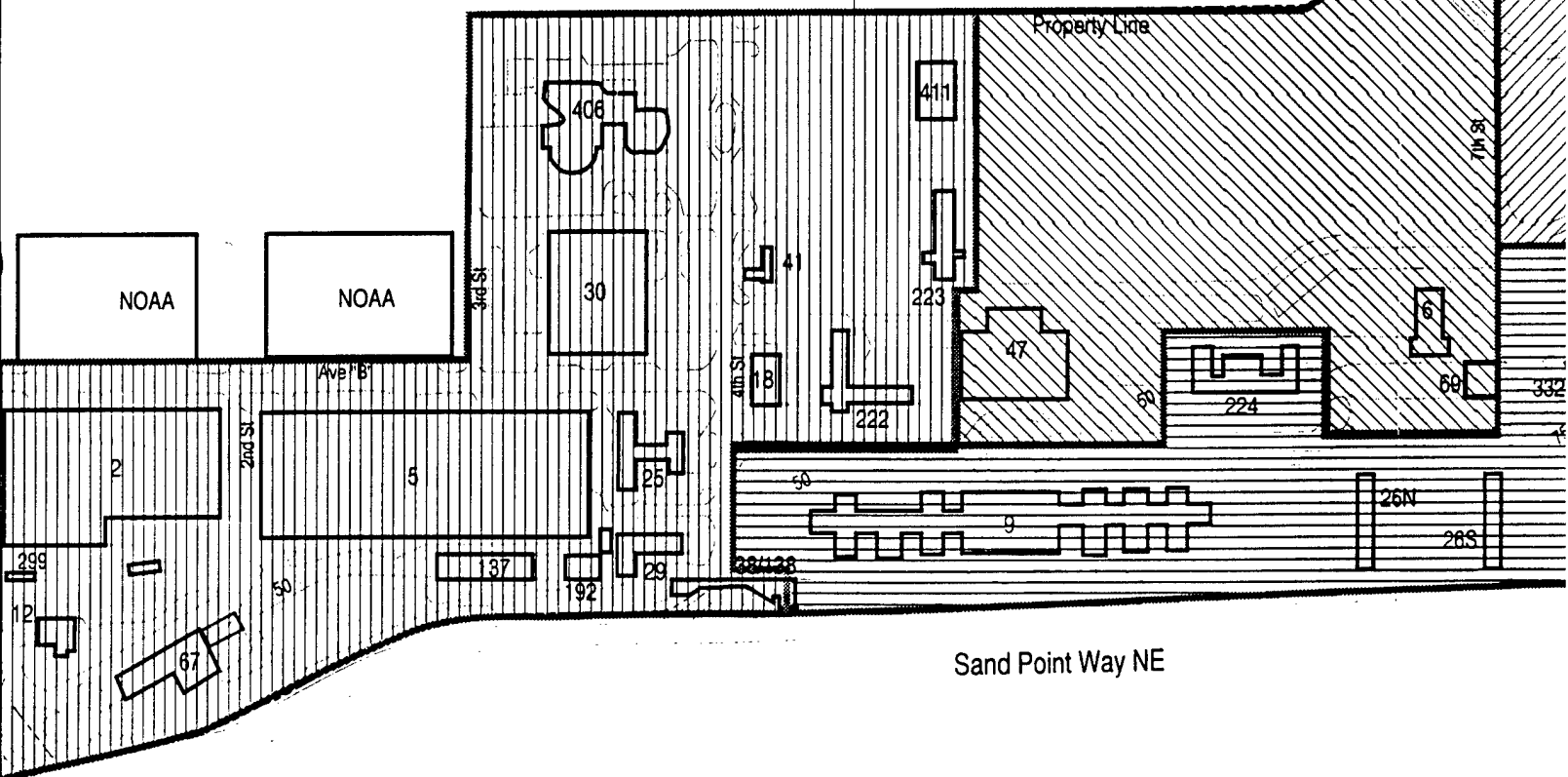
Lake Washington



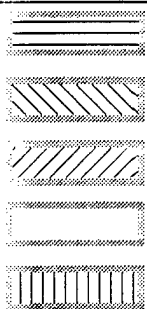
Source: City of Seattle Planning Department.
Recommended Reuse Concepts for the Naval Station
Puget Sound, Sand Point, October 1992b.

MAGNUSON PARK

National Oceanic and
Atmospheric Administration (NOAA)



LEGEND



Residential
Recreation
Commercial
Institutional
Administration/Maintenance
includes light industrial

Property Line
Foundation Only
Bldg Location and Number
Elevation Contours in Feet Above Mean Sea Level



0 150 300
SCALE IN FEET

MAGNUSON PARK

Property Line

Sand Point Way NE

Ave "C"

7th St

15

18

41

222

223

47

9

224

228

244

25

193

198

195

308

301

344

345

342

340

341

404

330

331

332

333

334

307

204

61

310

315

109

26N

26S

28/128

(NBS)

- Designating cooperating agencies
- Establishing a scoping process (Appendix B)
- Preparing EISs
- Obtaining public comments on the draft EIS (DEIS)
- Responding to comments on the DEIS through preparation of a final EIS (FEIS)
- Preparing a Record of Decision (ROD)

Each federal agency is required to adopt its own environmental policies and guidelines to implement NEPA and CEQ guidelines. The Navy's document, entitled *Environmental and Natural Resources Program Manual* (OPNAVINST 5090.1B), incorporates CEQ guidelines as they relate to preparation of an EIS. Given these guidelines and regulations, the following process was used in preparing this EIS:

1. Decision to prepare EIS. On November 19, 1993, the Navy published a Notice of Intent in the *Federal Register* announcing its intent to prepare an EIS addressing reuse of Naval Station Sand Point (40 CFR 1501).

2. Scoping. Scoping is a determination by agencies and the public of the desired content of an EIS and the range of alternatives to be evaluated therein. The EIS analyzes potential impacts from the proposed alternatives and presents any other alternatives developed as a result of the scoping process. For the Naval Station Sand Point reuse action, the Navy requested public comments on the scope of the EIS by publishing a Notice of Intent in the *Federal Register* on November 19, 1993. The Notice of Intent indicated that the scoping period would end on December 30, 1993, and invited the public to attend a meeting on December 16, 1993. Because of an error in the original notice, the scoping period was extended to January 14, 1994 (40 CFR 1501). See Section 1.4 for more information on the scoping process.

3. Designation of cooperating agencies. A "cooperating agency" is any agency other than a lead agency with jurisdiction by law or special expertise with respect to any environmental impact involved in a proposal (or a reasonable alternative) for legislation or other major federal action significantly affecting the quality of the human environment. The selection and responsibilities of a cooperating agency are described in 40 CFR 1501.6. A state or local agency with similar qualifications or an Indian tribe (when the impacts are on a reservation) may, by agreement with the lead agency, become a cooperating agency (40 CFR 1508.5).

The function of a cooperating agency is to review and comment on preliminary DEISs and FEISs before their release to the public (40 CFR 1501). The Navy granted cooperating agency status to the Bureau of Indian Affairs (BIA), the City of Seattle, and the Muckleshoot Indian Tribe.

4. Preparation of Preliminary DEIS (PDEIS). The Navy prepared and submitted a PDEIS to cooperating agencies on May 19, 1994, submitted a revised PDEIS to cooperating agencies on February 8, 1995, and submitted another revision on March 29, 1996. (40 CFR 1502). These agencies submitted comments on the PDEIS to the Navy.

5. Preparation of DEIS. When preparing this DEIS, the Navy considered the comments of the cooperating agencies on the PDEIS (40 CFR 1502).

6. Public comment period on DEIS. The public, government agencies, and tribes may comment on the adequacy of a DEIS by submitting written comments or speaking at a public hearing where comments will be recorded by a court reporter. The date and time of the hearing will be announced by public notice (40 CFR 1503). There will be a 45-day comment period on this DEIS.

7. Responsiveness summary. Following the end of the public comment period, comments will be compiled, and responses to each comment will be written. These responses will appear in the FEIS (40 CFR 1503).

8. Preliminary FEIS (PFEIS). The Navy will prepare a PFEIS that incorporates additional studies, corrections, and clarifications resulting from public comments on the DEIS. The cooperating agencies will have an opportunity to review and comment on the PFEIS (40 CFR 1502) before public review.

9. FEIS. The Navy will prepare the FEIS, based on comments on the PFEIS by the cooperating agencies. The FEIS constitutes the final analysis of environmental impacts related to the reuse plans and no-action alternative (40 CFR 1502). The FEIS will be available to the public for a 30-day period before issuance of the ROD.

10. Record of Decision. The Assistant Secretary of the Navy will then issue a ROD. The ROD is a written public record of the facts and reasoning supporting the decision made about reuse. The ROD will establish appropriate mitigation for any significant adverse environmental impacts disclosed in the FEIS (40 CFR 1505).

1.2.2 Property Disposal Process

The announcement of base closure initiated a process that culminated in closure of Naval Station Sand Point in September 1995. The following text describes the general process for disposal and reuse of military bases, pursuant to the BRAC, P.L. 101-510, as amended. It also describes the current status of these steps as they specifically relate to the Naval Station Sand Point:

- Step 1. DoD.** DoD agencies identify real property on the base that may have to be retained to support DoD activities after the base closes.

The DoD screening process for Naval Station Sand Point occurred in early 1992. No DoD branches asked to retain the property.

- Step 2. Federal screening.** Other federal agencies may request any of the remaining real property.

The federal screening process was initiated for Naval Station Sand Point in 1993. The Navy received three requests from federal agencies for the property:

- The BIA sponsored a request from the Tribe for the northern 85 acres (34 hectares) of the 152 acres (61.5 hectares) in the Muckleshoot Plan. On September 7, 1995, the BIA withdrew its request on behalf of the Muckleshoots for the 85 acres (34 hectares).
- The National Biological Service (NBS) requested approximately 5 acres (2 hectares) at the southeast corner of the base that is currently used by its National Fisheries Research Center.
- The National Oceanographic and Atmospheric Administration (NOAA) requested approximately 10 acres (4 hectares) at the north end of the base, next to their current facilities, and approximately 1.2 acres (0.5 hectares) for an access road.

Though NBS and NOAA have requested property under the federal screening process, this property has not yet been transferred. Under section 2905(b)(4)(C) of the BRAC, as amended, the Navy may transfer property to a redevelopment authority for a no-cost lease to a federal agency. If the property is transferred to the City, the City is considering a possible request to use this authority for the properties requested by NOAA and NBS. If the City, NBS, and

NOAA can agree on a no-cost lease arrangement, transfer of property to the City would be considered.

Step 3. Homeless assistance screening. Land and buildings not transferred to other DoD branches or federal agencies are declared surplus to the needs of the federal government. Property not planned for transfer to NOAA and NBS was declared surplus on September 20, 1995. The Base Closure Community Redevelopment and Homeless Assistance Act of 1994 (Redevelopment Act) amended BRAC by exempting property at bases approved for closure or realignment after October 25, 1994, from the provisions of Title V of the McKinney Act and by establishing new requirements for consideration of homeless assistance needs as part of the reuse planning process. Naval Station Sand Point was among the bases approved for closure and realignment before October 23, 1994. The City of Seattle, as the local redevelopment authority (LRA), elected to come under the new requirements of the Redevelopment Act.

The City is considering homeless assistance needs, together with state and local government and other community needs, and is balancing those needs during completion of a redevelopment plan for the base. This was submitted to HUD in July 1996 for certification that it appropriately balances homeless assistance needs with the other community and economic development needs expressed. HUD approved the plan in September 1996. The Navy could convey the property for purposes of assistance to homeless persons as designated by the City Plan (Appendix C) after approval is received from HUD and the ROD is written.

Step 4. State and local screening. Land and buildings remaining after completion of the DoD, federal, and homeless assistance screening processes are made available to state and local governments and Native American tribes. These entities can request property transfer under a number of public benefit authorities sponsored by federal agencies (such as the National Park Service or the Department of Education). Under a public benefit authority, the purchase price could be discounted or waived. Uses such as parks, recreation, public health, or education are eligible for this public benefit discount or waiver. The surplus land and buildings can also be purchased through a negotiated sale by governments or tribes at fair market value for uses that do not qualify for any public benefit discount or waiver. The development of an EIS is part of Step 4.

Step 5. Negotiation of Interim Lease. Following the closure of Naval Station Sand Point in 1995, the City of Seattle proposed to lease the Naval Station Sand Point property for limited uses. The purpose of the interim lease is to support local redevelopment and obtain funds for homeless assistance, put unused Navy property to use as quickly as possible, support the Seattle School District's space requirements for temporary placement of Ballard High School, and reduce the Navy's caretaker costs. The interim lease was evaluated in an environmental assessment released in June 1996. The interim lease is consistent with the City's proposed reuse plan.

Step 6. Sale to general public. Any portion of the base that remains after completion of the state and local screening process is made available for sale to the general public. The two plans being considered propose use of the entire 152 acres (61.5 hectares). It is unlikely there will be any remaining property available for sale.

1.2.3 Environmental Cleanup Process

The Navy's remedial actions at Naval Station Sand Point are complete. Instances exist where limited amounts of residual chemicals have been left on site because their removal is not feasible. Accordingly, the Navy intends to convey the property with deed restrictions to preclude future hazards to human health or the environment. The Base Closure and Realignment Cleanup Team (BCT), which was composed of representatives from the Environmental Protection Agency (EPA), the Washington State Department of Ecology (Ecology), and the Navy has overseen all remedial actions on the base.

The BRAC Cleanup Plan is available for public review. Additional information on the cleanup process and remedial actions is found in Section 4.8, Environmental Health, and is also available at the following information repositories:

Seattle Public Library
Northeast Branch
6801 35th Avenue N.E.
Seattle, WA 98115
(206) 684-7539

Seattle Public Library
Downtown Main Branch
Northwest Collection; Humanities Section
2nd Floor
1000 Fourth Avenue
Seattle, WA 98104
(206) 368-INFO (4636)

Department of Ecology
Central Files
3190 160th Avenue S.E.
Bellevue, WA 98008
(206) 649-7239

1.3 BASE HISTORY

Naval Station Sand Point, located on the west shore of Lake Washington, is approximately 6 miles (10 kilometers) northeast of downtown Seattle (Figure 1-1).

Established by the Navy in 1925 on land acquired from King County, the base was initially named Naval Air Station (NAS) Seattle at Sand Point. It served as a Naval Air Reserve training facility until December 7, 1941. During World War II, NAS Seattle supported air transport and ship outfitting personnel for the Alaskan and Western Pacific areas of operation. In 1945, at the peak of its activity, the base supported more than 4,600 Navy, Marine Corps, and civilian personnel. After the war, the base was designated a Naval Reserve Air station. From 1945 to 1970, the station maintained Naval Reserve squadrons to supplement active duty forces in the continental United States and abroad. Aviation activities officially ceased on June 30, 1970, and NAS Seattle was decommissioned.

On July 1, 1970, NAS Seattle was redesignated Naval Support Activity, Seattle. Three years later the Navy surplused much of the property. NOAA received 116 acres (47 hectares), including one-third of the runways and 3,500 feet (1,067 meters) of waterfront. The City of Seattle received approximately 198 acres (80 hectares) comprising the southeast portion of the base, including approximately 1 mile (1.6 kilometers) of waterfront; this area became Magnuson Park in 1977. The Navy retained the remainder of the base. From 1970 until April 1982, the base provided logistical services to the 13th Naval District, DoD, and other federal agencies.

In April 1982, Naval Support Activity, Seattle, was designated Naval Station, Seattle, and on October 10, 1986, was redesignated Naval Station Puget Sound. Until recently, the base functioned as a support and billeting facility for the Northern Pacific Fleet. Functions formerly housed at Naval Station Sand Point have been transferred to other facilities, including SUBASE Bangor and Naval Station Everett.

1.4 FEDERAL AND LOCAL AGENCY, TRIBAL, AND PUBLIC INVOLVEMENT

The base closure, reuse, EIS, and cleanup processes described earlier in this section provide many opportunities for agency, tribal, and public involvement—both required and optional. The following paragraphs summarize these opportunities.

1.4.1 General Public

As part of the public involvement process, the Navy formally notified the public of its intent to prepare this EIS and begin the scoping process by publishing a Notice of Intent in the November 19, 1993, issue of the *Federal Register* (FR DOC. 93-28156). In addition

to the Notice of Intent, public notice was published in the *Seattle Post-Intelligencer* (December 2), *Seattle Times* (December 12), *Seattle Weekly* (December 1), and *University Herald* (December 8). The scoping process occurred between November 19, 1993, and January 14, 1994. A fact sheet, distributed to 1,072 interested neighbors and other people, also provided public notice of the preparation of the EIS.

The Navy received written comments from neighborhood areas surrounding Naval Station Sand Point; federal, state, and local agencies; the Muckleshoot Indian Tribe (Appendix D); and other interested parties. The Navy used the comments to determine the scope of the EIS. A summary of these comments can be found in Appendix B.

In addition, a public scoping meeting was held at NOAA, next to Naval Station Sand Point, on December 16, 1993, to obtain public testimony. The meeting was recorded by a court reporter.

1.4.2 Sand Point Community Liaison Committee

In response to the DoD policy "to encourage development of reuse plans by local communities affected by base closure and to consider those plans in making property disposal decisions," the Navy asked the City to take the lead in developing a community reuse plan. In turn, the City asked the Sand Point Community Liaison Committee (SPCLC) to assist in the development of the reuse plan. SPCLC, which was formed in the 1970s, represents neighborhood community groups in the Sand Point area. Its membership was expanded in 1991 to include additional groups interested in reuse of the Naval Station Sand Point (such as the motion picture industry and housing advocates). SPCLC gathered community input and submitted recommendations for reuse to the City of Seattle Planning Department.

1.4.3 City of Seattle Community Planning

After sponsoring the community planning process at the Navy's request, the Seattle City Council adopted the City Plan in November 1993. It is one of the alternatives being considered in this EIS. (Highlights of the City Plan are presented in Section 2.1.1). As previously described, the City, as a cooperating agency, has, or will review and comment on, the PDEIS, DEIS, and PFEIS.

1.4.4 Muckleshoot Indian Tribe

The Tribe represents tribal members living on the Muckleshoot Reservation in the Auburn, Washington, area, or in the greater Seattle area. The Tribe is the only federally recognized Indian tribe in King County, Washington. In June 1993, the Tribe prepared the Muckleshoot Plan. This plan is one of the alternatives reviewed in this EIS. (Highlights of the Muckleshoot Plan are presented in Section 2.1.1). The Muckleshoot

Plan covers all 152 acres (61.5 hectares) of the base. The Tribe has reviewed and commented on the PDEIS, the DEIS, and the PFEIS.

1.4.5 Public Involvement With Hazardous Waste Site Remediation

As noted in Paragraph 1.2.3, the Navy's remedial actions at Naval Station Sand Point have been completed. The Navy's remedial action plans included extensive public involvement from January 1994 through February 1996.

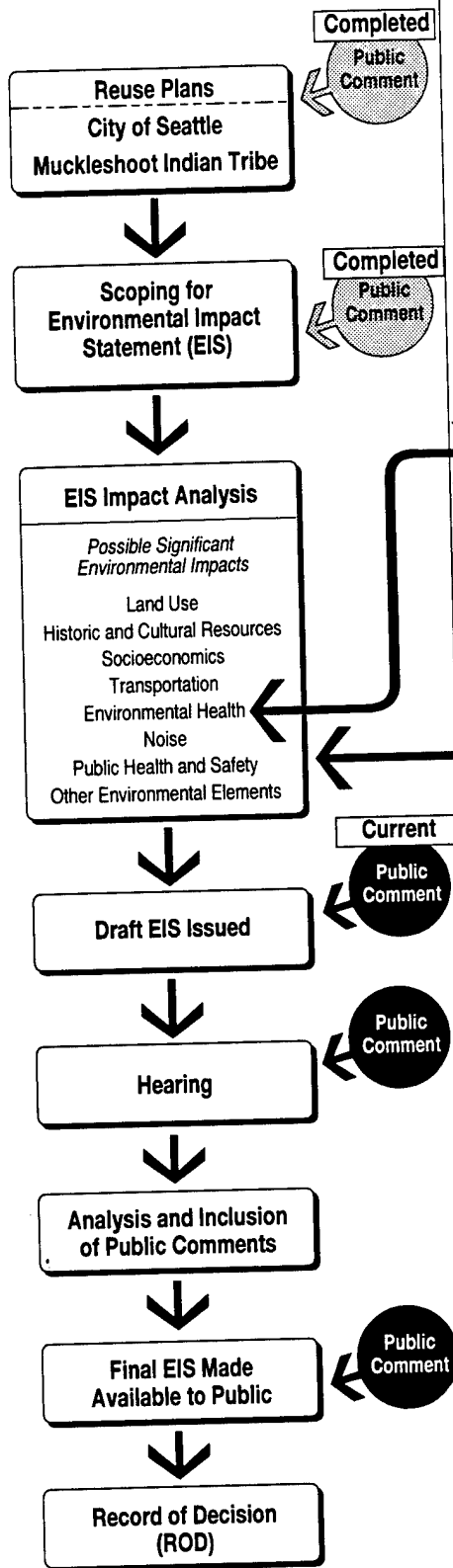
The relationship between the EIS process and the hazardous waste investigations is shown in Figure 1-3. The base closure and realignment cleanup process is designed to facilitate reuse of a base by expediting and improving environmental response actions while protecting human health and the environment. Members of the public and government agencies have opportunities for comment during the cleanup process.

Representatives of the Navy, Ecology, and the EPA constituted the BCT. The BCT was supported by a project team composed of representatives from the EPA, the City, and the Tribe. The BCT was charged with accelerating environmental cleanup; making cleanup decisions; integrating activities under multiple environmental programs into a comprehensive, expedited, and centralized response effort; and ensuring that all cleanup concerns at the base were addressed during cleanup.

The remedial actions were undertaken pursuant to CERCLA and governing regulations, Executive Order 12580, and the Model Toxics Control Act (MTCA). The Navy will prepare a Finding of Suitability to Transfer (FOST) identifying "clean" parcels and land use restrictions to be included in the deed that conveys the property.

Public involvement in the base cleanup process was accomplished, in part, through the Restoration Advisory Board (RAB). RAB involvement is consistent with President Clinton's five-part program to accelerate economic recovery of communities where military bases are slated to close. RAB members reviewed documents related to remedial actions and provided an information conduit between the community and the BCT. Membership in the RAB included the BCT, representatives from SPCLC, NOAA, NBS, community members, and other potential users of Naval Station Sand Point.

NEPA PROCESS



ENVIRONMENTAL CLEANUP PROCESS

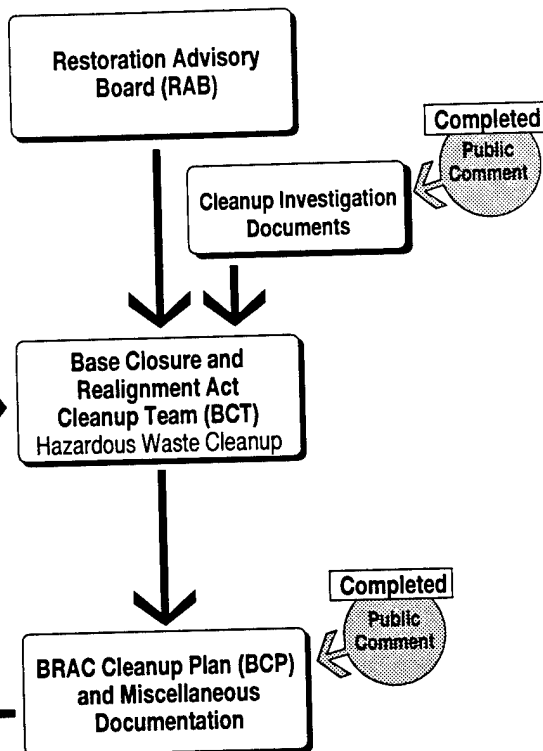


Figure 1-3
Integration of EIS and Cleanup Processes at Naval Station Sand Point

NAVAL STATION
SAND POINT
Draft EIS
November 1996

2.0 DESCRIPTION AND COMPARISON OF ALTERNATIVES

2.1 OVERVIEW AND DECISION LOGIC FOR ALTERNATIVES

Pursuant to NEPA (42 U.S.C. 4371) and Council on Environmental Quality (CEQ) (40 CFR 1500) guidelines, this section describes and compares the alternatives selected for analysis in this EIS.

Three alternatives, the City Plan, the Muckleshoot Plan, and the No-action Alternative were selected for analysis. Additionally, the public suggested a number of other potential alternatives during the scoping period (between November 19, 1993, and January 14, 1994). Alternatives and the rationales for selecting or excluding them are presented below.

2.1.1 Selected Alternatives

The following alternatives are analyzed in this EIS:

- **City Plan.** In November 1993, the City of Seattle prepared the City Plan for the entire 152-acre (61.5-hectare) base. Pursuant to law, DoD is required to include this plan for analysis in this EIS. The City Plan is included in its entirety in Appendix C. The plan is summarized in Table 2-1 and is graphically depicted in Figure 2-1A.

On February 22, 1996, the City of Seattle wrote a letter to the Navy indicating a number of *possible* changes to the City's reuse plan. These proposals are analyzed in this EIS as part of the proposed City Plan and are referred to as "options to the City Plan." The City passed a resolution to consider adoption of these options. Following submittal of the original November 1993 City Plan, the City continued to refine the plan. Revisions (options) to the plan were submitted on February 22, 1996. The Seattle City Council adopted these revisions by resolution. In March 1996, the City submitted a request to negotiate an interim lease. The main purpose of the lease was to return unused Navy property to productive use as quickly as possible and use support from U.S. Department of Housing and Urban Development (HUD) monies. A portion of the options presented in February 1996 was considered as part of the proposed interim lease negotiated on July 10, 1996. The activities proposed in the interim lease were evaluated in an environmental assessment released in June 1996. The interim lease plans are consistent with the proposed land and building

uses presented in this document. A finding of no significant impact (FONSI) was adopted, and it was determined that the uses evaluated under the proposed lease would not have a significant impact on the environment. These options, as well as other minimal proposed changes to the original plan, are included in this EIS as part of the City Plan. The options are described in detail in the letter from Eric Friedli (Friedli 1996a), which is included in Appendix C after the City Plan and is summarized in Tables 2-1 and 2-2 and graphically depicted in Figure 2-1B.

- **Muckleshoot Plan.** The Muckleshoot Tribe prepared a reuse plan (Muckleshoot Plan) in June 1993. The plan accompanied a request for transfer of property. The Navy selected the Muckleshoot Plan for further analysis in this EIS to provide a reasonable alternative as required under NEPA. This plan is included in Appendix D, is summarized in Table 2-1, and is graphically illustrated in Figure 2-2. The Muckleshoot Plan proposes reuse of the entire 152-acre naval base.
- **No Action.** The No-action Alternative—under which the Navy would retain Naval Station Sand Point in caretaker status—is being reviewed in this EIS, as required by NEPA (40 CFR 1502.14). The No-action Alternative identifies impacts to the environment that would occur without implementing a reuse plan. The No-action Alternative, however, is inconsistent with President Clinton's five-point plan, because the Navy would continue to incur costs to keep the facility in a caretaker status, and the resources of the base would not be put to productive use.

2.1.2 Excluded Alternatives

The potential alternatives identified by the public were grouped into two general categories. The following paragraphs outline these categories and explain why alternatives in each category were not developed for consideration in this EIS.

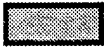
- **Convert Naval Station Sand Point to open space.** Conversion of the entire base to open space would destroy buildings that are possible candidates for the National Register of Historic Places. No financially, technically, and legally feasible proposal for this type of alternative has been submitted.
- **Change one or more elements of the City Plan or the Muckleshoot Plan.** Many scoping respondents suggested eliminating, expanding, or otherwise changing portions of the City Plan or Muckleshoot Plan. Suggestions are summarized in Appendix B. They include eliminating homeless or student housing, the vocational college, and use by Sea Scouts or other youth organizations. Because the potential impacts of these uses are

encompassed by the range of impacts discussed in this EIS, analysis of additional alternatives was not required.

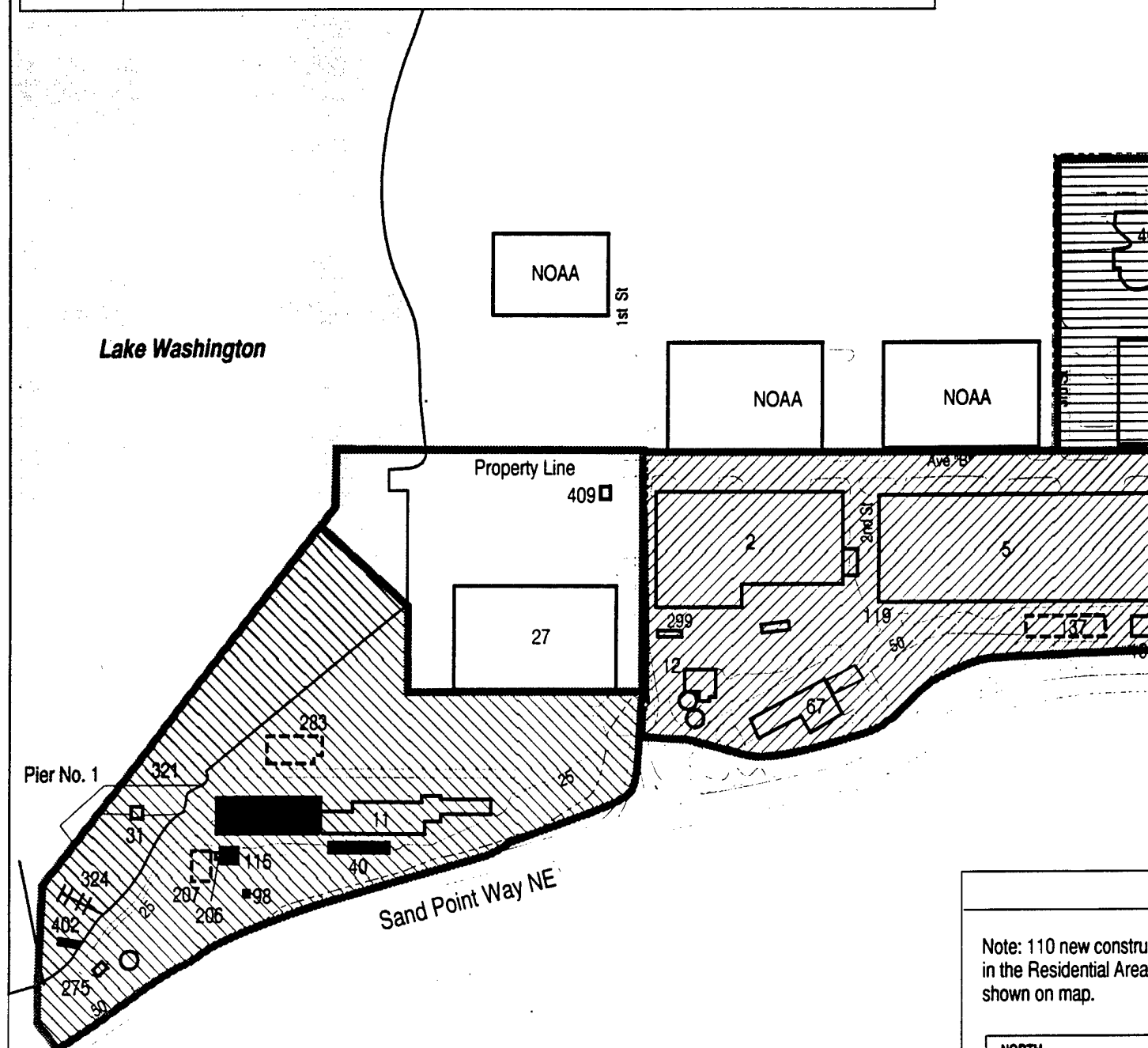
2.2 DESCRIPTION AND COMPARISON OF THE CITY PLAN, THE MUCKLESHOOT PLAN, AND THE NO-ACTION ALTERNATIVE

Table 2-2 contains descriptions and comparisons of proposed building uses for the two reuse plans, including the options to the City Plan and the No-action Alternative, together with existing building functions (Appendix E). The building locations, listed by number in Table 2-2, may be found on Figures 2-1 and 2-2. For further information about the principles and rationales underlying each plan, see the plans in Appendixes C and D.

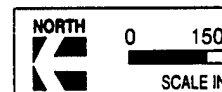
Table 2-3 compares environmental impacts, mitigating measures, and unavoidable adverse environmental impacts as a result of the City Plan, options to the City Plan, the Muckleshoot Plan, and the No-action Alternative. Impacts are presented for the following elements: land use; historic and cultural resources; socioeconomics; recreation; transportation; noise; public services and utilities; public health and safety; earth; biological resources; and water and air quality. A detailed analysis of impacts is presented in Section 4.

Pattern	City of Seattle Proposed Reuse Plan
	North Shore Recreation Area (<i>City Plan Area 1</i>)
	Education and Community Activities Area (<i>City Plan Area 2</i>)
	Magnuson Park Arts, Culture, and Community Center (<i>City Plan Area 3</i>)
	Magnuson Park Open Space/Recreation Expansion (<i>City Plan Area 4</i>)
	Residential Area (<i>City Plan Area 5</i>)
	Federal (Institutional) Uses (NBS and NOAA) (<i>City Plan Area 6</i>)

NOAA



Note: 110 new construc
in the Residential Area
shown on map.



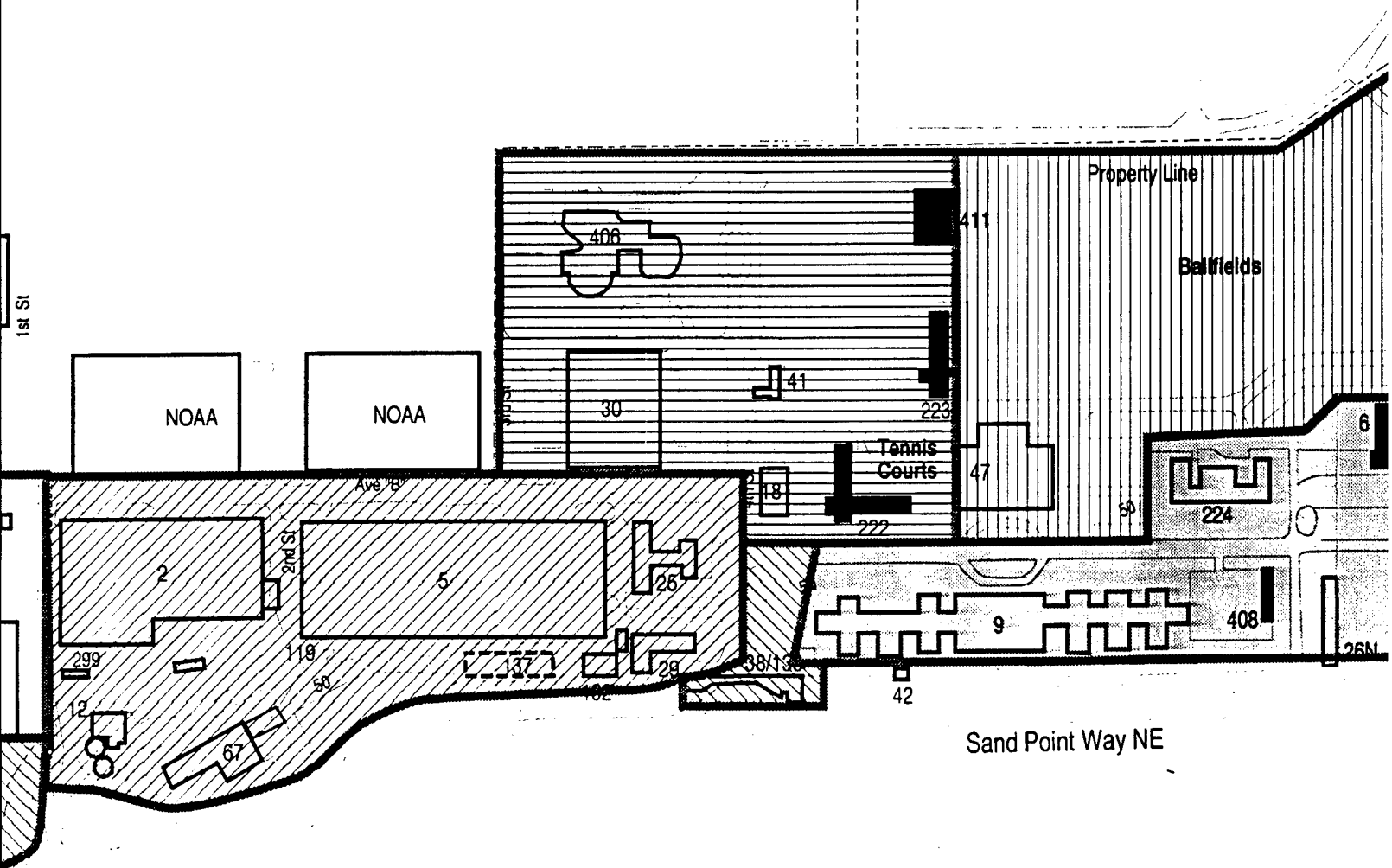
Source: City of Seattle 1993.

Plan
Area 2)
er (City Plan Area 3)
(City Plan Area 4)
Plan Area 6)

MAGNUSON PARK

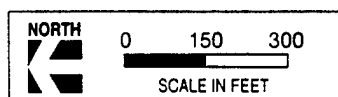
NOAA

Property Line



LEGEND

Note: 110 new construction housing units in the Residential Area in addition to buildings shown on map.

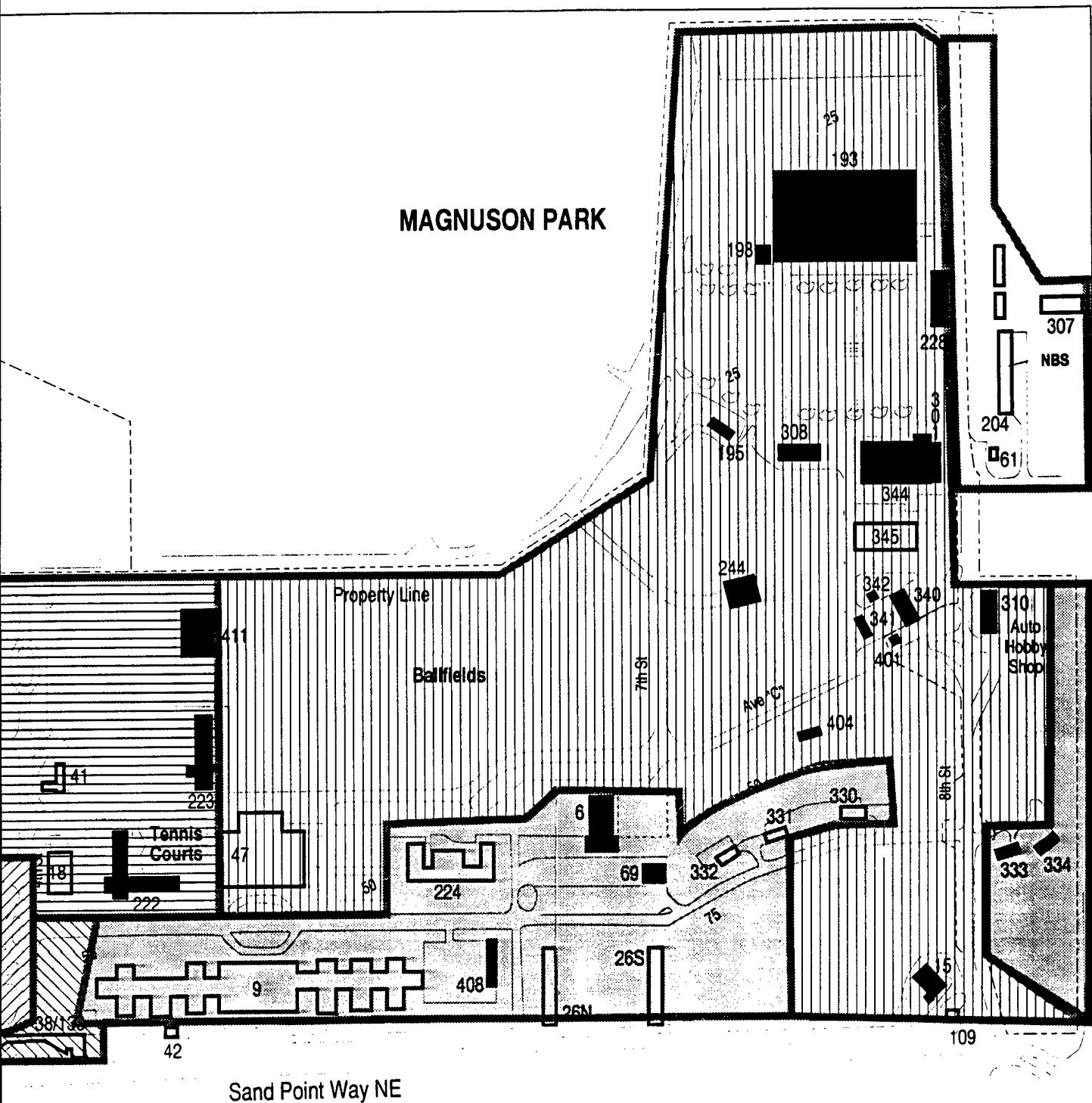


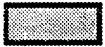
Source: City of Seattle 1993.

- Fence Line
- Foundation Only
- Bldg Location and Number
- Buildings to be Demolished
- 50 Elevation Contours in Feet Above Mean Sea Level

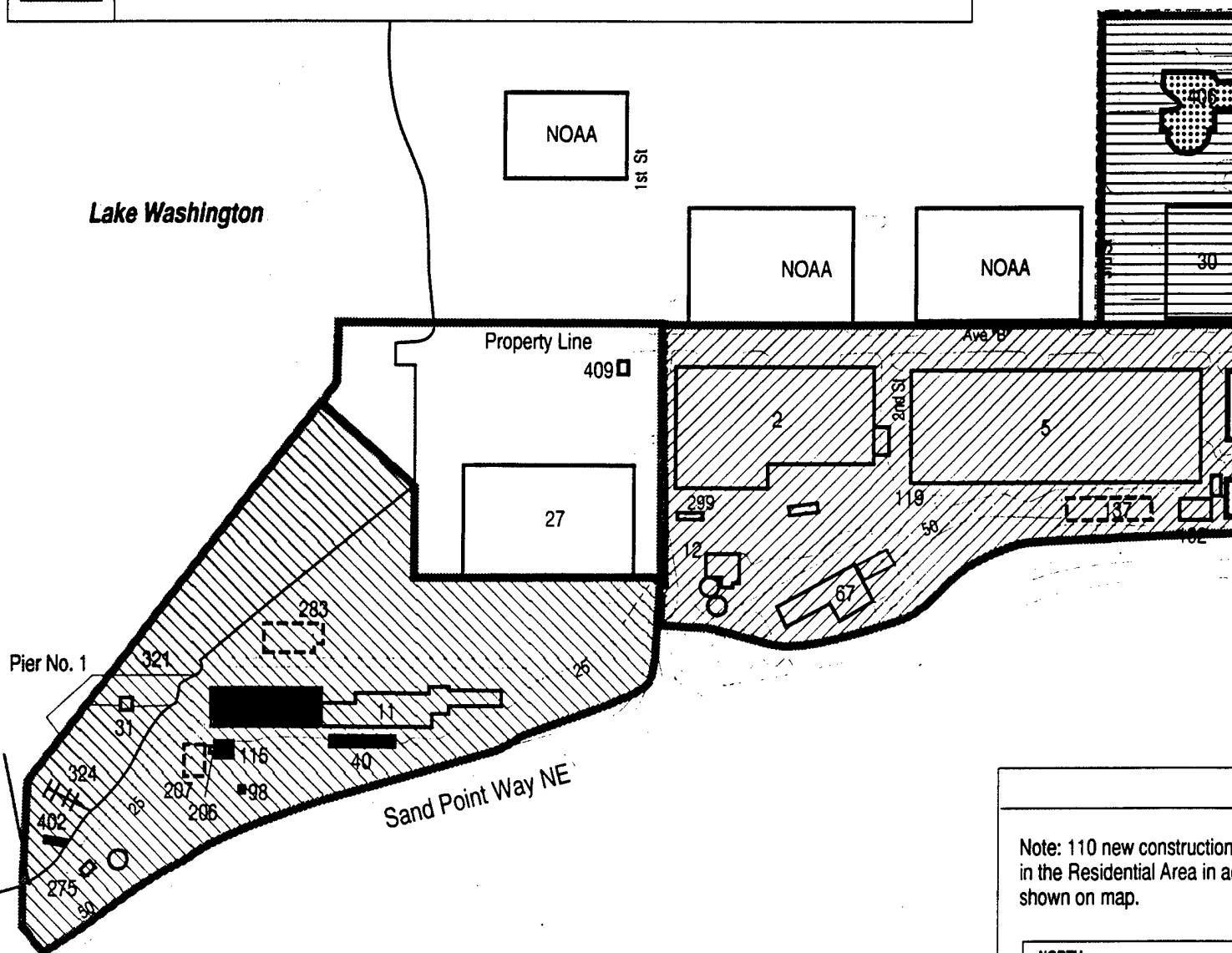
Note: Map indicates use of water area near Pier 1. Area was omitted in 1993 plan.

2

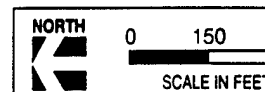


Pattern	City of Seattle Proposed Reuse Plan Areas
	North Shore Recreation Area (<i>City Plan Area 1</i>)
	Education and Community Activities Area (<i>City Plan Area 2</i>)
	Magnuson Park Arts, Culture, and Community Center (<i>City Plan Area 3</i>)
	Magnuson Park Open Space/Recreation Expansion (<i>City Plan Area 4</i>)
	Residential Area (<i>City Plan Area 5</i>)
	Federal (Institutional) Uses (NBS and NOAA) (<i>City Plan Area 6</i>)
	Land Use Area Under the Options to the City Plan (Part of Plan Area 2)
	Building Use Under the Options to the City Plan (Part of Plan Area 2)

NOAA



Note: 110 new construction in the Residential Area in at shown on map.



Source: City of Seattle 1993.

2)

y Plan Area 3)

Plan Area 4)

rea 6)

Plan Area 2)

an Area 2)

MAGNUSON PARK

NOAA

Property Line

Property Line

Ballfields

NOAA

NOAA

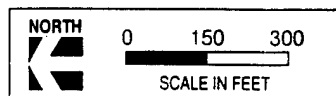
Ave B

Tennis Courts

Sand Point Way NE

LEGEND

Note: 110 new construction housing units in the Residential Area in addition to buildings shown on map.



Source: City of Seattle 1993.

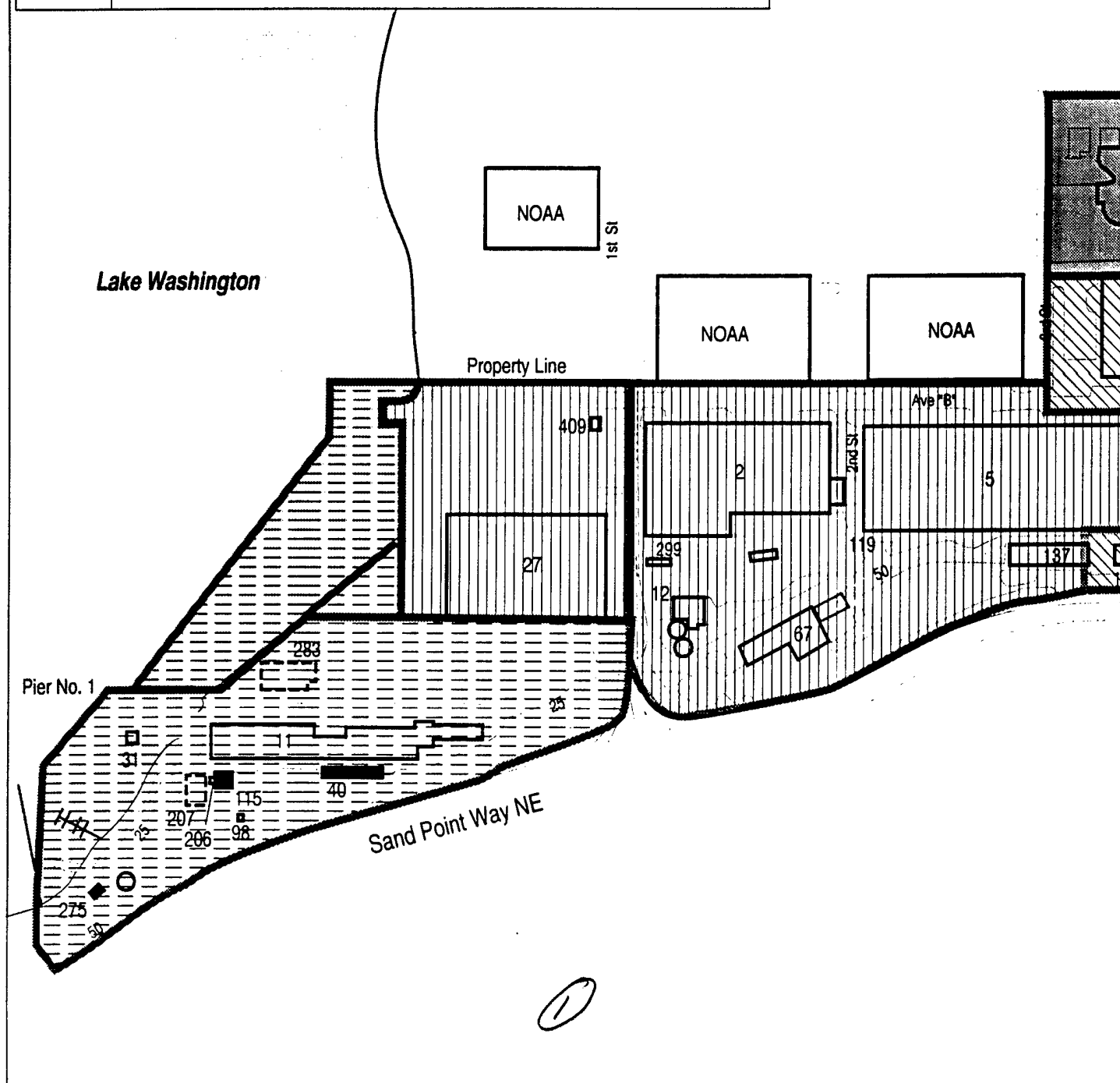
- Fence Line
- Foundation Only
- Bldg Location and Number
- Buildings to be Demolished
- ▨ Building Use in City Plan Option
- 50 Elevation Contours in Feet Above Mean Sea Level

Note: Map indicates use of water area near Pier 1. Area was omitted in 1993 plan.

2

Pattern	Muckleshoot Indian Tribe Proposed Reuse Plan
	Commercial
	Warehousing/Light Industrial, includes unidentified area and Bldg 27
	Administration/Office
	Institutional Facilities
	Educational
	Recreational/Commercial (includes adjacent unidentified water area)
	Federal (Institutional) Uses (NBS)

NOAA



Area and Bldg 27

ified water area)

MAGNUSON P

NOAA

Property Line

Property Line

NOAA

NOAA

Ave B1

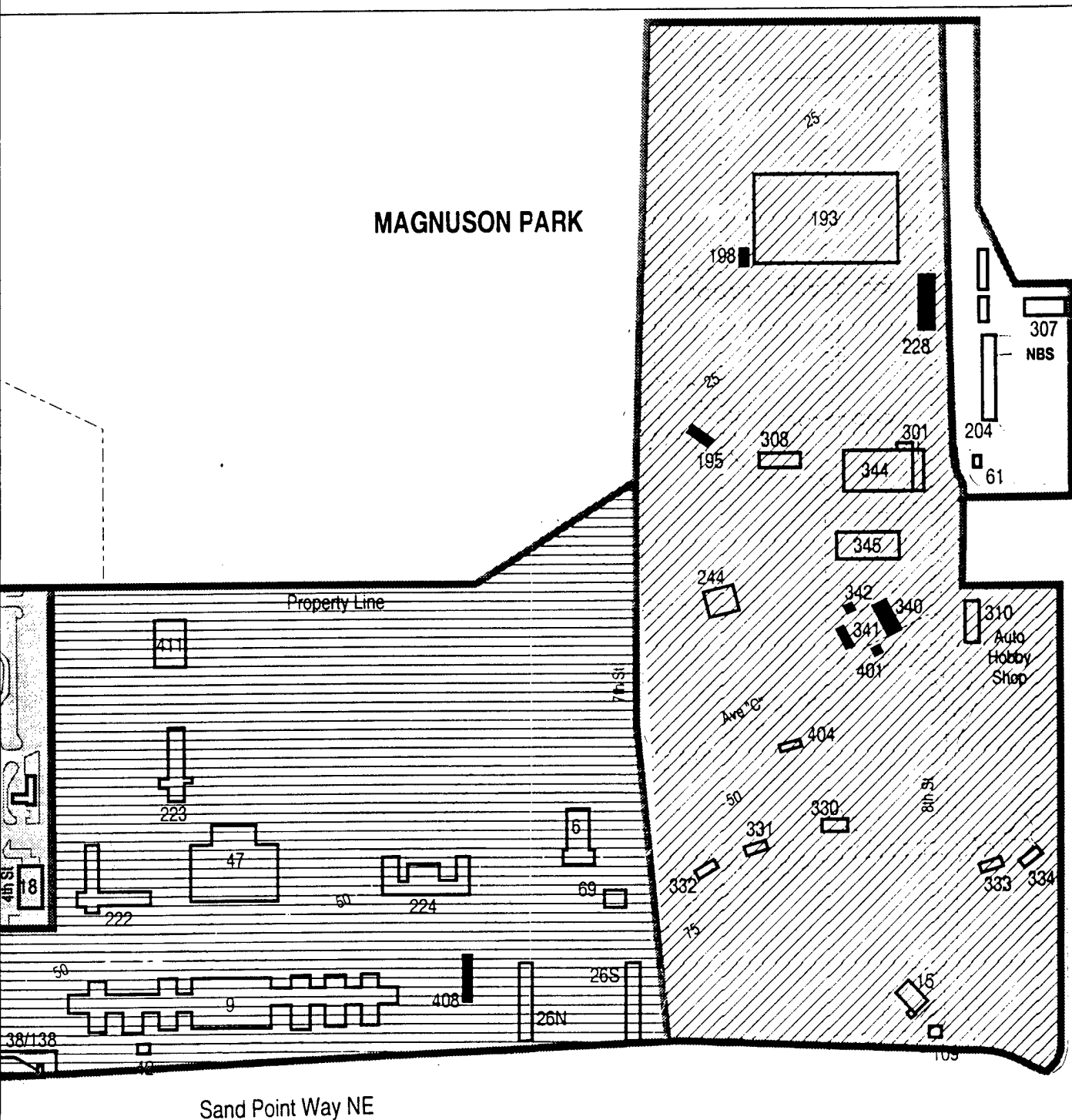
Sand Point Way NE

LEGEND

- Fence Line
- [] Foundation Only
- [] Bldg Location and Number
- [] Buildings to be Demolished
- 50 Elevation Contours in Feet Above Mean Sea Level
-  NORTH
- 0 150 300
SCALE IN FEET

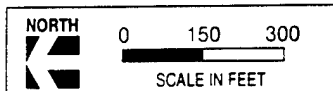
Source: Muckleshoot Tribe 1'

2



LEGEND

- Fence Line
- Foundation Only
- ▭ Bldg Location and Number
- ▬ Buildings to be Demolished
- 50 Elevation Contours in Feet Above Mean Sea Level



Source: Muckleshoot Tribe 1993.

Figure 2-2
Muckleshoot Tribe June 1993
Reuse Plan

3

NAVAL STATION
SAND POINT
Draft EIS
November 1996

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Table 2-1
Comparison of Features of the Alternatives

Feature	City Plan and Options to City Plan ^a	Muckleshoot Plan	No-Action Alternative ^b
Housing	A total of 250 units of transitional and permanent housing for the homeless is planned, including up to 200 units of transitional housing for homeless families, youth, and individuals. Total residential area is estimated as 22 acres (9 hectares). Open parcels between existing buildings are possible sites for construction of housing or service facilities to meet housing goals. Of the 22 acres (9 hectares), an additional 3 acres (1.25 hectares) in the southern part of the base is expected to be acquired by the University of Washington (UW) for student family housing.	Although no residential land use area is designated, residential housing for 623 students and 35 staff would be provided in existing buildings (Buildings 9, 224, 26).	None.
Community Services	Services for homeless households would be provided in the residential area. A senior center and a nonprofit community center would provide community and social services. The Magnuson Park Arts, Culture, and Community Center is planned for an area of approximately 17 acres (7 hectares). The center would include a new amphitheater and indoor spaces for the arts. Facilities would be used for community events, theatrical and dance performances, art exhibitions, and instruction in performing and fine arts.	An alcohol and drug treatment program would provide a prevention/outreach office, a pretreatment facility for individuals or families, and in-patient treatment facilities. The program would focus on cultural aspects of recovery and lifestyle. The college campus would accommodate the seniors program to provide 24-hour health care, social services, counseling, meals, recreation and educational activities, together with intergenerational programs. The Muckleshoot Tribe would use existing brig (Building 406) would be used as an interim jail facility. This facility would operate in conjunction with the alcohol and drug treatment program and the counseling program associated with the college campus.	None.
Education	Up to 375 children are expected to reside on site; half would be school age. Proposed educational programs in the education and community activities area include primary, secondary, and vocational schools; North Seattle Community College classrooms; UW support services; a Northwest Montessori School campus; classes in the arts; and a training center run by the Seattle Fire Department and other City departments.	A technical institute in the campus area is planned for 5,000 to 7,000 Native American students, specializing in vocational and college-level programs. Native American issues would be researched and incorporated into the curriculum. Existing buildings would be renovated to meet needs of classroom instruction and student residency.	None.
Manufacturing and Industrial Activities; Employment	No manufacturing or industrial uses are proposed. A film studio (Building 2) would provide economic development opportunities for the community in the education and community activities area. An unspecified number of jobs will be provided in the educational and community program areas.	Light manufacturing and warehousing services set up by outside companies would provide employment opportunities through the economic development plan to create a self-sufficient tribal economy and allow leasing of warehousing and light industrial space for fund generation. A commercial marina for fishing vessels, boating, and net storage. The Tribe expects to provide approximately 1,980 jobs with a long-term goal of filling all jobs with Native Americans.	None.

Table 2-1 (Continued)
Comparison of Features of the Alternatives

Feature	City Plan and Options to City Plan ^a	Muckleshoot Plan	No-Action Alternative ^b
Administrative/Office	Limited administrative, training, or storage facilities are proposed for public or private nonprofit agency use in the education and community activities area.	Approximately 6 acres (2.4 hectares) would be set aside for an administration/office area. If all facilities in this area are not used, they could be leased to generate revenue.	None.
Entrance to Magnuson Park	An improved park entrance would accommodate pedestrians, bicyclists, and motorists.	The concept of an improved park entrance is supported by the Tribe.	A grand entrance would not be built.
Open Space and Recreation	Approximately 78 acres (32 hectares) of total recreational area are proposed as Magnuson Park open space/recreation expansion area and approximately 15 acres (6 hectares) as a waterfront park in the North Shore recreation area. Mud Lake wetlands would be restored. The existing Burke-Gilman Trail would be linked to the North Shore recreation area and to Magnuson Park. A tennis center and a community recreation center would reuse existing Navy recreation facilities.	Approximately 14 acres (6 hectares) of the northern part of the base is proposed as Magnuson Park open space recreation areas. It would be open to the public, with minor restrictions during fishing season. This area would be used for fish studies, boat and net storage, fishing access to Lake Washington, and a meeting area for tribal fish commissioners. Approximately 50 acres (20 hectares) at the southern end of the base would be open to the public. Some buildings in this area are requested for commercial use.	No additional public open space would be provided.
Fencing	Most of the existing perimeter fence would be removed. Existing fencing in the access corridor to Magnuson Park would be removed and new fencing installed only where necessary to separate park areas from adjacent land uses. Existing fencing in areas targeted for an expansion to Magnuson Park would be removed to gain an area of uninterrupted open space.	The Muckleshoot Plan does not discuss fencing.	Existing fencing would be maintained by the Navy.
Leasing Property After Transfer	The City Plans to lease back 10 acres (4 hectares) to NOAA and 4 acres (1.6 hectares) to NBS.	No leasing.	No leasing.

^aCity Plan options would shift use of Building 9 from housing to education to accommodate a larger presence by North Seattle Community College. From 1996 to 1998, Building 9 may be used by Ballard High School during the day and North Seattle Community College in the evening. The City would replace 110 units proposed for Building 9 with new construction of 110 units. Buildings 25 and 29 would be used as administrative offices. Building 406 would be used as a senior/community center.

^bUnder the No-action Alternative, the Navy would maintain ownership of the property. The facility would not be reused and would be maintained by the Navy in a caretaker status.

Sources: City Planning 1993a; Friedli, 1996a; Muckleshoot Indian Tribe 1993.

**Table 2-2
Existing and Proposed Building Uses**

Building No.	Existing Function	Square Footage (Square Meters)	City			Muckleshoot		No-Action Alternative
			Activity Area	Building Reuse	Plan Options	Activity Area	Building Reuse	
2	Marine Corps training	144,232 (13,399)	Education and community activities	Film studio; potential historic district	Same as Plan	Warehousing/light industrial	Warehousing; light industrial; storage	None
5	Warehouse	417,467 (38,783)	Education and community activities	Potential historic district; potential educational uses, social services, community activities, and arts and cultural expansion	Same as Plan	Warehousing/light industrial	Warehousing; light industrial; storage	None
6	Bowling alley	10,793 (1,003)	Residential area	Demolish for family housing	Same as Plan	Campus area	Bowling alley	None
9	Enlisted barracks	223,516 (20,765)	Residential area	Mix of services, including services for homeless and possible low-income housing units	Educational zone to be used by Seattle Community College District and possibly a 200-bed dormitory. On a temporary basis from 1996 to 1998, would be used as Ballard High School during the day and North Seattle Community College in the evening.	Campus area	Classrooms, dormitories, student union	None
11	Public works/shops	59,206 (5,500)	North Shore recreation area	Sailing center; demolish northern part and remodel southern part (19,000 square feet/1,775 square meters)	Same as Plan	Recreational/commercial	Recreational/commercial	None
12	Boiler plant	5,653 (525)	Education and community activities	Reuse to be determined pending further analysis of heating system	Same as Plan	Warehousing/light industrial	Boiler plant	Boiler plant
15	Hobby shop/arts and crafts	3,268 (304)	Open space/recreation	Demolish for landscaping, roadway, and pathway improvements	Same as Plan	Parks and recreation (open to public)	Senior center, arts and crafts shop, and/or college campus	None

Table 2-2 (Continued)
Existing and Proposed Building Uses

Building No.	Existing Function	Square Footage (Square Meters)	City			Muckleshoot		No-Action Alternative
			Activity Area	Building Reuse	Plan Options	Activity Area	Building Reuse	
18	Fire station	14,137 (1,313)	Arts, culture, and community center	Art exhibitions administration and classrooms	Same as Plan	Institutional facilities	Fire station	None
25	Administrative	27,892 (2,591)	Education and community activities	Possible education and community service uses	Administrative office space	Administration/office	Administration of medical/drug/alcohol treatment program	None
26 (south)	Officer quarters	17,282 (1,605.5)	Residential area	Housing and services for homeless or low-income families	Same as Plan	Campus area	Staff housing	None
26A (north)	Storage	16,082 (1,494)	Residential area	Housing and services for homeless or low-income families	Same as Plan	Campus area	Teacher training center	None
27	Reserve training	114,617 (10,648)	North Shore recreation area	Property title will likely be leased or transferred to NOAA, together with surrounding 6 acres, with easement for pedestrian and emergency access	Same as Plan	Warehousing/light industrial	Requested by Tribe if NOAA's request is not granted	None
29	Dispensary	33,744 (3,135)	Education and community activities	Possible education or health uses	Administrative office space	Administration/office	Health clinic - alcohol and drug treatment program	None
30	Administrative; indoor tennis courts	80,066 (7,438)	Arts, culture, and community center	Performing arts and community gatherings, workshop, exhibitions, education, and administration	Same as Plan	Administration/office	Administration of drug and alcohol treatment/medical facility	None
31	Boathouse	3,141 (292)	North Shore recreation area	Boathouse	Same as Plan	Recreational/commercial	Boathouse in marina area	None
38 (part of 138)	Sentry house	58 (5)	Open Space/recreation	Renovate main gate	Same as Plan	Campus area	Security	None
40	Paint shop	924 (86)	North Shore recreation area	Demolish for waterfront park area	Same as Plan	Recreational/commercial	Demolish	None
41	Security (police and identification)	2,030 (188.5)	Arts, culture, and community center	Offices for management of arts, culture, and community center	Same as Plan	Institutional facilities	Security	None

Table 2-2 (Continued)
Existing and Proposed Building Uses

Building No.	Existing Function	Square Footage (Square Meters)	City			Muckleshoot		No-Action Alternative
			Activity Area	Building Reuse	Plan Options	Activity Area	Building Reuse	
42	Electrical distribution shelter	682 (63)	Residential area	No specific mention; assume function as electrical distribution shelter will remain	Same as Plan	Campus area	Electrical distribution center	None
47	Recreation facility/gym	50,060 (4,650)	Open space/recreation	Renovate for community center	Same as Plan	Campus area	Recreation/gym	None
60, 61, 204, 307	Laboratory	12,726 (1,182)	NBS	NBS Institutional (laboratory)	Same as Plan	Not requested	NBS laboratory	NBS laboratory
67	Garage	33,720 (3,133)	Education and community activities	Possible training uses by public agencies	Same as Plan	Warehousing/light industrial	Garage	None
69	Detached garage	6,776 (629)	Residential area	Assume will remain parking area	Demolished	Campus area	Assume will remain parking area	None
98	Sewage pump station	93 (9)	North Shore recreation area	Sewage pump station	Same as Plan	Recreational/commercial	No specific mention	None
115	Public works storage	1,500 (139)	North Shore recreation area	Demolish for waterfront park area	Same as Plan	Recreational/commercial	Demolish for recreational uses in marina area	None
116	Sewage pump station	NA	North Shore recreation area	Demo	Demo	Demo	Demo	Demo
119	Pump house	95 (9)	Education and community activities	No specific mention	Same as Plan	Warehousing/light industrial	Pump house	None
138	Security/gate house	12,806 (1,190)	Open space/recreation	Renovate main gate	Same as Plan	Campus area	Security	None
192	Administration	4,800 (446)	Education and community activities	Possible education or health uses	Same as Plan	Administration/office	Administration	None
193	Commissary/exchange	93,334 (8,671)	Open space/recreation	Demolish for wetland and open space	Same as Plan	Parks and recreation (open to public)	Lease to public for possible use as video and artisan shops	None

Table 2-2 (Continued)
Existing and Proposed Building Uses

Building No.	Existing Function	Square Footage (Square Meters)	City			Muckleshoot		No-Action Alternative
			Activity Area	Building Reuse	Plan Options	Activity Area	Building Reuse	
195	Travel agency	819 (76)	Open space/recreation	Assume demolition with Building 193	Same as Plan	Parks and recreation (open to public)	Demolish for open space or grand entrance	None
198	Thrift shop	300 (28)	Open space/recreation	Assume demolition with Building 193	Same as Plan	Parks and recreation (open to public)	Demolish for open space or grand entrance	None
222	Administration	30,126 (2,799)	Arts, culture, and community center	Demolish for outdoor amphitheater/performance plaza	Same as Plan	Campus area	Classrooms	None
223	Family service center	9,080 (843.5)	Arts, culture, and community center	Demolish for parking/outdoor exhibition plaza	Same as Plan	Campus area	Family service center/counseling center	None
224	Bachelors' enlisted quarters	38,264 (3,555)	Residential area	Housing for Phase 1	Same as Plan	Campus area	Dormitories	None
228	Uniform shop	4,074 (378)	Open space/recreation	Demolish for wetland and open space	Same as Plan	Parks and recreation (open to public)	Demolish for possible open space	None
244	Maintenance shop	5,011 (465.5)	Open space/recreation	Demolish for wetland and open space; sports field	Same as Plan	Parks and recreation (open to public)	Maintenance shop for use by groundskeeper	None
275	Small craft boathouse	288 (27)	North Shore recreation area	No specific mention	Same as Plan	Recreational/commercial	Demolish for new recreational use in marina area	None
282	Sewage lift station	NA	Open space/recreation	Assume demolition with Building 193	Same as Plan	Parks and recreation (open to public)	No specific mention	None
299	Public works storage	1,120 (104)	Education and community activities	No specific mention	Same as Plan	Warehousing/light industrial	Storage	None
301	Country store	9,500 (883)	Open space/recreation	Demolish for wetland and open space	Same as Plan	Parks and recreation (open to public)	Country store	None

Table 2-2 (Continued)
Existing and Proposed Building Uses

Building No.	Existing Function	Square Footage (Square Meters)	City			Muckleshoot		No-Action Alternative
			Activity Area	Building Reuse	Plan Options	Activity Area	Building Reuse	
308	Package store	4,202 (390)	Open space/recreation	Demolish for wetland and open space	Same as Plan	Parks and recreation (open to public)	Package store	None
310	Auto hobby shop	4,020 (373.5)	Open space/recreation	Demolish for entry corridor	Same as Plan	Parks and recreation (open to public)	Auto shop	None
321	Berthing pier	400 lineal feet (122 meters)	North Shore recreation area	Boat dock	Same as Plan	Recreational/commercial	Boat dock	None
324	Small boat dock	140 lineal feet (43 meters)	North Shore recreation area	Boat dock	Same as Plan	Recreational/commercial	Boat dock	None
330	Family housing	6,390 (594)	Residential area	Group homes for homeless, at-risk youth, teen mothers	Same as Plan	Parks and recreation (open to public)	Group home/commercial/rental	None
331	Family housing	6,233 (579)	Residential area	Group homes for homeless, at-risk youth, teen mothers	Same as Plan	Parks and recreation (open to public)	Group home/commercial/rental	None
332	Family housing	6,233 (579)	Residential area	Group homes for homeless, at-risk youth, teen mothers	Same as Plan	Parks and recreation (open to public)	Group home/commercial/rental	None
333	Family housing	1,990 (185)	Residential area	Supports acquisition by UW for student family housing; existing building to be demolished for new construction	Same as Plan	Parks and recreation (open to public)	Demolish for grand entrance	None
334	Family housing	2,113 (196)	Residential area	Supports acquisition by UW for student family housing; existing building to be demolished for new construction	Same as Plan	Parks and recreation (open to public)	Demolish for grand entrance	None

**Table 2-2 (Continued)
Existing and Proposed Building Uses**

Building No.	Existing Function	Square Footage (Square Meters)	City			Muckleshoot		No-Action Alternative
			Activity Area	Building Reuse	Plan Options	Activity Area	Building Reuse	
340	Gasoline pump island	NA	Open space/ recreation	Demolish for wetlands and open space	Same as Plan	Parks and recreation (open to public)	Demolish for open space	None
341	Gasoline station courtesy island	300 (28)	Open space/ recreation	Demolish for wetlands and open space	Same as Plan	Parks and recreation (open to public)	Demolish for open space	None
342	Service station	NA	Open space/ recreation	Demolish for wetlands and open space	Same as Plan	Parks and recreation (open to public)	Demolish for open space	None
344	Country store	11,000 (1,022)	Open space/ recreation	Demolish for wetlands and open space	Same as Plan	Parks and recreation (open to public)	Country store	None
345	Service bay	5,298 (492)	Open space/ recreation	Service station and parks maintenance facility	Same as Plan	Parks and recreation (open to public)	Service bay	None
401	Sentry house	60 (6)	Open space/ recreation	Assume demolition with Building 193	Same as Plan	Parks and recreation (open to public)	Demolish for open space	None
402	Boathouse	1,760 (163.5)	North Shore recreation area	Demolish	Same as Plan	Recreational/commercial	Boathouse	None
403	Standby generator plant	164 (15)	Education and community activities	No specific mention; assume existing use remains	Same as Plan	Administration/office	No specific mention; assume existing use remains	None
404	Recreation pavilion	1,120 (104)	Open space/ recreation	Assume demolition with Building 193	Same as Plan	Parks and recreation (open to public)	Open - remain recreation pavilion or remove for grand entrance	None
405	Covered walkway	1,120 (104)	Open space/ recreation	Assume demolition with Building 193	Same as Plan	Parks and recreation (open to public)	No specific mention	None

Table 2-2 (Continued)
Existing and Proposed Building Uses

Building No.	Existing Function	Square Footage (Square Meters)	City			Muckleshoot		No-Action Alternative
			Activity Area	Building Reuse	Plan Options	Activity Area	Building Reuse	
406	Brig	29,270 (2,719)	Arts, culture, and community center	Part of Magnuson Park arts, culture, and community center	Senior/community center	Institutional facilities	Interim jail facility	None
407	Hazardous waste storage	548 (51)	Education and community	No specific mention	Same as Plan	Warehousing/light industrial	No specific mention	None
408	Motorcycle parking	660 (61)	Residential area	No specific mention; assume it will remain some sort of parking facility	Same as Plan	Campus area	Demolish for open area	None
409	Sewage pumping station	175 (16)	North Shore recreation area	In property requested by NOAA	Same as Plan	Not requested	No specific mention	In property requested by NOAA
410	Recreation pavilion	888 (82)	North Shore recreation area	No specific mention	Same as Plan	Recreational/commercial	Recreation pavilion	None
411	Recreation pavilion (picnic shelter)	888 (82)	Arts, culture, and community center	No specific mention	Same as Plan	Campus area	Recreation pavilion	None

* Previously evaluated under Interim Lease Environmental Assessment

Notes:

Arts, culture, and community center
 Education and community
 Open space/recreation
 NOAA
 NA
 NBS
 UW
 Magnuson Park Arts, culture, and community center
 Education and community activities area
 Magnuson Park open space/recreation expansion area
 National Oceanic and Atmospheric Administration
 Not applicable
 National Biological Service
 University of Washington

Sources: City Planning 1993a; Muckleshoot Indian Tribe 1993.

Table 2-3
Potential Impacts of the Alternatives

AFFECTED ENVIRONMENT	CITY PLAN		MUCKLESHOOT PLAN	NO-ACTION ALTERNATIVE
	CITY PLAN	OPTIONS TO THE CITY PLAN		
LAND USE				
Environmental impacts	No significant impacts.	No significant impacts.	No significant impacts.	Residential areas would not be used.
Residential	No significant adverse impacts.	No significant adverse impacts.	Possible impacts from commercial fishing fleet's use of the marina.	Recreational areas would not be used.
Recreational	No significant impacts.	No significant impacts.	No commercial uses proposed.	No commercial activities would occur.
Commercial	No significant impacts.	No significant impacts.	No significant impacts.	No educational use would occur.
Educational	No administrative/maintenance proposed.	No administrative/maintenance proposed.	No significant impacts.	No significant impacts.
Administrative/maintenance	No significant impacts.	No significant impacts.	No significant impacts.	No use of institutional facilities.
Institutional	No light industrial uses are proposed.	No light industrial uses are proposed.	No significant impacts.	None.
Light industrial	None required.	None required.	Hours of marina use should be established. Water routes or commercial boats should be established.	None identified.
Mitigating measures	None.	None.	None.	No productive use of the land.
Unavoidable adverse impacts	None.	None.		
HISTORIC AND CULTURAL RESOURCES				
Environmental impacts	None on archaeological resources, because no resources are identified. Two buildings (Building 15 and the north half of Building 11) listed in the Naval Base Historic District would be demolished.	Same as City Plan.	None on archaeological resources because no resources are identified. Buildings listed in Naval Station Sand Point Historic District would be kept architecturally intact.	None on archaeological resources. Buildings in the proposed historic district would be maintained according to the National Park Service <i>Preservation Brief #31</i> .

Table 2-3 (Continued)
Potential Impacts of the Alternatives

AFFECTED ENVIRONMENT	CITY PLAN		MUCKLESHOOT PLAN	NO-ACTION ALTERNATIVE
	CITY PLAN	OPTIONS TO THE CITY PLAN		
HISTORIC AND CULTURAL RESOURCES (Continued)				
Mitigating measures	Have a professional archaeologist on site during excavations of undisturbed areas. Navy is developing a Programmatic Agreement with SHPO and Advisory Council to establish a process for property conveyance to preserve the historic district.	Same as City Plan.	Have a professional archaeologist on site during excavations of undisturbed areas. Navy is developing a Programmatic Agreement with SHPO and Advisory Council to establish a process for property conveyance to preserve the historic district.	Maintain existing buildings as specified in the National Park Service <i>Preservation Brief #31</i> .
Unavoidable adverse impacts	None.	None.	None.	None.
SOCIOECONOMICS				
Environmental impacts	Population numbers and composition would not change significantly.	Same as City Plan.	Population numbers and composition would not change significantly.	
Demographics	Social services and transitional housing for homeless or low-income people would be provided.	Same as City Plan.	Social services would be provided. Some housing for students and staff from the proposed technical institute would be provided. The Naval Station Sand Point area may experience housing shortages.	Existing housing facilities would not be used. No social services would be provided.
Housing and social services	A small number of jobs would be created. This impact is not significant.	New housing construction could affect property values if it blocks views or is out of character with neighborhood. Possible short-term impacts on property values from temporary use by Ballard High.	Approximately 1,980 jobs would be created. Increased traffic could reduce property values between 3 and 6 percent. The proposed commercial fishing and boating activities could reduce property values of homes immediately north of the base by 7 to 10 percent.	Jobs would not be created. No impact on property values.
Economy				

Table 2-3 (Continued)
Potential Impacts of the Alternatives

AFFECTED ENVIRONMENT	CITY PLAN		MUCKLESHOOT PLAN	NO-ACTION ALTERNATIVE
	CITY PLAN	OPTIONS TO THE CITY PLAN		
SOCIOECONOMICS (Continued)				
<i>Schools</i>	There would be no significant adverse impacts on schools in the Naval Station Sand Point area. Educational opportunities will increase because of education, arts, and cultural facilities.	Educational opportunities would increase in the City Plan due to a larger presence by North Seattle Community College.	There would be no significant adverse impacts on schools in the Naval Station Sand Point area. Educational opportunities would increase for Native Americans because of the technical institute.	No impacts.
Mitigating measures	None.	Design new housing units to conform with neighborhood character and preserve views. Bus Ballard High students.	Reduce traffic volumes. Store boats indoors. Provide more on campus housing, increased bus service for commuters, and low income housing assistance.	None.
Unavoidable adverse impacts	None.	None.	Housing pressure as a result of the 5,000-7,000-student college. However, increased housing demand may also create economic benefits.	None.
RECREATION				
Environmental impacts	Approximately 78 acres of recreational space would be open for general public use, thus reducing the shortage of open space in the Northeast Subarea of the City of Seattle. Shoreline recreational opportunities would be expanded. Bicycle and pedestrian access to Magnuson Park and the North Shore area would improve. Use of the existing Navy recreation center and of the proposed tennis center would increase public access to indoor and outdoor recreational facilities.	Same as City Plan.	Approximately 65 acres (26 hectares) of recreational space would be open for general public use, thus reducing the shortage of open space in the Northeast Subarea of the City. Shoreline recreational opportunities would be expanded (with minor restrictions during fishing season). Bicycle and pedestrian access to Magnuson Park would improve.	Recreational facilities and opportunities at Sand Point would not be used. Bicycle and pedestrian access to Magnuson Park would remain limited.
Mitigating measures	None required.	None required.	None required.	None required.
Unavoidable adverse impacts	None.	None.	None.	None.

Table 2-3 (Continued)
Potential Impacts of the Alternatives

AFFECTED ENVIRONMENT	CITY PLAN		NO-ACTION ALTERNATIVE
	CITY PLAN	OPTIONS TO THE CITY PLAN	MUCKLESHOOT PLAN
TRANSPORTATION			
Environmental impacts	Approximately 8,950 average daily trips are anticipated. Street networks are expected to operate at acceptable conditions, except for N.E. 95th/Sand Point Way. Level of service at N.E. 95th/Sand Point Way would deteriorate from level of service D today to level of service F in 2000, with or without this reuse plan. This plan will increase Montlake Bridge traffic by 5 percent. However, the volume to capacity ratio allowed under the City's concurrency plan will not be exceeded. Numbers of bus transit riders, pedestrians, and bicyclists are expected to increase, but these impacts are not expected to be significant. Parking is not anticipated to be a problem. Special events are not expected to create significant impacts since most events will be at non-peak traffic times.	Approximately 9,050 ADT are expected to be generated from the site in the year 2000 and approximately 10,030 ADT during the time Ballard High is on site (if chosen). Impacts would be comparable to the City Plan.	Approximately 18,260 average daily trips are expected to be generated. Street networks are expected to operate at acceptable conditions, except for N.E. 95th/Sand Point Way. Level of service at N.E. 95th/Sand Point Way would deteriorate from level of service D today to level of service F in 2000, with or without this reuse plan. This plan will increase Montlake Bridge traffic by 10 percent. However, the volume to capacity ratio allowed under the City's concurrency plan will not be exceeded. Numbers of bus transit riders, pedestrians, and bicyclists are expected to increase, but these impacts are not expected to be significant. Parking is not anticipated to be a problem. Special events are not expected to create significant impacts since most events will be at non-peak traffic times.
Mitigating measures	Pedestrian/bicycle lanes would be provided, thus promoting nonmotorized travel. Signalization or geometric changes of the N.E. 95th/Sand Point Way intersection would improve its level of service. Levels of service at selected other intersections could be improved by signal timing and phasing adjustments. Special events should be held at non-peak traffic times and a traffic plan implemented.	Same as City Plan.	Pedestrian and bicycling mobility could be encouraged. Signalization or geometric changes of the N.E. 95th/Sand Point Way intersection would improve its level of service. Levels of service at selected other intersections could be improved by signal timing and phasing adjustments. Special events should be held at non-peak traffic times and a traffic plan implemented.
Unavoidable adverse impacts	None.	None.	None.

Table 2-3 (Continued)
Potential Impacts of the Alternatives

AFFECTED ENVIRONMENT	CITY PLAN		MUCKLESHOOT PLAN	NO-ACTION ALTERNATIVE
	CITY PLAN	OPTIONS TO THE CITY PLAN		
NOISE				
Environmental impacts	Overall noise impacts are expected to be slight, except for significant noise generation from outdoor amphitheater, indoor theater, ballfield PA system at night, and heating, ventilating, and air conditioning (HVAC) units. - Require acoustical analysis and possible engineering/operational remediation for potentially significant noise generators, especially the HVAC equipment. - Limit noise levels in amphitheater to 85 dBA, at the farthest seating in the amphitheater, orient amphitheater to face east, and regulate hours of performances in the amphitheater. - Limit sound levels outside of the indoor theater to 80 dBA. - Orient public address speakers on athletic fields to the east. Do not use speakers at night.	Same as City Plan.	Overall noise impacts are expected to be slight, except for significant noise generation from ballfield PA system at night, commercial fishing boats, truck traffic, and heating, ventilating, and air conditioning (HVAC) units. - Require acoustical analysis and possible engineering/operational remediation for potentially significant noise generators, especially the HVAC equipment. - Orient public address speakers on athletic fields to the east. Do not use speakers at night. - Limit fishing boat speed close to shore. - Prohibit movement of heavy trucks between 12 midnight and 5 a.m.	Noise levels would be reduced compared with when the base was in operation.
Mitigating measures		Same as City Plan.		None.
Unavoidable adverse impacts	None.	Same as City Plan.	None.	None.
PUBLIC SERVICES AND UTILITIES				
Environmental impacts	Off-site: no significant impacts. Utility systems will be upgraded as needed. On-site: facilities are adequate on a short-term basis. On a long-term basis, the reuser will repair and upgrade the systems as follows - Upgrade water system - Install high efficiency HVAC - Upgrade electrical service - Maintain storm drainage - Consider pipe realigning	Same as City Plan.	Off-site: no significant impacts. Utility systems will be upgraded as needed. On-site: facilities are adequate on a short-term basis. On a long-term basis, the reuser will repair and upgrade the systems as follows - Upgrade water system - Install high efficiency HVAC - Upgrade electrical service - Maintain storm drainage - Consider pipe realigning	None.

Table 2-3 (Continued)
Potential Impacts of the Alternatives

AFFECTED ENVIRONMENT	CITY PLAN		MUCKLESHOOT PLAN	NO-ACTION ALTERNATIVE
	CITY PLAN	OPTIONS TO THE CITY PLAN		
PUBLIC SERVICES AND UTILITIES (Continued)				
Mitigating measures	Off-site: none required. On-site: facilities will be upgraded and repaired as needed.	Same as City Plan.	Off-site: none required. On-site: facilities will be upgraded and repaired as needed.	None required.
Unavoidable adverse impacts	None.	Same as City Plan.	None.	None.
PUBLIC HEALTH AND SAFETY				
Environmental impacts <i>Crime and law enforcement</i>	On-base: An increase in crime would result due to increased numbers using the site. Off-base: There would be no significant crime increase in adjacent neighborhoods. Seattle Police Department would provide protection.	On-base: An increase in crime over the City Plan would result due to increased numbers using the site. Off-base: There would be no significant crime increase in adjacent neighborhoods. Seattle Police Department would provide protection.	On-base: An increase in crime would result due to increased numbers using the site. Off-base: There would be no significant crime increase in adjacent neighborhoods. Law enforcement may be provided by the State of Washington and King County. Clarification concerning Seattle Police Department jurisdiction and/or safety coverage by Tribal police is needed. The Federal Crime Awareness and Campus Security Act requires police services and the reporting of campus crimes.	The Navy would continue to provide security. The City police have concurrent jurisdiction and would respond if called.
Fire protection	The City of Seattle Fire Department would provide adequate protection through its existing facilities (Stations 38 and 40). City fire code safety standards and requirements would have to be met.	Same as City Plan.	Clarification concerning Seattle Fire Department jurisdiction over the site is needed. No specific plans have been formulated concerning supplementary fire protection envisaged by the Tribe. Federal and state fire codes, which are not as strict as the City code, may apply.	Protection would be provided by the City of Seattle. Fires would be less likely, because of security and lack of activity at the base.

Table 2-3 (Continued)
Potential Impacts of the Alternatives

AFFECTED ENVIRONMENT	CITY PLAN		MUCKLESHOOT PLAN	NO-ACTION ALTERNATIVE
	CITY PLAN	OPTIONS TO THE CITY PLAN		
PUBLIC HEALTH AND SAFETY (Continued)				
<i>Emergency medical and medical services</i>	Emergency medical services would be provided by the Seattle Fire Department and private ambulance services. Health care for homeless or low-income residents would be provided. This service could be expanded to serve a broader community.	Same as City Plan.	Jurisdiction for emergency medical service is unclear. A health clinic would include treatment for drug and alcohol problems, prenatal care, and 24-hour care for seniors.	No impacts on emergency medical services.
<i>Environmental health</i>	The Navy has completed remedial action. Ecology has written a "No Further Action" letter. Ecology has recommended deed restrictions to limit site use and activities and to notify future users of property conditions. Buildings: - Demolition and remodeling could result in friable asbestos that may pose a health risk. - Children exposed to lead-based paint in structures where abatement has not been performed may be susceptible to lead poisoning.	Same as City Plan.	The Navy has completed remedial action. Ecology has written a "No Further Action" letter. Ecology has recommended deed restrictions to limit site use and activities and to notify future users of property conditions. Buildings: - Remodeling could result in friable asbestos that may pose a health risk. - Children exposed to lead-based paint in structures where abatement has not been performed may be susceptible to lead poisoning.	No change in use, therefore no impacts.
Mitigating measures <i>Crime and law enforcement</i>	Adequate levels of security services should be provided. These include crime prevention activities, community policing, and good management. Comprehensive crime prevention through environmental design could be implemented.	Same as City Plan.	Adequate levels of security services should be provided. These include crime prevention, community policing, and good management of activities. A crime-prevention-through-environmental-design project could be implemented.	None required.
<i>Fire protection</i>	None necessary.	Same as City Plan.	The Tribe should meet all Seattle fire, building, and hazardous materials codes.	None required
<i>Emergency medical and medical services</i>	None necessary.	Same as City Plan.	None necessary.	None necessary.

Table 2-3 (Continued)
Potential Impacts of the Alternatives

AFFECTED ENVIRONMENT	CITY PLAN		MUCKLESHOOT PLAN	NO-ACTION ALTERNATIVE
	CITY PLAN	OPTIONS TO THE CITY PLAN		
PUBLIC HEALTH AND SAFETY (Continued)				
<i>Environmental health</i>	Grounds: Follow institutional controls in letter from Department of Ecology. Buildings: Inspect annually for lead-based paint and asbestos hazards and abate as needed in accordance with applicable laws.	Same as City Plan.	Grounds: Follow institutional controls listed in letter from Department of Ecology. Buildings: Inspect annually for lead-based paint and asbestos hazards and abate as needed in accordance with applicable laws.	None necessary.
Unavoidable adverse impacts <i>Crime and law enforcement</i>	None.	None.	None.	None.
Fire protection	None.	None.	None.	None.
Emergency medical and medical services	None.	None.	None.	None.
<i>Environmental health</i>	None.	None.	None.	None.
EARTH				
Environmental impacts	New construction would have an insignificant effect on site topography. Structural damage or injury from an earthquake is possible, but not predictable.	Same as City Plan.	New construction would have an insignificant effect on site topography. Structural damage or injury from an earthquake is possible, but not predictable.	Structural damage or injury from an earthquake is possible, but not predictable.
Mitigating measures	Site any new structures on appropriate soils. Perform seismic hazard upgrades.	Same as City Plan.	Site any new structures on appropriate soils. Perform seismic hazard upgrades.	None required.
Unavoidable adverse impacts	None.	None.	None.	None.
BIOLOGICAL RESOURCES				
Environmental impacts	No significant impacts.	Same as City Plan.	No significant impacts.	No significant impacts.
Mitigating measures	None required.	Same as City Plan.	None required.	None required.
Unavoidable adverse impacts	None.	None.	None.	None.
WATER				
Environmental impacts	Demolition and excavation activities may result in increased sedimentation. Dockside maintenance of boat engines and hulls may result in spilled pollutants.	Possibly increased sedimentation from more new construction.	Demolition and excavation activities may result in increased sedimentation. Dockside maintenance of boat engines and hulls may result in spilled pollutants.	No significant impacts.

Table 2-3 (Continued)
Potential Impacts of the Alternatives

AFFECTED ENVIRONMENT	CITY PLAN		MUCKLESHOOT PLAN	NO-ACTION ALTERNATIVE
	CITY PLAN	OPTIONS TO THE CITY PLAN		
WATER (Continued)				
Mitigating measures	Prohibit on-site maintenance of boat engines or hulls. Develop and implement a BMP plan for boating activity. Install biofiltration collection systems; divert some runoff from surface flow into the newly created Mud Lake.	Same as City Plan.	Prohibit on-site maintenance of boat engines or hulls. Develop and implement a best management practices plan for boating activity.	None.
Unavoidable adverse impacts	None.	None.	None.	None.
AIR QUALITY				
Environmental impacts	No significant impacts.	No significant impacts.	No significant impacts.	No significant impacts.
Mitigating measures	None required.	Same as City Plan.	None required.	None required.
Unavoidable adverse impacts	None.	None.	None.	None.

Notes:

ADT Average daily trips
avgas Aviation gasoline
BMP Best Management Practices
CPTED Crime prevention through environmental design
dBA Adjusted decibels—Adjusted decibels are a weighted scale used to approximate the sensitivity of the human ear (because people respond differently to sound at alternate frequencies).
DoD United States Department of Defense
LOS Level of service
MTCA Model Toxics Control Act
SHPO State Historic Preservation Officer

3.0 RELEVANT POLICIES, PLANS, REGULATIONS, AND LAWS

This section identifies relevant federal, state, and local policies, plans, and regulations. Compliance will be the responsibility of future users of the base, and measures needed for compliance will be determined by future users, based on specific uses of the base.

The City Plan would have to comply with State and City policies, plans, and regulations. The Muckleshoot Plan may or may not be exempt from some State and City policies, plans, and regulations, depending on how the property is conveyed (under whose jurisdiction the property would fall). The No-action Alternative would also be exempt, because the property would still be owned by the Navy.

3.1 FEDERAL

3.1.1 Defense Base Closure and Realignment Act (BRAC)

The BRAC of 1988 (BRAC 88), P.L. 100-526, 102 Stat. 2623, and the BRAC of 1990 (BRAC 91, 93, and 95), P.L. 101-510, 104 Stat. 1808, provide a process for realignment and closure of military installations inside the U.S. A Defense Base Closure and Realignment Commission, composed of eight members and appointed by the President, was responsible for developing a list of bases nominated for closure. The Commission met during calendar years 1988, 1991, 1993, and 1995. Naval Station Sand Point was nominated for closure in 1991.

The BRAC requires the DoD or (in specific cases) other federal agencies, to comply with a variety of laws and associated regulations to effect federal real property disposal. The BRAC does not legislate specific land uses for closing military bases but does provide a basic process for involving the community in the reuse decision. This process is described in Section 1.4 of this EIS. The City Plan was developed to meet the BRAC requirement to involve the local community in developing a reuse alternative for closing military bases. The Muckleshoot Plan was developed in conjunction with the BIA, a division of the United States Department of the Interior, and was submitted to the Navy for consideration under the federal screening process.

3.1.2 National Environmental Policy Act (NEPA)

The National Environmental Policy Act of 1969 as amended (P.L. 91-109) requires the federal government to assess, in detail, the possible environmental impact of every proposal for legislation or other major federal action with the potential to significantly affect the quality of the human environment. This EIS is prepared consistent with these

requirements. Other related policies include DODDIR 4700.4 (January 1989), the Natural Resource Management Program, which prescribes policies and procedures for an integrated program for multiple-use management of natural resources on property under DoD control, and DODDIR 6050.1, Environmental Effects of U.S. OPDOD Actions, which establishes policy, assigns responsibilities, and provides guidance on the DoD administration of NEPA.

3.1.3 Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA)

The Comprehensive Environmental Response, Compensation, and Liability Act of 1980, 42 U.S.C. 9601 et seq., and the National Contingency Plan Act, 40 CFR 300, are commonly referred to as CERCLA or Superfund. These acts were passed by Congress in response to concerns about the release of hazardous substances to the environment.

CERCLA establishes a response mechanism for cleanup of hazardous waste contamination from accidental spills or from abandoned hazardous waste disposal sites that may result in long-term environmental damage. Section 105(a)(8) of CERCLA requires the EPA to identify sites that present the greatest threat to public health and the environment and to include them on the National Priorities List (NPL).

The EPA has determined that environmental conditions at Naval Station Sand Point do not warrant NPL listing. No further action is required at the base under the CERCLA remedial investigation/feasibility study process.

3.1.4 Superfund Amendments and Reauthorization Act of 1986 (SARA)

CERCLA has been amended four times. The Superfund Amendments and Reauthorization Act (SARA) was signed in October 1986. SARA establishes guidelines for cleanup standards. Emphasis is placed on cleanup methods that permanently and significantly reduce the volume, toxicity, or mobility of contaminants. SARA also requires federal facilities to comply with CERCLA.

Title III of SARA includes the Emergency Planning and Community Right-To-Know Act. Under this act, industries that use hazardous materials are required to notify local planning officials and the fire department that these materials are stored on site. Until August 1993, federal facilities were exempt from SARA Title III reporting. Despite the planned base closure, Naval Station Sand Point must comply with the reporting requirements of SARA Title III.

3.1.5 Community Environmental Response Facilitation Act of 1992 (CERFA)

The Community Environmental Response Facilitation Act of 1992 (CERFA), P.L. 102-426, amends CERCLA to address federally owned hazardous waste sites that are not on the NPL. Specifically, CERFA requires that hazardous products, including aviation gas, motor oil, and other petroleum-based wastes, be identified on federal sites before termination of federal ownership and/or activities. Following identification of sources and notification of state agencies, CERFA obligates federal agencies to remediate contamination.

3.1.6 Resource Conservation and Recovery Act of 1976 (RCRA)

The Resource Conservation and Recovery Act of 1976 (RCRA), 42 U.S.C. 3251 et seq., 40 CFR 240 through 281, establishes a comprehensive program for the management of solid and hazardous waste. RCRA Subtitle D covers the management of municipal solid waste, and RCRA Subtitle C covers the management of hazardous waste. RCRA defines hazardous waste and controls its handling and disposal through the cradle-to-grave manifest system. This cradle-to-grave approach imposes management requirements on generators and transporters of hazardous waste and on owners and operators of treatment, storage, and disposal facilities. Naval Station Sand Point is currently classified as a RCRA generator. Future users may be responsible for compliance with RCRA, depending on the specific use.

3.1.7 Environmental Justice—Executive Order 12898

Executive Order 12898 (E.O. 12898) requires that environmental impacts to minority and low-income persons be assessed and that disproportionately high and adverse human health or environmental effects be addressed, as appropriate. This process is referred to as environmental justice. Consistent with this order, impacts to minority and low-income persons have been assessed. It does not appear that the reuse alternatives would have a disproportionately adverse effect on any of these groups. In fact, implementation of the City Plan, options to the City Plan, or the Muckleshoot Plan would have an overall beneficial effect on these groups. Additional details on the environmental justice impacts are found in Section 4.3, Socioeconomics.

3.1.8 The Federal Clean Air Act

The Federal Clean Air Act (42 USC 7300 et seq.) establishes a nationwide framework for air pollution control, which is further implemented by State and City laws. The State of Washington's Clean Air Act is contained in the Revised Code of Washington (RCW) Chapter 70 with regulations of the Department of Ecology in the Washington Administrative Code (WAC) Chapter 173-460. Within Seattle, local air pollution control is administered by the Puget Sound Air Pollution Control Agency (PSAPCA), which has

rules adopted by a board of elected officials. The various programs for air pollution control are defined and coordinated by the state implementation plan, which details authorities and actions to attain national ambient air quality standards to protect the public health and welfare.

One provision of the Clean Air Act (Section 176) requires federal agencies to review their activities to ensure that they do not hamper local efforts to control air pollution. This prevents federal agencies from engaging in actions that do not conform to an approved implementation plan. Conformity to an implementation plan means the activities of a federal agency will not cause or contribute to new violations of the ambient air quality standards, increase the frequency or severity of an existing violation, or delay the timely attainment of a standard. EPA has developed two major rules for determining conformity of federal activities, conformity requirements for transportation projects, and conformity for all other projects. EPA has published the General Conformity Rule in Chapters 51 and 93 of Part 40 of the Code of Federal Regulations. Although the Clean Air Act has very broad applicability, EPA and the regulated federal agencies have determined that certain actions lack the potential to impact air quality or local efforts to control air pollution.

To implement Section 176 of the Clean Air Act, the Navy has issued the draft *Interim Guidance on Compliance With the Clean Air Act General Conformity Rule* (April 26, 1994). The guidance document defines activities that are categorically exempt from the General Conformity Rule and the procedure to follow when the rule applies.

Categorically exempt activities include transfers of ownership in real property regardless of the method of transfer. As a result of the categorical exemptions, the activities to convey Naval Station Puget Sound to the City of Seattle do not require an analysis of conformity. No new sources of air pollution are created by the transfer, and all future activities on the site will be within the authority of PSAPCA or Ecology. The transfer does not trigger any air pollution control or permitting requirements for PSAPCA or Ecology, and no analysis of those agencies' air pollution regulatory programs is presented here.

3.1.9 Federal Water Pollution Control Act (also known as the Clean Water Act)

The Federal Water Pollution Control Act of 1972, as amended (P.L. 92-500), and its 1987 modifications (Title 33, U.S.C. 1329) concern improvements of the nation's water resources. It provides for the development of municipal and industrial wastewater treatment standards and a permitting system to control them. National Pollution Discharge Elimination System (NPDES) permits are issued and administered by the state in conjunction with the Clean Water Act. Other related policies include DODINST

4120, 14 NOTAL, which establishes policies for developing and submitting plans for installing improvements needed to abate air and water pollution originating from DoD facilities.

3.1.10 National Historic Preservation Act (NHPA)

The NHPA Section 106 of 1966 and subsequent 1980 amendments require evaluation of any effects that proposed projects or programs may have on existing Historic National Register resources. Consultation with the Advisory Council on Historic Preservation (and in this case the State Historic Preservation Office) is required before approval of any undertaking that would have an adverse effect on the resources. In compliance with the NHPA, a Historic and Archeological Resource Protection (HARP) Plan was prepared in 1994 for Naval Station Puget Sound properties in the Puget Sound region including Naval Station Sand Point. Additional information on archaeological and historic impacts is presented in Section 4.2, Historic and Cultural Resources.

3.1.11 Endangered Species Act (ESA)

The Endangered Species Act of 1973 and its 1978 amendments (P.L. 93-205, P.L. 95-632) provide a program for conservation of endangered and threatened species and the ecosystems on which they depend, consistent with various international treaties and conventions covering endangered species. Because of the presence of endangered and threatened species, Naval Station Sand Point falls under the jurisdiction of the ESA. Additional information on endangered and threatened species is included in Section 4.10, Biological Resources/Endangered Species.

3.2 STATE

3.2.1 Growth Management Act of 1990 (GMA)

The Growth Management Act (GMA) of 1990, as amended, requires that local jurisdictions prepare comprehensive plans and develop regulations consistent with statewide planning goals. The GMA does not apply to specific project-level proposals, such as reuse of Naval Station Sand Point. Rather, it applies to the policy and regulatory documents that guide decisionmaking on the project. The City of Seattle's comprehensive plan, prepared in compliance with the GMA, is described in Section 3.4.2.

3.2.2 Shoreline Management Act of 1971 (SMA)

The Shoreline Management Act (SMA) of 1971, as amended, requires jurisdictions to adopt shoreline master programs (policies and regulations) to protect shorelines of the

state. Lake Washington is considered a shoreline of the state. SMA policies and regulations are embodied locally in the City of Seattle's Shoreline Master Program (SMP), discussed below. The SMA and SMP apply to the areas within 200 feet of the shoreline, associated wetlands, and floodplains, including areas at Naval Station Sand Point.

Under state regulations, any "substantial development" must comply with the SMA and the local shoreline master program. The term "development" is defined in the SMA (RCW 90.58.030[3][d]) as

a use consisting of the construction or exterior alteration of structures; dredging; drilling; dumping; filling; removal of any sand, gravel, or minerals; bulkheading; driving of piling; placing of obstructions; or any project of a permanent or temporary nature which interferes with the normal public use of the surface of the waters overlying lands subject to this chapter at any state of water level.

A "substantial development" is defined by RCW 90.58.030(3)(e) as

any development of which the total cost or fair market value exceeds two thousand five hundred dollars, or any development which materially interferes with the normal public use of the water or shorelines of the state.

The SMA allows certain exemptions from the definition of substantial development (RCW 90.58.030[3][e][i] through [xi]). The most applicable exemption is (i), "normal maintenance and repair of existing structures or developments." Many of the proposed physical changes at Naval Station Sand Point could be considered maintenance and repair of existing structures and would be exempt from the SMA and SMP. Activities that exceed the exemption threshold would have to comply with the SMA and SMP.

The purposes of the City's SMP are as follows: (1) to protect the ecosystems of the shoreline areas; (2) to encourage water-dependent uses; (3) to provide for maximum public use and enjoyment of the shorelines of the city; and (4) to preserve, enhance, and increase views of the water and access to the water (Seattle Municipal Code §23.60.002.B).

The shoreline along Naval Station Sand Point is designated as a "conservancy management" (CM) environment. Recreational uses generally are permitted in the CM environment. Commercial applications are considered "special uses" and require a special approval process. Commercial moorage is prohibited.

3.2.3 Model Toxics Control Act of 1989 (MTCA)

The Model Toxics Control Act of 1989 (MTCA), RCW 70.105D, WAC 173-340, specifies procedures to follow when hazardous substances are suspected in the environment. It includes procedures for establishing cleanup standards, which are generally determined by the risk a compound could pose in causing cancers or toxicity to humans. MTCA allows Ecology to approve cleanups that leave hazardous substances on site where successor owners are notified that changing existing land uses may trigger requirements for further cleanups. Cleanup actions at Naval Station Sand Point and MTCA compliance are discussed in Section 4.8.

3.3 KING COUNTY PLANNING POLICIES

Similar to the GMA, countywide planning policies apply to comprehensive planning activities of cities and counties, not to specific project proposals, such as reuse of Naval Station Sand Point; therefore, this EIS does not analyze countywide planning policies.

3.4 CITY

3.4.1 Community Preferred Reuse Plan (City Plan) for Sand Point

Seattle City Council Resolution 28832, which adopts a preferred reuse plan for Naval Station Sand Point, constitutes the City's official land use policy for the property.

3.4.2 Comprehensive Plan

To comply with the GMA, the City revised its comprehensive planning documents on July 25, 1994. The following policies would apply to reuse of Naval Station Sand Point.

Land Use. The comprehensive plan is based on citywide growth targets of an additional 146,600 jobs and 60,000 households for the next 20 years. To accommodate these targets, most of the employment and residential growth would be directed to urban centers, manufacturing/industrial centers, and urban villages throughout Seattle. An urban center is an area with high employment concentration and excellent accessibility. An urban village is an area with a fairly dense urban core, many locally available amenities and services, an active pedestrian-friendly environment, excellent local transit services, and access to regional transit systems. The Sand Point Naval Base is not designated as an urban center or village or as a manufacturing/industrial center. Approximately 20 to 25 percent of the residential growth (12,000 to 15,000 households) and an undetermined amount of the employment growth would be dispersed throughout Seattle's neighborhoods. The comprehensive plan's map of future land use designates

Naval Station Sand Point as a low-density, single-family residential area. The plan calls for detached single-family homes to establish the character of single-family areas (Policy L69).

Open Space. The comprehensive plan policies on open space primarily address how the City will encourage provision of open space in future urban centers and urban villages. Although recreation is a major issue at Naval Station Sand Point, these policies do not address the proposed reuse alternatives. A separate analysis of the recreation-related effects of the reuse alternatives is included in Section 4.4. *Seattle's Park and Recreation COMPLAN* (Comprehensive Plan) (City Parks 1993) is also discussed in Section 4.4.

Transportation. The City's transportation policies seek to reduce dependence on the automobile through investments in a variety of transportation facilities and services, consistent with the urban village concept. Policies applying to the reuse alternatives include the following:

- The Comprehensive Plan establishes new priority travel networks to replace the Seattle Comprehensive Transportation Program (SCTP) arterial designations by the end of 1994. Transportation system improvements should be consistent with these new priority travel networks (Policy T15). Sand Point Way, south of N.E. 65th St., is designated as part of the through-traffic priority network (a principal arterial) (Policy T16). The network is designed to "provide efficient connections with regional transportation facilities and to direct through traffic away from local streets and neighborhoods" (Policy T-D-4). No other portions of the street network next to Naval Station Sand Point are designated as part of the priority travel network.
- New street capacity should be limited to principal arterials only, unless new capacity on other streets is necessary for improved safety (Policies T16 and T20).
- Neighborhood traffic control devices should be used to protect local streets from through traffic, high volumes, and pedestrian and vehicle conflicts (Policy T18). Through traffic should be directed to principal arterials and away from local streets (Policies T16 and T18).
- Incentives for bicycle use should be promoted (Policies T43 and T49).

Housing. The Comprehensive Plan's housing policies are based on accommodating at least 60,000 additional households (in 63,000 dwelling units, using a 5 percent vacancy rate) throughout the City over the next 20 years. One of the City's housing goals is to ensure freedom of choice for housing type and neighborhood for all, regardless of race,

color, age, gender, marital status, parental status, sexual orientation, political ideology, creed, religion, ancestry, national origin, or the presence of any sensory, mental, or physical disability (Goal G-11). Specific policies are as follows:

- Seattle shall encourage greater ethnic and economic integration of neighborhoods (Policy H-14).
- Seattle shall promote a broader geographical distribution of assisted housing by generously funding projects in areas with less assisted rental housing while generally restricting funding for projects where there are high concentrations of assisted rental housing (Policy H-31).
- Seattle shall strategically invest in emergency and transitional housing for specific homeless populations. The City shall strive to develop a continuum of housing opportunities, ranging from emergency shelters to transitional housing to permanent housing, in order to assist households that become homeless to regain stable, permanent housing (Policy H-40).
- Seattle shall coordinate housing planning and funding, where appropriate, with housing support services to respond to emergency needs of the homeless (such as emergency shelters), assist clients to secure housing (such as housing relocation assistance and rent and security deposit assistance), and help clients to maintain permanent housing (such as landlord/tenant counseling, chore services, in-home health care, outpatient mental health treatment, employment counseling, and placement assistance) (Policy H-41).
- Seattle shall encourage the adaptive reuse of existing buildings for residential use (Policy H-24).
- Seattle shall encourage housing that is free of known hazardous conditions (Policy H-21).

3.4.3 Land Use and Zoning Code

The City's zoning code (Seattle Municipal Code Title 23) will regulate reuse of Naval Station Sand Point if the property is acquired by the City. Determining compliance with specific zoning code provisions is difficult until the specific attributes of each potential use are known. The City's current zoning for Naval Station Sand Point (although not applicable while the property is owned by the federal government) is single-family (SF-7200), which allows single-family residences, parks, and playgrounds (see Section 4.0, Figure 4-2). Uses such as group homes (inhabited by eight or fewer unrelated persons), community centers, childcare centers, and private schools are conditional uses. Uses

such as colleges, universities, museums, and group homes inhabited by nine or more unrelated persons are prohibited uses. Some areas of the base will require rezoning to implement the City Plan. The City currently is in the rezoning process.

3.4.4 Environmentally Critical Areas Ordinance

The City of Seattle Environmentally Critical Areas Ordinance (Seattle Municipal Code Section 25.09) regulates certain types of critical areas. These include, but are not limited to, wetlands, streams, slopes over 40 percent, and potential landslide and liquefaction areas. Uses of Lake Washington are regulated by the SMP (see Section 3.2.2), rather than the Environmentally Critical Areas Ordinance. As shown in Section 4, Figure 4-37, portions of the base have slopes over 40 percent. A potential landslide area is identified across Sand Point Way at the north end of Naval Station Sand Point. Liquefaction areas are also found on Naval Station Sand Point (see Section 4, Figure 4-38).

3.4.5 Building Code

The City of Seattle has adopted the Uniform Building Code (UBC). Buildings at Naval Station Sand Point will be expected to comply with the UBC. Before occupancy, compliance with the UBC will be evaluated by the City Department of Construction and Land Use, after detailed building renovation and construction plans are prepared.

3.4.6 Noise Ordinance

The City's noise ordinance (Chapter 25.08 of the Administrative Code of the City of Seattle [Ordinance 106360]) regulates sound levels permitted to travel from one property, or one zoning classification, to another. For example, commercial uses can transmit no more than 57 decibels A-weighted (dBA) to adjacent residential properties during daytime hours. Likewise, industrial uses can transmit no more than 60 dBA to residential properties. Downward adjustments of 10 dBA are made for weekday nighttime hours (10 p.m. to 7 a.m.) and weekends and holidays between 10 p.m. and 9 a.m. Zoning at Naval Station Sand Point is currently single-family residential; it would have to be rezoned to accommodate the City Plan. The noise ordinance also sets standards for construction activities, individual automobiles, and boats, and it makes provisions for periodic noise sources such as construction and concerts.

4.0 AFFECTED ENVIRONMENT, ENVIRONMENTAL IMPACTS, AND MITIGATING MEASURES

This section presents the affected environment, impacts, and mitigating measures of the City Plan (preferred alternative) and options, the Muckleshoot Plan, and the no-action alternative for the following elements of the environment:

Land use	Public services and utilities
Historical and cultural resources	Public health and safety
Socioeconomics	Earth
Recreation	Biological resources
Transportation	Water
Noise	Air quality

This analysis of alternatives relies heavily on the written plans for information. Unless otherwise specified, it does not rely on any further information received either from the City or the Tribe. Where possible, the alternatives are compared, including the degree of impact. Because the level of detail varies in reuse plans, comparisons of impacts are not possible for all elements. In these cases, the impacts of each plan are presented without comparisons.

4.1 LAND USE

This section evaluates existing land use at Naval Station Sand Point and in the adjacent neighborhood, compares existing land use with that proposed under the City Plan (Appendix C) and the Muckleshoot Plan (Appendix D), discusses potential environmental impacts, examines compatibility of the reuse plans with the character of existing neighborhood land uses, and discusses potential mitigating measures to achieve compatibility or reduce possible impacts. Figure 4-1 shows current neighborhood land use, and Figure 4-2 shows current City zoning at and around Naval Station Sand Point.

To evaluate impacts associated with land use, two independent analyses were conducted: comparative and compatibility analyses.

Comparative Analysis. In the comparative analysis, proposed land uses are compared with existing land uses at Naval Station Sand Point. Impacts from existing to proposed land uses are then analyzed. Existing building and proposed building uses are also compared. Impacts from changes in square footage for each building use are then analyzed. The reason that land uses and building uses are examined separately is because some building uses do not correspond directly

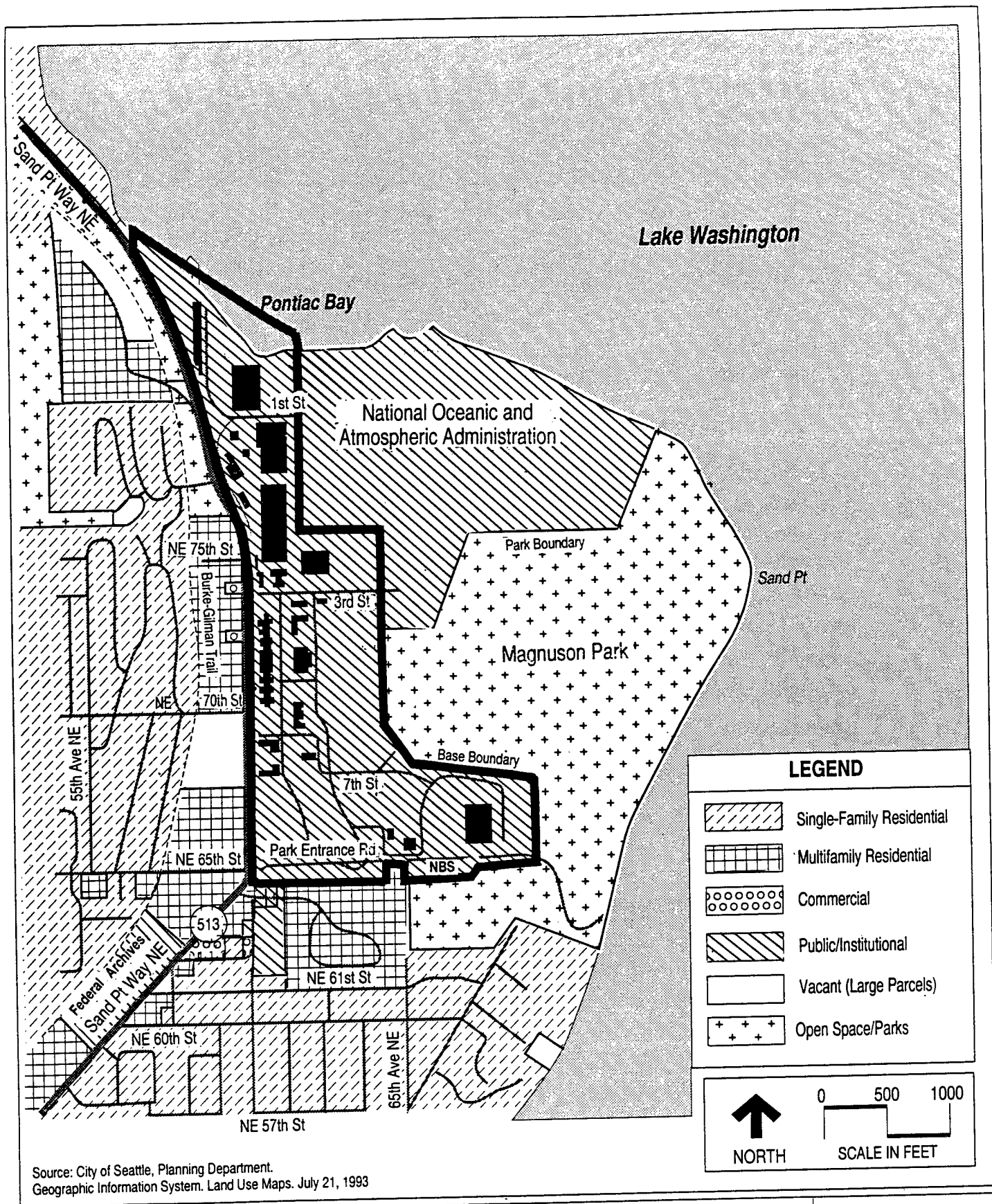


Figure 4-1
Current Neighborhood Land Uses

NAVAL STATION
SAND POINT
Draft EIS
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to their land use areas. For example, a building use may be commercial, although the building is in an area categorized as administrative.

Compatibility Analysis. The compatibility analysis discusses the character of the proposed land uses at Naval Station Sand Point and relates them to the character of the surrounding neighborhood. This compatibility analysis is conducted to determine relative environmental impacts of proposed land uses.

To conduct these analyses, several difficulties had to be overcome, including determining a baseline land use condition for continually changing conditions and establishing consistent land use terminology between the reuse plans. Because activities at Naval Station Sand Point declined over several years, due to eventual closure, baseline or "existing conditions" were required to compare current and proposed future uses. Information collected immediately before and after announcement of Naval Station Puget Sound closure (1989 through 1993) was used to characterize existing conditions. To establish consistent terminology between the two reuse plans so they could be compared throughout this land use section of the EIS, the following general terminology was used to describe land and building uses. The terminology was obtained and summarized from zoning codes for several local jurisdictions.

- **Residential**—an area or building or area used to provide permanent or temporary living space
- **Recreational**—an area or building devoted to facilities and equipment for purposes such as swimming pools, tennis courts, and parks
- **Commercial**—an area or building used by businesses and individuals to provide retail services
- **Recreational/Commercial**—an area open to the public with minor reservations during the fishing season
- **Educational (educational/arts/cultural)**—an area or building designed for academic instruction, arts, and cultural activities, including facilities to support these activities
- **Administrative/maintenance**—an area or building designated for the management and implementation of public or business activities, or an area established to keep equipment, structures, or areas in good repair
- **Institutional**—an area or building used for nonprofit, religious, or public use, such as a church, library, public or private school, hospital, or government-owned or -operated building

- **Light industrial (light industrial/warehouse)**—an area or building used for the manufacture and production of goods, including warehousing

Table 4-1 lists proposed land use terms used in the City and Muckleshoot Plans and relates them to the general use terminology listed above.

Table 4-1
General Use Terminology Equated to Land Uses in the Proposed Reuse Plans

General Land-Use Terminology	City Plan Land Use	Muckleshoot Plan Land Use
Residential	Residential area	—
Recreational	Magnuson Park open space/ recreation expansion area North Shore recreation area	—
Commercial	—	Commercial area
Educational (Educational/arts/cultural)	Education and community activities area Magnuson Park arts, culture, and community center area	Campus area
Administrative/maintenance	—	Administrative/office area
Institutional	Federal institutional area	Institutional facilities area, including federal institutions
Light industrial	—	Warehousing area/light industrial
Recreational/commercial	—	Recreational/commercial, marina

Note:

— - no proposed use

The overall organization of the land-use section is as follows:

- Affected environment (4.1.1)—Description of the affected environment for each general-use category in two areas:
 - Naval Station Sand Point in terms of land and building uses
 - The character of the surrounding neighborhood, in terms of land use

- Direct and indirect environmental impacts (4.1.2)—Comparison of existing versus proposed land and building uses for each plan, followed by a discussion of compatibility and environmental impacts for each general-use category
- Mitigating measures (4.1.3)—Outline of mitigating measures that reduce the duration and severity of any identified environmental impacts
- Unavoidable adverse impacts (4.1.4)—Discussion of adverse impacts that cannot be mitigated

4.1.1 Affected Environment (Existing Conditions)

- **Land and Building Uses at Naval Station Sand Point**

Naval Station Sand Point existed largely to support administrative activities for the Navy. Amenities at Naval Station Sand Point served military personnel, military families, veterans, and civilians employed by the Navy. Naval Station Sand Point operated as an independent entity in the neighborhood. Nonmilitary residents were allowed to enter only with Navy permission. Naval Station Sand Point was considered "open" in the recent past, resulting in reduced security. Naval Station Sand Point is currently closed and under caretaker status. Only personnel needed to maintain identified facilities are present, and the facility is entirely surrounded by a chain link fence. There are two security-controlled access points: one along Sand Point Way N.E., at Building 38, and another along Avenue "C," north of Building 310 on N.E. 65th Street and along the Magnuson Park access road.

Although the City of Seattle zoning map (Figure 4-2) indicates that all current land uses at Naval Station Sand Point are zoned residential, other uses exist on the property because City zoning regulations do not apply to federal facilities. However, as the property transfer from the Navy to the City is completed, city zoning is expected to apply. A rezone is being analyzed in a draft EIS issued by the City on July 15, 1996. Contained within Census Tract 23.98, Naval Station Sand Point encompasses approximately 152 acres (61.5 hectares) used for residential, recreational, commercial, institutional, and administrative/maintenance activities (Figure 1-2). The approximate acreage for each of these uses is presented in Table 4-2, together with the land-use acreage for the City and the Muckleshoot Plans. The greatest existing land use at Naval Station Sand Point is administrative/maintenance. (Note that Table 4-2 indicates land uses only and not building uses.)

Table 4-2
Existing and Proposed Land Area by Land Use Category (Estimated Acres)

General Use Category	Existing Conditions Acreage (Hectares)	City Plan Acreage (Hectares)	Muckleshoot Plan Acreage (Hectares)
Residential	15 (6)	22 (9) (Includes family housing)	—
Recreational	30 (12)	78 ^b (31.5)	—
Commercial	30 (12)	—	50 (20)
Recreational/ commercial	—	—	14 (6)
Educational	N/A	37 (15) (Includes commercial film studio)	41 (17) (Includes residential and student housing)
Administrative/ maintenance	72 (29)	—	6 (2.5)
Institutional	5 (2) (U.S. Dept. of Interior [NBS] ^a)	15 (6) (NOAA and U.S. Dept. of Interior [NBS] requests)	14 (6) (Land use either by the Tribe or U.S. Dept. of Interior [NBS])
Light industrial	—	—	27 (11) (Includes 10-acre [4] NOAA request)
Total	152 (61.5)	152 (61.5)	152 (61.5)

^aPreviously indicated as USFWS, now NBS.

^bIncludes 5 acres (2 hectares) of water area in Plan Area 1 and 8 acres (3 hectares) in Plan Area 4 (13 total acres—5 hectares) that were not originally counted in these areas of the City's Plan.

^cIf NOAA receives the 10 acres (4 hectares), this acreage would be recategorized as institutional use.

Notes:

Number of acres is approximate; numbers have been rounded or estimated.

NBS - National Biological Service

NOAA - National Oceanic and Atmospheric Administration

USFWS - U.S. Fish and Wildlife Service

Table 4-3 provides the total square footage of existing and proposed building uses within each general use category. Table 4-4 specifies the existing building function and building use type within each land use area.

The following paragraphs describe land and building uses at Naval Station Sand Point by general use categories.

Table 4-3
Existing and Proposed Building Use Square Footage

General Use Category	Existing Conditions (sq. ft./sq. m)	City Plan (sq. ft./sq. m)	Muckleshoot Plan (sq. ft./sq. m)
Residential	318,763/29,613.5	314,000/29,171.5	—
Recreational	119,015/11,056.5	72,201/6,707.5	—
Recreational/commercial	None	None	66,115/6,142
Commercial	132,847/12,341.5	144,232/13,399	158,592/14,734
Educational	258,849/24,047	545,390/50,667	415,731/38,621
Administrative/maintenance	249,813/23,208	79,965/7,429	146,502/13,610
Institutional	67,933/6,311	166,323/15,451	58,163/5,402.5
Light industrial/warehouse	421,011/39,112	1,120/104	717,357/66,643
Total before demolition	1,568,231/145,689.5	1,323,231/122,929	1,562,460/145,152.5
Demolition	—	<245,000/22,760.5>	<8,925/829>
Total after demolition	1,568,231/145,689.5	1,078,231/100,168.5	1,553,535/144,323.5

Note: Building 5 contributes most of the square footage of the total educational use, with 417,467 square feet (38,783 square meters)

Residential Land Use Areas. Residential land use at Naval Station Sand Point is confined mostly to 15 acres (6 hectares) at the west/southwest portion. Residential, on-base housing consisted of eight buildings and over 300,000 square feet (27,870 square meters) of living space, with manicured landscaped areas and paved roads. All residential housing was occupied by military personnel. Total housing capacity is approximately 544 people.

There were five officer family houses (Buildings 330, 331, 332, 333, and 334), a bachelor officer quarters (BOQ), bachelor enlisted quarters (BEQ), and general quarters (enlisted barracks) on base. These quarters occupied three buildings (Buildings 9, 26, and 224), with a total of 277 rooms and 449 beds. From 1989 through 1993, the occupancy rate for the residential buildings was 50 to 70 percent in the winter and 80 to 100 percent in the summer. During peak times or special events, cots or temporary facilities were set up in the gymnasium or other buildings to accommodate overflow.

Recreational Land Use Areas. The base has three recreational land use areas consisting of approximately 30 acres (12 hectares) of land devoted to recreation, including water-related activities. One area is over 1,000 feet (305 m) of land along Lake Washington; another is an open area in the central portion of the base with sports fields and play areas; and a third area at the southwestern portion of the base is surrounded by residential land use. Recreational water uses included a boathouse with boat docking facilities. (See Recreation, Section 4.4, for additional information.) Areas designated as recreational land use contain only recreational buildings. Nine buildings with more than

Table 4-4
EXISTING CONDITIONS
Building Uses Within Land Use Areas

Within Residential Land Use Area			
Building No.	Existing Building Function	Building Use Type	Square Footage (square meters)
9	Enlisted Barracks	Residential	223,516 (20,765)
26N	Bachelor Officer Quarters	Residential	16,082 (1,494)
26S	Bachelor Officer Quarters	Residential	17,282 (1,605.5)
224	Bachelor Enlisted Quarters	Residential	38,264 (3,555)
330	Family Housing	Residential	6,390 (594)
331	Family Housing	Residential	6,233 (579)
332	Family Housing	Residential	6,233 (579)
333	Family Housing	Residential	1,990 (185)
334	Family Housing	Residential	2,113 (196)
408	Parking	Residential	660 (61)
Total Building Square Footage Within Residential Area			318,763 (29,613.5)
Within Recreational Land Use Area			
Building No.	Existing Building Function	Building Use Type	Square Footage (square meters)
6	Bowling Alley	Recreational	10,793 (1,003)
15	Craft/Hobby Shop	Recreational	3,268 (304)
31	Boathouse	Recreational	3,141 (292)
47	Gym	Recreational	50,060 (4,650)
69	Parking Garage	Recreational	6,776 (629.5)
275	Boathouse (small craft)	Recreational	288 (27)
402	Boathouse	Recreational	1,760 (163.5)
410	Recreation Pavilion	Recreational	888 (82.5)
411	Pavilion Picnic Shelter	Recreational	888 (82.5)
Total Building Square Footage Within Recreational Area			77,862 (7,234)

Table 4-4 (Continued)
EXISTING CONDITIONS
Building Uses Within Land Use Areas

Within Commercial Land Use Area			
Building No.	Existing Building Function	Building Use Type	Square Footage
193	Commissary	Commercial	93,334 (8,671)
195	Travel Agency	Commercial	819 (76)
198	Thrift Shop	Commercial	300 (28)
228	Uniform Shop	Commercial	4,074 (378)
244	Maintenance Shop	Administrative/Maintenance	5,011 (465.5)
301	Country Store	Commercial	9,500 (883)
308	Package Store	Commercial	4,202 (390)
310	Auto Hobby Shop	Commercial	4,020 (373.5)
340	Gas Pump Service Station	Commercial	To be determined
341	Gas Pump Service Station	Commercial	300 (28)
342	Gas Pump Service Station	Commercial	To be determined
344	Country Store	Commercial	11,000 (1,022)
345	Service Bay	Commercial	5,298 (492)
401	Sentry House	Institutional	60 (6)
404	Recreation	Recreational	1,120 (104)
Subtotals by Building Use Type Within Commercial Land Use Area			
Commercial Building Square Footage			132,847 (12,341.5)
Recreational Building Square Footage			1,120 (104)
Administrative/Maintenance Building Square Footage			5,011 (465.5)
Institutional Building Square Footage			60 (6)
Total Building Square Footage Within Commercial Area			139,038 (12,917)
Within Administrative/Maintenance Land Use Area			
Building No.	Existing Building Function	Building Use Type	Square Footage
2	Training	Educational	144,232 (13,399)
5	Warehouse	Light Industrial	417,467 (38,783)
11	Public Works Shops	Administrative/Maintenance	59,206 (5,500)
12	Boiler	Administrative/Maintenance	5,653 (525)

Table 4-4 (Continued)
EXISTING CONDITIONS
Building Uses Within Land Use Areas

Within Administrative/Maintenance Land Use Area (cont.)			
Building No.	Existing Building Function	Building Use Type	Square Footage
18	Fire Station	Institutional	14,137 (1,313)
25	Administration	Administrative/Maintenance	27,892 (2,591)
27	Reserve Training	Educational	114,617 (10,648)
29	Dispensary	Administrative/Maintenance	33,744 (3,135)
30	Administration	½ Administrative/Maintenance ½ Recreational	40,033 (3,719) 40,033 (3,719)
38	Security	Institutional	58 (5)
40	Paint Shop	Light Industrial	924 (86)
41	Security	Institutional	2,030 (188.5)
67	Garage	Administrative/Maintenance	33,720 (3,133)
115	Public Works Storage	Light Industrial	1,500 (139)
138	Security	Institutional	12,806 (1,190)
192	Administration	Administrative/Maintenance	4,800 (446)
222	Administration	Administrative/Maintenance	30,126 (2,799)
223	Family Services Centers	Administrative/Maintenance	9,080 (843.5)
299	Public Works Storage	Light Industrial	1,120 (104)
406	Brig	Institutional	29,270 (2,719)
407	Hazardous Waste Storage	Administrative/Maintenance	548 (51)
Subtotals by Building Use Type Within Administrative/Maintenance Area			258,849 (24,047)
Educational Building Square Footage			244,802 (22,742)
Administrative/Maintenance Building Square Footage			40,033 (3,719)
Recreational Building Square Footage			421,011 (39,112)
Light Industrial Building Square Footage			58,301 (5,416)
Institutional Building Square Footage			1,022,996 (95,036)
Total Building Square Footage Within Administrative/Maintenance Area			
Within Institutional Land Use Area			
204*	NBS Laboratory	Institutional	12,726 (1,182)
Total Building Square Footage Within Institutional			12,726 (1,182)

*No use indicated for Buildings 307 and 61

75,000 square feet (6,968 m²) of space are located in the recreational land use area. There are, however, recreational buildings in the commercial and administrative land use areas (Buildings 404 and 30, respectively). A recreational pavilion is located in the commercial land use area near the southern end of the base. Table 4-5 lists the major recreational facilities and their approximate average frequency of use.

Table 4-5
Recreational Facilities and Frequency of Use

Facility	Frequency of Use
Tennis courts	30 people/day
Gymnasium	75 to 100 people/day
Bowling alley	10 people/month
Swimming pool	300 to 400 people/month
Sports fields	1,200 people/week
Marina	20 people/week
Estimated Average Total Use	8,340 to 9,190 people/month

In addition to routine recreational uses, many major recreational events were held at Naval Station Sand Point over the last few years. As many as 75,000 people used the recreational facilities each year. The largest recreational event was hosted in 1992 for 45,000 people. Traffic problems were minimized by on-base parking and an adequately staffed gate. Table 4-6 lists a few of the special recreational events and the numbers of participants. Information on Tables 4-5 and 4-6 was obtained from personal communication with Naval Station Sand Point Morale, Welfare, and Recreation personnel.

Commercial Land Use Area. The 30-acre (12-hectare) commercial land use area at the south end of the base is roughly equal to the recreational land use area. It contains mostly commercial use buildings, including a commissary, a country store, service bays, and a package store—a total of 12 commercial buildings and 133,000 square feet (12,356 m²) of commercial building space. The commissary occupies more than 93,000 square feet (8,640 m²). A recreational, an administrative/maintenance, and an institutional building also are located in the commercial land use area. All commercial use buildings are located in the commercial land use area. Large paved parking areas cover this area.

Educational Land Use Area (None). Educational, arts, and cultural land use areas are not specifically called out in current land uses for Naval Station Sand Point. There were, however, buildings designated for educational purposes. Nearly 260,000 square feet

Table 4-6
Examples of Special Recreational Events and Number of Participants

Event	Number of Attendees
Boy Scout Jamboree	1,000
Boys and Girls Club	1,000
Seahawk camp	300 to 400
Sea Scouts	1,000
Mini-hydros	1,000
Red Cross	500 to 600
Rabbit and dog shows	400 to 500
High school graduations	1,400 (approximately 7 schools, 200 per school)
Motorcycle jamboree	400 to 500
Tai Kwan Do competitions	1,000
Toys for Tots run (Marine Corps sponsor)	1,000
University of Washington Native American Indian Student Association	45,000
Hoop-It-Up basketball tournament	15,000 to 20,000

(24,154 m²) of building space were devoted to educational seminars and Navy training. For example, reserve training was held in Buildings 27 and 2. Facilities for ceramics and other crafts were housed in Building 15, located near the southwest corner of the base in the recreational land use area. This building use was considered recreational.

Important historic buildings are also located on base and are discussed in the historic and cultural resources section of this EIS (Section 4.2). Native American history of the site is also discussed in Section 4.2.

Administrative/Maintenance Land Use Areas. The largest land use area on the base (72 acres [29 hectares]) is administrative/maintenance in nature. This land use area has the greatest diversity of building uses on Naval Station Sand Point. Administrative buildings are the largest number in this area. Uses include family services, public works, a dispensary, a locker, and hazardous waste storage. Institutional buildings consist of security buildings, a brig, a fire station, and a laboratory.

Approximately 250,000 square feet (23,225 m²) of administrative/maintenance space exist throughout the base. Table 4-7 shows the number of tenants occupying these building spaces over the past several years and the number of personnel associated with the tenants. Tenants before 1989 have numbered as high as 52. Space was leased to tenants associated with the military. Examples of tenants include a defense contracts office and a medical clinic. The average number of personnel between 1989 and 1993 was 1,196.

Table 4-7
Number of Tenants (1989 through 1993)

Fiscal Year	No. of Tenants	Personnel				Total
		Officer	Enlisted	Civilian	Contractor	
1989	37	108	584	652	50	1,394
1990	35	111	573	548	11	1,243
1991	34	119	564	513	12	1,208
1992	29	106	550	526	21	1,203
1993	24	65	479	375	14	933

Institutional Land Use Area. An institutional land use area (5 acres [2 hectares]), now occupied by NBS, is at the southeast portion of Naval Station Sand Point. The area was not designated in the City Plan. In addition, institutional uses can be found in the commercial and administrative/maintenance land use areas.

Light Industrial Land Use Area (None). Existing light industrial land uses are not specifically called out in the land uses for Naval Station Sand Point. Light industrial building uses do, however, exist on the base. With the greatest square footage of any building use, light industrial use buildings are located only in the administrative land use area.

- **Uses in Adjacent Neighborhood**

The neighborhood surrounding Naval Station Sand Point was built primarily in the 1940s and 1950s. The City of Seattle was divided into 12 subareas for planning and other purposes. Naval Station Sand Point and the adjacent neighborhood are located within the Northeast Subarea. The Northeast Subarea contains approximately 5,686 gross (includes open space, roads, etc.) acres (2,302 hectares) and houses approximately 68,000 people (City Planning 1993f). For purposes of this EIS, only land uses within approximately 1/4 mile (0.40 km) of Naval Station Sand Point are considered in the compatibility analysis. The definite change in grade (steep hill) approximately 1/4 mile (0.40 km) west of the base and the change in neighborhood character within 1/4 mile (0.40 km) north and south of the base serve as natural boundaries to delineate the neighborhood. Figure 4-1 shows neighborhood land uses surrounding the base.

Neighborhood Residential Use. The surrounding neighborhood is primarily single-family residential, with a strip of multifamily residential housing along Sand Point Way N.E. across from Naval Station Sand Point. Single-family residential housing lies to the west of the multifamily housing area. Approximately 17,376 single-family and 10,610 multifamily residential units are in the Northeast Subarea. The Northeast Subarea has a slightly higher density than other City areas, with five households per gross acre (0.4 hectare) compared to four households per gross acre (0.4 hectare) citywide.

Neighborhood Recreational Use. Multiple recreational facilities are found next to the base and within the 1/4-mile (0.40 km) study area. Magnuson Park, which adjoins Naval Station Sand Point to the east, is a 195-acre (79-hectare), multipurpose recreation area, including a waterfront. Water-related activities are concentrated along approximately 2,000 linear feet (610 m) of shoreline. Recreational facilities include two softball fields, two soccer fields, six unlit outdoor tennis courts, two picnic areas, play areas, restroom facilities, a permanent float at the swimming beach, one boat launch site with three piers and two launching lanes, and paved and informal trails. A complete discussion of Magnuson Park and a recreational facilities map are included in Section 4.4.

The Burke-Gilman Trail, approximately 400 to 600 feet (122 to 183 m) to the west, intersects the multifamily and single-family housing west of Naval Station Sand Point. This regional pedestrian and bicycle corridor stretches approximately 20 miles (32 km) from the Fremont neighborhood of Seattle north to Bothell. The Burke-Gilman Trail connects with the Sammamish River Trail in Bothell, adding approximately 9 more miles (14.5 km). The total length of these regional trails is about 29 miles (47 km), extending from Fremont in Seattle to Marymoor Park in Redmond. The City plans to extend this trail system another 3 miles (5 km) west of Fremont to Shilshole Marina.

Other nearby recreational facilities include the Sand Point Country Club golf course, a private facility approximately three-fourths the size of Magnuson Park; the View Ridge Swim and Tennis Club, a private facility at N.E. 77th Street and Sand Point Way N.E.; and Matthews Beach Park, north of Naval Station Sand Point along the Burke-Gilman Trail, and is accessible from Sand Point Way N.E. Inverness Ravine and View Ridge Parks are also within the neighborhood land use study area.

Neighborhood Commercial Use. Commercial land use next to the base, across Sand Point Way N.E., consists of two small neighborhood commercial ventures: a dry cleaner and a convenience store. Several blocks south, along Sand Point Way N.E., are a craft store and a restaurant.

Neighborhood Educational Use. Educational, arts, and cultural areas exist nearby. Several licensed childcare facilities are located within the 1/4-mile (0.4 km) study area and at least one school (View Ridge Elementary) is located approximately 1 mile (1.6 km) west of Naval Station Sand Point.

Neighborhood Institutional and Administrative Uses. Three federal facilities are located near the naval base: NOAA, NBS, and the Federal Archives. The 112-acre (45-hectare) NOAA facilities (northeast of the base) contain six buildings totaling 602,000 square feet (55,926 m²). Three of these structures are used for offices and an auditorium. One building includes warehousing, offices, and a dive center. Two former hangars are used for bulk storage and some wet laboratory activities. The staging pier, used primarily to

transport personnel and supplies, can accommodate a vessel 250 to 300 feet (76 to 91 m) long.

South of N.E. 65th Street, the 5-acre (2-hectare) NBS houses fisheries research facilities and office space. Existing buildings, including four newly constructed buildings, contain approximately 56,500 square feet (5,249 m²). NBS moved into the new buildings in April 1994.

The Federal Archives are located on the west side of Sand Point Way N.E., south of the base. The primary activity is information storage and could be considered warehouse use.

4.1.2 Direct and Indirect Environmental Impacts

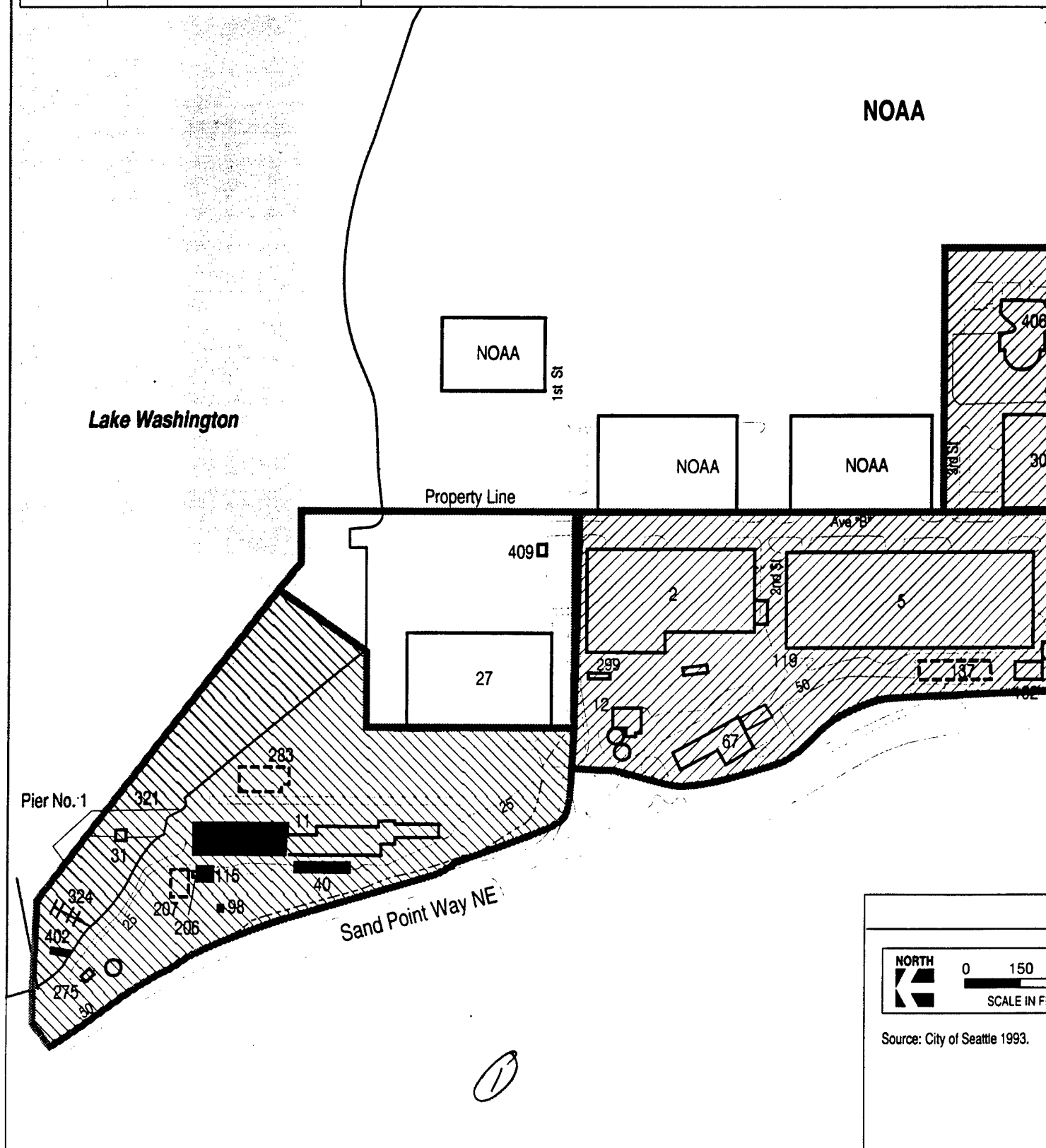
- **City Plan and Options**

City Plan. The City Plan includes all 152 acres (61.5 hectares) of Naval Station Sand Point. In general, potential changes in land use if the City Plan is implemented primarily result from a substantial increase in recreational and educational uses and a decrease in commercial and administrative uses. Residential land use would increase by about 25 percent. The City Plan land use is shown in Figure 4-3A. The City Plan and options land use is shown in Figure 4-3B. Existing land use is shown in Figure 1-2. Building uses would dramatically increase for educational and would decrease for light industrial uses. Residential building use (square footage) would decrease slightly. The amount of overall commercial building use would remain approximately the same due to the reuse of Building 2 (about 144,000 square feet [13,378 m²]) as a commercial film studio. Table 4-8 details changes in building uses.

An overall change to more recreational land use is not expected to create significant direct or indirect impacts, because the uses are similar to those in the surrounding neighborhoods. The following paragraphs summarize the comparisons and compatibilities of existing and proposed uses.

Proposed Residential Land Use Area. Approximately 22 acres (9 hectares) of residential land use is proposed under the City Plan. Approximately 18 acres (7 hectares) are located in the western portion of Naval Station Sand Point, providing transitional housing for homeless and low-income families and individuals. Three acres (1.2 hectares) are proposed at the extreme south end of Naval Station Sand Point for use as family student housing for University of Washington (UW) students. Overall, land use in the southwest portion of Naval Station Sand Point would remain residential. The City Plan would increase the residential acreage from 15 to approximately 22 acres (6 to 9 hectares).

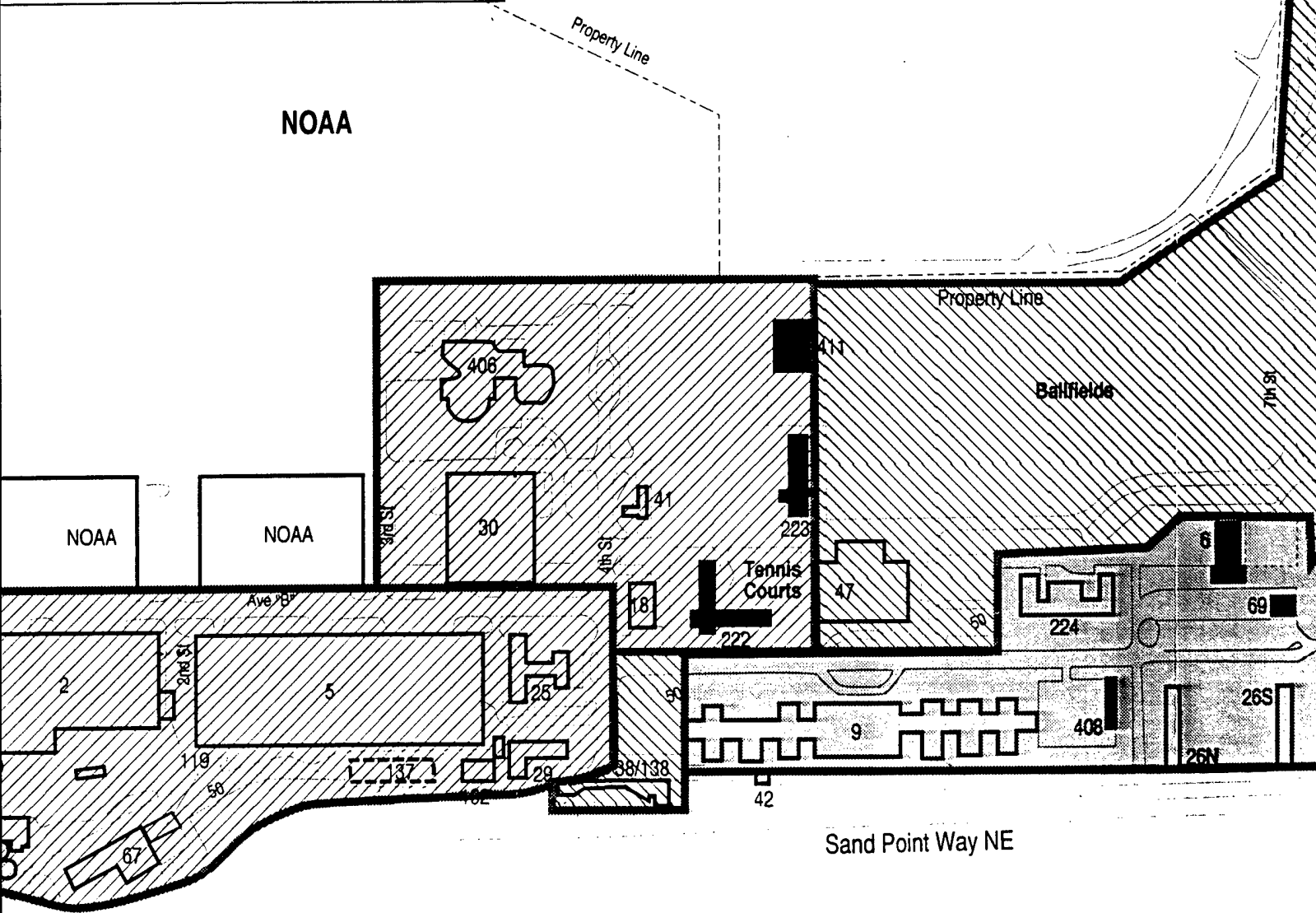
Pattern	General Land Use Categories	City of Seattle Proposed Reuse Plan Areas
	Residential:	Residential Area (<i>City Plan Area 5</i>)
	Recreational:	Magnuson Park Open Space/Recreation Expansion Area (<i>City Plan Area 4</i>) North Shore Recreation Area (<i>City Plan Area 1</i>)
	Educational:	Education and Community Activities Area (<i>City Plan Area 2</i>) Magnuson Park Arts, Culture, and Community Center Area (<i>City Plan Area 3</i>)
	Institutional:	Federal Institutional Area (<i>City Plan Area 6</i>)



Source: City of Seattle 1993.

Areas
Area 5)
Recreation Expansion Area (City Plan Area 4) (City Plan Area 1)
Activities Area (City Plan Area 2) and Community Center Area (City Plan Area 3)
City Plan Area 6)

MAGNUSON PARK



LEGEND

NORTH

0 150 300

SCALE IN FEET

Source: City of Seattle 1993.

--- Fence Line

- - - Foundation Only

Building Location and Number

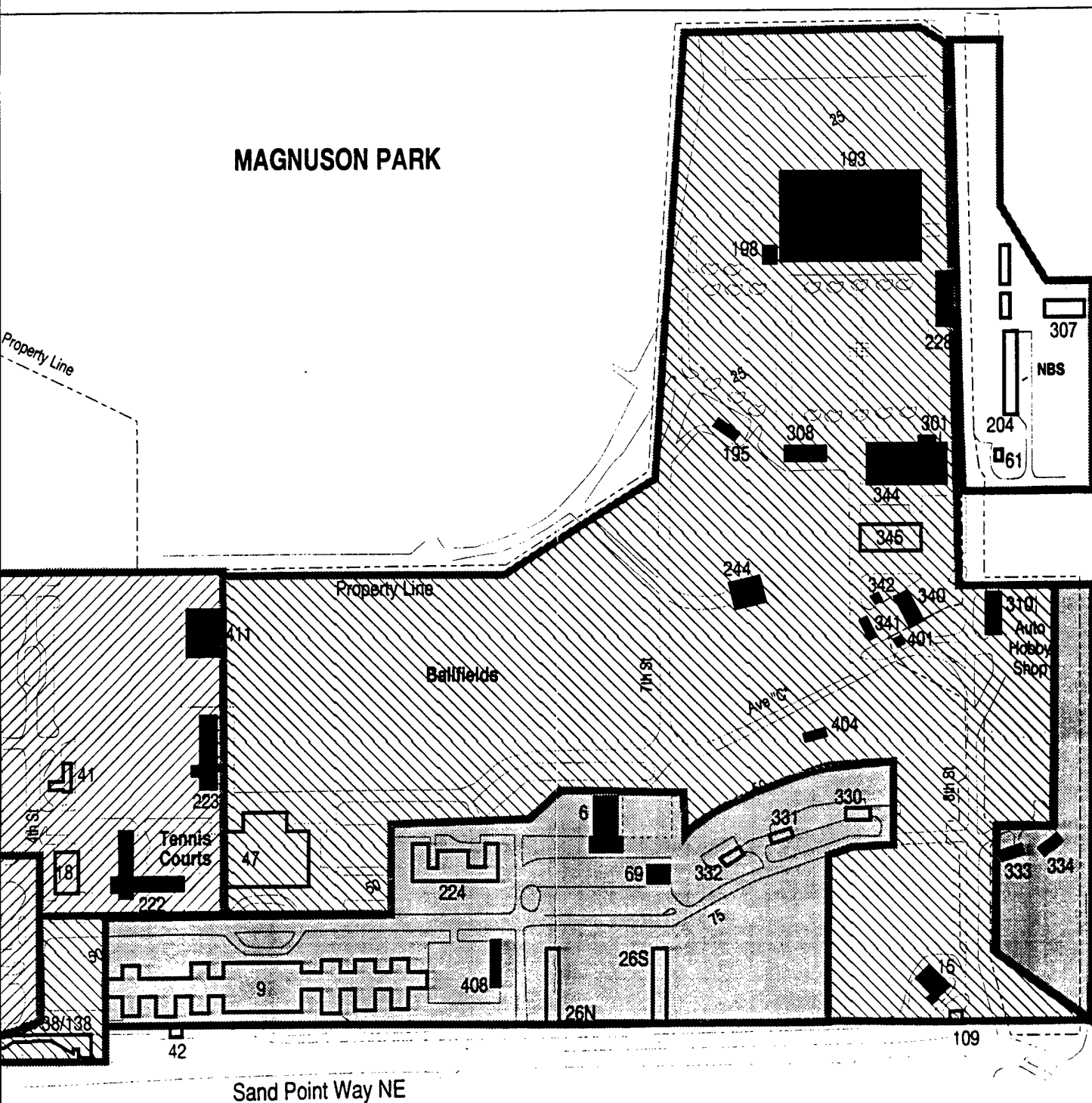
Buildings to be Demolished

50 Elevation Contours in Feet Above Mean Sea Level

Note: Map indicates use of water area near Pier 1.
Area was omitted in 1993 plan.

2

MAGNUSON PARK



LEGEND

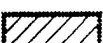
- Fence Line
- Foundation Only
- Building Location and Number
- Buildings to be Demolished
- Elevation Contours in Feet Above Mean Sea Level

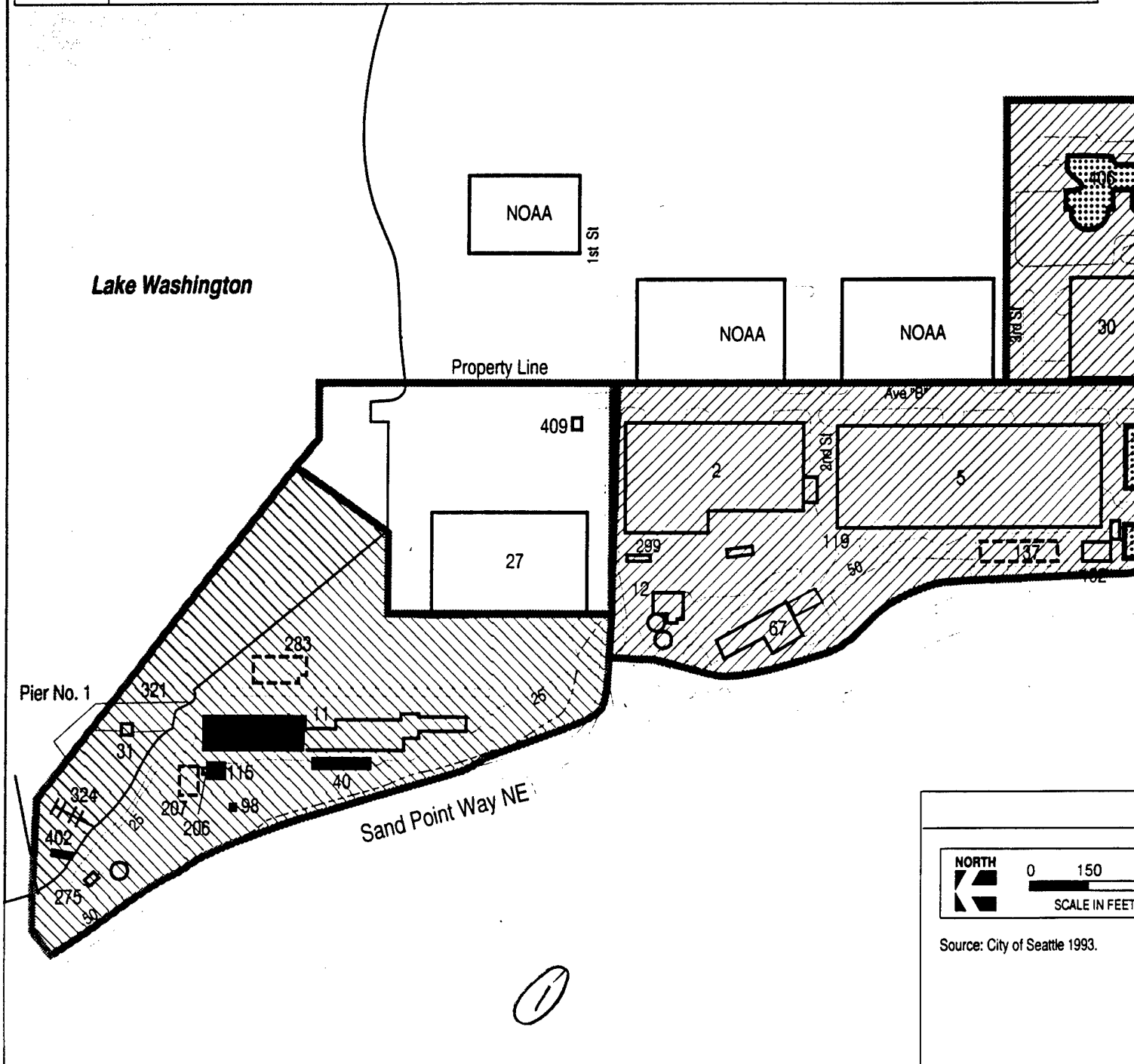
Note: Map indicates use of water area near Pier 1.
Area was omitted in 1993 plan.

Figure 4-3A
General Land Use Categories,
City Plan

NAVAL STATION
SAND POINT
Draft EIS
November 1996

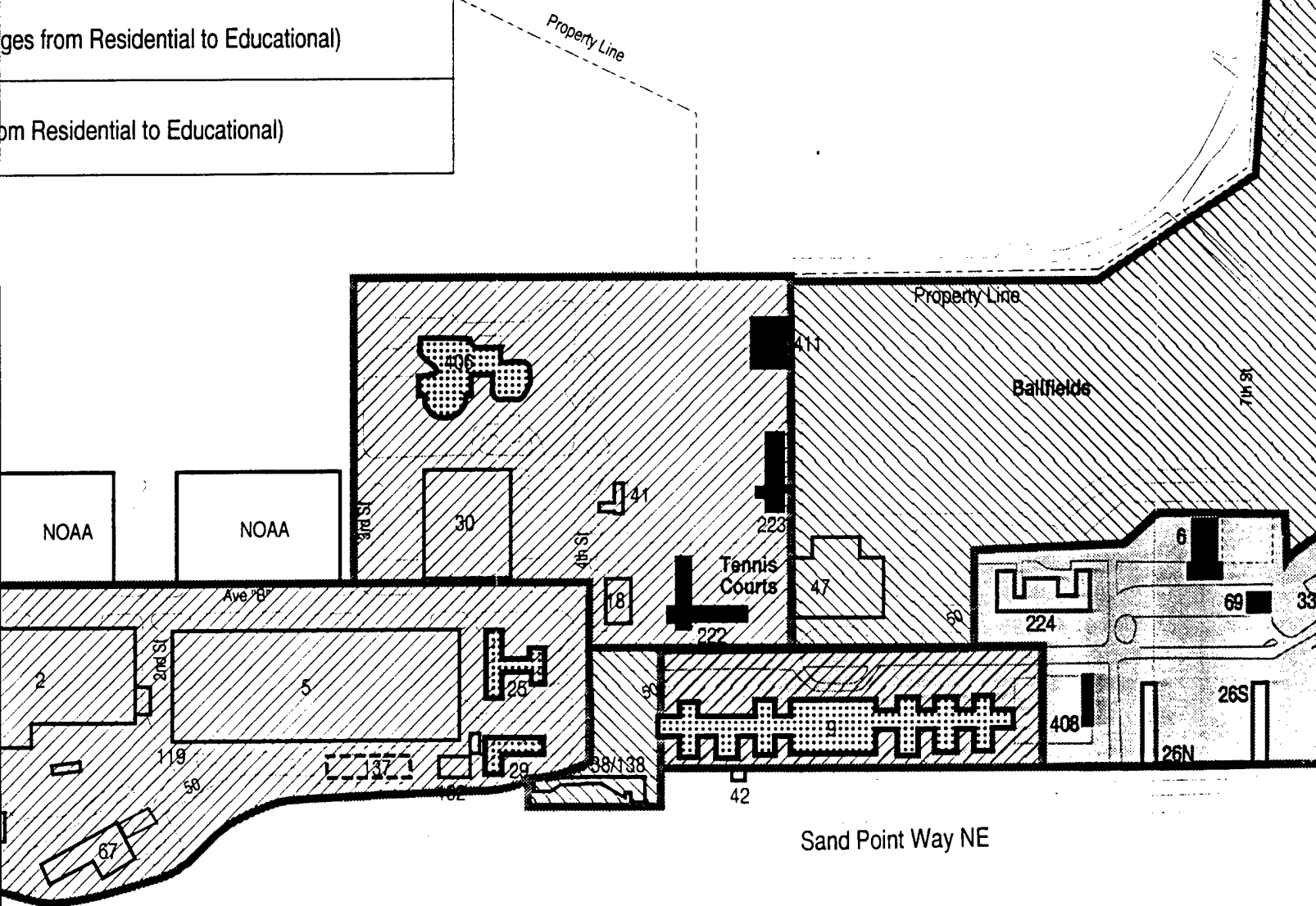
3

Pattern	General Land Use Categories	City of Seattle Proposed Reuse Plan Areas
	Residential:	Residential Area (<i>City Plan Area 5</i>) <i>Note: 110 new construction housing units in the Residential Area in addition to buildings shown on map.</i>
	Recreational:	Magnuson Park Open Space/Recreation Expansion Area (<i>City Plan Area 4</i>) North Shore Recreation Area (<i>City Plan Area 1</i>)
	Educational:	Education and Community Activities Area (<i>City Plan Area 2</i>) Magnuson Park Arts, Culture, and Community Center Area (<i>City Plan Area 3</i>)
	Institutional:	Federal Institutional Area (<i>City Plan Area 6</i>)
	Land Use Area Under the Options to the City Plan (Area changes from Residential to Educational)	
	Building Use Under Options to the City Plan (Area changes from Residential to Educational)	

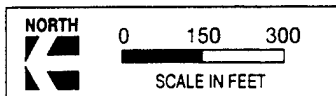


reas
a 5)
in the Residential Area in addition to buildings shown on map.
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City Plan Area 1)
ilities Area (City Plan Area 2)
nd Community Center Area (City Plan Area 3)
Plan Area 6)
ges from Residential to Educational)
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MAGNUSON PARK



LEGEND



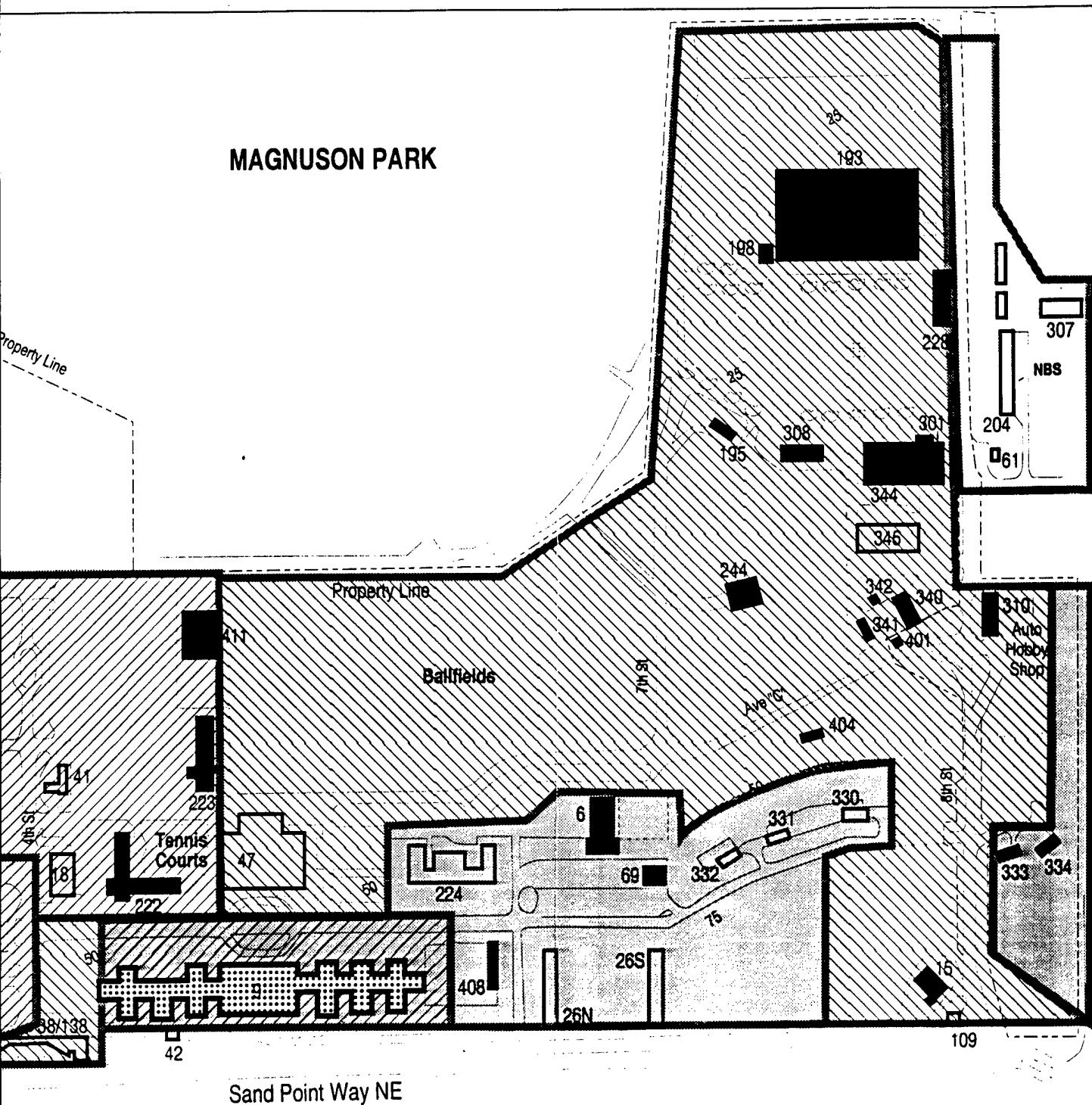
Source: City of Seattle 1993.

2

- Fence Line
 - Foundation Only
 - Building Location and Number
 - Buildings to be Demolished
 - Building Use Changed in City Plan Option
 - Elevation Contours in Feet Above Mean Sea Level
- Note: Map indicates use of water area near Pier 1.
Area was omitted in 1993 plan.

G
City

MAGNUSON PARK



LEGEND

- Fence Line
- Foundation Only
- Building Location and Number
- Buildings to be Demolished
- ▤ Building Use Changed in City Plan Option
- 50 --- Elevation Contours in Feet Above Mean Sea Level

Note: Map indicates use of water area near Pier 1.
Area was omitted in 1993 plan.

Figure 4-3B
General Land Use Categories,
City Plan With Options to the Plan

3

NAVAL STATION
SAND POINT
Draft EIS
November 1996

**Table 4-8
CITY PLAN
Building Uses Within Proposed Land Use Areas**

Within Proposed Residential Land Use Area				
Building No.	Existing Building Function	Existing General Use Category	Proposed General Use Category^a	Square Footage (square meters)
6	Bowling Alley	Residential	Demolition ^b	< 10,793 > (1,003)
9	Enlisted Barracks	Residential	Residential	223,516 (20,765)
26N	Bachelor Officer Quarters	Residential	Residential	16,082 (1,494)
26S	Bachelor Officer Quarters	Residential	Residential	17,282 (1,605.5)
69	Parking Garage	Recreational	Demolition	< 6,776 > (629.5)
224	Bachelor Enlisted Quarters	Residential	Residential	38,264 (3,555)
330	Family Housing	Residential	Residential	6,390 (594)
331	Family Housing	Residential	Residential	6,233 (579)
332	Family Housing	Residential	Residential	6,233 (579)
333	Family Housing	Residential	Demolition	< 1,990 > (185)
334	Family Housing	Residential	Demolition	< 2,113 > (196)
408	Parking	Residential	Demolition	< 660 > (61)
Subtotals by Building Use Type Within Residential Area				314,000 (29,171.5)
Proposed Residential Building Square Footage				< 22,332 > (2,074.5)
Proposed for Demolition—Building Square Footage				314,000 (29,171.5)
Total Proposed Building Square Footage Within Residential Area After City's Demolition				
Within Proposed Recreational Land Use Area				
Building No.	Existing Building Function	Existing General Use Category	Proposed General Use Category^a	Square Footage (square meters)
11	Public Works Shops	Administrative/ Maintenance	Recreational Demolition	19,000 (1,765) < 40,206 > (3,735)
15	Hobby Shop	Recreational	Demolition	< 3,268 > (304)
31	Boathouse	Recreational	Recreational	3,141 (292)
38	Sentry House Main Gate	Institutional	Institutional	58 (5)
40	Paint Shop	Light Industrial	Demolition	< 924 > (86)
47	Recreational Facilities Gym	Recreational	Recreational	50,060 (4,650)
115	Public Works Storage	Light Industrial	Demolition	< 1,500 > (139)
138	Security	Institutional	Institutional	12,806 (1,190)
193	Commissary	Commercial	Demolition	< 93,334 > (8,670)
195	Travel Agency	Commercial	Demolition	< 819 > (716)
198	Thrift Shop	Commercial	Demolition	< 300 > (28)
228	Uniform Shop	Commercial	Demolition	< 4,074 > (378)
244	Maintenance Shop	Administrative/ Maintenance	Demolition	< 5,011 > (465.5)

Table 4-8 (Continued)
CITY PLAN
Building Uses Within Proposed Land Use Areas

Within Proposed Recreational Land Use Area (cont.)				
Building No.	Existing Building Function	Existing General Use Category	Proposed General Use Category^a	Square Footage (square meters)
275	Boathouse	Recreational	Demolition	< 288 > (27)
301	Country Store	Commercial	Demolition	< 9,500 > (883)
308	Package Store	Commercial	Demolition	< 4,202 > (390)
310	Auto Hobby Shop	Commercial	Demolition	< 4,020 > (373.5)
340	Gas Pump Island	Commercial	Demolition	TBD
341	Courtesy Island	Commercial	Demolition	< 300 > (28)
342	Service Station	Commercial	Demolition	TBD
344	Country Store	Commercial	Demolition	< 11,000 > (1,023)
345	Service Bay	Commercial	Administrative/Maintenance	5,298 (492)
401	Sentry House	Administrative/Maintenance	Demolition	< 60 > (6)
402	Boathouse	Recreational	Demolition	< 1,760 > (163.5)
404	Recreation Pavilion	Recreational	Demolition	< 1,120 > (104)
410	Recreational Pavilion	Recreational	Demolition	< 888 > (82.5)
Subtotals by Building Use Type Within Recreational Land Use Area Proposed Recreational Building Square Footage Proposed Administrative/Maintenance Building Square Footage Proposed Institutional Building Square Footage Proposed for Demolition—Building Square Footage Total Proposed Building Square Footage Within Recreational Area After City's Demolition				72,201 (6,707.5) 5,298 (492) 12,864 (1,195) < 182,574 > (16,961) 90,363 (8,395)
Within Proposed Educational Land Use Area				
Building No.	Existing Building Function	Existing General Use Category	Proposed General Use Category^a	Square Footage (square meters)
2	Marine Corps Training	Educational	Commercial	144,232 (13,399)
5	Warehouse	Light Industrial	Educational	417,467 (38,783)
12	Boiler Plant	Administrative/Maintenance	Administrative/Maintenance	5,653 (525)
18	Fire Station	Institutional	Educational	14,137 (1,313)
25	Administrative	Administrative/Maintenance	Administrative/Maintenance	27,892 (2,591)
29	Dispensary	Administrative/Maintenance	Administrative/Maintenance	33,744 (3,135)
30	Administrative	½ Administrative/Maintenance, ½ Recreational	Educational	80,066 (7,438)
41	Security	Institutional	Administrative/Maintenance	2,030 (189)

Table 4-8 (Continued)
CITY PLAN
Building Uses Within Proposed Land Use Areas

Within Proposed Educational Land Use Area (cont.)				
Building No.	Existing Building Function	Existing General Use Category	Proposed General Use Category*	Square Footage
67	Garage	Administrative/Maintenance	Educational	33,720 (3,133)
192	Administrative	Administrative/Maintenance	Administrative/Maintenance	4,800 (446)
222	Administration	Administrative/Maintenance	Demolition*	<30,126> (2,799)
223	Family Service Center	Administrative/Maintenance	Demolition	<9,080> (843.5)
299	Public Works Storage	Light Industrial	Light Industrial Undetermined	1,120 (104)
406	Brig	Institutional	Institutional	29,270 (2,719)
407	Hazardous Waste	Administrative/Maintenance	Administrative/Maintenance Undetermined	548 (51)
411	Recreation Pavilion	Recreational	Demolition	<888> (82.5)
Subtotals by Building Use Type Within Educational Land Use Area				
Proposed Commercial Building Square Footage				144,232 (13,399)
Proposed Educational Building Square Footage				545,390 (50,667)
Proposed Administrative/Maintenance Building Square Footage				74,667 (6,937)
Proposed Light Industrial Building Square Footage				1,120 (104)
Proposed Institutional Building Square Footage				29,270 (2,719)
Proposed for Demolition—Building Square Footage				<40,094> (3,725)
Total Proposed Building Square Footage Within Educational Area After City's Demolition				794,679 (73,826)
Within Proposed Institutional Land Use Area				
27	Reserve Training	Educational	Institutional	114,617 (10,648)
60, 61, 204, 307	NBS (Laboratory)	Institutional	Institutional	12,726 (1,182)
Subtotals by Building Use Type Within Institutional Land Use Area				
Proposed Institutional Square Footage				127,343 (11,830)

*Although demolition is not a use category, the term is presented for those buildings that will be removed.

*Building is to be replaced with housing; square footages are unknown.

*Buildings are to be replaced with outdoor amphitheater.

Note:

< > Footage is being demolished and, therefore, is not added to total square footage.

All residential building uses are within the proposed residential land use area. Table 4-9 lists the buildings proposed for residential use and compares the existing use with the proposed use. The numbers of current residents and estimated potential residents are shown. The total number of residents is similar for both current and proposed uses.

Table 4-9
Comparison of Residential Capacities of Existing Buildings
With Capacities Proposed in the City Plan

Building No.	Existing Building Use and Capacity	Building Use and Capacity Under the City Plan
9	163 rooms with 335 beds	98 families with children ^a 10 single adults 3 resident managers
224	85 rooms with 85 beds	20 homeless adults 30 Seattle Conservation Corp workers 2 resident managers
6	Bowling alley	Demolition; reconstruct into 28 dwellings ^a
26N	Not used due to fire damage	Combined - 27 families
26S	29 rooms (29 residents)	2 resident managers
330	Officer quarters; houses one family ^a	12 youth 1 resident manager
331	Officer quarters; houses one family ^a	12 youth 1 resident manager
332	Officer quarters; houses one family ^a	6 teen mothers 6 children 1 resident manager
333	Officer quarters; houses one family ^a	Assume demolition and rebuild of approximately 80 units for UW student family housing
334	Officer quarters; houses one family ^a	
Total potential residents (estimate)	500	650

^aAssumes three or four members in each family

Note: UW - University of Washington

The City, in partnership with the Seattle-King County Coalition for the Homeless, has applied for the residential property under McKinney Act preference. For this analysis, the proposed residential land use is taken from the City Plan and the coalition's plan, *At Home at Sand Point* (1993). Further discussion regarding impacts from homeless housing is in Section 4.3, Socioeconomics. According to the City of Seattle Comprehensive Plan regarding housing affordable to low income households, Policy H-29 "seeks to provide at

least 25 percent of the housing stock in each urban center and urban village... [as] affordable to households with income below 50 percent of the median." According to the 1990 census, the total number of housing units in the Naval Station Sand Point area is 12,034. Twenty-five percent of that figure is 3,008. The total number of assisted housing units currently in the Naval Station Sand Point area is 95 units. With the addition of 250 units proposed in the City Plan, the total of 345 assisted housing units in the Naval Station Sand Point area would remain well under the desired percentage. Further discussion regarding applicable regulations can be found in Section 3.2.

The 250 units will house approximately 650 persons (Table 4-9), which is comparable to housing currently provided at Naval Station Sand Point. The potential for impacts from a change in user groups is analyzed in Section 4.3.

In addition, the general residential character of the surrounding neighborhood is single-family residential; therefore, land and building uses are compatible with neighborhood uses. Impacts from residential land use, building use, or character changes are not considered to be significantly adverse.

Recreational Land Use Areas. The City Plan would substantially increase the recreational land use area by approximately 160 percent, from 30 (12 hectares) to approximately 78 acres (32 hectares). The main location of the proposed increase in recreational acreage, currently in the commercial use area, is near the commissary at the southeast portion of the base (Building 193). The change would occur in part to accommodate construction of a new wetland area, Mud Lake. Under the City Plan, there would be two recreational areas: the North Shore Recreation Area and the Magnuson Park Open Space/Recreation Expansion Area.

- The proposed **North Shore Recreation Area** comprises more than 15 acres (6 hectares) of land and 5 acres (2 hectares) of water area in the extreme north end of Naval Station Sand Point, including shoreline along Pontiac Bay. Recreational uses proposed in this area are a sailing center and a waterfront park. Changing rooms, classrooms, and offices would be housed in Building 11. Although administrative in nature, and not specifically recreational, these facilities would support the recreational activities in the area.

Current land use is recreational with building uses such as the marina and administrative/maintenance support facilities. Continued recreational use of the marina is intended to give Sea Scouts and other groups ongoing access to Lake Washington and existing facilities. The Navy has hosted recreational activities, such as weekend regattas for the Sea Scouts, the Cub Scouts, and the Boy Scouts, which have attracted as many as 1,000

persons to the marina area. Opening this area to the general public increases recreational use at Naval Station Sand Point.

- **The Magnuson Park Open Space/Recreation Expansion Area** would contain approximately 58 acres (23.5 hectares) at the south end of Naval Station Sand Point. (Note: the City Plan indicates 50 acres [20 hectares], but the actual area is approximately 58 acres [23.5 hectares].) Designed to integrate park and neighborhood, the area would include a recreation center, an improved park entrance at the intersection of N.E. 65th and Sand Point Way N.E., and additional sports fields, unstructured open spaces, and new wetlands.

Implementation of the City Plan would result in minor changes to recreational building uses except for those that would be demolished for wetland construction, including the commissary (Building 193). The existing Navy recreation facility (Building 47) would become a community center with sports activities and meeting spaces. Building 345 (service bay) would become a park maintenance facility. Other buildings in this area would be demolished. Improved access to Magnuson Park via an improved entrance and Burke-Gilman Trail extension could increase park use. See Section 4.4 for a discussion of access and Section 4.5 for potential impacts to traffic. Use of this area as an extension of Magnuson Park would be consistent with the original park plan and the current recommendations of the City's Park and Recreation COMPLAN, as discussed in Section 4.4. The proposed sidewalk along an improved park entrance could increase the safety of park users. Development of Mud Lake would likely increase existing wildlife habitat. The sports fields, playgrounds, tennis center, and community recreation center uses would remain similar.

As discussed previously, the surrounding neighborhood land use in this area is single-family residential, institutional (public and institutional), and recreational (open space). The proposed recreational land uses fit the character of the adjoining neighborhood, especially Magnuson Park and associated boating facilities. Proposed recreational uses are likely to present positive impacts from increased recreational use.

Commercial Land Use Area (None). There are no specific commercial land use areas in the City Plan; however, two sections of the plan discuss potential commercial activities. A small-scale neighborhood convenience facility might be located in the residential area, focusing on the needs of the homeless and low-income residents. A film studio may also be included in the educational land use area (education and community area). The studio would have some commercial uses, such as leasing of the studio for motion picture production. Therefore, commercial building use would increase slightly, even though

commercial land use is not indicated in the plan. Refer to Table 4-3 for total square footage of existing and proposed commercial building use.

For several reasons, significant direct, indirect, and cumulative impacts are not expected to occur from changes in commercial land or building uses. Since the base was not open to the general public, it is unlikely these land use changes would bring about significant adverse impacts.

Because existing commercial land and building uses at Naval Station Sand Point include the large commissary facility and surrounding stores, introduction of the two potential small commercial ventures in the City Plan would not be expected to affect land use, even though they are located in different areas away from the commissary. Access by the general public rather than military personnel may change the character of commercial use, although people living at Naval Station Sand Point would likely use the retail area created for use by the homeless, and people in surrounding neighborhoods would likely continue to use existing commercial facilities.

The surrounding neighborhood has four small-scale commercial ventures: a dry cleaner, restaurant, craft store, and convenience store. The impact to the neighborhood from an additional small retail area would likely be equivalent to the effect that current neighborhood facilities now have on the neighborhood. The impact is not expected to be significant because the operations are expected to be small and would fit with the character of existing commercial use.

The film studio, although different in nature from the commissary and located in the proposed educational land use area, would not create a significantly different impact.

Educational Land Use Areas. Two educational land use areas are proposed in the City Plan: the Educational and Community Activities Area and the Magnuson Park Arts, Culture, and Community Center Area. There are currently no educational land use areas. The City Plan would provide 37 acres (15 hectares) of new educational land use. The area would change from mostly administrative/maintenance and a small amount of recreational land use to an educational use area.

- In the **Educational and Community Activities Area** (next to the North Shore Recreation Area), land use primarily would support educational activities. In the Magnuson Park Area, it would support more arts and cultural activities. Building uses either remain administrative/maintenance or change from administrative/maintenance to educational use. Building 29 is proposed for education or health activities; Buildings 25 and 5 are proposed for education or community services activities. The proposal for Building 67 calls for continued use as a training facility. The

proposed film studio (Building 2) is located in the potential educational land use area. See the commercial section (above) for more detail.

- The **Magnuson Park Arts, Culture, and Community Center** would be at the center of Naval Station Sand Point in Buildings 18, 30, 41, and 406, and adjacent outdoor spaces. Use within the area will also include a public benefit transfer for recreation. Demolition of unnecessary structures could create additional open space. The area includes the following existing building uses: administration and hangar (Building 30), fire station and former service station (Buildings 18 and 41), brig (Building 406), and offices (Buildings 222 and 223). Implementation of the City Plan would change building use, now primarily administrative/maintenance, to an educational community center area (essentially a continuation of the Area 2, Education and Community Activities Area). Under the City Plan, the existing buildings would create a mix of large and small spaces for performance, exhibition, studio, workshop, and classroom activities. The area north of Building 47 would be used for an amphitheater. The uses are similar to current uses; therefore, no significant impact is expected.

The City has indicated that the Washington State Archives (WSA) no longer requests use of Building 406. It is assumed that Building 406 would be used for community activities associated with the Magnuson Park Arts, Culture, and Community Center, a similar use to the WSA.

Proposed Administrative/Maintenance Land Use Areas (None). No administrative/maintenance land use areas are proposed in the City Plan. This is a decrease from 72 to 0 acres (29 to 0 hectares) in existing land use. Administrative/maintenance building uses also decrease significantly from approximately 250,000 square feet to 80,000 square feet (23,225 to 7,432 m²).

Administrative/maintenance building uses can be found throughout other proposed land use areas. Although the number of square feet for administrative/maintenance building uses would decrease significantly, the City intends to maintain most of the existing administrative/maintenance building uses. Impacts are not expected to be significant because uses generally decrease.

The decrease in administrative/maintenance land and building use would increase compatibility with the character of the surrounding neighborhood. No impacts are expected from changes to the administrative/maintenance land or building use.

Institutional Land Use Area. The City Plan shows two institutional land use areas. One is the federal institutional area at the southeast corner of Naval Station Sand Point, and the other is in the northern portion. The land use changes from administrative/

maintenance to institutional for 10 acres (4 hectares) and remains the same for the other 5 acres (2 hectares). All building uses within these areas are institutional.

Existing institutional building uses in other areas of the base are the brig, the fire station, and security entry. The City Plan proposes removing the security entry to improve access to an expanded Magnuson Park. The brig and fire station would not be needed because police and fire protection would be provided by the City. Indirect impacts related to public safety requirements are discussed in Section 4.8. No impacts are expected from changes to institutional land or building uses.

Light Industrial Land Use Area. No light industrial or warehouse land uses are currently proposed by the City. Building uses such as a minor storage area, including a hazardous waste storage yard, may be maintained. The decrease in warehouse use is 247 percent. Because these uses have not been available to the general public, no adverse impacts from loss of use are expected.

Recreational/Commercial (None). No recreational/commercial land use areas are proposed in the City Plan.

Options to the City Plan. Of the options to the City Plan being considered, only one involves a change in land use area (land use under the options to the City Plan is shown in Figure 4-3B). The area surrounding Building 9 would change from a residential to an educational use. Since no homeless people would be housed in Building 9, 110 new housing units would be constructed in the residential area, resulting in the same total number (250 units) of transitional housing units for the homeless as proposed in the City Plan. The housing would occupy a smaller area (17 instead of 22 acres or 7 instead of 9 hectares) than proposed in the City Plan, resulting in increased density (14.7 units rather than 11.4 units per acre). Building 9 may be used as a temporary location for Ballard High School and for evening community college classes from 1997 to 1999, followed by permanent use by the community college for classes and 200 dormitory beds. The dormitory use would increase the number of residents on site by up to 200 over that proposed in the City Plan.

Three other options specify more narrow changes in building use: Building 25 would change from possible education and community service uses to administrative office space; Building 29 would change from possible education or health uses to administrative office space; and Building 406 would change from the Washington State Archives or a community center to the location for the senior/community center. All three buildings would remain in the educational land use area. These three changes are insignificant in terms of land use and do not change the above-reported analysis in the City Plan.

The options to the City Plan would result in increased building use for education from 545,390 to 707,270 square feet (50,667 to 65,705 m²) (see Table 4-3 for the City Plan

square footages). Square footage for the 110 new construction housing units is not specified by the City. Therefore, this analysis assumed that the square footage for housing would not change (that is, the same square footage of housing as was formerly slated for Building 9 would be built as new construction).

In conclusion, adopting the options would increase the educational land use area and correspondingly decrease the housing land use area, increasing housing density (since the same number of units would be built in a smaller area and dormitory space for students would be added) and educational building use.

- **Muckleshoot Plan**

The Muckleshoot Plan includes all 152 acres (61.5 hectares) of Naval Station Sand Point (Figure 4-4). Within the 152 acres (61.5 hectares), 10 acres (4 hectares) surrounding Building 27 are being requested by NOAA, and 13 acres (5 hectares) are being requested by NBS. The Muckleshoot Tribe has requested this property if NOAA does not receive it. Land use under the Muckleshoot Plan fits into five general-use terminology categories: commercial, educational, administrative/maintenance, light industrial, and recreational/commercial (see Table 4-1). No specifically designated residential land use area is proposed, however, residential building uses are proposed.

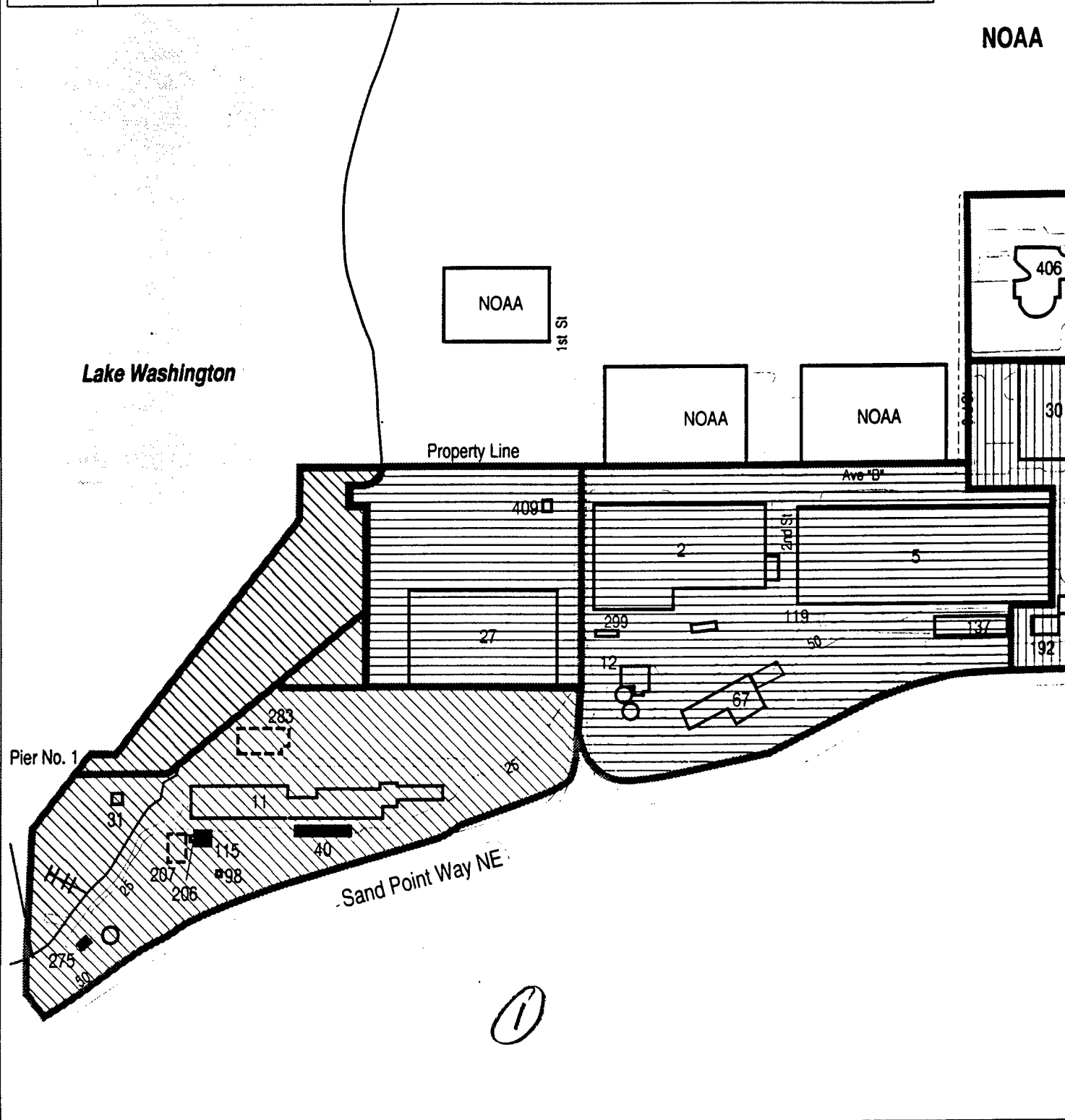
Table 4-10 groups the buildings by location within land use areas, then presents existing building functions and general use categories for existing and proposed functions.

Analysis indicates that the greatest land use area proposed under the Tribe's plan is the recreational area at the south end of the base. This area is unusual in that, while the land use would be recreational, the building uses proposed by the Tribe for the area would be predominantly commercial. Differing building uses also apply for the 41-acre (17-hectare), educational use area (campus area). This area would encompass both educational and residential building uses. Similarly, building uses in the 14-acre (6-hectare) recreational/commercial land use area would be predominantly commercial.

In the following sections, proposed land and building uses are analyzed by comparison to existing land uses. Again, categories have been established so that like land uses and building uses can be compared. (See Table 4-1 for a description of land use categories.) The analysis also includes a discussion of compatibility with existing land uses surrounding Naval Station Sand Point.

Residential Land Use Area (None Specifically Designated). The Muckleshoot Plan does not refer to a specific residential land use area; however, residential building uses are proposed within and ancillary to the educational land use area (proposed campus area), as indicated in Table 4-10. Existing residential use at Naval Station Sand Point is approximately 15 acres (6 hectares) (Table 4-2). The existing residential building use is

Pattern	General Land Use Categories	Muckleshoot Proposed Land Use Areas
	Recreational:	Recreation/Commercial Area Parks and Recreation Area (Includes Unidentified Water Area)
	Educational:	Campus Area
	Administrative/Maintenance:	Administrative/Office Area
	Institutional:	Institutional Facilities Area Federal Institutional (NBS)
	Light Industrial:	Warehousing/Light Industrial Area



Unidentified Water Area)

MAGNUSON PARK

NOAA

Property Line

Property Line

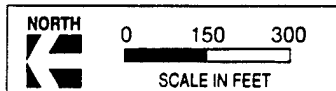
Ballfields

Tennis Courts

Sand Point Way NE

LEGEND

- Property Line
- Foundation Only
- Building Location and Number
- Buildings to be Demolished
- Elevation Contours in Feet Above Mean Sea Level



Source: City of Seattle 1993.

General
M

2

MAGNUSON PARK

Property Line

Tennis Courts

Ballfields

4th St

7th St

Ave C

8th St

Sand Point Way NE

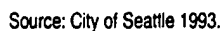
Buildings and structures labeled with numbers:

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Other labels:

- Auto Hobby Shop
- NBS

 Property Line
 Foundation Only
 Building Location and Number
 Buildings to be Demolished
 50 Elevation Contours in Feet Above Mean Sea Level



NAVAL STATION
SAND POINT
Draft EIS
November 1996

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Table 4-10
MUCKLESHOOT PLAN
Building Uses Within Proposed Land Use Areas

Within Proposed Commercial Land Use Area				
Building No.	Existing Building Function	Existing General Use Category	Proposed General Use Category^a	Square Footage (Square Meters)
15	Hobby Shop/Arts & Crafts	Recreational	Commercial	3,268 (304)
193	Commissary Exchange	Commercial	Commercial	93,334 (8,670)
195	Travel Agency	Commercial	Demolition	<819> (76)
198	Thrift Shop	Commercial	Demolition	<300> (28)
228	Uniform Shop	Commercial	Demolition	<4,074> (378)
244	Maintenance Shop	Administrative	Undesignated ^b	5,011 (465.5)
301	Country Store	Commercial	Commercial	9,500 (883)
308	Package Store	Commercial	Commercial	4,202 (390)
310	Auto Hobby Shop	Light Industrial	Commercial	4,020 (373.5)
330	Family Housing	Residential	Commercial	6,390 (594)
331	Family Housing	Residential	Commercial	6,233 (579)
332	Family Housing	Residential	Commercial	6,233 (579)
333	Family Housing	Residential	Undesignated ^b	1,990 (185)
334	Family Housing	Residential	Undesignated ^b	2,113 (196)
340, 341, 342	Service Station	Commercial	Demolition	<300> (28)
344	Country Store	Commercial	Commercial	11,000 (1,023)
345	Service Bay	Commercial	Commercial	5,298 (492)
401	Sentry House	Administrative/maintenance	Demolition	<60> (6)
Subtotals by Building Use Type Within Commercial Land Use Area				149,478 (13,887.5)
Proposed Commercial Building Square Footage				<5,553> (516)
Proposed Demolished Building Square Footage				9,114 (846.5)
Proposed Undesignated Open Building Square Footage				158,592 (14,734)
Total Proposed Building Square Footage Within the Commercial Area				

Table 4-10 (Continued)
MUCKLESHOOT PLAN
Building Uses Within Proposed Land Use Areas

Within Proposed Educational Land Use Area				
Building No.	Existing Building Function	Existing General Use Category	Proposed General Use Category^a	Square Footage (Square Meters)
6	Bowling Alley	Recreational	Recreational	10,793 (1,003)
9	Enlisted Barracks	Residential	½ Educational/ ½ residential	111,758 (10,382) 111,758 (10,382)
26	Bachelor Officer Quarters	Residential	Residential	17,282 (1,605.5)
26A	Storage	Administrative/maintenance	Educational	16,082 (1,494)
47	Recreational	Recreational	Recreational	50,060 (4,650)
69	Parking	Administrative/maintenance	Administrative/ maintenance	6,776 (629.5)
138 and 38	Security	Institutional	Administrative/ maintenance	12,806 and 58 (1,190; 5)
222	Administration	Administrative/maintenance	Educational	30,126 (2,799)
223	Family Service Center	Administrative/maintenance	Administrative/ maintenance	9,080 (843.5)
224	Bachelor Enlisted Quarters	Residential	Residential	38,264 (3,555)
408	Motorcycle Parking	Residential	Demolition	<660> (61)
411	Recreation Pavilion	Recreational	Recreational	888 (82.5)
Subtotals by Building Use Type Within Educational Land Use Area				
Proposed Educational Building Square Footage				157,966 (14,675)
Proposed Residential Building Square Footage				167,304 (15,543)
Proposed Administrative/Maintenance Building Square Footage				28,720 (2,668)
Proposed Recreational Building Square Footage				61,741 (5,736)
Proposed Demolished Building Square Footage				<660> (61)
Total Proposed Building Square Footage Within Educational Area				415,731 (38,621)
Within Proposed Administrative/Maintenance Land Use Area				
Building No.	Existing Building Function	Existing General Use Category	Proposed General Use Category^a	Square Footage
25	Administration	Administrative/maintenance	Administrative/ maintenance	27,892 (2,591)
29	Dispensary	Administrative/maintenance	Administrative/ maintenance	33,744 (3,135)
30	Administration	Administrative/maintenance	Administrative/ maintenance	80,066 (7,438)
192	Administration	Administrative/maintenance	Administrative/ maintenance	4,800 (446)
Total Proposed Building Square Footage Within Administrative/Maintenance Area				146,502 (13,610)

Table 4-10 (Continued)
MUCKLESHOOT PLAN
Building Uses Within Proposed Land Use Areas

Within Proposed Institutional Land Use Area				
Building No.	Existing Building Function	Existing General Use Category	Proposed General Use Category^a	Square Footage
18	Fire Station	Institutional	Institutional	14,137 (1,313)
41	Security	Institutional	Institutional	2,030 (188.5)
204	NBS	Institutional	Institutional	12,726 (1,182)
406	Brig	Institutional	Institutional	29,270 (2,719)
Total Proposed Building Square Footage Within Institutional Area				58,163 (5,402.5)
Within Proposed Light Industrial Land Use Area				
Building No.	Existing Building Function	Existing General Use Category	Proposed General Use Category^a	Square Footage
2	Marine Corps Training	Light Industrial	Light Industrial	144,232 (13,399)
5	Warehouse	Light Industrial	Light Industrial	417,467 (38,783)
12	Boiler Plant	Administrative/maintenance	Administrative/maintenance	5,653 (525)
27	Reserve Training	Light Industrial	Light Industrial	114,617 (10,648)
67	Garage	Light Industrial	Light Industrial	33,720 (3,133)
299	Public Works Storage	Light Industrial	Light Industrial	1,120 (104)
407	Hazardous Waste Storage	Administrative/maintenance	Administrative/maintenance	548 (51)
Subtotals by Building Use Type Within Light Industrial Land Use Area				711,156 (66,067)
Proposed Light Industrial Building Square Footage				6,201 (576)
Proposed Administrative/Maintenance Building Square Footage				717,357 (66,643)
Total Proposed Building Square Footage Within Light Industrial Area				

Table 4-10 (Continued)
MUCKLESHOOT PLAN
Building Uses Within Proposed Land Use Areas

Within Proposed Recreational/Commercial Land Use Area				
11	Public Works	Commercial	Recreational	59,206 (5,500)
31	Boathouse	Recreational	Recreational/Commercial	3,141 (292)
40	Paint Shop	Commercial	Demolition	<924> (86)
115	Public Works Storage	Commercial	Demolition	<1,500> (139)
275	Small Craft Boathouse	Recreational	Demolition	<288> (27)
402	Boathouse	Recreational	Recreational/Commercial	1,760 (163.5)
404	Recreation Pavilion	Recreational	Undesignated*	1,120 (104)
410	Recreation Pavilion	Recreational	Recreational	888 (82.5)
Subtotals by Building Use Type Within Recreational/Commercial Land Use Area				
Proposed Recreational/Commercial Building Square Footage				64,995 (6,038)
Proposed Demolished Building Square Footage				<2,712> (252)
Proposed Undesignated Open Building Square Footage				1,120 (104)
Total Proposed Building Square Footage Within the Recreational/Commercial Area				66,115 (6,142)

*Although demolition is not a use category, the term is presented for buildings that will be removed.
 "Undesignated" refers to a building for which the Tribe has not proposed a specific type of use.

Note:

< > - Footage being demolished and, therefore, not added to total square footage

over 300,000 square feet or 27,870 m² (Table 4-3). In the Tribe's proposed educational area (campus), some of the existing residential buildings would continue to be used as residential facilities for student dormitory housing. Others would be used as classrooms. Therefore, while building use in the area would remain similar, the amount of residential building area would decrease overall by approximately 50 percent. A further discussion of the proposed educational use can be found in the educational land use section below.

Because Naval Station Sand Point public housing was used specifically by the military and not available to the public, no impact on future housing availability is expected.

Continued residential building use proposed in the Muckleshoot Plan is compatible with neighborhood land and building uses.

Commercial Land Use Area. Approximately 50 acres (20 hectares) at the southern end of the property is proposed for commercial uses. This area was originally designated as Parks and Recreation BIA withdrawal.

Educational Land Use Area. The Tribe proposes use of 41 acres (17 hectares) of land for educational purposes. Of the 41 acres (17 hectares), 15 acres (6 hectares) are currently used for residential purposes, 26 acres (10.5 hectares) for recreational purposes. The area currently contains more than 160,000 square feet (14,864 m²) of building space dedicated to residential housing, generally characteristic of a campus area or a group housing facility.

The Muckleshoot Plan would change land and building uses in the area from mostly recreational and administrative/maintenance to educational uses.

Overall, building use for educational activities in the Muckleshoot Plan would decrease (Table 4-3) because buildings targeted for educational uses, now located in the existing administrative/maintenance area, are former hangars used for training. The Tribe proposes to use part of the barracks and administration facilities as classrooms.

As part of the proposed educational land use area, the Muckleshoot Plan would reduce the amount of building space provided for residential housing (Table 4-3). This reduction is due to the proposed use of current residential building space for classrooms.

Analysis of building and land uses indicates that relatively little change is proposed for the educational area. The campus characteristics and recreational use would remain similar, and administrative/maintenance uses would decrease. No significant land use impacts are expected with the Muckleshoot Plan for the educational land use area.

Administrative/Maintenance Land Use Area. The Muckleshoot Plan designates 6 acres (2 hectares) for administrative/maintenance land use, located in the center of Naval

Station Sand Point. This is a decrease from 72 acres (29 hectares). Proposed building uses in this area do not change from existing uses (Table 4-10). Three buildings—30, 25, and 192—are specifically designated for administrative uses, continuing the existing use. Building 29, currently the dispensary (health clinic), would become a drug and alcohol treatment center and would also continue to be used for administrative purposes. The administrative/maintenance land use area also includes the Muckleshoot Tribe's proposed reuse of the brig as a temporary jail facility for Native Americans and use of the fire station and security building. Because the proposed land and building uses continue existing uses, no use impacts are associated with the Muckleshoot Plan for this area.

Institutional Land Use Area. Two institutional land use areas are proposed by the Tribe: one at the southeast corner and the other in the central portion of Naval Station Sand Point. The land use area surrounding Buildings 18 and 406 (central) will change from administrative to institutional, but the building use will remain the same. Land and building uses in the southeast portion will also remain the same. Therefore, no impacts are expected.

Light Industrial Land Use Area. This land use area is located north of the administrative/maintenance land use area. It contains approximately 27 acres (11 hectares), including Building 27 requested by NOAA. If NOAA receives this facility, the building will likely remain a warehouse. If NOAA does not receive this facility through the federal screening process, the Tribe would use the building for warehousing and light industrial purposes. Most of the buildings in this area, occupying roughly half the light industrial land area, are currently used as warehouse facilities (Table 4-10). The character of the area is industrial in nature, with large converted hangars, formerly used for airplane repair. Proposed reuse of these buildings by the Tribe does not change from the existing use. Because the proposed light industrial use parallels land use in the area, no land use impacts are expected.

Recreational/Commercial Land Use Area. The northernmost portion of the base (14 acres or 6 hectares), the waterfront property and Building 11, is currently being used for both recreation and administration. This waterfront property supports the existing land use of recreation; therefore, it is the intent of this proposed reuse plan to preserve this area as a Marina. The proposed use of this area would be "Recreational/Commercial" and this area would be open to the general public with only minor reservations during the fishing season.

Under the Treaty of Point Elliot (12 Stat. 927), the Tribe holds federally guaranteed treaty fishing rights in its usual and accustomed fishing areas. Lake Washington, where the Naval Station Puget Sound (Sand Point) is located, is within the usual and accustomed fishing areas of the Tribe. The Muckleshoot Indian Tribe Fisheries

Department is lacking in facilities for both the tribal fishermen and the fisheries biologist they employ.

Commercial fishing fleet uses of the marina area may impact the neighboring residential area along the shoreline to the north. Impacts likely would stem from recreational boats changing to commercial fishing boats. The change in waterfront use from existing recreational boating to commercial fishing activities could impact the neighboring residential housing along the shoreline north of Naval Station Sand Point by increasing the level of activity. Additional impacts in the marina area could result as the shift from recreational to commercial boats occurs, and seasonal recreational activity changes to year-round commercial marina activity such as boat and net repair. In addition, opening this area to the general public increases recreational use at Naval Station Sand Point.

There are also recreational building uses within the Tribe's proposed campus area. The bowling alley, gym facility, and recreation pavilion would continue their existing recreational uses. Because there would be no change in building use, no land use impact results from continuing these recreational uses.

Overall, many of the existing commercial buildings are to be demolished under the Muckleshoot Plan. Recreational building use will decrease approximately 20 percent, with a 25 percent increase in commercial building use within the recreational land use area. These changes are not expected to create a significant adverse impact on the adjacent neighborhood.

- **No-Action Alternative**

Under the no-action alternative, the land and buildings would remain unused and vacant. Potential impacts associated with no action are as follows: buildings and land would be under-utilized, housing and educational facilities would not be used, and the federal government would continue to pay to maintain a facility without benefit.

4.1.3 Mitigating Measures

- **City Plan and Options**

Adverse impacts caused by City Plan changes to land or building uses and impacts due to incompatibility with neighborhood character were determined to be insignificant; therefore, no mitigating measures are required.

- **Muckleshoot Plan**

To minimize the impact from increased activity in the recreational/commercial land use area, the following mitigating measures should be implemented by the recipient of the

4.1 Land Use

base: hours of operation at the marina area should be established to minimize increased marina activity impacts, and water routes to and from the marina should be established to avoid the residential shoreline area to the north and to maintain distance from NOAA ships and machinery.

- **No-Action Alternative**

No impacts are anticipated.

4.1.4 Unavoidable Adverse Impacts

None.

4.2 HISTORIC AND CULTURAL RESOURCES

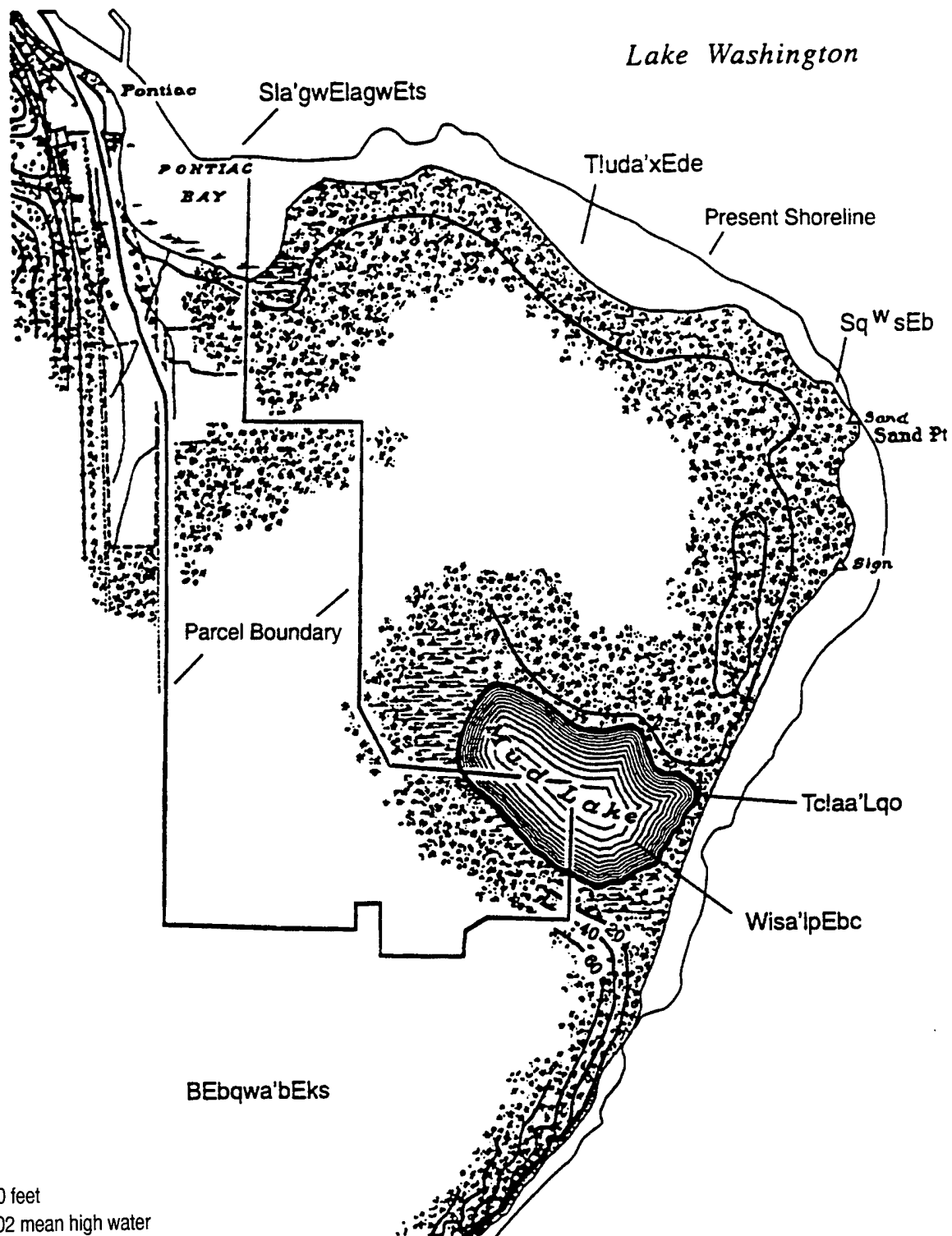
This section discusses the history of Naval Station Sand Point, criteria for National Register eligibility historic district nomination and applicable regulations, impacts of alternatives on historic and cultural resources, and potential mitigating measures.

4.2.1 Affected Environment

• Historic Context

The history of the Sand Point area is rooted in aboriginal Native American use of Lake Washington and its environs. D. Buerge, in an article appearing in the *Seattle Weekly* (August 1984), summarized the early history of Sand Point using a number of sources, including accounts by T. T. Waterman, J. P. Harrington, and A. Ballard. Natives who used the lake were known as "hah-chu-AHBSH" (xatou'abc) or "people of the lake." (In this section, native names in parentheses are from the work of Waterman [1922].) According to Buerge (1984), seven winter villages were located around the lake shore; a typical village consisted of houses clustered at the mouth of a salmon stream. In the mid-nineteenth Century, these groups numbered perhaps 700 people (Buerge 1984). The largest and most influential group, the "hloo-weelth-AHBSH," was situated on the shores of Union Bay on the important portage between Lake Washington and the salt water of Puget Sound (Buerge 1984). This group used Green Lake and the salmon resources of Ravenna Creek. A group, possibly associated with the "hloo-weelth-AHBSH," inhabited three longhouses on the shores of Wolf Bay, immediately south of Sand Point. These people used a small prairie (BEbqwa'bEks) near the current Windermere community and the resources of Mud Lake (Wisa'lpEbc) on Sand Point (Buerge 1984) (see Figure 4-5). Sand Point was given the name "sqwab" (Sq'sEb), while its northern shore near Pontiac Bay was called T!uda'xEde or "plant with small, inedible white berries" (Waterman 1922). Pontiac Bay, on the north shore of Sand Point, was called Sla'gwElagwEts or "cedar bark, where it grows" (Waterman 1922). Just north of Sand Point, another group, the "tu-oh-beh-DAHBSH," lived at the mouth of Thornton Creek, which empties into the lake at Matthews Beach. In presenting some of the mythological events associated with place names around the lake, Buerge recounts:

In the case of Sand Point, the myth associated with the channel that connected Mud Lake with Lake Washington has been lost, but the name for the channel was TCHAAHL-ko (Tc!aa'Lqo), "hidden water," and that for Mud Lake was wee-S AHL-pubsh (Wisa'lpEbc), which may mean something like "plowed place." From the stories preserved from other similarly named sites in the region we can infer that the myth described how a once-subterranean water channel was plowed open by whales or other powerful beings (Buerge 1984).



Notes:

Contour Interval - 20 feet

Elevation above 1902 mean high water

Not to Scale

Sources: base map (USCGS 1902); modern shoreline and Naval Station Sand Point parcel boundary (USGS 1983); native place names (Waterman 1922)

Figure 4-5
Sand Point Geography Circa 1902
 (Before Development of Naval Base)

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Many of the winter village sites on Lake Washington evidently were occupied as late as the 1860s, and settlements at Leschi and on Lake Union perhaps were inhabited until the 1880s (Buerge 1984). Native peoples apparently continued regular use of the lake until 1916 when the U.S. Army Corps of Engineers constructed the Lake Washington Ship Canal and lowered the lake's level by about 9 feet (Buerge 1984).

The Sand Point area was first surveyed by John R. Neal in 1855 under contract with the Government Land Office (Government Land Office 1856). EuroAmericans settled the area in the 1860s under the Homestead Act (EDAW 1993a), and Morgan J. Carkeek, a Seattle pioneer, acquired property along Pontiac Bay in the 1870s. This property, which was subsequently deeded to the City for a park in 1918, eventually became part of the naval base in 1929 (EDAW 1993a). Lake Washington Shipyards at Pontiac Bay were served by the Maple Saw Mill, at what is now Matthews Beach, and by the Seattle Lake Shore & Eastern Railroad, which by 1885 extended to Pontiac Bay (EDAW 1993a). About 1900, the shipyards moved to Houghton, Washington, and a brickyard that used clay sources west of Sand Point was developed in the Pontiac Bay area (EDAW 1993a). Lowering the lake level in 1916 significantly altered the shoreline configuration in the Sand Point area (Figure 4-5), diminishing the size of Mud Lake and Pontiac Bay. Subsequently, during the initial phase of naval base construction in the late 1920s and 1930s, the Sand Point landscape was leveled, and both Mud Lake and Pontiac Bay were filled to accommodate runways and buildings (EDAW 1993a). Section 1.3 summarizes the history of the naval base development and operation. In 1920, King County acquired 416 acres (168 hectares) to establish Naval Station Sand Point. The Navy formally accepted the property in 1925. In 1932, an additional 37 acres (15 hectares) was acquired for necessary improvements and construction. From that time forward, Naval Station Sand Point became a significant part of the Pacific Northwest aviation history. Most of the buildings on Naval Station Sand Point were constructed between 1935 and 1945.

• **Applicable Regulations Historic District Selection**

As part of the base closure and realignment process, the Navy will comply with federal historic preservation laws and pursuant regulations. Section 106 of the National Historic Preservation Act (16 U.S.C. 470f) requires the Navy, before any undertaking, to "take into account the effect of the undertaking on any district, site, building, structure, or object that is included in or eligible for inclusion in the National Register."

As part of its compliance efforts under Section 106 of the National Historic Preservation Act (16 U.S.C. 470), the Navy will develop a Programmatic Agreement with the SHPO to establish a process for property conveyance that will preserve the historic district and its contributing elements. Compliance with Section 106 initially consisted of inventorying historic and archaeological resources and assessing which resources were eligible for inclusion on the National Register of Historic Places (EDAW 1993a).

The following criteria define eligibility for listing on the National Register:

The quality of significance in American history, archaeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association and (a) that are associated with events that have made a significant contribution to the broad patterns of our history; or (b) that are associated with the lives of persons significant in our past; or (c) that embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or (d) that have yielded, or may be likely to yield, information important in prehistory or history . . . (36 CFR 60.6)

A property that achieved significance within the past 50 years will not be considered eligible for the National Register, unless it is of exceptional importance (36 CFR 60.6).

• **Historical Evaluation**

An archaeological inventory Historical Research Associates, Inc. (HRA) conducted indicated that records of the Washington State Office of Archaeology and Historic Preservation listed no previously recorded archaeological sites for the Sand Point area and that no evidence of archaeological sites was found during HRA's on-the-ground survey of portions of the Sand Point property. The report indicated that the absence of archaeological evidence was a result of extensive surface modification to the properties by military activities (HRA 1992).

The historic buildings on the Sand Point property were evaluated in two separate phases, each phase addressing the structures and buildings in terms of eligibility criteria for inclusion on the National Register of Historic Places.

The first phase of historic evaluation was conducted on the 37-acre (12-hectare) area originally affected by the 1989 recommendation to realign the portion of Naval Station Sand Point that serves fleet units at Naval Station Puget Sound, Everett. This tract, which the federal government acquired in 1932, includes the south part of today's naval base. The report individually evaluated and inventoried 22 structures in terms of historic significance. No structure met National Register criteria (BNMR 1990).

As a result of the 1991 Base Closure Commission's recommendation to close Naval Station Sand Point, the second phase of historic evaluation assessed an additional 37 structures and reevaluated Building 30. EDAW, on behalf of the Navy, evaluated each structure, documenting results on historic property inventory forms, in terms of National

Register criteria (EDAW 1993b). Ratings for each documented building weighed integrity, location, design, setting, materials, workmanship, feeling, and association. Using these criteria, nine buildings and one monument met the National Register's Criterion A, for their association with the role of the military and the growth and development of the City, and Criterion C, for the significance of period architecture. Structures of concern are Buildings 2, 5, 9, 12, 25, 29, 30, 47, and 138; the buildings and monument 396 commemorate the first round-the-world flight by seaplane, which began and ended at Naval Station Sand Point in 1926. These buildings, along with numerous other noncontributing buildings, also were included in a proposed historic district recommended in the *Survey Report, Historic Resources Survey, Properties of Naval Station Puget Sound, Sand Point*, prepared in January 1993 (EDAW 1993a).

SHPO staff visited Naval Station Sand Point and concurred with the Navy's preliminary recommendations in the initial report for individual building eligibility and district nomination (EDAW 1993a). These recommendations were reviewed by the SHPOs staff. After a visit to Naval Station Sand Point, the SHPO's staff concurred with preliminary recommendations for individual building eligibility and district nomination made in the initial report (EDAW 1993a). SHPO also recommended expanding the proposed historic district to also include Buildings 11, 15, 26, 27, 31, 67, 330, 331, and 332 as eligible for the National Register (EDAW 1994). The expanded historic district (Figure 4-6) reflects the following three major periods of development and uses of Naval Station Sand Point (EDAW 1993a, 1994):

- Early Construction, Reserves, and Army Use - 1926 to 1934
Dominant architectural style: Colonial Revival
- Active Navy Use - 1935 to 1938
Dominant architectural style: Art Deco/Modern
- World War II - 1939 to 1946
Dominant architectural style: Modern

Under the two reuse plans, the Navy will no longer own the property, so it has not formally nominated the historic properties to the National Register.

4.2.2 Direct and Indirect Environmental Impacts

• Archaeological Resources

Although aboriginal use near Naval Station Sand Point is well documented (Buerge 1984; Waterman 1922), no archaeological resources have been identified on the property (HRA 1992). An archaeological inventory HRA conducted indicated that records of the Washington State Office of Archaeology and Historic Preservation listed no previously

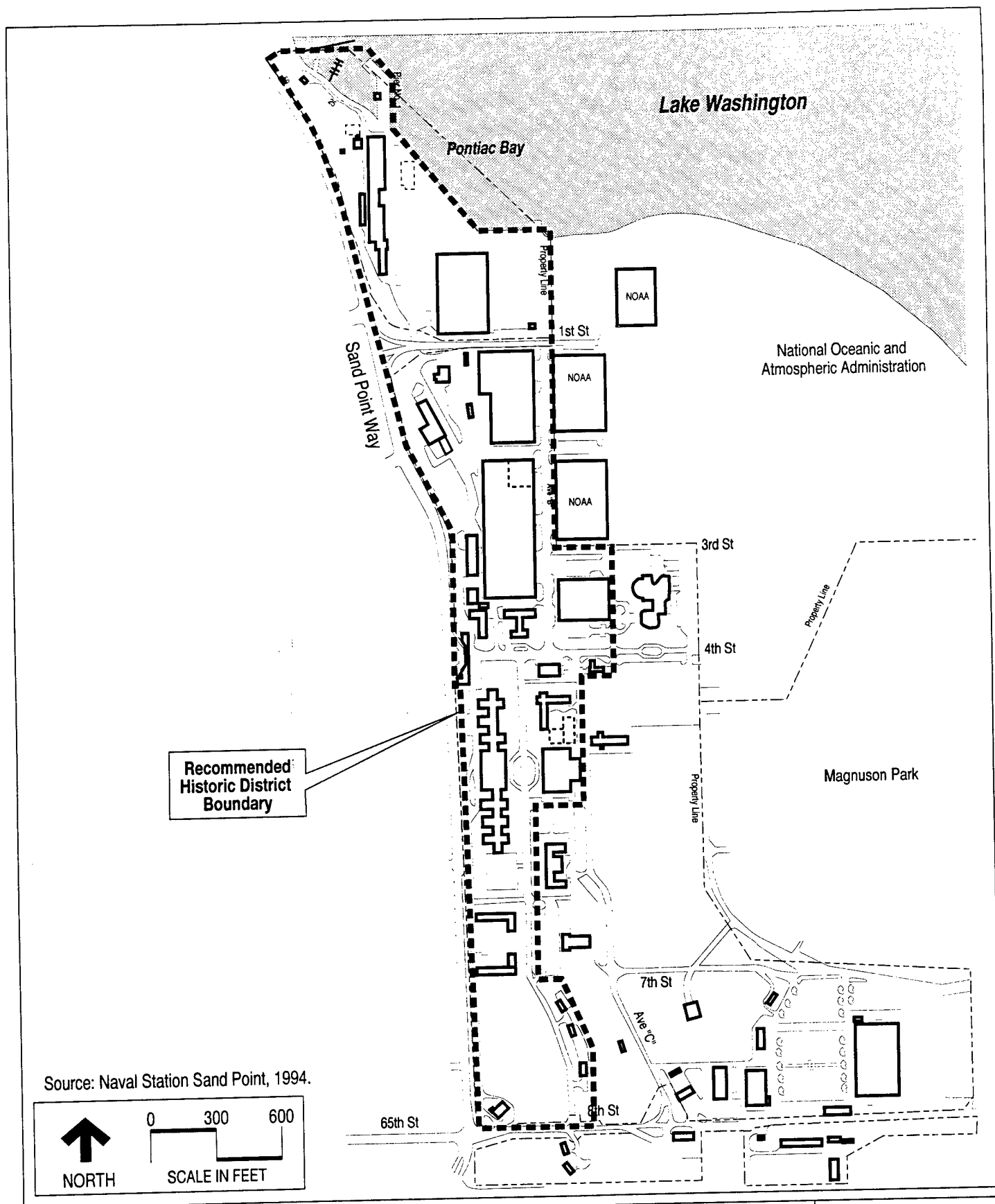


Figure 4-6
Recommended National Register
Historic District

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recorded archaeological sites for the Sand Point area and that no evidence of archaeological sites was found during HRA's on-the-ground survey of portions of the Sand Point property. The report concluded that the absence of archaeological evidence was a result of extensive surface modification to the properties by military activities (HRA 1992). Therefore, no environmental impacts to known archaeological resources are expected from implementation of the reuse plan or the no-action alternative. Local Native American groups have raised particular concerns that archaeological resources may be present at Naval Station Sand Point, even though none is presently known. Specific guidelines for archaeological resources may incorporate ideas from all or part of the HARP plan for Naval Station Sand Point (EDAW 1994). The reuser should have subsurface construction activities at the site monitored by a professional archaeologist to ensure that any archaeological remains are identified and evaluated. This monitoring would apply to excavation in undisturbed areas or areas where depth of construction would penetrate below a previously disturbed surface. If substantial areas of subsurface activities are proposed, the reuser may choose to conduct additional archaeological studies to identify areas with a higher probability of cultural resources, then limit construction work monitoring to those high probability areas. Under any alternative, however, if any such remains were disturbed without proper mitigation, there could be significant adverse impacts to archaeological resources.

• Historic Resources

Reuse Plans. Table 4-11 lists buildings and structures deemed worthy of inclusion on the National Register (BNMR 1990; EDAW 1993a); it also indicates their proposed use under reuse plans.

Closure of **Naval Station Sand Point** and the end of military use necessarily means that historic buildings would be used for new purposes.

City Plan, Options, or the Muckleshoot Plan. The following outlines proposed uses under the City Plan, the City Plan with options, and the Muckleshoot Plan:

- Building 2 originally was constructed as an aircraft hangar. After aircraft operations ceased, it was used for reserve training. The City Plan and options would convert this building to a film studio (no major changes to the structure), while the Muckleshoot Plan proposes using it for warehousing and storage. Neither reuse plan envisions major changes to the structure, although the proposed use under the Muckleshoot Plan is closer to the building's original function.
- Building 5, which originally may have been a hangar, was later used as a warehouse and for administration. The Muckleshoot Plan calls for reuse as a warehouse and for storage, while the City Plan and options envisions its

Table 4-11
Naval Station Sand Point Buildings in the Historic District
Eligible for the National Register and Proposed Uses

Building Number	Common Name	City Plan Use	Muckleshoot Plan Use
2	Reserve Armory	Film studio	Warehousing, storage
5	Supervisor of Shipbuilding, Conversion, and Repair	Education, social services, community services	Warehousing, storage
9	Transient Personnel Unit	Housing, community services; education under the City Plan options	Student housing, classrooms
11	Public Works/Shops	Sailing center (north part to be demolished)	Recreation, commercial uses
12	Heat Plant Building	Boiler plant	Boiler plant
15	Hobby Shop	(Demolished)	Senior center or part of college campus
25	Administration Building	Education, community services; administrative offices under the City Plan options	Administration
26	Bachelor Officers' Quarters	Housing	Housing
27	Reserve Training	(May be transferred to NOAA)	Warehousing, light industrial (may be transferred to NOAA)
29	Multi-Use Medical Clinic	Education or health; administrative offices under the City Plan options	Medical care, child care, alcohol and drug treatment
30	Personnel Support Detachment	Performance workshops, exhibitions, administration	Administration
31	Admiral's Barge Office	Boathouse	Boathouse
47	Theater/Gym/Pool	Community center	College recreation center
67	Motor Pool Shop	Training	Garage
138	Main Gate/Police	(not specified)	Security
330 331 332	Officers' housing	Group homes for homeless, at-risk youth, teen mothers	Groups homes or rental property
396	World Flight Monument	(not specified)	(not specified)

Sources: EDAW 1993a, 1994; Muckleshoot Indian Tribe 1993; City Planning 1993a

possible use for unspecified educational, social service, and community activities and for arts and culture expansion. Of the three reuse plans, the Muckleshoot Plan most closely replicates the original function of Building 5.

- Building 9 was probably the original main building of the base, serving as barracks, mess, offices, and base chapel. The City Plan proposes using the building for mixed-income housing and community services; the options proposes educational use (North Seattle Community college and temporary use by Ballard High School and student housing), and the Muckleshoot Plan proposes housing students and providing classrooms and a student union facility in the building. All reuse plans would use the building for purposes similar to its original function.
- Building 11, a public works and shop area, would be converted to a sailing center under the City Plan and the options, and the north half of the building would be demolished. Under the Muckleshoot Plan, the building would be used for recreational or commercial purposes. All reuse plans would use the buildings for purposes similar to its original function.
- Under all three alternatives, there would be continued use of the boiler plant, Building 12, to produce steam heat for other buildings.
- The present hobby shop, Building 15, at the extreme southwest corner of the base, would be demolished under the City Plan and the options. The Muckleshoot Plan designates the building as a senior center or as part of the college campus.
- The City Plan converts the administration building, Building 25, to unspecified education and community service uses; the Muckleshoot Plan and the options specify administrative use.
- Under all three both plans the bachelor officers' quarters, Building 26, would retain its original use as housing.
- NOAA has requested use of Building 27, currently used for reserve training. If it is not transferred, the Muckleshoot Plan anticipates using it for warehousing or light industrial purposes, while the City Plan and the options are not specific.
- Under the Muckleshoot Plan, Building 29, the dispensary, would continue to be used for medical care, child care, and the Tribe's alcohol and drug treatment program. Similarly, the City Plan would use the medical clinic

for possible education or health activities. The options proposes administrative uses.

- Building 30, originally constructed as a hangar, was later used for administration and recreation. The City Plan and the options use the building as a performance workshop, an exhibition space for community and special events, and for administration; the Muckleshoot Plan proposes using the building for administration. All three plans are consistent with the historic use of Building 30.
- The City, the options, and Muckleshoot Plans would use the Admiral's Barge Office, Building 31, as a boathouse, consistent with historic use.
- Both plans propose to use Building 47 (theater, gym, and pool) for recreation. The City Plan calls for a community recreation center; the Muckleshoot Plan calls for a college recreation center.
- Building 67 (motor pool shop) would continue to be used as a garage under the Muckleshoot Plan. Under the City Plan, it would possibly be used for training.
- Building 138 (main gate/police) would continue to be used for security under the Muckleshoot Plan. Its use is not specified in the City Plan, other than to note the cost of renovation.
- Buildings 330, 331, and 332, historically used as officers' housing, would each be used for group homes for the homeless, at-risk youth, or teen mothers under the City Plan, and for group homes or a rental property by the Muckleshoot Plan. These uses are consistent with the buildings' historic use as housing.
- None of the plans mentions the World Flight Monument, Structure 396, which stands at the entrance to the base, in front of Building 138.

Proposed reuse plans for many Naval Station Sand Point buildings are similar to the original building functions, enhancing the integrity of the proposed historic district by keeping building and architectural forms intact. Overall, between the two reuse plans, the Muckleshoot Plan seems to achieve a slightly greater degree of compatible use, because the City Plan envisions uses for Buildings 2, 5, 11, and 67 that differ from their original functions.

All three plans would bring reused buildings up to current standards of safety and accessibility and would abate risks due to regulated hazardous materials. The City Plan

and the options propose to consider demolishing buildings within the proposed Education and Community Activities Area if renovation and reuse are not feasible after 10 years. This proposal could may pose a potentially adverse effect on historically significant Buildings 2, 5, 25, and 29, which are within the boundary of the activities area. Similarly, the City Plan and the options envision demolition of Building 15 and the north half of Building 11. These actions could have an adverse effect on buildings within the historic district.

Additional Impacts Under Options to the City Plan. Four existing buildings would have changed uses under the City Plan options. Three (Buildings 9, 25, and 29) contribute to the historic district. Options to the City Plan propose using Building 9 for North Seattle Community College, temporarily for Ballard High School, and possibly for housing students. These uses are quite similar to its original function. The City Plan options propose Building 25 as administration, its original function. Building 29 is proposed for change from the dispensary to administrative offices. Overall, the options, like the City Plan, proposes uses similar to the original building functions for many buildings. This enhances the integrity of the proposed historic district. There are no other significant differences between the City Plan and the options in terms of impacts on historic resources.

No-Action Alternative. Under the no-action alternative, wherein the Navy retains the base, the Navy will continue to maintain the historic buildings to prevent their deterioration. No impact would result from the no-action alternative because the Navy would continue to follow its HARP plan. Under this plan, the Navy must comply with all federal laws on historic preservation.

4.2.3 Mitigating Measures

- **City Plan, Options, or Muckleshoot Plan**

As part of its compliance efforts under Section 106 of the National Historic Preservation Act (16 U.S.C. 470), the Navy is developing a Programmatic Agreement with SHPO and the Advisory Council on Historic Preservation. This will establish a process for property conveyance to preserve the historic district and its contributing elements.

Local Native American groups have raised particular concerns that archaeological resources may be present at Naval Station Sand Point, even though none are presently known. Due to potential archaeological remains in subsurface areas, it is recommended that all subsurface excavation be monitored consistent with guidelines for archaeological resources specified in the HARP plan for Naval Station Sand Point. Therefore, the reuser should have subsurface construction activities at the site monitored by a professional archaeologist to ensure that any archaeological remains are identified and evaluated. This monitoring would apply to excavation in undisturbed areas or areas

where depth of construction would penetrate below a previously disturbed surface. If substantial areas of subsurface activities are proposed, the reuser may choose to conduct additional archaeological studies to identify areas with a higher probability of cultural resources, then to limit construction monitoring to those high probability areas. Due to the requirements specified in the HARP plan, no further mitigating measures are required under the City Plan, the options, or the Muckleshoot Plan.

- **No Action Alternative**

Under the no-action alternative, existing buildings will be maintained as specified in the HARP plan for Naval Station Sand Point. No mitigating measures are required.

4.2.4 Unavoidable Adverse Impacts

None.

4.3 SOCIOECONOMICS

This section contains an analysis of the socioeconomic impacts associated with the three reuse plans and the No-action Alternative. This socioeconomic analysis includes demographics (population, age structure, race, and household and family structure), housing (housing units, household size, housing costs, assisted housing, and homelessness), economy (employment, income, and property values), social services (on base and in the area), and schools. In addition, this section contains discussion of potential impacts on socioeconomics and potential mitigating measures.

4.3.1 Affected Environment

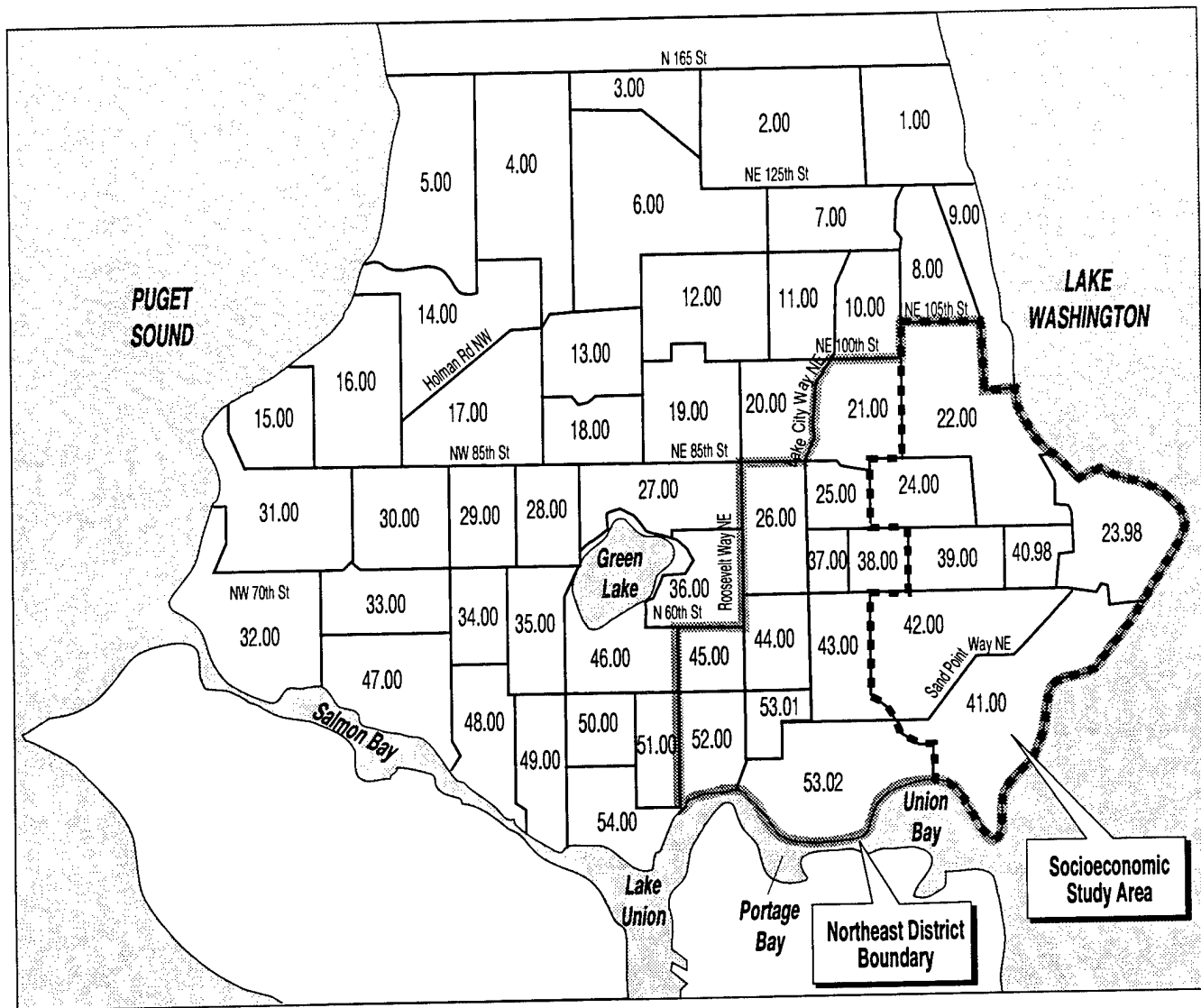
This section describes the regional socioeconomic setting related to Naval Station Sand Point when the base was occupied. Census data were obtained from the 1990 census; Muckleshoot Tribe data were obtained from the Tribe and 1990 census data. All of Naval Station Sand Point lies in Census Tract 23.98, as described by the 1990 census. Figure 4-7 shows the census tract map for north Seattle, including Naval Station Sand Point. The socioeconomic study area for this section includes Census Tracts 22, 23.98, 24, 39, 40.98, 41, and 42. These census tracts constitute the neighborhood around Naval Station Sand Point (hereinafter referred to as the "socioeconomic study area").

• Demographics

Population. In 1990, the population of the City was 516,259 people, 34.3 percent of King County's 1990 population of 1,507,319. The City's share of the county population has declined over the past 30 years because of more rapid growth outside the city limits. Population in the socioeconomic study area was 27,303 in 1990 (5.3 percent of the city). The 1990 census indicates that 179 persons lived in Census Tract 23.98. The City projects a population increase of 4.5 percent in the northeast district (which includes the socioeconomic study area and other census tracts shown on Figure 4-7) between 1990 and 2010 (compared to citywide growth of 5 percent).

Age Structure. The largest demographic group in the socioeconomic study area is between ages 25 and 44 (9,570 persons, or 35 percent of the socioeconomic study area population). Citywide, this age group represents 40 percent of the population. In Census Tract 23.98, this age group represents 38.5 percent of the population. Citywide, young people (under 5 to 15 years) and those in midlife (45 to 64 years) are less likely to live in Seattle than people in other age groups (City Planning 1992a). Table 4-12 shows the population breakdown by age in the three geographic areas.

Race. Census Tract 23.98 has a higher percentage of minorities (27.9 percent) than the socioeconomic study area (10.6 percent) and the City as a whole (24.7 percent). Seattle has become increasingly diverse over the past several decades. Between 1980 and 1990,



Note: 38.00 - Census Tract Number

----- Socioeconomic Study Area Boundary
 _____ Northeast District Boundary

Source: City of Seattle Planning Department, April 8, 1990

Figure 4-7
City of Seattle 1990 Census Tracts

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Table 4-12
Population Comparison by Age Group and Area

Age	Census Tract 23.98		Socioeconomic Study Area		Citywide	
	Population	Percent	Population	Percent	Population	Percent
Under 5	0	—	1,786	6.5	29,269	5.7
5-15	2	1.1	2,946	10.8	47,701	9.2
16-24	94	52.5	2,334	8.5	70,203	13.6
25-34	46	25.7	4,729	17.3	112,098	21.7
35-44	23	12.8	4,841	17.7	93,285	18.1
45-64	11	6.1	5,583	20.4	85,303	16.5
65-84	3	1.7	4,631	17.0	69,129	13.4
85+	0	—	453	1.7	9,271	1.8
Totals	179	100	27,303	100	516,259	100

Sources: City Planning 1992a, 1993e; Puget Sound Council of Governments 1991

the white population declined by almost 2 percent, and the nonwhite population increased more than 23 percent. Census Tract 23.98 had a higher percentage of minority population than any other Census Tract in the socioeconomic study area. This higher minority percentage most likely reflects the proportion of minorities serving in military operations at Naval Station Sand Point. Native American population in the study area, according to the 1990 census, is 208 people. Table 4-13 shows the breakdown of population by race.

Table 4-13
Population Comparison by Race and Area

Race	Census Tract 23.98		Socioeconomic Study Area		Citywide	
	Population	Percent	Population	Percent	Population	Percent
White	129	72.1	24,422	89.4	388,858	75.3
African-American	36	20.1	389	1.4	51,948	10.1
American Indian, Eskimo, or Aleut	3	1.7	219	0.8	7,326	1.4
Asian or Pacific Island	7	3.9	2,105	7.7	60,819	11.8
Other race	4	2.2	168	0.6	7,308	1.4
Totals	179	100	27,303	100	516,259	100

Sources: City Planning 1992a, 1993e; Puget Sound Council of Governments 1991

Household and Family Structure. Compared with the City as a whole, households in the socioeconomic study area have more married-couple families (56.3 percent compared to 36.6 percent), fewer single-person households (27.1 percent compared to 39.8 percent), fewer single-parent households (9.3 percent compared to 11.4 percent), and a smaller proportion of households composed of a group of unrelated persons (34.4 percent compared to 51.9 percent). Persons living in group quarters are not considered households in the census. When the Navy occupied the base, Census Tract 23.98 contained 164 persons, living in group quarters. Table 4-14 shows household sizes and types.

Table 4-14
Household Size and Type: Comparison by Area

Household Type ^a	Census Tract 23.98		Socioeconomic Study Area		Citywide	
	Households	Percent	Households	Percent	Households	Percent
One person	0	C	3,203	27.1	94,139	39.8
Two or more persons	5	100	8,595	72.9	142,769	60.2
Married couple	5	100	6,640	56.3	86,719	36.6
Male householder	0	C	241	2.0	6,684	2.8
Female householder	0	C	857	7.3	20,453	8.6
Nonfamily households	0	C	4,060	34.4	123,052	51.9

^aExcludes persons living in group quarters

Sources: City Planning 1992a, 1993e; Puget Sound Council of Governments 1991

Two-thirds of homeless family households served by Seattle shelters are single women with children. Two-parent homeless households average 2.2 children, whereas single-parent households average 2.0 children (City of Seattle Department of Housing and Human Services 1993).

• Housing

On-base housing consisted of five officer houses and 277 rooms in barracks. The barracks contained more than 500 beds.

Census Tract 23.98 data are excluded from the following analysis because most of the people living in Census Tract 23.98 were in group quarters (164 of 179). Comparing housing data in this census tract with citywide or district data would not be particularly meaningful.

Housing Unit Types. Housing units in the socioeconomic study area are more likely to be owner occupied than the city average (74.2 percent in the Sand Point area versus 46.5 percent citywide) and more likely to be single-family structures (78.4 percent versus 53.1 percent citywide). Table 4-15 shows housing units by type. Vacancy rates in the socioeconomic study area tend to be lower than citywide rates (Table 4-16).

Table 4-15
Housing Unit Type: Comparison by Area

Unit Type	Socioeconomic Study Area		Citywide	
	No. of Units	Percent	No. of Units	Percent ^a
Single-family	9,375	77.9	132,330	53.1
Multifamily	2,547	21.2	113,146	45.4
Other	112	0.9	3,556	1.4
Totals	12,034	100	249,032	100

^aPercents are rounded to nearest 0.1 percent.

Sources: City Planning 1992a, 1993e; Puget Sound Council of Governments 1991

Table 4-16
Housing Unit Vacancy by Type and Area

Unit Type	Socioeconomic Study Area		Citywide	
	No. of Units	Percent ^a	No. of Vacant Units	Percent ^a
Single-family	161	1.7	4,288	3.2
Multifamily	124	4.9	7,798	6.9
Other	6	0.5	244	6.9

^aPercent of all units of same housing type

Sources: City Planning 1992a, 1993e; Puget Sound Council of Governments 1991

From 1990 to 2010, the City projects an increase of 11 percent in the number of households and housing units in the northeast part. For the socioeconomic study area, an 11 percent increase in housing units translates to a net increase of 1,324 units, or an average of 66 units per year.

Household Size. Households in the socioeconomic study area tend to be slightly larger than those citywide—2.3 persons per household compared to 2.1. Table 4-17 breaks down the number of persons per unit.

Table 4-17
Comparison of Average Number of Persons per
Occupied Housing Unit by Type and Area

Number of Housing Units per Residential Structure	Average Number of Persons per Unit	
	Socioeconomic Study Area	Citywide
Single-family (all)	2.45	2.49
Multifamily (all)	1.86	1.61
2 units	2.25	2.18
3-4 units	2.26	1.93
5-9 units	1.72	1.66
10-19 units	1.67	1.59
20-49 units	1.55	1.46
50+ units	1.45	1.31

Sources: City Planning 1992a, 1993e; Puget Sound Council of Governments 1991

Housing Costs. In the socioeconomic study area, median rent in 1990 was \$548 per month, and median 1989 household income was \$44,630. Citywide, median 1990 rent was \$425 per month, and median 1989 household income was \$29,353.

Assisted Housing. Assisted housing includes housing units owned and operated by the Seattle Housing Authority, units owned by for-profit and nonprofit organizations that receive a federal subsidy, units subsidized by the Washington State Housing Finance Commission, and other units subsidized by the City. Citywide, approximately 7 percent of all housing units are assisted housing. There are 95 assisted housing units in the Sand Point area; this is less than 1 percent of all housing units in the area.

Homelessness. As of January 1993, the City estimated that there are 3,918 to 4,288 homeless persons per night in Seattle. Table 4-18 indicates the estimated status of homeless persons in Seattle. Statistically, families with small children are the fastest growing segment of homeless populations, representing 40 percent of the homeless.

Table 4-18
Status of Homeless Population of Seattle

Population Characteristic	Population (persons)
Persons in the city's shelters and transitional housing	2,650
Persons in the County Alcohol Detoxification Center or at Harborview Medical Center	50
Persons sleeping on streets in downtown, lower Queen Anne, and First Hill (as established by the annual street count conducted by the City and human services agencies each November)	538
Urban campers sleeping in parks, greenbelts, and public rights of way in other neighborhoods	300-500
Runaways and street youth	350-500
Family members living in cars and buses	30-50
Total	3,918-4,288

- Economy**

Employment. Employment at Naval Station Sand Point decreased from 1989 to 1995. In 1991, employment was approximately 1,240, not including reservists. In 1993, employment was approximately 960, again not including reservists.

Of the 162 males age 16 or over living in Census Tract 23.98 in 1990, 70.4 percent were in the military; the remaining 29.6 percent were not in the labor force. Of the 13 females age 16 or over living in Census Tract 23.98, 53.8 percent were in the military; the other 46.2 percent were not in the labor force. No persons living in Census Tract 23.98 in 1990 reported working in the civilian labor force. In the socioeconomic study area, the unemployment rate was 2.8 percent; citywide unemployment was 4.9 percent. Table 4-19 shows employment by industry in Seattle. The socioeconomic study area had a higher proportion of jobs in the government, finance, insurance, real estate, and services sectors than citywide (67.1 percent compared to 53.6 percent).

Although outside the study area, the Muckleshoot Reservation is discussed here because a major goal of the Muckleshoot Plan is to improve the Tribe's economic standing. The Muckleshoot Reservation is classified by the Department of Community Development as an economically disadvantaged community. The current male unemployment rate of just under 60 percent is nearly 10 times the unemployment rate of the nation. The rate of unemployment among women is estimated at just under 50 percent. Head-of-household employment shows 13.3 percent employed at the Tribe's bingo hall, 12.4 percent in fishing, and 9.7 percent within the tribal government.

Table 4-19
Employment Comparison by Industry and Area

Industry	Socioeconomic Study Area		Citywide	
	Employed Persons	Percent*	Employed Persons	Percent*
Agriculture, forestry, and fisheries	185	1.3	3,838	1.4
Mining	0	0.0	174	0.0
Construction	432	3.0	12,023	4.2
Manufacturing				
Nondurable goods	397	2.8	12,664	4.5
Durable goods	997	7.0	24,997	8.8
Transportation	344	2.4	13,896	4.9
Communications and other public utilities	276	1.9	7,002	2.5
Wholesale trade	639	4.4	11,743	4.1
Retail trade	1,438	10.0	45,891	16.1
Finance, insurance, and real estate	1,557	10.9	24,357	8.6
Services				
Business and repair services	537	3.7	16,783	5.9
Personal services	273	1.9	9,007	3.2
Entertainment and recreation	276	1.9	6,019	2.1
Professional and related services				
Health services	1,950	13.6	27,536	9.7
Educational services	2,355	16.4	25,775	9.1
Other professional and related services	2,124	14.8	31,442	11.1
Public administration	564	3.9	11,013	3.9
Total	14,344	100	284,160	100

*Percentage is rounded to nearest 0.1 percent

Source: City Planning 1992a

Personal Income. Median household income in Census Tract 23.98 exceeded that of the socioeconomic study area, Seattle, and King County, but per capita income was lower than elsewhere. Median family income was intermediate (Table 4-20). In Census Tract 23.98, income is generated exclusively from military activity and no individuals have an income below the poverty level.

In Seattle, over half of the homeless have no income when they enter a shelter. The primary income option for the homeless is public assistance (City of Seattle Department of Housing and Human Services 1993).

Table 4-20
Personal Income and Poverty Comparison by Area

Type of Income	Census Tract 23.98 (\$)	Socioeconomic Study Area (\$)	Citywide (\$)	King County (\$)
Median household income	48,750	44,630	29,353	36,179
Median family income	48,750	55,010	39,860	44,555
Per capita income	14,997	26,846	18,308	18,587
Percent below poverty level	0%	7.1%	12.4%	8.0%

Sources: City Planning 1992a, 1993e; Puget Sound Council of Governments 1992a

The median annual income of reservation households is \$6,552, 20 percent of the median household income from the Seattle-Everett area. Of employed tribal members, 53.6 percent earn less than \$7,999 per year, and over 50 percent are employed in seasonal activities or by the Tribe. Nearly 40 percent of heads-of-household reported that their principal source of income is unemployment insurance, public assistance, social security, and other social services.

Property Values. In response to neighborhood concerns expressed during the EIS scoping period, the Navy hired a consultant to evaluate the impact of the reuse plans on property values. The consultant's technical report can be found in Appendix G. Based on an analysis of 150 home sales, the study found that homes fronting on Sand Point Way N.E. sold for 2 to 3 percent less than other neighborhood homes. These homes took longer to sell because they are on an arterial, and the owners reduced the prices in order to sell. The impact of the alternative plans on property values is discussed in Section 4.3.2, and mitigating measures are suggested in Section 4.3.3.

• Social Services

On-Base Services. A family center, an education services office, medical and dental facilities, and a chapel were formerly on Naval Station Puget Sound to serve military personnel. Naval Station Everett eventually will provide these services.

Homeless Shelters. More than 30 shelters and transitional housing programs provide up to 1,800 beds on any given night in the City. In the past 3 to 4 years, transitional housing in Seattle/King County has expanded. Of the 1,800 beds, approximately 450 are available to homeless persons for transitional housing (City of Seattle Department of Housing and Human Services 1993). The objective of transitional housing is to bridge the gap between emergency shelter and independent housing. In addition to

accommodations, transitional housing provides services such as employment assistance, income access, outreach and treatment, and case management.

According to Seattle's Comprehensive Housing Affordability Strategy, housing costs too much for certain very low income households: "Households at 30 percent of median income cannot afford average rent levels in any neighborhood. Persons living on public assistance must find subsidized housing or pay a very high percent of their income for rent" (City of Seattle Department of Housing and Human Services 1993).

Unemployment Counseling and Job Training. Of the employment and job training agencies located in Seattle, two are close to Naval Station Sand Point—the Washington State Job Service Center, 12550 Aurora Ave. N, and the Family Independence Program/JOBS, 11536 Lake City Way NE.

Childcare. In Seattle, an estimated 24,000 children need care, but only 12,500 are served by the 650 licensed childcare facilities. In zip code areas 98105, 98115, and 98103 (the three closest to Naval Station Sand Point), 117 licensed childcare facilities have the capacity to serve up to 3,027 children. Therapeutic child care targeted to homeless children is also needed. There are approximately 2,400 homeless children in the City.

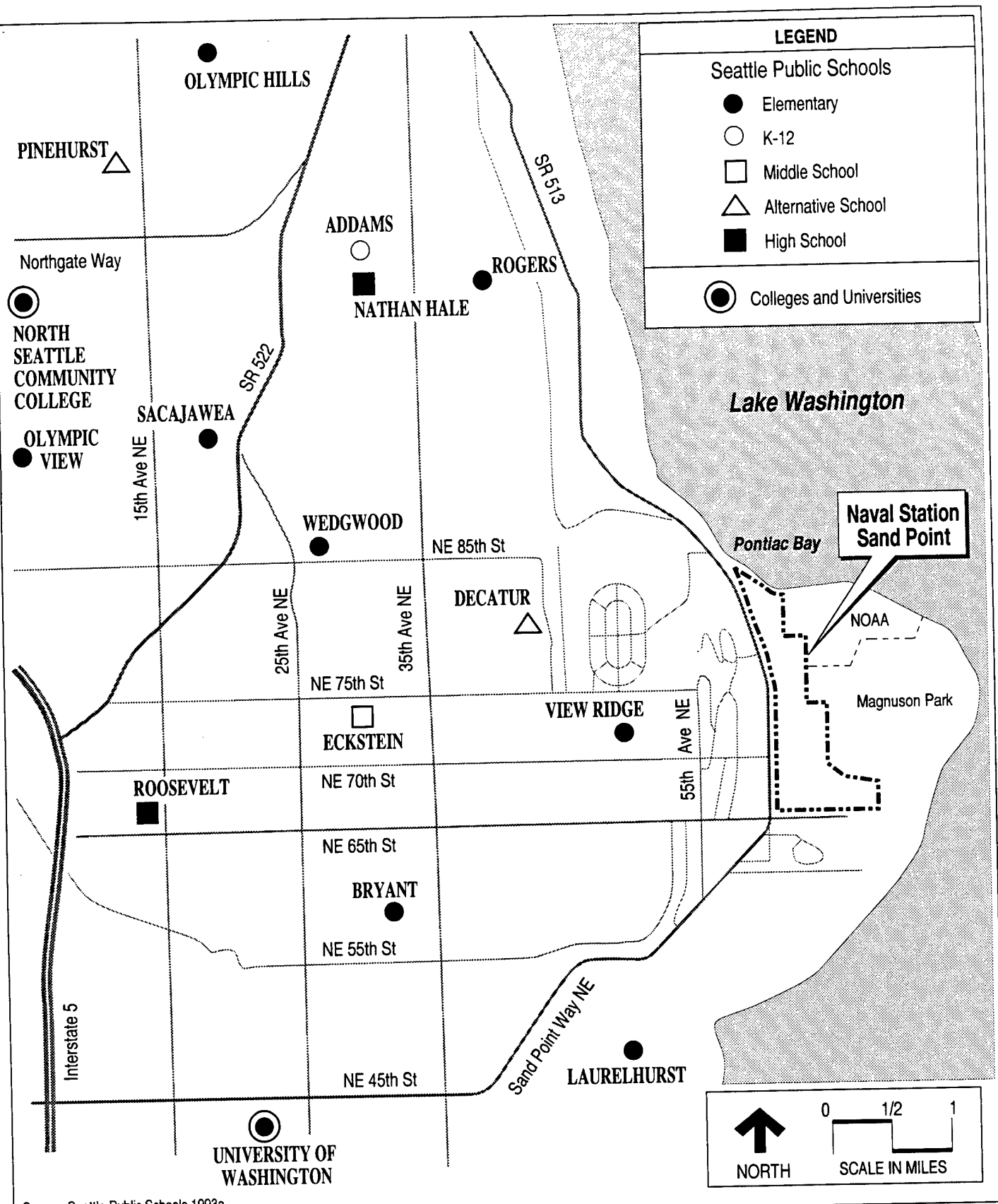
State Department of Social and Health Services. The Department of Social and Health Services office closest to Naval Station Sand Point is located at N.E. 115th Street and Lake City Way N.E.

The Muckleshoot Alcohol and Drug Treatment Program. The program has a current caseload of 95 active clients participating in out-patient treatment. This constitutes a caseload increase of 60 percent since the winter of 1991. Approximately 15 to 20 referrals are made to in-patient treatment centers each year (Muckleshoot Indian Tribe 1993).

• Schools

Seattle School District. The Seattle School District has 61 elementary schools, 10 middle schools, 10 high schools, and 16 alternative schools and programs. The District also has 46 all-day kindergartens, 13 parent-funded extended-day kindergartens in 13 other schools, and 40 privately operated childcare centers in Seattle schools. Eight elementary schools, one middle school, two high schools, and two alternative schools are located near Naval Station Sand Point, as shown in Figure 4-8. Sand Point Elementary School, one of the eight shown, is closed.

Current 1995 city-wide enrollment is 46,109 students. The District forecasts growth of approximately 10 percent over the next 5 years (Appendix F).



North Seattle Community College. North Seattle Community College (NSCC) is a 2-year college with a current enrollment of 8,100 full-time equivalents (FTEs) (Figure 4-8). NSCC, located at 9600 College Way N. in the Northgate area, had leased the Sand Point Elementary School from the Seattle School District for approximately 3 years when the lease was canceled in December 1993. NSCC provided approximately 70 classes at the leased facility during a typical quarter, enrolling more than 1,000 students (80 percent of the NSCC continuing education program). Programs included seniors, business and nonprofit training, parenting of infants, and job readiness. The last program listed was offered through women's studies in cooperation with the NSCC continuing education program.

University of Washington. About 3 miles (5 km) southwest of Naval Station Sand Point lies the University of Washington, the largest university in the state (Figure 4-8). Projected enrollment in average annual FTEs is shown in Table 4-21.

Table 4-21
1995-2000 University of Washington Projected Enrollment

Academic Year	Number of Students
1995-1996	30,302
1996-1997	30,847
1997-1998	30,821
1998-1999	31,944
1999-2000	32,263

4.3.2 Direct and Indirect Environmental Impacts

• Demographics

City Plan. The City Plan provides up to 250 units of housing for approximately 500 homeless people and 60 to 80 units of student family housing for approximately 165 people (City Planning 1993a). Subtracting 179 base residents (1990 census) results in a net population increase of nearly 500 residents. Thus, the population in the socioeconomic study area (Figure 4-7) will increase by less than 2 percent.

The Seattle-King County Coalition for the Homeless projects that the population to be housed under the City Plan will consist of the following households: two-parent families, 10 percent; women with children, 46 percent; men with children, 1 percent; single women, 14 percent; single men, 28 percent; and minor alone, 2 percent (does not add to 100 percent due to rounding) (Seattle-King County Coalition for the Homeless 1993).

Because approximately 60 percent of the current homeless shelter users in the city are minorities, this group will probably constitute 60 percent of those housed under the City Plan (300 of the homeless people). The proportion of minorities in student family housing is unknown. Subtracting the 50 minority residents who moved from the base after closure would result in a net increase of 250 minorities. Thus, the current (1990 census) minority population of 10.6 percent in the socioeconomic study area would increase to approximately 11.5 percent, which is still less than the 24.7 percent minority population of the City.

Options to the City Plan. The demographics of homeless people proposed to be housed at Naval Station Sand Point would not change under the options to the City Plan. But the options would add an additional 200 people housed at Naval Station Sand Point in Building 9, which would be converted to community college dormitories. As explained above, the net population increase for the City Plan is approximately 500 people (the City Plan proposed housing would hold 665 people, but there were 179 residents in Census Tract 23.98, according to the 1990 Census). The net population increase for the options to the City Plan is approximately 700 residents (less than a 3 percent increase in the population of the study area).

Because the options to the City Plan provides additional student housing, it is expected that the population will be somewhat younger than is currently found in the Sand Point area (see Table 4-12). Other changes in demographics, such as changes in racial distribution, are expected to be the same as those described above for the City Plan, that is, only a slight (approximately 1 percent) increase in minority residents would be expected in the Sand Point area.

Because the difference in population under the City Plan and the options to the City Plan would be so slight (200 people), no significant impacts on demographics are expected.

Muckleshoot Plan. The plan proposes that Building 9 house 623 students and that Building 26 house staff. Assuming full residency (one person per room), Building 26 will house a maximum of 35 persons. Subtracting 179 base residents (1990 census) results in a net population increase of 479 residents. Like the City Plan, this would result in an increase in the overall socioeconomic study area population by approximately 2 percent. Assuming all new residents are Native Americans, the net increase of 655 Native American residents will increase the Native American population in the socioeconomic study area from 208 to 863, more than quadrupling the current Native American population in the area and increasing diversification in the city and in the area.

Student populations may also live off campus in the socioeconomic study area. The effect of off-campus living is not quantifiable because no data are available. It is reasonable to assume that some students will choose to live in the socioeconomic study

area rather than commute from the Muckleshoot Reservation in Auburn or from other areas.

Employment opportunities under the Muckleshoot Plan may encourage individuals to move off the Reservation and to the socioeconomic study area. The employment projection in the Tribe's plan is approximately 1,980 jobs, with an initial goal of 20 percent of the jobs filled by Native Americans and a long-term goal of 100 percent filled by Native Americans. This constitutes a 13.8 percent increase in employed persons in the socioeconomic study area. The resulting effect of these new jobs on population in the socioeconomic study area is not quantifiable because it is difficult to accurately predict how many employees will move to the socioeconomic study area from the Reservation or from other areas.

No-action Alternative. The socioeconomic study area population would decrease by the number of military personnel living at Naval Station Sand Point in 1990 (179 individuals), a 0.6 percent decrease.

• Housing

Base residents have moved to other bases or to civilian housing. Significant impacts of all alternatives on areas off the site are not expected because of the small number of people and units (five officer houses and less than 500 beds in barracks).

City Plan. The City Plan will provide up to 250 units of housing for homeless and low-income (up to 80 percent of median household income) persons and families and 60 to 80 units of University of Washington student family housing (City Planning 1993a).

Currently, less than 1 percent of the housing units in the socioeconomic study area are assisted housing. Under the City Plan, the percentage of assisted housing in the area would increase to 2 percent. The City Plan will also approximately double the capacity of transitional housing for homeless people in Seattle.

The City Plan will also provide housing for 24 homeless youth and 6 teen mothers and their infants. It is estimated that 500 to 800 youth live on the streets of Seattle (City of Seattle Department of Housing and Human Services 1993). This housing would benefit teen parents and runaway or street youths.

Options to the City Plan. In addition to the impacts described for the City Plan, the City Plan options would provide a possible additional 200 beds for dormitory housing of North Seattle Community College students. This would benefit students, since they would be able to live on campus. Because of the on-campus housing, increased use of Naval Station Sand Point by North Seattle Community College would not cause adverse impacts to off-site housing.

Muckleshoot Plan. The Muckleshoot Plan provides housing for 623 students in group housing and 35 rooms for staff housing. Student housing would continue the current residential use of Building 9. Providing student housing may benefit students who would otherwise be unable to attend the Native American technical institution.

According to the 1990 census, the overall vacancy rate in the socioeconomic study area was 2.4 percent (291 units), which is lower than the city average. The Muckleshoot Plan projects 5,000 to 7,000 students and 1,980 jobs at Naval Station Sand Point. This is likely to cause some housing pressure in the socioeconomic study area. This housing pressure may take the form of a housing shortage in the socioeconomic study area and possibly the University District, more development applications to build additional multi-family housing (although only a small amount of vacant land is zoned for multi-family in the area), and/or increased rents and higher housing prices.

No-action Alternative. No potential user groups will use the housing at the Naval Station Sand Point.

- **Economy**

The approximately 960 jobs at Naval Station Sand Point before base closure were transferred to Naval Station Everett and other Navy facilities; therefore, the current employment level in the region did not change. No significant impacts are expected on the regional economy because there was no net loss of jobs. The property value study (Appendix G) showed how reuse plans could affect property values in the area surrounding Naval Station Sand Point. The study contained the results of other related studies and analyzed matched pairs—the difference in property values between different pairs of properties (e.g., one property located near subsidized housing and the other property located away from that land use).

City Plan. The educational and community programs and the film studio would provide some new employment opportunities. The Seattle Conservation Corps, a City-operated program, is proposed to locate at Naval Station Sand Point. Under this program, the corps would hire, train, and employ homeless people for construction-related jobs. At Naval Station Sand Point, this work could entail demolition and construction activities and sports field renovation. The plan does not provide specific information on the type or number of jobs that may be created, but most are expected to be relocated to Naval Station Sand Point from other areas of Seattle (Friedli 1996c). Therefore, the impact on jobs is not considered significant.

The property value study found that homeless housing can be absorbed into neighborhoods with minimal impact to property values. Property values would not be expected to change unless more than 5 percent of the housing stock was involved (see Appendix G). Currently, 1 percent of the housing units in the socioeconomic study area

are assisted units. Assuming that all of the City's proposed 250 housing units are assisted, the proportion of assisted housing in the overall, socioeconomic study area would increase to only 2 percent, well within the range of absorption without lowering property values. However, depending on proximity to the homeless housing development, property values could drop 2 to 6 percent, based more on the housing design (for example, multiple units versus urban cottages) than on the incremental number of family members intending to occupy the units.

According to the City Office of Management and Planning, there have been no designs for new housing, except for concepts to assist in the discussion of density. "Any design for new housing will be decided upon after careful consideration for need, appropriateness, and the desires of the surrounding community, not to mention specific environmental review" (Friedli 1996b).

The property value study showed that traffic generated by the City Plan would have little or no effect on property values.

Options to the City Plan. In general, the economic impacts are similar to those described above for the City Plan. The increased use of Naval Station Sand Point by North Seattle Community College would be expected to have little impact on property values. The City Plan options propose 110 units of new construction not proposed in the City Plan. Provided that the design does not obscure views and is in character with the neighborhood, property values would not be affected significantly.

The options also propose temporary use of Building 9 by Ballard High School during the school years of 1997-1998 and 1998-1999. Schools can affect property values since they can be perceived as nuisances due to possible increased noise, litter, and traffic. However, any possible impact would only affect houses on the market when the high school is in operation. Because any effect would be temporary, it is difficult to quantify. Busing students to the site should mitigate any significant impacts.

Muckleshoot Plan. Along with educational opportunities, job creation is the primary focus of the Muckleshoot Plan. According to the Tribe's plan, approximately 1,980 jobs would be created. The Tribe estimates that approximately 20 percent of the jobs will initially go to Native Americans. The long-term goal of the plan is to provide education through on-the-job training and the Native American school so that Native Americans will eventually fill all positions. Increased access to training and employment will have a positive effect on the Tribe. As stated in the Tribe's plan, this access will help the Tribe achieve its goal of creating employment opportunities and increasing employment in nonsubsidized and private sector positions. Providing education and training should result in better jobs, higher wages, and a better quality of life for tribal members who are seasonally employed and unemployed. Improving the economy of the Tribe will also

reduce the Tribe's dependence on funding from the federal government and from public assistance.

Based on matched pairs analysis, the property value study (Appendix G) indicated that the proposed Native American College would have little impact on adjoining property values. However, the study estimates that the increased traffic generated by the Tribe's plan would reduce property values from 3 to 6 percent, depending on distance from the arterial. Because of inadequate buffering, the study concluded that the Tribe's fishing boats would reduce property values of waterfront homes north of the proposed marina. This reduction would be 7 to 10 percent for a home contiguous to the marina. North of the marina, the property value impact would lessen as the distance from the marina increased, all the way to Matthews Beach.

In conclusion, the Muckleshoot Plan would have a positive impact on job creation. Without mitigation, the significant adverse impact on the economy would be reduction in property values, resulting from increased traffic on Sand Point Way NE and from commercial fishing activity.

No-Action Alternative. The No-action Alternative will not significantly affect the regional or local economy.

• Social Services

Formerly on-base social services for current and retired military members were transferred to Naval Station Everett. Moving the services from Seattle will affect the individuals currently using these services by increasing travel time or requiring them to seek alternatives. This impact is a result of all alternatives, but would not be significant.

City Plan. The City Plan will provide social services to the public and the homeless. Services proposed include child care, health services, employment counseling and placement, case management, a senior center, and a community center. Because the City Plan would expand existing services, it is expected to increase the availability of assistance programs and help meet increasing needs.

One of the potential components of the City Plan in Area 2 (Education and Community Activities) (Figure 2-1a) is inclusion of childcare facilities. This will help children needing child care and will increase the number of licensed facilities in the socioeconomic study area.

Therefore, no significant adverse social service impacts will result from the City Plan.

Options to the City Plan. The options to the City Plan includes a senior/community center in Building 406, identified in the City Plan for possible use as either a regional

branch of the Washington State Archives or a community facility. Also under the options, some of the buildings proposed for social services in the City Plan would be used for other things: Building 9, which was to include services for the homeless, would be used for education; Buildings 25 and 29, which were to be used for education, community service, or health uses, would be used for administrative office space. The City has not indicated that it would provide any fewer social services than already proposed in its plan, if the options were implemented. Therefore, the options are assumed to change the buildings in which social services would be located, but not significantly impact social services provided at Naval Station Sand Point.

Muckleshoot Plan. Social services provided by the Muckleshoot Plan include an alcohol and drug treatment program consisting of a prevention and outreach office, a pretreatment facility for individuals or families, and inpatient treatment facilities. The programs will focus on the cultural aspects of recovery and lifestyle. The college campus will accommodate the seniors' program, providing 24-hour health care, counseling, meals, recreation, and educational activities, together with intergenerational programs. The interim jail facility for Native Americans will be used for time-out periods in conjunction with the alcohol and drug treatment program and the counseling programs associated with the college campus. This analysis assumes that these programs will be in addition to, or expansions of, existing services, rather than merely a transfer from the Reservation to Naval Station Sand Point. Increased access to alcohol and drug treatment will assist the Tribe in reducing the number of tribal members with substance abuse problems. Providing integrated care and education can contribute to the long-term economic development of the Tribe and reduce the number of members dependent on public assistance.

One goal in the Tribe's plan is to reduce the incidence of fetal alcohol and drug addicted babies, thereby improving the chances for the long-term success of tribal families. The proposed facilities will also provide tribal members living off the Reservation with access to culturally sensitive programs designed for their needs.

Therefore, there will be no significant adverse social service impacts resulting from the Muckleshoot Plan.

No-action Alternative. There will be no significant social services impacts specific to the No-action Alternative.

- **Schools**

City Plan. Proposed educational programs for the Education and Community Activities Area (approximately 18 acres [7 hectares]) include primary, secondary, and vocational schools; North Seattle Community College classrooms; University of Washington support

services; a Northwest Montessori School campus; classes in the arts; and a training center for the Seattle Fire Department.

The City Plan provides housing for approximately 375 children, half of them of school age. These children are currently served by a variety of temporary housing facilities across the city and the Seattle School District, which transports these children from their temporary housing facility to their "home" school. Transportation and the home school program are designed to stabilize schooling for children whose lives are not stable. If bus transportation is not available for these children, then the District pays for taxi services to and from school. This program will continue under the City Plan, but the cost of transportation for the District will be reduced by decreasing the number of children transported by taxi and by providing scheduled bus service. By providing permanent housing, the City Plan will also increase stability for the children, which will, in turn, facilitate their education. Because the children are already enrolled in the Seattle School District, the plan should not change enrollment.

Therefore, there will be no significant adverse impacts on schools resulting from the City Plan.

Options to the City Plan. The options to the City Plan propose a larger presence for North Seattle Community College at Naval Station Sand Point. This change would have a positive impact on schools by expanding the space for educational uses and the educational opportunities in the Sand Point area.

The options also propose temporary use of Building 9 by Ballard High School for 2 years (1997-1998 and 1998-1999 school years). This option is not expected to have any adverse impacts on schools.

Muckleshoot Plan. The proposed Native American education campus constitutes one of the major components of the Tribe's plan, which proposes a technical institution for post-secondary education, including vocational and college credit programs. This analysis assumes that the campus will be available to members of other tribes. The Muckleshoot Plan will increase opportunities for Native Americans by increasing education levels and providing vocational skills. The goal is to increase the earning potential and financial status of families and, subsequently, the Tribe. The Native American campus will provide students with culturally sensitive programs that will enhance opportunities for higher education or vocational training. Although the effect is not quantifiable, providing further educational opportunities to 5,000 to 7,000 students should positively affect the long-term success of Native Americans.

Therefore, there will be no significant adverse impacts on schools resulting from the Muckleshoot Plan.

No-Action Alternative. There will be no significant impacts on schools under the No-action Alternative.

- **Environmental Justice**

The City Plan and its options will benefit low-income people and minorities by providing increased housing, social services, and educational opportunities. The Muckleshoot Plan will benefit low-income and Native American minorities by providing increased educational opportunities, including on-campus housing, jobs, and social services. The no-action alternative will have no impact on environmental justice.

4.3.3 Mitigating Measures

City Plan and Options to the City Plan. To avoid potential devaluation of properties within 300 feet (91 m) of the base, new housing construction proposed under the City Plan and options could be designed to preserve views and retain the character of the neighborhood. Ballard High School students could be bused to school. Both measures would mitigate possible impacts to property values.

Muckleshoot Plan. Mitigation to reduce property value impacts could include measures to reduce traffic congestion along Sand Point Way NE, for example, staggering college class starting times and busing students.

Measures could be taken to reduce the property value impact of the proposed marina. These measures might include reducing the number of boats, storing boats indoors rather than in sight of neighboring waterfront homes, and providing a buffer zone between houses and the marina.

Measures to reduce housing pressure in the socioeconomic study area could include providing more on- or off-campus housing for students and providing increased bus service for students to commute from other neighborhoods.

4.3.4 Unavoidable Adverse Impacts

With the above mitigation measures, some housing pressure in the study area may result from the Muckleshoot Plan due to the 5,000- to 7,000-student college. However, increased housing demand may also create economic benefits (i.e., rents and new housing construction). No other unavoidable adverse socioeconomic impacts are associated with the City Plan, options to the City Plan, the Muckleshoot Plan, or the No-action Alternative.

4.4 RECREATION

The recreation section describes existing recreational uses at Naval Station Sand Point and recreation and park facilities in the study area shown in Figures 4-3, 4-4, and 4-9. Magnuson Park, located next to Naval Station Sand Point, is described in more detail than other parks in the vicinity due to its proximity to the base. This section also discusses federal and City policies and standards and the local needs assessment concerning parks and open space. It also addresses environmental impacts related to recreation posed by the City Plan, Muckleshoot Plan, and No-action Alternative. Alternatives are evaluated based on requirements and standards presented in federal, City, and local documentation.

4.4.1 Affected Environment

The affected environment section describes existing recreational opportunities and available facilities located on and off base and federal and City policies and standards for parks and recreation, with particular reference to *Seattle's Park and Recreation COMPLAN* (City Parks 1993). Table 4-22 describes existing recreational facilities at Naval Station Sand Point and in neighborhood parks in the recreation study area. Existing recreational facilities near Naval Station Sand Point are shown on Figure 4-9.

• Existing Recreational Opportunities and Facilities On and Off Base

Recreation Opportunities in the City of Seattle. Seattle's park system is composed of approximately 4,811 acres (1,948 hectares), or about 8.9 percent of the city's land area (excluding submerged lands). The park system includes more than 1 million square feet (92,900 m²) of buildings, 224 parks, 130 playfields, 8 indoor and 1 outdoor (summer season only) swimming pools, 25 wading pools, studios, boat ramps, moorages, fishing piers, golf courses, camps, viewpoints and nature trails, an archery range, a tennis center, a mountain climbing site, a conservatory, a Japanese garden, a zoo, and an aquarium. The park facilities described in Table 4-22 are located on Naval Station Sand Point, in Magnuson Park, or near the base (also see Figure 4-9). Additional discussion on recreational facilities is included in Section 4.1 (land use). Table 4-5 lists frequency of use of recreational facilities on the base. No information is currently available on the number of people using city recreational facilities.

Recreational Facilities on and near Naval Station Sand Point. Recreational facilities on Naval Station Sand Point and within the adjacent neighborhoods are listed in Table 4-22, and their locations are shown in Figures 4-9 and 4-10. These facilities were unavailable to the general public when Naval Station Sand Point was open. The north shoreline recreational facilities, including the marina area, are composed of the following structures: Pier 1 (Building 321), with 17 uncovered moorage slips; a boathouse (Building 31), including five covered moorage slips; a floating boathouse (Building 402);

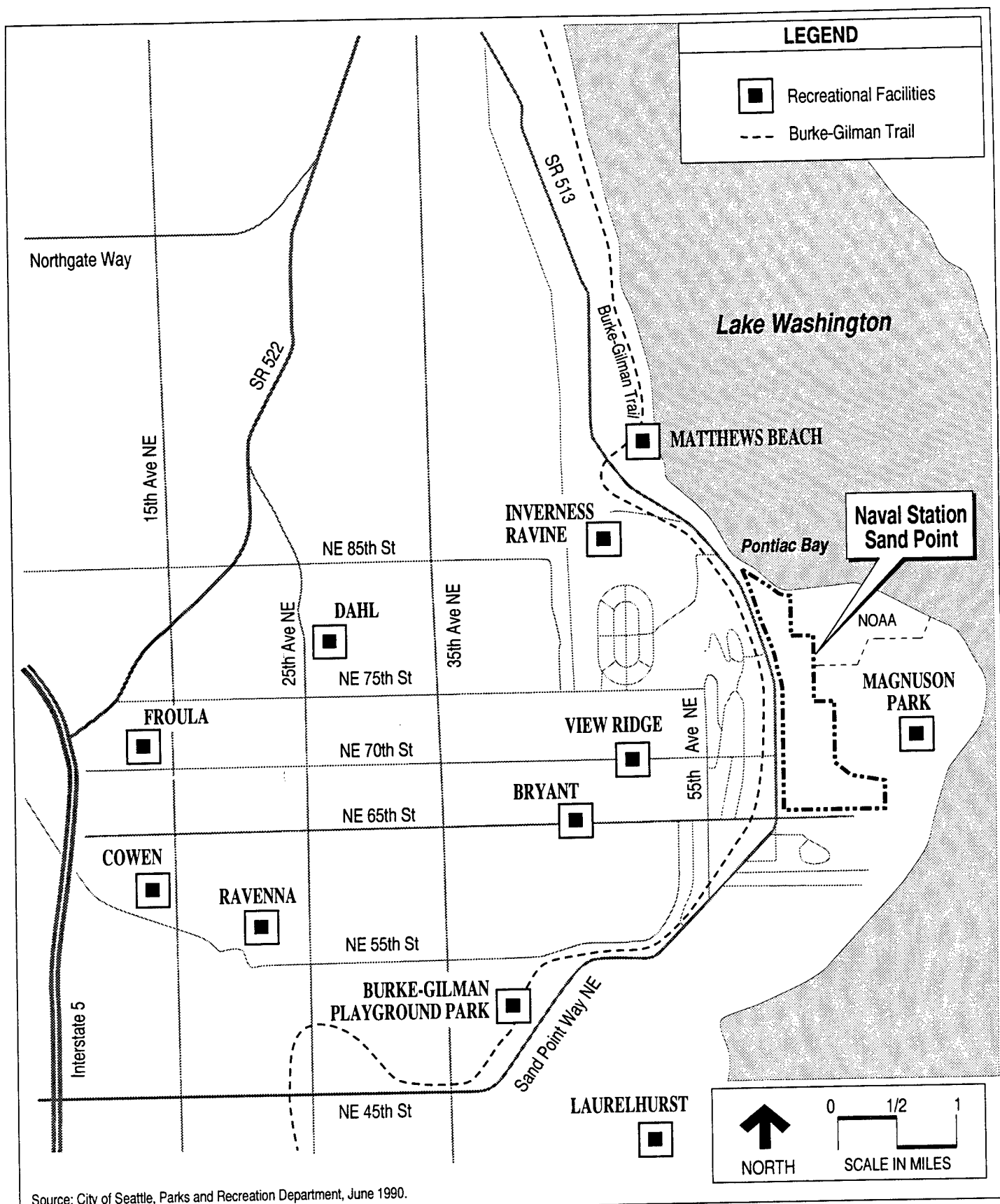


Figure 4-9
Recreational Facilities Near Naval Station Sand Point

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Table 4-22
Naval Station Sand Point and Neighborhood Parks and Recreational Facilities

Park/Area	Location	Facilities
Sand Point	Naval Station	See text (recreational facilities on or near Naval Station Sand Point)
Magnuson	Sand Point Way N.E. and N.E. 65th St.	See text (recreational facilities on or near Naval Station Sand Point)
Bryant	N.E. 65th Street and 45th Ave. N.E.	Two unlit tennis courts
Burke-Gilman Trail	Various locations	Walking and biking trails, picnic areas, play areas, and restrooms
Cowen	University Way N.E. and N.E. Ravenna	Play areas, picnic areas, and restrooms
Dahl	25th Ave. N.E. and N.E. 77th Street	One baseball and two softball fields, two soccer fields, and one lighted softball field
Froula Playground	N.E. 72nd St. and 12th Ave. N.E.	Two unlit tennis courts
Inverness Ravine	Inverness Dr. N.E. off N.E. 85th St.	Greenbelt area (2.9 acres/1.2 hectares)
Laurelhurst	N.E. 41st Street and 48th Ave. N.E.	One soccer field, two softball fields, and four lighted tennis courts
Matthews Beach	N.E. 93rd St. and Sand Point Way N.E.	Play areas, restrooms, beach access, and picnic areas
Ravenna	20th Ave. N.E. and N.E. 58th St.	Wading pool, one softball field, one soccer field, picnic areas, play areas, and restrooms
View Ridge	N.E. 70th St. and 45th Ave. N.E.	One baseball and two softball fields

Source: City Parks 1990



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a small craft boathouse (Building 275), and a recreational pavilion/picnic area (Building 410). The Sea Scouts used the marina area for training and drills. A portable pistol shooting range administered by the University of Washington is an extension of the main boathouse (Building 31). The range was used to train Navy Reserve Officer Training Candidates (NROTC) and is not regarded as a recreational facility. Other recreational facilities on the base include a bowling alley (Building 6), tennis courts, a theater and recreation center (Building 47), a gymnasium, and a craft/hobby shop. Magnuson Park (described in detail, below) is directly adjacent to Naval Station Sand Point.

Warren G. Magnuson Park. Magnuson Park was created in 1977 after the City received approximately 195 acres (79 hectares) of land, including approximately 1 mile (1.6 km) of waterfront, from the decommissioned Naval Reserve Air Station (now Naval Station Sand Point). The park adjoins Naval Station Sand Point (west), NOAA (north), and NBS facilities (south). Access to the park is through N.E. 65th St.

The Sand Point Park Citizens' Advisory Committee, now the Sand Point Community Liaison Committee, was established when the Navy land was transferred to the City for a park. This committee is committed to using the park for enhanced wildlife habitat and for passive and active recreation. It provides input to the City of Seattle Department of Parks and Recreation Department, the park administrator.

The original plan for Magnuson Park was prepared in 1975 as the Sand Point Park Master Plan (Jones and Jones 1975). The park was developed between 1976 and 1978 when swimming beach, boat launching, and sportsfield areas were built after old runway pavements were demolished. A draft master plan update was later prepared (Worthy and Associates 1988) before further improvements were made to the boat launching facilities and swimming beach. A summary of existing facilities is presented in Table 4-22 (Magnuson Park).

As part of reuse planning for Naval Station Sand Point in 1993, the City prepared a plan to expand Magnuson Park based largely on the previous park plans. This park expansion plan was adopted by the Seattle City Council in late 1993 as part of the City Plan (Appendix C).

• **Park and Recreation Guidelines**

The National Parks and Recreation Association (NPRA) has conducted nationwide studies to determine the "appropriate" number of parks and the amount of open space for a given population. NPRA recommends a range of 6.25 to 10.5 acres (2.53 to 4.25 hectares) of developed park land per 1,000 people.

- **City Policies and Standards**

Seattle is nationally recognized for its park system, diversity, and number of recreational facilities. In May 1993, the City adopted a functional plan to guide decisions on park and recreation issues. *Seattle's Park and Recreation COMPLAN* broadly addresses open space and park and recreation needs for 10 to 20 years (City Parks 1993).

The background report on public utilities for the *Comprehensive Plan Framework Policies, Community Services and Facilities* (City of Seattle 1990) acknowledges that the Lake Washington shoreline parks in Seattle are among those facilities that seriously need rehabilitation.

The COMPLAN's vision is to create a neighborhood-based park and recreation system for Seattle. The system will be connected by open space, boulevards, trails, public transportation, and "green" streets. The COMPLAN notes that northeast Seattle particularly needs public open space and that public access to shorelines is important.

The desirable COMPLAN guideline for neighborhood parks is 1/2 acre (0.2 hectare) within 1/2 mile (0.8 km) of households in single-family areas and 1/4 acre (0.1 hectare) within 1/4 mile (0.4 km) in multi-family areas. The COMPLAN's guidelines define acceptable breathing room open space (total dedicated open space regardless of access restrictions) as 1/3 acre (0.13 hectare) per 100 residents. Desirable breathing room is 1 acre (0.4 hectare) per 100 residents. An analysis of existing park land shows that the Northeast District, of which Naval Station Sand Point is a part, has 0.66 acre (or approximately 2/3 acre or 0.27 hectare) of total breathing room per 100 residents, which is between acceptable and desirable. Census Tract 23.98, which contains Naval Station Sand Point, NOAA, and Magnuson Park, includes most of the available open space. Twelve census tracts in the Northeast District have less than 1/3 acre (0.13 hectare) of open space per 100 residents: Census Tracts 21, 24, 26, 37, 38, 40, 41, 42, 45, 52, 53.01, and 53.02 (Figure 4-7). Census Tracts 40 and 41, which adjoin Sand Point, have 0.13 acre and 0.18 acre (0.05 to 0.07 hectare) of park per 100 residents, respectively.

The COMPLAN identifies Magnuson Park as an incomplete major park that needs a renovation plan or a master plan update. Major parks are defined as parks serving a citywide or regional population. The shoreline area between Pontiac Bay and Matthews Beach lacks public shoreline access. The City is now coordinating with the Sand Point Community Liaison Committee and other persons associated with the process to reuse Naval Station Sand Point to develop a plan update for Magnuson Park.

The following proposed improvements to Magnuson Park are outlined in the COMPLAN:

- Update of the Magnuson Park master plan

- Expansion of boat launching facilities
- Development of a sailing facility on Pontiac Bay
- Addition of a new fishing pier
- Conservation of natural areas
- Construction of a nature interpretive center, additional ballfields, indoor tennis courts, improved bicycle and pedestrian access, running facilities, and a children's play area

• View Ridge Neighborhood Needs Assessment

In 1993, the View Ridge Community Club, Inc., assessed the recreation and community facility needs, preferences, and priorities of people who live in the View Ridge neighborhood (roughly Census Tracts 39 and 40) near Naval Station Sand Point. This assessment was a response to reuse planning processes for Naval Station Sand Point. The View Ridge neighborhood recreation and community facility needs assessment included a mailed survey distributed to approximately 1,800 households in the View Ridge neighborhood. Much of the study area is not served by any existing community centers or public aquatic facilities. Survey respondents reported high recreational activity levels, relatively low levels of satisfaction with existing facilities and services, and strong support for new community and park facilities. This response indicates demand for recreation and other community services. Naval Station Sand Point was recommended as the best current opportunity to address community needs, as identified in the needs assessment report.

4.4.2 Direct and Indirect Environmental Impacts

This section discusses environmental impacts related to recreation created by the City Plan and options to the City Plan, the Muckleshoot Plan, and the No-action Alternative.

• Conformance With Parks and Recreation Guidelines

City Plan, Options, or the Muckleshoot Plan. Given Seattle's population of 516,259 (1990 census), between 3,227 and 5,421 acres (1,306 to 2,194 hectares) citywide would be considered appropriate by the NPRA. Park land controlled by the City of Seattle Parks and Recreation Department and within the Seattle city limits covers 4,811 acres (1,947 hectares). Of this total, approximately 86 percent (4,137 acres [or 1,674 hectares]) is considered developed. The remaining acreage is undeveloped or considered open space. Therefore, Seattle is within the range of park and open space acreage recommended at the national level. Future development under any of the proposed alternatives would not create an impact, based on NPRA guidelines.

- **Conformance With City Policies and Standards**

City Plan and Options. The City Plan allows for approximately 78 acres (32 hectares) of recreational space, open for general public use. The City Plan would increase the existing recreational area by 160 percent, from 30 acres (12 hectares) to approximately 78 acres (32 hectares).

Details on recreational uses proposed by the City Plan and possible impacts are discussed in Section 4.1.2. In general, the plan would increase overall recreational use in the area in the following ways:

- Acquisition of the existing Navy recreation center would improve public access to indoor and outdoor recreational facilities.
- The proposed tennis center would give people in the north end of Seattle tennis facilities, a need identified in the COMPLAN.
- The North Shore area would become a public park with public access to the Pontiac Bay shoreline. The plan would expand waterfront recreational opportunities, improve the connection with the Burke-Gilman Trail, and improve pedestrian and bicycle access to the shoreline.
- The proposed sailing center would offer the sailing community onshore storage for small, hand-launched boats and easy access to Lake Washington.

This proposed increase in recreational acreage will increase the amount of "breathing room" (as defined in the COMPLAN) in the Northeast Subarea from the current 0.66 acre (or approximately 2/3 acre or 0.27 hectare) per 100 residents to 0.76 acre (or approximately 3/4 acre or 0.3 hectare) per 100 residents. While still less than the desirable 1 acre (0.4 hectare) per 100 residents, providing this open space will reduce the shortage in the Northeast Subarea of the City.

No significant adverse impacts are expected from increased recreational use.

Muckleshoot Plan. The Muckleshoot Plan will increase overall recreational use of the area more than 130 percent, from 30 acres (12 hectares) to approximately 65 acres (26 hectares).

The proposed southern Parks and Recreation Area primarily contains commercial buildings, although the intervening open spaces could be used for unspecified outdoor recreational activities, or simply left as open space.

The proposed Recreational/Commercial Area will be open to the public for recreation, with minor restrictions during the fishing season. The Muckleshoot Plan contains no other details on how recreational and commercial marina uses could coexist. The marina area mainly would be used for boating. Proposed recreation activities in the North Shore area would improve public access to the waterfront, thus expanding shoreline recreational opportunities. In addition, facilities for holding and testing adult salmon would help fisheries research. Results of this fisheries research could have a positive impact on sport fishing.

The proposed increase in recreational acreage will expand the amount of "breathing room" in the Northeast Subarea from 0.66 acre (or approximately 2/3 acre or 0.27 hectare) to 0.73 acre (or approximately 3/4 acre or 0.3 hectare) per 100 residents. While less than the desirable 1 acre (0.4 hectare) per 100 residents, provision of open space will reduce the shortage in the northeast subarea, with minor restrictions during the fishing season.

No-Action Alternative. The No-action Alternative will not contribute to the City's recreation and open space. Recreational facilities and opportunities at Naval Station Sand Point would not be used. Bicycle and pedestrian access to the Burke-Gilman Trail and to Magnuson Park would remain unimproved, as would the entrance to Magnuson Park, one of Seattle's major urban parks. Of the three alternatives, this alternative provides the least benefit to recreation, parks, and open space under the City's policies and standards.

- **View Ridge Neighborhood Needs**

City Plan, Options, or the Muckleshoot Plan. As identified in the needs assessment report, the View Ridge neighborhood recommended Naval Station Sand Point as the best current opportunity to address community needs. The City Plan and the Muckleshoot Plan provide additional recreation opportunities, providing a benefit to the View Ridge community.

No Action Alternative. The No-action Alternative proposes no additional opportunities and does not match the needs outlined in the View Ridge Needs Assessment.

4.4.3 Mitigating Measures

City Plan, Options, or the Muckleshoot Plan. Implementation of either City Plan and options or the Muckleshoot Plan will increase the amount of open space available for public use in the Northeast District neighborhood. Therefore, mitigating measures are not required.

4.4 Recreation

No-Action Alternative. The No-action Alternative will have no adverse impacts on recreation; mitigating measures are not required.

4.4.4 Unavoidable Adverse Impacts

None.

4.5 TRANSPORTATION

This section describes existing transportation conditions in the area potentially affected by Naval Station Sand Point reuse. This section also discusses potential impacts on transportation and suggests measures to mitigate significant transportation-related impacts. It includes information from the *Traffic Impact Study for Sand Point Reuse Plans* (Appendix H). Appendix H should be reviewed for more detailed information on existing transportation infrastructure and expected traffic conditions resulting from the proposed reuse plans.

The transportation study area is bounded by N.E. 95th Street to the north, Sand Point Way N.E. to the east, N.E. 45th Street to the south, and 35th Ave. N.E. to the west (Figure 4-11). Eight major intersections were analyzed within the study area:

- N.E. 95th St./35th Avenue N.E.
- N.E. 95th St./Sand Point Way N.E.
- N.E. 65th St./35th Avenue N.E.
- N.E. 65th St./Sand Point Way N.E.
- Sand Point Way N.E./North Base Access
- Sand Point Way N.E./Princeton Avenue N.E. (N.E. 55th)
- Montlake Boulevard N.E./N.E. 45th Street
- Montlake Boulevard N.E./25th Avenue N.E.

All intersections are signalized, except for the N.E. 95th Street/Sand Point Way N.E. intersection. Impacts to the Montlake Bridge were also analyzed.

4.5.1 Affected Environment

This section discusses existing traffic conditions and current transportation systems in the study area.

• Arterial Classifications and Conditions

According to the City of Seattle Comprehensive Plan (City Planning 1994a, 1995 revisions), the roadways near Naval Station Sand Point are classified as follows:

- **Sand Point Way N.E. (N.E. 65th Street to N.E. 95th Street)** Minor Arterial. Minor arterials usually consist of a two- to four-lane section. This roadway section currently varies from two to four lanes.
- **Sand Point Way N.E. (N.E. 65th Street to N.E. 45th Street)** Principal Arterial. Principal arterials usually are four- to six-lane sections with two

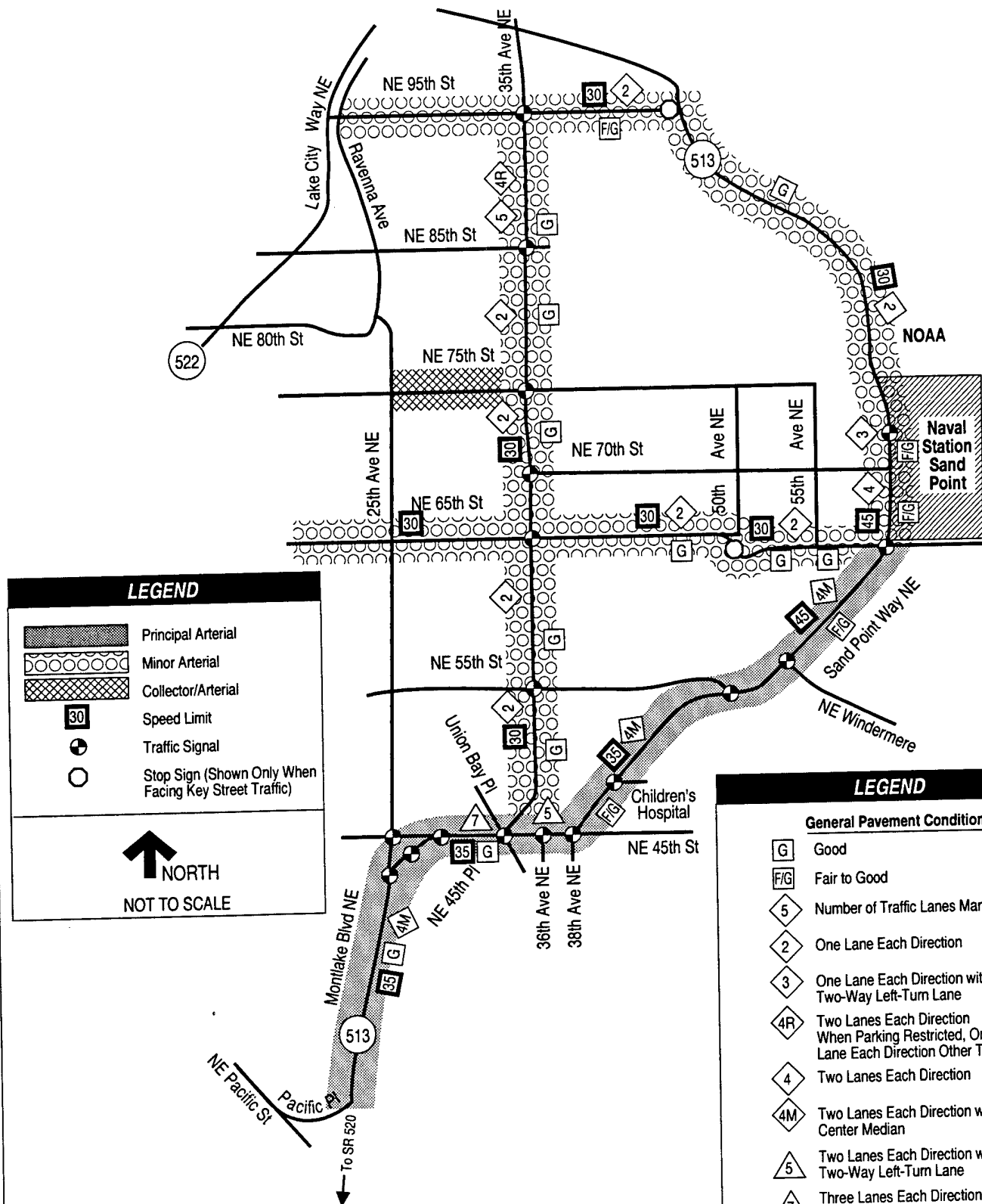


Figure 4-11
Study Area Traffic Control and Roadway Characteristics

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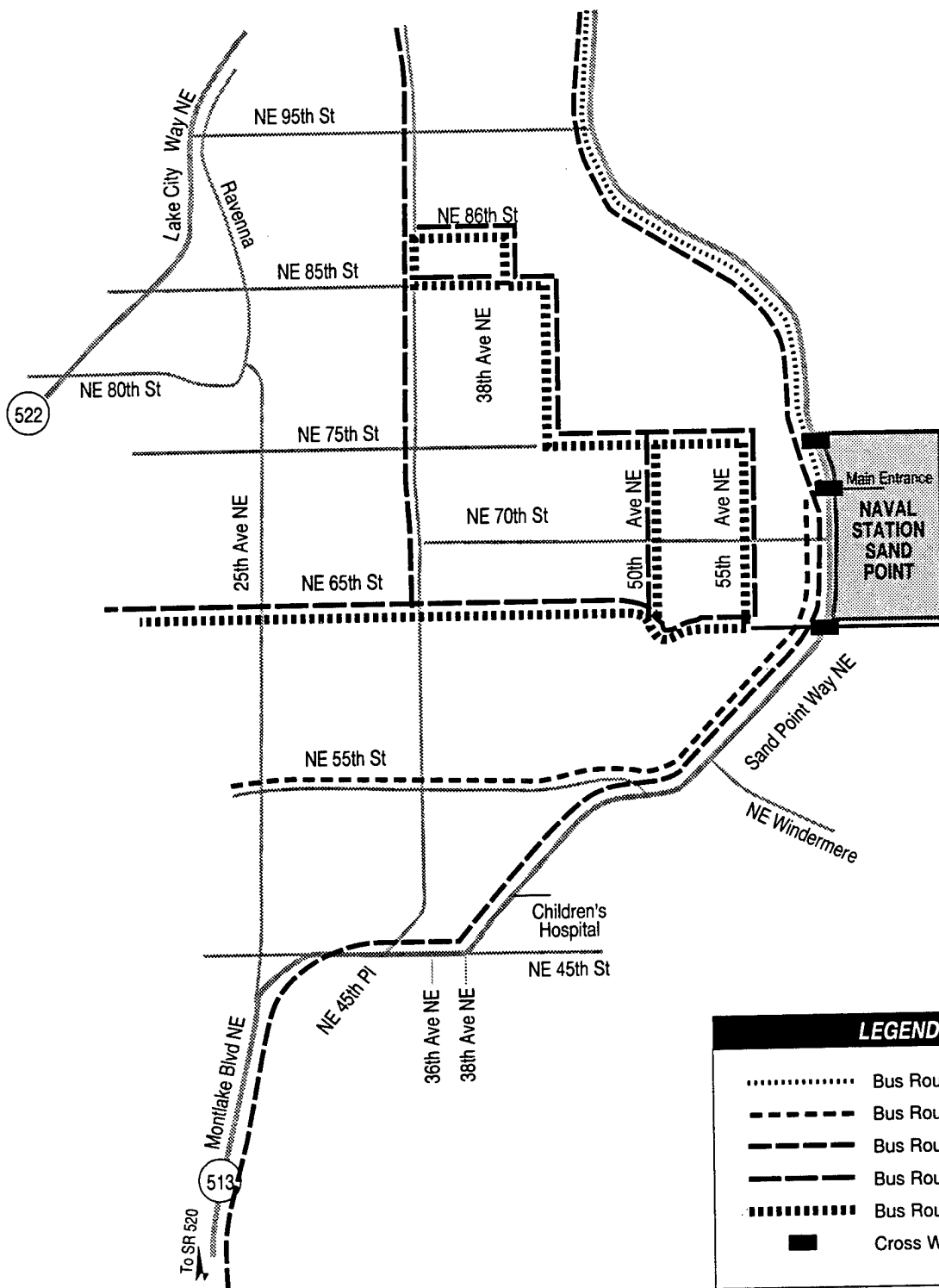
to three lanes traveling in each direction. This roadway section currently consists of four lanes.

- **Montlake Boulevard N.E. (N.E. 45th Street to Montlake Bridge)** Principal Arterial. This roadway currently is four lanes plus a center median.
- **35th Avenue N.E. (N.E. 45th Street to N.E. 125th Street)** Minor Arterial. This roadway currently is a two-lane section.
- **N.E. 95th Street (Lake City Way N.E. to Sand Point Way N.E.)** Minor Arterial. This roadway currently is a two-lane section.
- **N.E. 75th Street (25th Avenue N.E. to 35th Avenue N.E.)** Collector Arterial. Collector arterials generally have two lanes. This roadway currently is two lanes.
- **N.E. 65th Street (N.E. Ravenna Boulevard to Sand Point Way N.E.)** Minor Arterial. This roadway currently is two lanes.
- **N.E. 45th Street (25th Avenue N.E. to Sand Point Way N.E.)** Principal Arterial. This roadway section currently consists of two or three lanes traveling in each direction, with a center dual left-turn lane.
- **N.E. 45th Place (N.E. 45th Street to 35th Avenue N.E.)** Minor Arterial. This roadway currently is two lanes.

Figure 4-11 shows the existing roadway characteristics and types of traffic control in the vicinity.

• Transit

Bus routes in the transportation study area are shown in Figure 4-12. Current transit access to the base is provided along Sand Point Way N.E. by Metro Express Routes 41 and 74 and by Nonexpress Route 75. Route 41 carries an average of 2,250 riders in 58 daily trips between Naval Station Sand Point and downtown Seattle via Northgate. During peak hours, it runs at intervals of 15 to 20 minutes (a.m.) and 10 to 20 minutes (p.m.). There are no midday trips. Route 74 carries an average of 2,100 riders in 52 daily trips between the NOAA facility at Naval Station Sand Point and downtown Seattle via the University District. It operates at 30-minute intervals midday and 10- to 20-minute intervals during peak periods. Route 75 carries an average of 1,050 passengers in 52 daily trips between Northgate and downtown Seattle via Sand Point Way N.E. Intervals vary during the day: 15 to 25 minutes for the a.m. peak, 30 minutes for midday, and 30 to 60 minutes for the p.m. peak.



LEGEND

- Bus Route 41
- Bus Route 74
- Bus Route 75
- Bus Route 71
- Bus Route 76
- Cross Walk Location

↑ NORTH
NOT TO SCALE

**Figure 4-12
Bus Routes**

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Metro Routes 71 and 76 provide service along N.E. 65th Street and 55th Avenue N.E., west of the base. Service is provided throughout the day at approximately 30-minute intervals.

- **High Occupancy Vehicles**

The City has a network of high occupancy vehicle (HOV) facilities; however, there are no designated HOV lanes on city streets in the Naval Station Sand Point area. The closest HOV lanes are on Pacific Avenue, extending over the Montlake Bridge, and including the on-ramp to eastbound State Route 520. HOV lanes are also located on Interstate 5 north and south.

- **Nonmotorized Modes of Transportation**

Bicycle Routes. The City has an extensive network of bicycle routes; those in the transportation study area are depicted in Figure 4-13. The Burke-Gilman Trail is a heavily used walking and biking trail that parallels Sand Point Way N.E. to the west, crossing it below N.E. 95th Street. Sand Point Way N.E. is designated as an alternate route to the Burke-Gilman Trail. No separate pedestrian/bicycle trail currently connects Magnuson Park with the Burke-Gilman Trail.

Sidewalks/Crosswalks. As shown in Figure 4-14, sidewalks are fairly complete along the length of Sand Point Way N.E., south of the north entrance to the base. No sidewalks are currently installed along Sand Point Way N.E., north of this location. Generally, sidewalks in the transportation study area are along routes with on-street parking. Three crosswalks near the base are found at N.E. 65th, N.E. 74th, and N.E. 75th Streets.

- **Traffic Volumes**

Site-generated Traffic. Based on historical 24-hour traffic counts conducted by the City of Seattle Engineering Department (SED, also City Engineering), the weekday p.m. peak hour is the time period when the greatest total traffic demands are placed on the surrounding street system; therefore, this time period was chosen for the traffic analyses. Traffic operations in the surrounding street system will likely be better during all other times of the day and on weekends.

Figure 4-15 shows the weekday p.m. peak-hour traffic volumes in the transportation study area. Results of manual turning-movement counts taken November 16 to 18, 1993 (Appendix I), demonstrate the evening peak hour in the area is generally between 4:30 and 5:30 p.m.

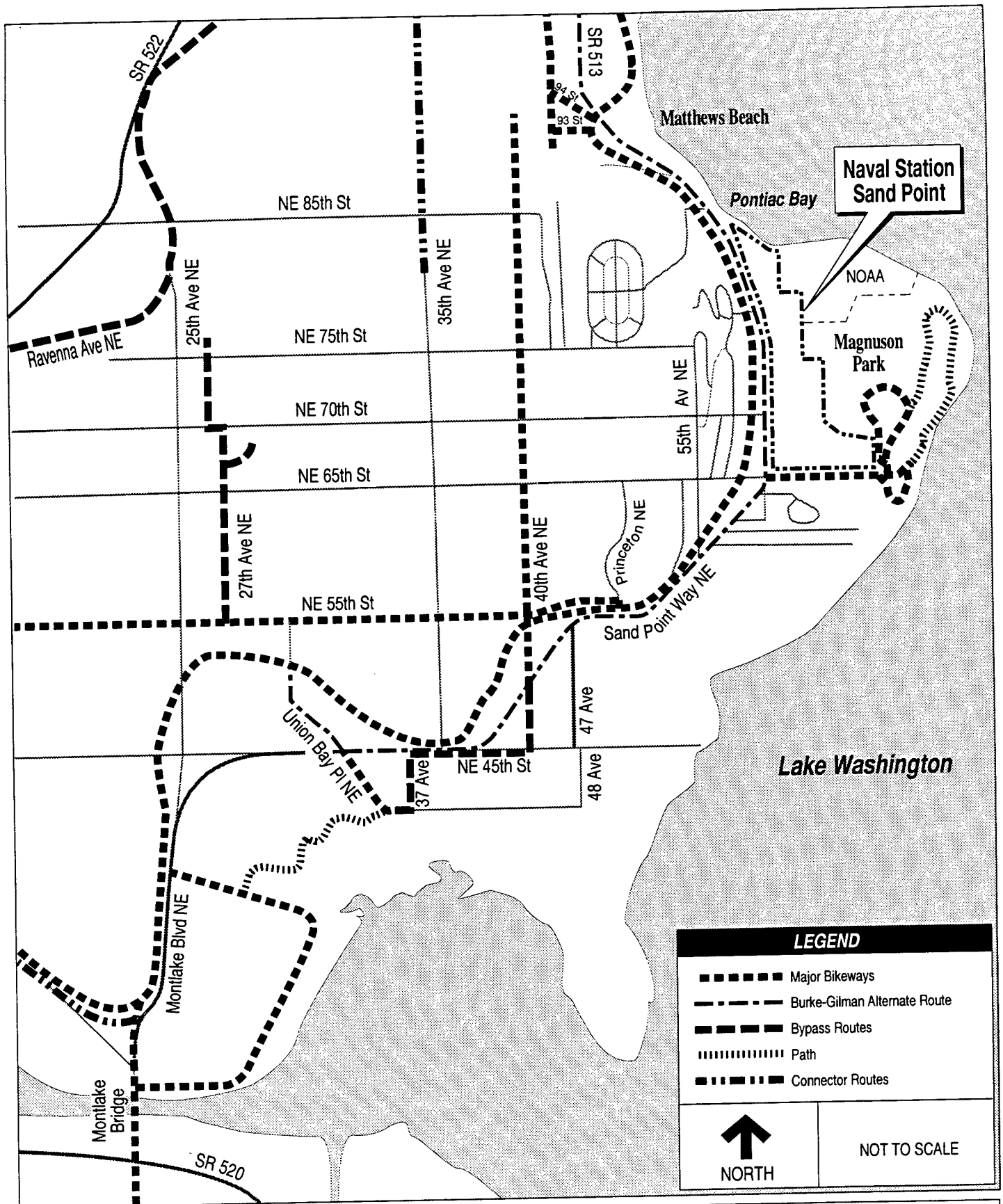


Figure 4-13
Bicycle Routes

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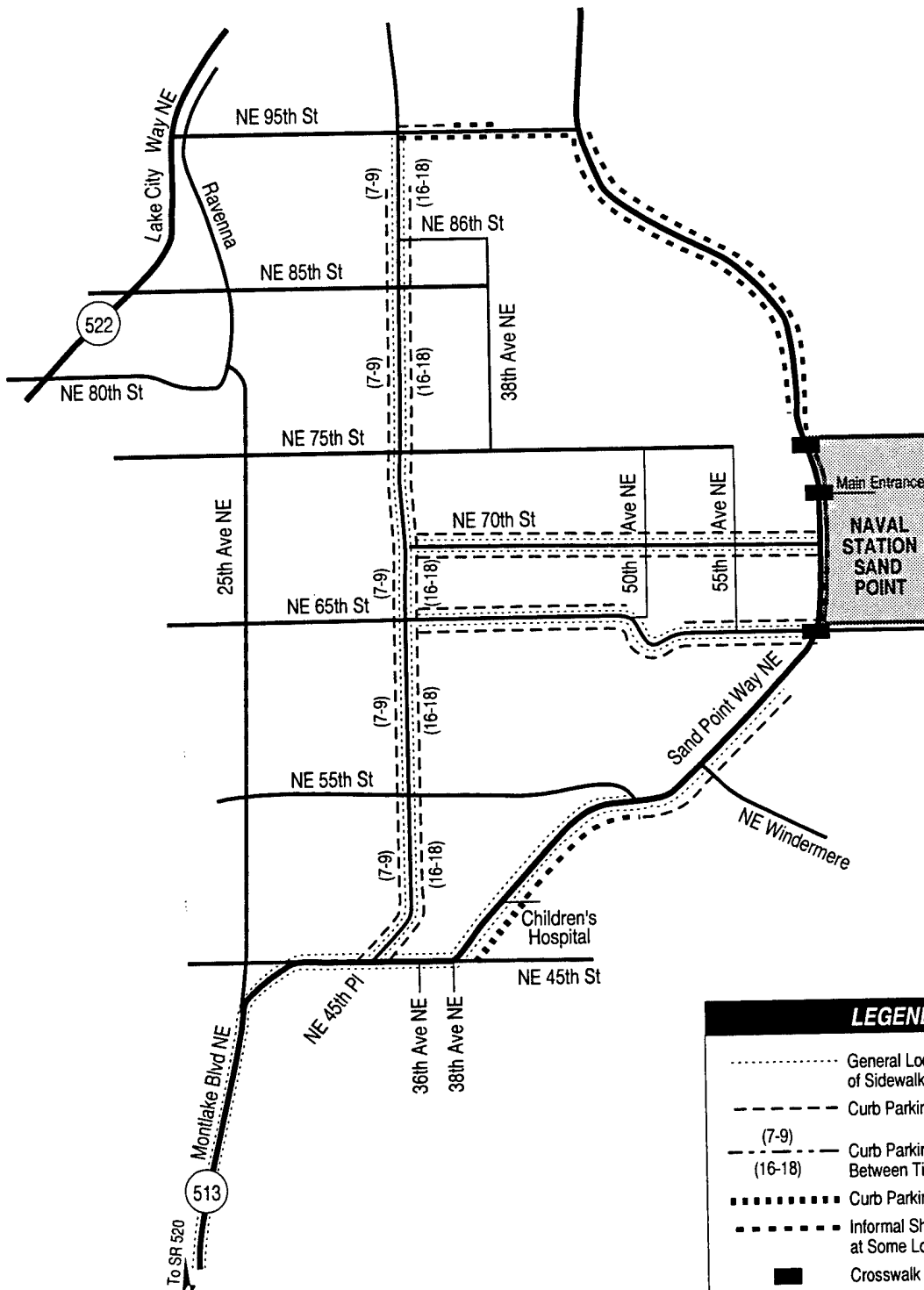


Figure 4-14
Street Parking and Sidewalks

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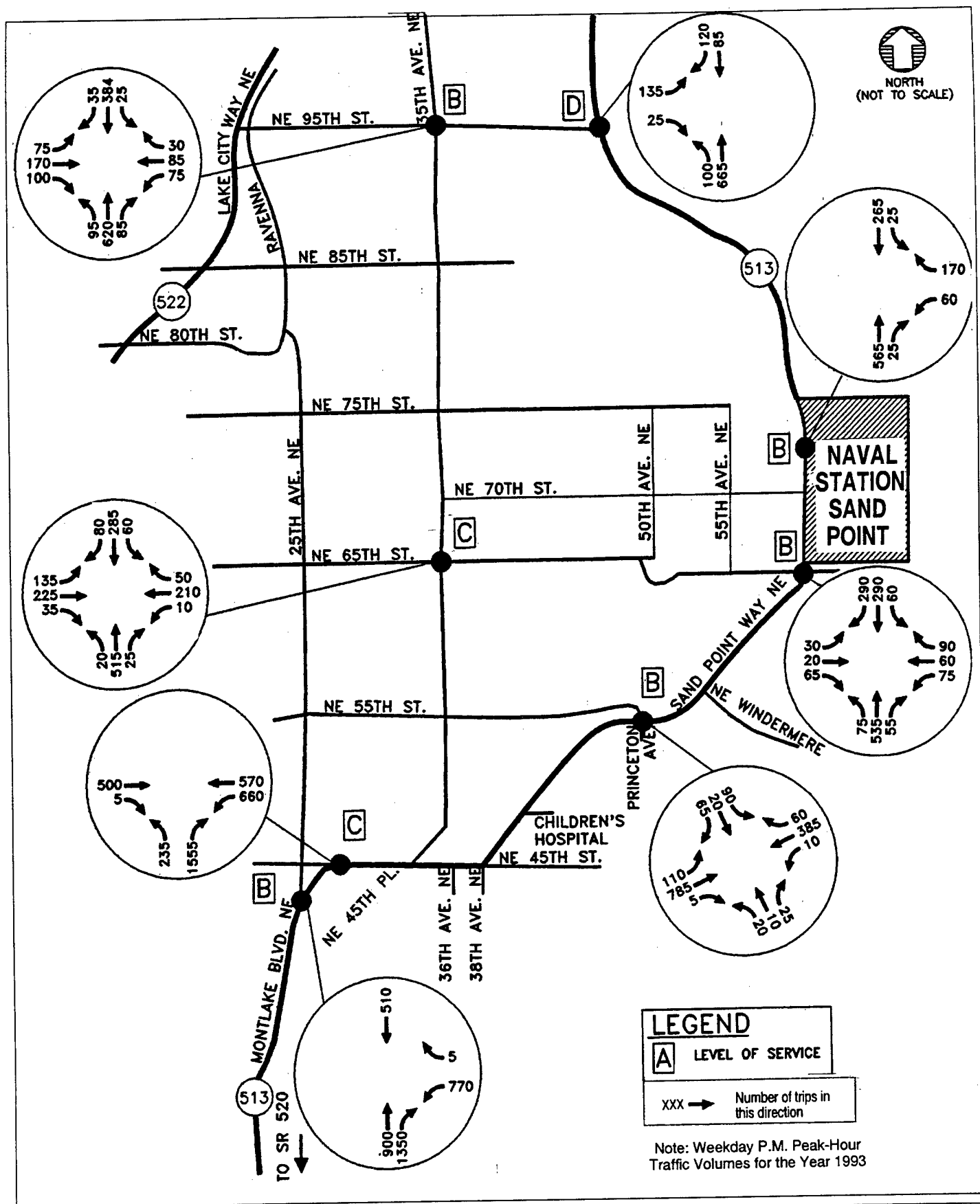


Figure 4-15
Existing Peak-Hour Traffic
Volumes and Level of Service

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Average daily traffic (ADT) volumes were counted throughout the entire year by the SED. Figure 4-16 shows the 1992 ADT volumes on key streets in the transportation study area.

Although the existing Naval Station Puget Sound traffic volume data are limited, Table 4-23 shows information from previous studies generally characterizing the magnitude of current traffic associated with Naval Station Sand Point.

Table 4-23
Existing Naval Station Sand Point Traffic Volumes

Location	Includes Only	Year	ADT	P.M. Peak (In/Out)	Reference
Sand Point Way N.E./NOAA	NOAA	1988	NA	27/210	City Engineering 1993
Sand Point Way N.E./North Entrance	Naval Station Sand Point	1993	NA	50/230	Kittelsohn 1993
Sand Point Way N.E./N.E. 65th St.	Naval Station Sand Point	1993	NA	135/225	Kittelsohn 1993
Sand Point Way N.E.	Naval Station Sand Point Commissary/Exchange	1993	4,762	NA	Kittelsohn 1994
Sand Point Way N.E.	Naval Station Sand Point and Magnuson Park	1993	7,600	NA	City Planning 1993a

Notes:

ADT - average daily traffic

NA - data not available in document

Since the number of personnel at Naval Station Sand Point decreased by 33 percent between 1989 and 1993, recent traffic volume counts at Naval Station Sand Point do not reflect volumes that existed when it was in full use. No ADT counts that reflect Naval Station Sand Point only volumes, (either current or when it was in full use) are available.

Intersection Level of Service. To assess traffic conditions at key intersections in the study area, capacity analyses were conducted using the Federal Highway Administration's Highway Capacity Software (HCS) programs; these programs are based on the 1985 *Highway Capacity Manual* (Transportation Research Board 1985). Based on the capacity analysis, a level of service (LOS) is derived for each movement of traffic to reflect how much traffic congestion or vehicle delay will result. LOS is a concept developed by the transportation profession to quantify the degree of comfort (including such elements as travel time, number of stops, total amount of stopped delay, and impediments caused by

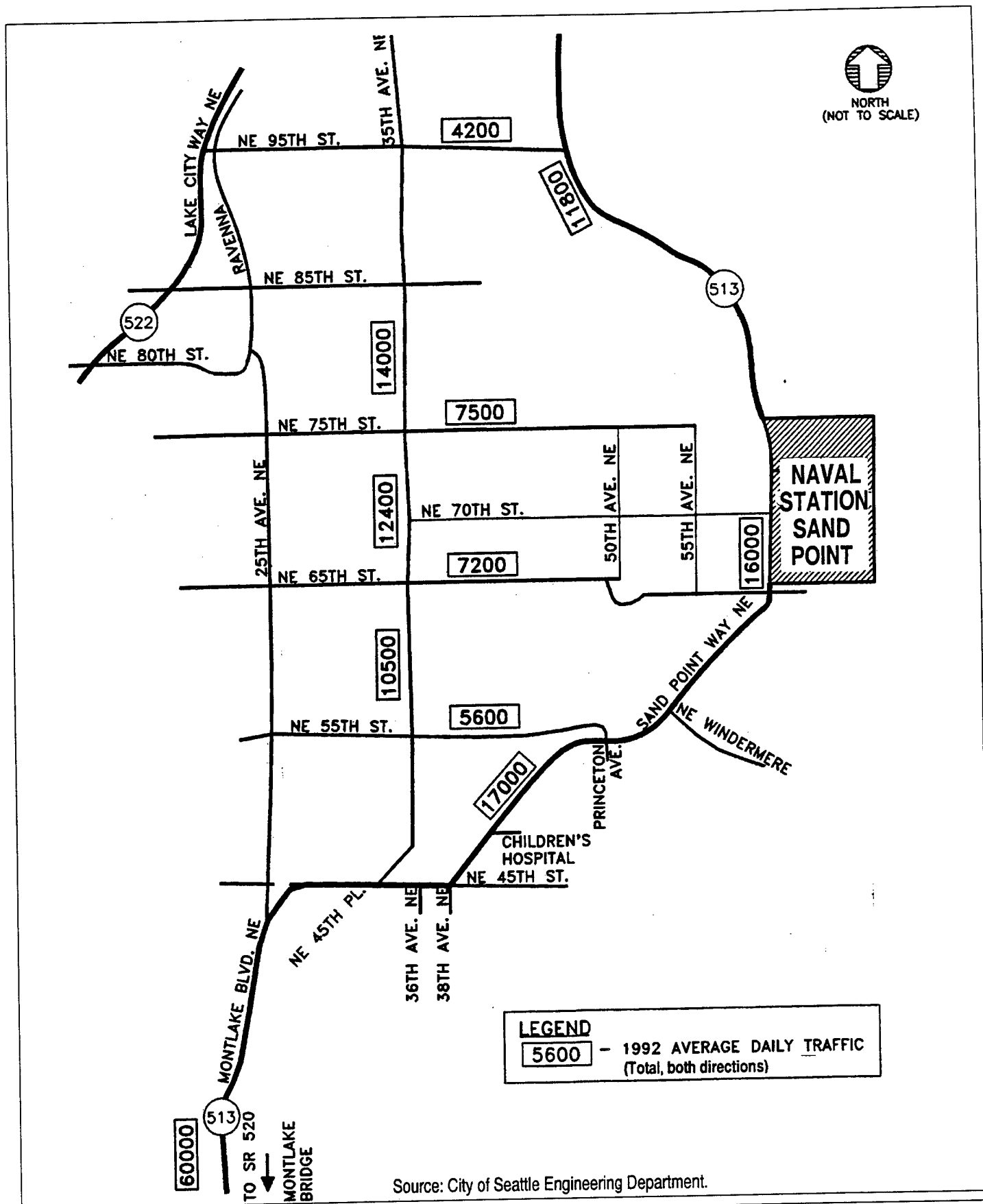


Figure 4-16
1992 Average Daily Traffic (ADT) Volumes

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other vehicles) afforded to drivers as they travel through an intersection or roadway segment. LOS is expressed as a letter grade that ranges from A to F.

At signalized intersections, LOS A typically indicates that no vehicle waits longer than one red light; LOS B means that occasionally the green light is fully used (vehicles use the entire green light time to cross through the intersection); LOS C means that occasionally there is some backup; LOS D means approaching instability with substantial delays during short peaks during the rush hour; LOS E represents capacity with full use of every green light, long queues of waiting vehicles, delays of up to several cycles, and dependence on good coordination between adjacent signals; LOS F represents jammed conditions with long delays. LOS D is considered the minimum acceptable LOS grade at signalized intersections.

At unsignalized intersections, LOS is defined using a concept referred to as "reserve capacity." Reserve capacity applies only to an individual traffic movement or to shared lane movements. Once LOS, capacity, and expected delay of all the individual movements have been calculated, an overall evaluation of the intersection can be made. Normally, the movement with the worst LOS defines the overall evaluation, but this may be tempered by engineering judgment. LOS D is considered the minimum acceptable LOS grade at unsignalized intersections. Past experience with the unsignalized analysis procedure indicates that this methodology is very conservative in that it tends to overestimate the magnitude of potential problems.

Table 4-24 shows LOS for the weekday p.m. peak hour at each of the intersections included in this analysis. The LOS is also shown in Figure 4-15.

As shown in Table 4-24, all signalized intersections are operating at LOS C or better, which is considered acceptable. The unsignalized intersection of N.E. 95th St./Sand Point Way N.E. is currently operating at LOS D during the weekday p.m. peak hour, which is the worst LOS at any of the study area intersections.

• Traffic Safety

As a part of the traffic safety analysis, the most recent 3.5-year accident history (January 1, 1990, through June 30, 1993) was investigated for the surrounding street system.

The SED defines a high accident location as a signalized intersection with 10 or more accidents per year or an unsignalized intersection with 5 accidents per year for the past 3 years. As shown in Figure 4-17, all of the intersections in the study area are below the SED threshold for high accident locations. However, the City considers the signalized intersection of N.E. 45th Place/Montlake Boulevard N.E., with an average number of

Table 4-24
Existing Peak-Hour Levels of Service by Intersection

Intersection	Level of Service	Volume/ Capacity Ratio	Average Delay (sec)
N.E. 95th St./35th Ave. N.E.	B	0.52	10.1
N.E. 95th St./Sand Point Way N.E.	D (168) ^a	D (168)	NA
N.E. 65th St./35th Ave. N.E.	C	0.91	21.8
N.E. 65th St./Sand Point Way N.E.	B	0.35	7.7
North Sand Point Way N.E./Base Access	B	0.46	10.4
Sand Point Way N.E./Princeton Ave. N.E.	B	0.45	8.1
Montlake Blvd. N.E./N.E. 45th St.	C	0.80	15.2
Montlake Blvd. N.E./25th Ave. N.E.	B	0.58	13.3

^a(168) Reserve capacity for this unsignalized intersection.

Notes:

NA - not applicable

Source: Existing 1993 weekday p.m. peak-hour level of service results.

six accidents per year, as a high accident location. No fatalities occurred in the transportation study area during the time period investigated.

• **Parking**

An estimated 2,010 parking spaces are available at Naval Station Sand Point. About 450 of these spaces are located around the commissary/exchange building (Building 183) in the southern portion of the site, with the remaining spaces distributed throughout the site. Curb parking off site is shown in Figure 4-14.

4.5.2 Direct and Indirect Environmental Impacts

This section discusses the potential impacts of the City Plan and options, the Muckleshoot Plan, and the No-action Alternative on transportation.

• **Forecasted 2000 Traffic Volumes**

City Plan and Muckleshoot Plan. Projection of future traffic volumes under the reuse plans is based on background (non-site-produced) traffic volumes, plus traffic volumes resulting from site development (the reuse plans). For this analysis, it was assumed that Naval Station Sand Point will be fully redeveloped by 2000. The No-action Alternative (the same as background projections in 2000) was based on existing traffic volumes

(Appendix I), applying a growth factor of 1 percent per year (City Engineering 1993) and rounding the value to the nearest 50 vehicles. The City considers this 1 percent growth rate to be a worst-case assumption.

To predict traffic generated from the reuse plans, information about future site land uses and travel patterns must be developed. Both reuse plans vary in specificity. The more specific the land use description, the more accurate the projection will be. Where the land use description was less specific, assumptions were made regarding the type and intensity of the use. An example is the City's educational uses.

On the basis of land use types proposed in the City and Muckleshoot Plans, together with trip generation rates from the Institute of Traffic Engineers *Trip Generation* (ITE 1991), site-generated traffic was determined for each plan. Because some of the proposed land uses (e.g., film studio, homeless housing) do not correlate exactly with ITE categories judgment was used to choose the most appropriate trip rates. ITE peak hour rates were then used to determine the expected peak hour volumes. Tables 4-25 and 4-26 summarize the expected number of vehicle trips for the two reuse plans. A site map of building numbers and locations is shown in Figure 1-2.

Options to the City Plan. Table 4-27 summarizes the expected number of vehicle trips for two scenarios under the options to the City Plan with and without Ballard High School. In order to predict worst-case impacts for the high school, it was assumed that only 15 percent of the students would be bused. Assumptions for the community college included 15 percent of the students traveling by bus or carpool. (The Community College reports that presently 15 to 30 percent of the students travel by bus or carpool. Therefore, 15 percent represents a worst case scenario.)

Using these assumptions, and the trip generation rates from the Institute of Traffic Engineers, site generated traffic was determined for the two scenarios under the options to the City Plan.

- **Trip Distribution**

Trip distribution describes the percentage of site-generated trips entering and exiting the site through the external roadway system. The site trips for the City and Muckleshoot Plans were distributed entering and exiting the site via the main entrance (N.E. 74th Street) and the N.E. 65th Street entrance. For both plans, the projected vehicle distribution to the north, west, and south was 40, 25, and 35 percent, respectively. The No-action Alternative would have no traffic entering or exiting the site via these entrances because no trips would be generated. Appendix H details the forecasted distribution entering and exiting the site.

4.5 Transportation

Table 4-25
City Plan—Estimated Average Weekday Vehicular Trip Generation

Use Category	Land Use	Building No.	Unit	Daily Volume*	Daily In (50%)	Daily Out (50%)	A.M. Peak Trips	A.M. Peak In	A.M. Peak Out	P.M. Peak Trips	P.M. Peak In	P.M. Peak Out
Recreational												
495	Sailing Center	11	19,000 ft ² (1,765 m ²)	140	70	70	21	13	8	26	7	19
Total				140	70	70	21	13	8	26	7	19
Educational/Commercial												
140	Film Studio	2	144,232 ft ² (13,399 m ²)	555	278	278	113	61	52	108	57	51
630/720	Medical Clinic	29, 192	38,544 ft ² (3,581 m ²)	917	458	458	104	80	24	150	45	105
530	Education	5, 25, 67, 299	480,199 ft ² (44,610 m ²)	3,680	1,840	1,840	818	605	213	520	177	343
Total				5,152	2,576	2,576	1,035	746	289	778	279	499
Cultural/Commercial												
495	Arts and Culture Center	18, 30, 41, 406	125,503 ft ² (11,659 m ²)	927	464	464	136	84	52	173	48	125
Total				927	464	464	136	84	52	173	48	125
Open Space												
417	Magnuson Park		50 acres (2,178,000 ft ² or 202,336 m ²)	957	479	479	29	20	9	60	29	31
491	Tennis Center*			267	133	133	13	7	7	23	11	11
495	Recreation Center	47	50,060 ft ² (4,651 m ²)	370	185	185	54	34	21	69	19	50
Total				1,594	797	797	96	61	37	152	59	92

4.5 Transportation

Table 4-25 (Continued)
City Plan—Estimated Average Weekday Vehicular Trip Generation

Use Category	Land Use	Building No.	Unit	Daily Volume*	Daily In (50%)	Daily Out (50%)	A.M. Peak Trips	A.M. Peak In	A.M. Peak Out	P.M. Peak Trips	P.M. Peak In	P.M. Peak Out
Residential												
252	Low-rise Housing	9, 26N&S, 224, 330, 331, 332	250 units (314,000 ft ² or 29,171 m ²)	538	269	269	15	9	6	43	24	19
221	University of Washington	333, 334 Single Family Units (demolished)	80 units proposed	527	264	264	38	8	30	46	31	16
Total				1,065	533	533	53	17	36	89	55	35
Institutional												
760	NOAA Storage/ Research	27 114,167 ft ² 10,606 m ²	20 employees	53	27	27	9	7	1	8	1	7
760	NBS Institutional (Lab)	204 9,752 ft ² / 889 m ²	5 acres	13	7	7	2	1	0	2	0	1
Total				66	34	34	11	8	1	10	1	8
Project Total				8,944	4,474	4,474	1,352	929	423	1,228	449	778

*ITE 1991

*Proposed

4.5 Transportation

Table 4-26
Muckleshoot Plan—Estimated Average Weekday Vehicular Trip Generation

Use Category	Land Use	Building No.	Unit	Daily Volume*	Daily Trips In (50%)	Daily Trips Out (50%)	A.M. Peak Volume	A.M. Peak In	A.M. Peak Out	P.M. Peak Volume	P.M. Peak In	P.M. Peak Out
Education												
540	Technical School	9, 26, 26A, 222, 224/6, 42,	336,745 ft ² (31,284 m ²) 5,000 students	6,650	3,325	3,325	800	776	24	600	450	150
	Other	47, 138, 223, 411										
Total				6,650	3,325	3,325	800	776	24	600	450	150
Parks/Recreation												
812	Commercial	15, 193, 301, 334	121,304 ft ² (11,269 m ²)	3,707	1,854	1,854	232	155	77	377	177	200
221	Group home	330-2 (20 units)		132	66	66	9	2	8	12	8	4
Total				3,839	1,920	1,920	241	157	84	389	185	204
Administration/Office												
630/720	Health Clinic	29	33,744 ft ² (3,135 m ²) 67 employees	395	197	197	36	28	8	76	27	50
714	Administration	25, 30, 192	112,758 ft ² (10,475 m ²) 564 employees	1,235	618	618	262	243	18	251	28	223
Total				1,630	815	815	298	271	27	327	55	273
Institutional												
571	Jail	406	29,279 ft ² (2,719 m ²) 59 employees	106	53	53	25	16	8	14	4	10
571	Other	18, 41	16,167 ft ² (1,502 m ²) 32 employees	58	29	29	13	9	5	7	2	5

4.5 Transportation

Table 4-26 (Continued)
Muckleshoot Reuse Plan—Average Weekday Vehicular Trip Generation

Use Category	Land Use	Building No.	Unit	Daily Volume*	Daily Trips In (50%)	Daily Trips Out (50%)	A.M. Peak Volume	A.M. Peak In	A.M. Peak Out	P.M. Peak Volume	P.M. Peak In	P.M. Peak Out
760	NBS Institutional (Lab)	204	9,572 ft ² (889 m ²) 5 employees	13	7	7	2	2	0	2	0	2
Total				177	89	89	40	27	13	23	6	17
Warehouse/Light Industrial												
110	Warehouse/Light Industrial	2, 5	561,699 ft ² (52,182 m ²) 723 employees	2,183	1,092	1,092	266	221	445	265	32	233
110	Other	27, 67, 299	149,457 ft ² (13,885 m ²) 321 employees	969	485	485	157	130	27	150	18	132
Total				3,152	1,577	1,577	423	351	472	415	50	365
Recreational/Commercial												
495	Recr./Pavilion	410	1,760 ft ² 163.5 m ²	13	7	7	2	1	1	2	1	2
831	Restaurant	11	15,000 ft ² 1,393.5 m ²	1,448	724	724	14	13	1	115	80	34
812	Commercial	11	44,206 ft ² 4,107 m ²	1,351	675	675	87	59	29	140	66	74
Total				2,812	1,406	1,406	103	73	31	257	147	110
Project Total				18,260	9,132	9,132	1,905	1,655	651	2,011	893	1,119

*ITE 1991

Table 4-27
Site-Generated A.M. and P.M. Peak-Hour Trips in 2000

Reuse Plan	ADT	A.M. Peak (In/Out)	P.M. Peak (In/Out)
City Plan	8,944	929/423	499/778
Options to the City Plan (without Ballard H.S.)	9,050	1,355/955	434/770
Options (with Ballard H.S.)	10,028	1,221/542	449/822
Muckleshoot Plan	18,260	1,655/651	893/1,119
No-action	0	0/0	0/0

• Trip Assignment

From the background volumes, trip generation, and distribution information, a transportation model was developed to estimate expected traffic volumes on external roadways. The traffic forecasting software package IMPAX was used to develop the model and predict expected vehicle volumes. Figures 4-18, 4-19, and 4-20 show p.m. peak hour traffic in 2000 under the City Plan, the Muckleshoot Plan, and the No-action Alternative. Figures 4-21 and 4-22 show site-generated and background ADT volumes in 2000. Because the uses proposed in the options to the City Plan would result in numbers of vehicle trips falling between the City Plan and the Muckleshoot Plan, this DEIS did not assign the trips to specific roadways for the options. The City Plan and the Muckleshoot Plan represent the range of impacts to the roadways that may be expected.

On the basis of its proposed site uses, the Muckleshoot Plan is expected to generate an ADT of about 18,260, whereas the City Plan will generate an ADT of approximately 8,950. The proposed uses in the options to the City Plan would generate an ADT of about 9,050 (inclusive of City Plan) after the high school moves and 10,028 (inclusive of City Plan) with the high school. The p.m. peak hour volumes are essentially the same as under the City Plan. This occurs because most of the additional trips under the options are due to either the high school, which dismisses before the peak p.m. hour, or the community college, which generates traffic either before or after the peak p.m. hour. The impacts of the options to the City Plan on level of service and roadways thus fall between those described below for the Muckleshoot Plan and the City Plan. Peak a.m. and p.m. volumes for all reuse alternatives are listed in Table 4-28. About one-third of the ADT of the Muckleshoot Plan is attributable to the proposed campus. In comparison, about 40 percent of the ADT of the City Plan is a result of educational uses.

The No-action Alternative would not generate traffic from the site, except for an insignificant amount generated from security and maintenance-related activity.

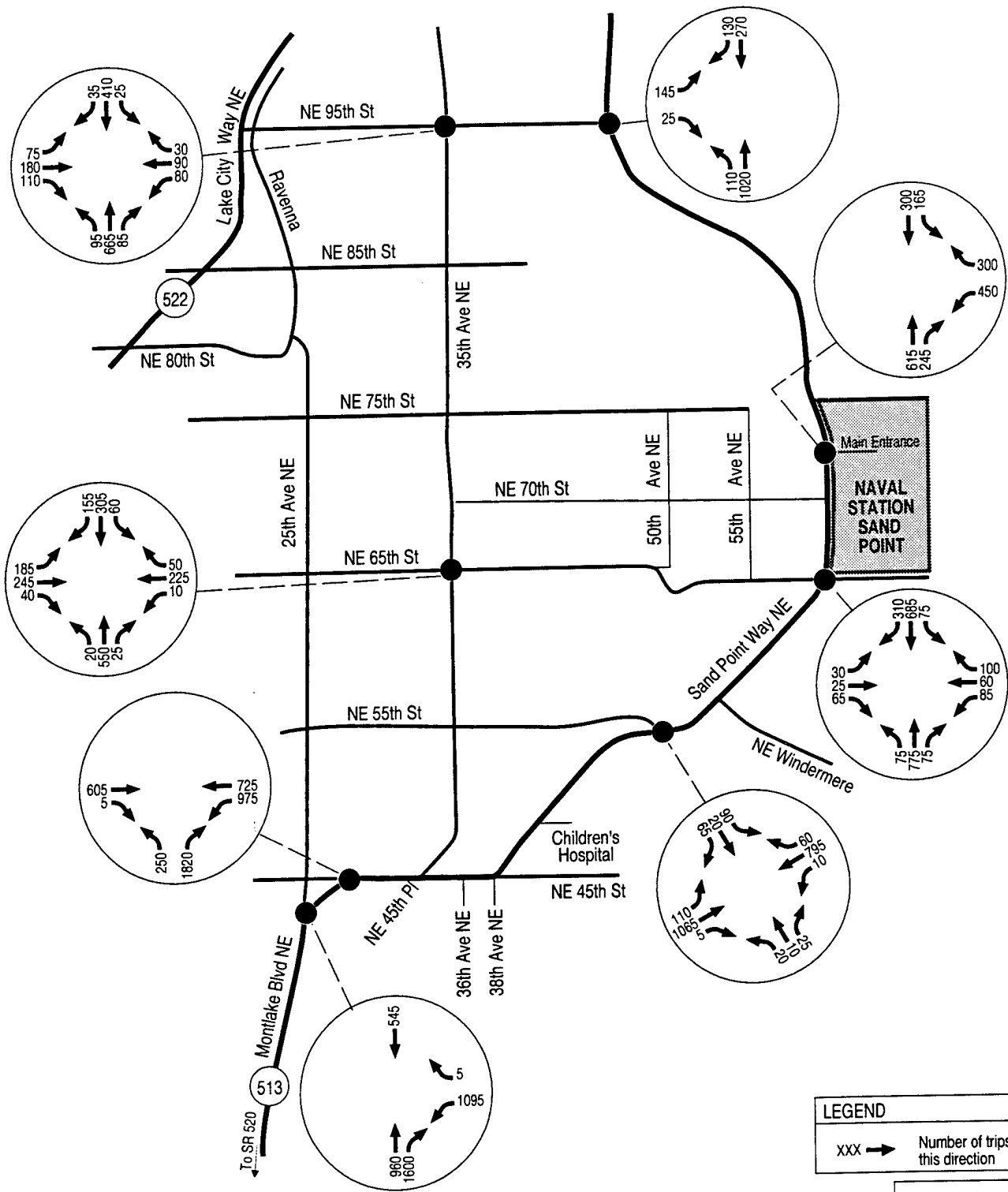
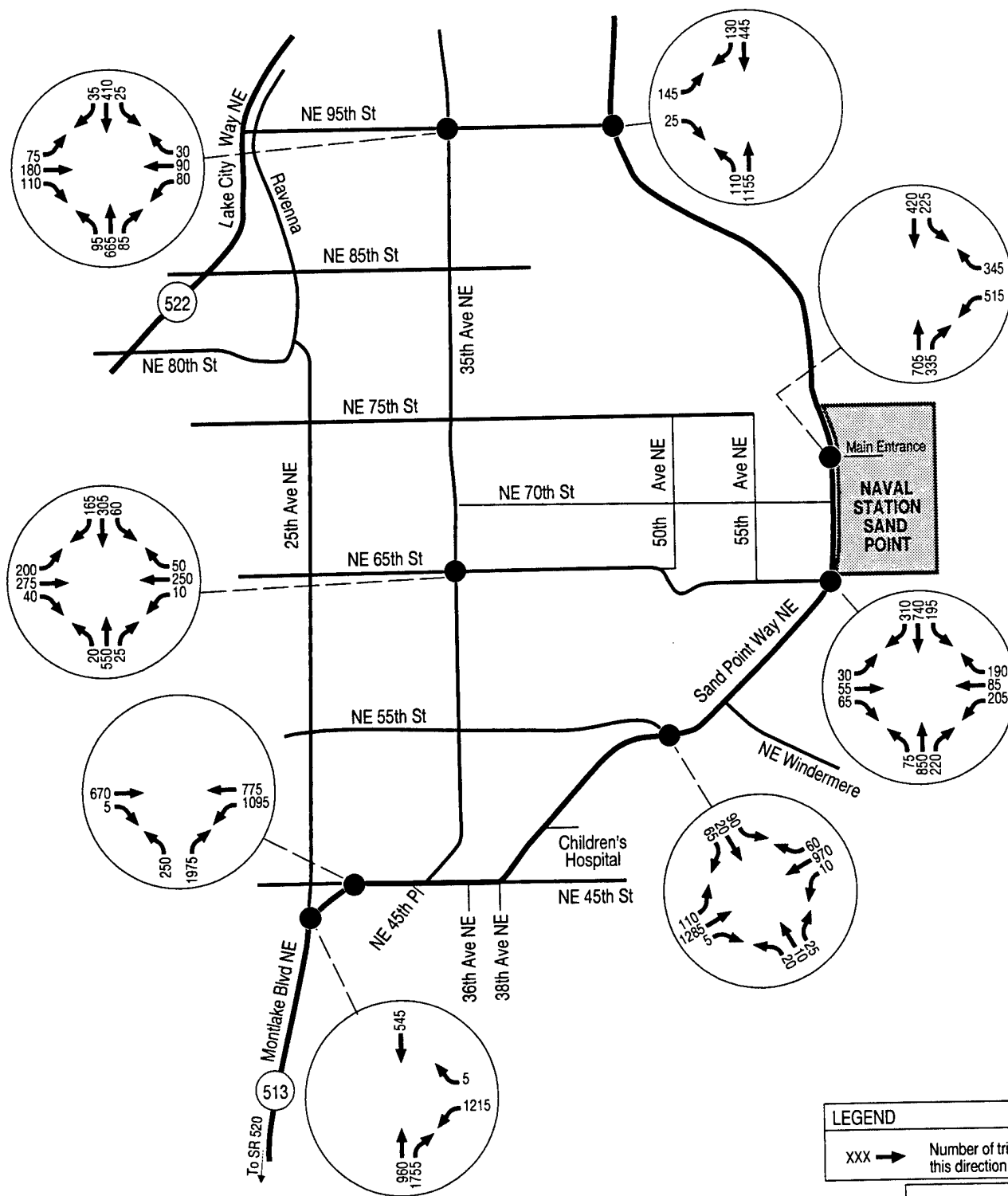


Figure 4-18
Forecasted Peak-Hour Traffic Volumes—City Plan

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LEGEND	
xxx →	Number of trips in this direction
 NORTH	
NOT TO SCALE	

Note: Projected Weekday P.M. Peak-Hour Traffic Volumes for the Year 2000

Figure 4-19
Forecasted Peak-Hour Traffic Volumes—Muckleshoot Plan

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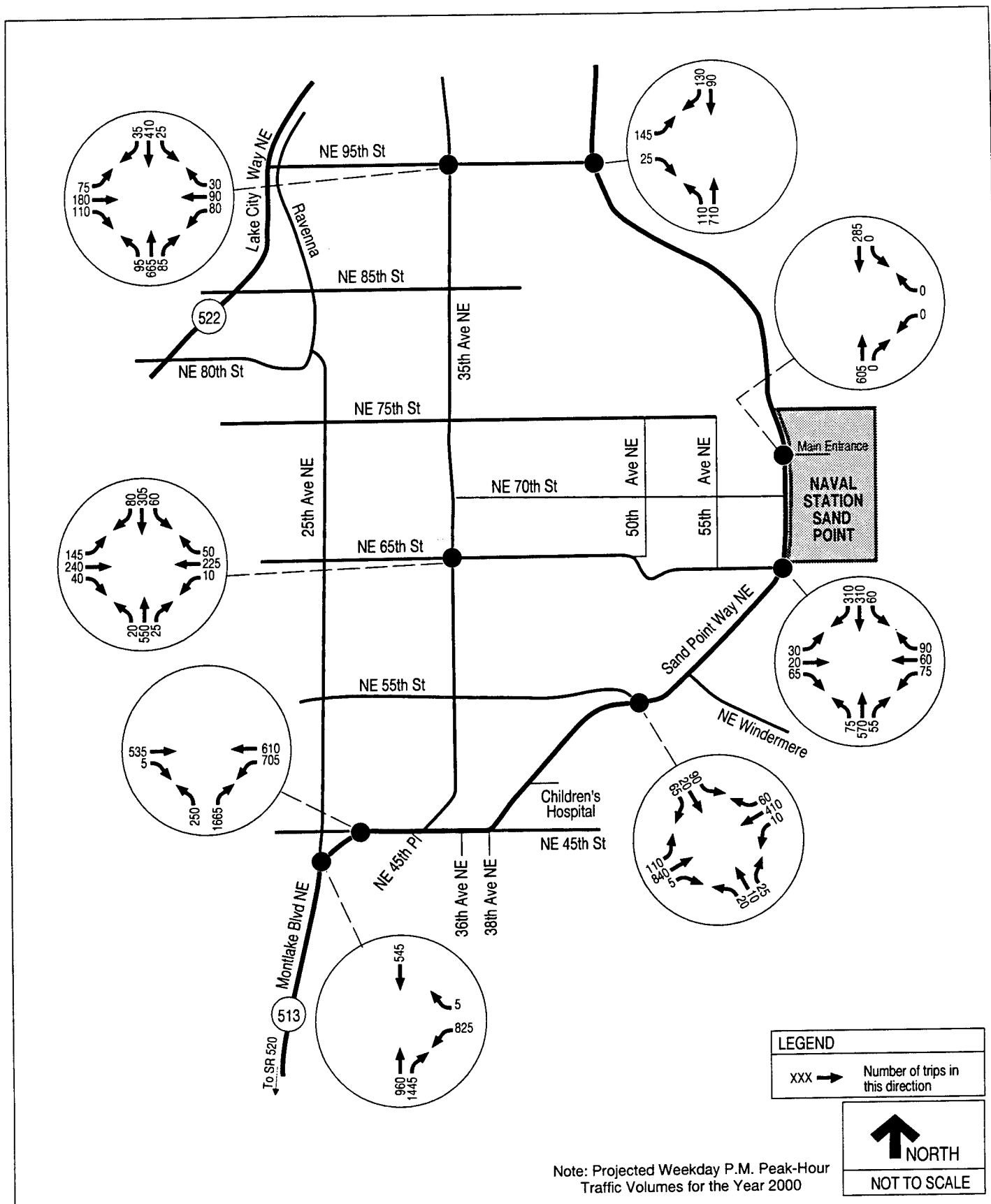
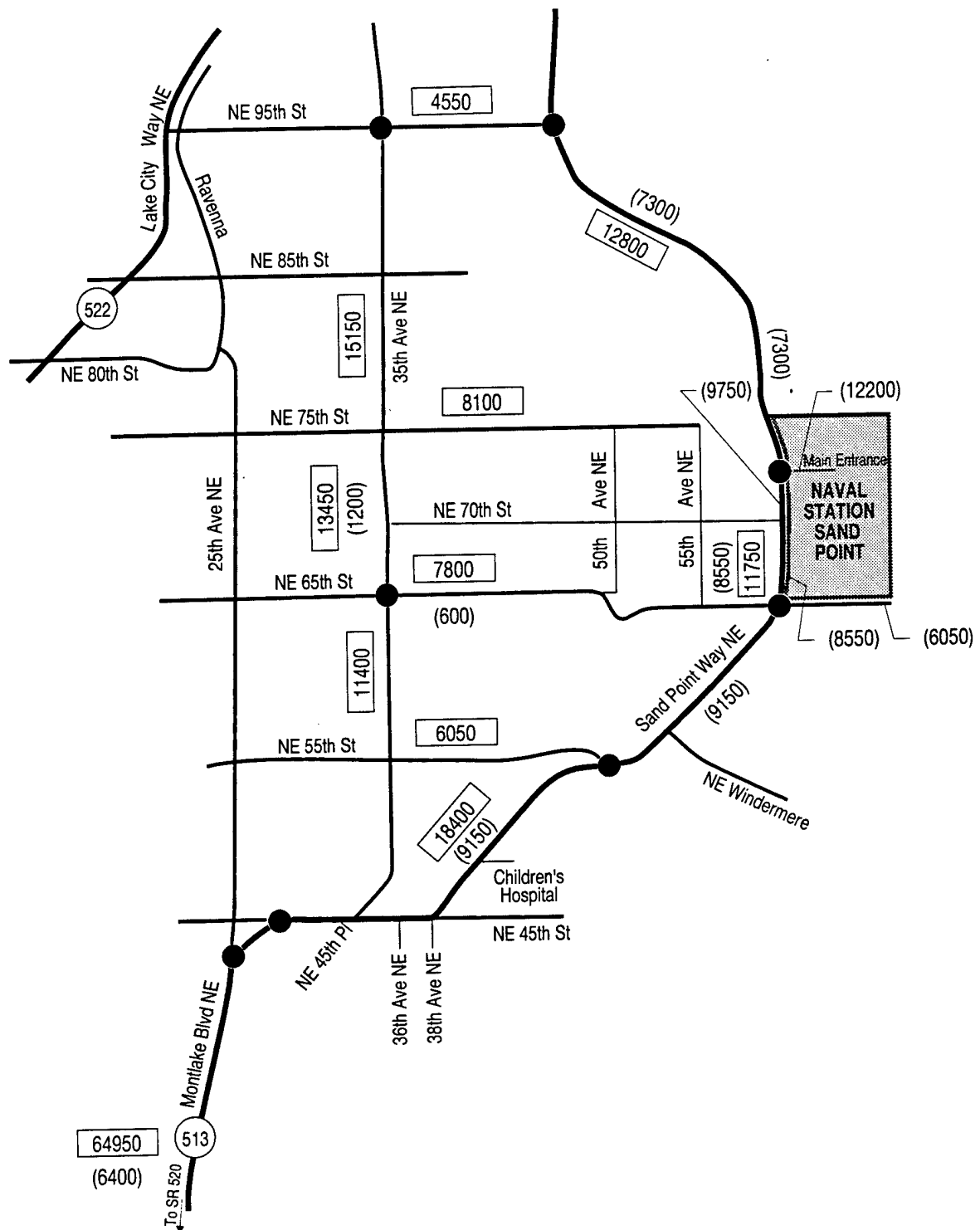


Figure 4-20
Forecasted Peak-Hour Traffic Volumes—
No-Action Alternative

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Note: Projected Average Traffic Volumes for the Year 2000

LEGEND

5600 Background ADT
(1200) Site Only ADT



NOT TO SCALE

Figure 4-22
Forecasted Average Daily Traffic (ADT) Volumes—Muckleshoot Plan

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Table 4-28
P.M. Peak Hour Levels of Service, Both Existing and in 2000

Intersection	Level of Service (LOS)			
	Existing (1993)	City Plan (2000)	Muckleshoot Plan (2000)	No-action Alternative (2000)
N.E. 95th St./35th Ave. N.E.	B	B	B	B
N.E. 95th St./Sand Point Way N.E.	D ^a	F ^a	F ^a	F ^a
N.E. 65th St./35th Ave. N.E.	C	B ^b	B ^b	B ^b
N.E. 65th St./Sand Point Way N.E.	B	C	C	B
Sand Point Way N.E./North Base Access	B	B	C	C
Sand Point Way N.E./Princeton Ave.	B	B	C	B
Montlake Blvd. N.E./N.E. 45th St.	C	B ^b	B ^b	B ^b
Montlake Blvd. N.E./25th Ave. N.E.	B	B	B	B

^aUnsignalized

^bLOS improved by modifying signal timing

Note: See Section 4.5.1 for definitions of levels of service

• Level of Service

Table 4-29 compares existing LOS with expected LOS for the eight major intersections in the transportation study area. This analysis assumes no modification of existing roadways.

Table 4-29 suggests that none of the alternatives would cause the street network to operate at unacceptable conditions. Under all alternatives, intersection LOSs are expected to remain at LOS C or better, with the exception of N.E. 95th Street/Sand Point Way N.E., which is projected to decline from LOS D to LOS F under all three alternatives by 2000.

• Roadways

In 1994 the City passed a concurrency ordinance to comply with the State Growth Management Act. Concurrency requires the City to monitor projected growth from new development and to have adequate transportation facilities to accommodate it. The City uses aggregate volume-to-capacity (V/C) ratios as a level-of-service measure for concurrency. Capacity is the maximum hourly rate at which vehicles can reasonably be expected to travel a section of roadway. The V/C ratio represents the volume of

Table 4-29
Traffic Volume-to-Capacity Ratio (V/C)
Comparisons in Transportation Study Area

Location	Direction	Peak-Hour Capacity	Max V/C	City Plan V/C	Muckleshoot Plan V/C	No Action V/C
Montlake Bridge and University Bridge	NB	4,300	1.20	0.98	1.01	0.94
	SB	4,300	1.20	0.95	0.98	0.89
North-South Routes South of N.E. 75th St.	NB	4,300	1.0	0.66	0.71	0.61
	SB	4,300	1.0	0.42	0.46	0.33
East-West Routes between N.E. 65th St. and N.E. 80th St.	EB	6,760	1.0	0.55	0.55	0.53
	WB	6,760	1.0	0.71	0.73	0.65
East-West Routes between N.E. Pacific and N.E. Ravenna Blvd.	EB	6,760	1.0	N/A	N/A	0.53
	WB	6,760	1.0	N/A	N/A	0.65

Note:

N/A - not in analysis area

vehicles compared to the capacity. Table 4-29 shows the maximum peak hour allowed V/C ratios and the expected V/C ratios for the three alternatives within the transportation study area. None of the three alternatives violates the concurrency ordinance.

An estimate of the amount of traffic that each reuse plan is expected to contribute to the Montlake Bridge during peak periods in 2000 is shown in Table 4-30. Traffic counts taken hourly on the bridge in October 1993 were 8,904 vehicles during the a.m. peak and 13,765 vehicles during the p.m. peak (City Engineering 1993). These counts include an hourly volume breakdown. Each hour's percentage of the ADT was determined and applied to the projected ADT volumes for each reuse plan. These reuse plan volumes were totaled for each peak period.

As shown in Table 4-30, volumes on the bridge would begin to approach a V/C ratio of 1.0 under the No-action Alternative. The reuse plans push the volumes even closer to V/C 1.0. The City Plan would increase traffic on the bridge by 5 percent over the No-action Alternative, while the Muckleshoot Plan would increase traffic by 10 percent. However, these volumes do not exceed the maximum allowed V/C ratios and, therefore, are not considered significant.

Table 4-30
Forecast of Montlake Bridge Peak-Period Volumes Generated by Alternatives

Alternative	A.M. Peak Period 7:00 - 9:00 a.m. Total (Increase)	Afternoon Peak Period 3:00 - 6:00 p.m. Total (Increase)
City Plan	9,318 (414)	14,406 (641)
Muckleshoot Plan	9,760 (856)	15,089 (1,324)
No-action Alternative	8,904 (0)	13,765 (0)

- **Transit**

Both the Muckleshoot and City Plans would result in increased bus transit ridership because housing and educational uses are expected to generate additional riders. This impact is not expected to be significant.

- **High Occupancy Vehicles**

There is no HOV infrastructure within the immediate study area; therefore, no impacts are anticipated. Although the City and the Muckleshoot Plans will increase vehicular traffic, the contribution represents a fraction of regional traffic using HOV lanes and, therefore, is not significant.

- **Nonmotorized Modes of Transportation**

Use of the Burke-Gilman Trail and other bicycle and pedestrian routes remains popular and will continue to increase with regional population growth. SED estimates that 40 percent of city residents participate in bicycling, 70 percent in walking. Both the Muckleshoot and the City Plans would contribute recreational and commuter use to the Burke-Gilman and area trails. However, this impact is not expected to be significant.

- **Safety**

Trends in pedestrian, bicycle, and automobile accidents are difficult to estimate. Incidents might rise relative to increased vehicular traffic under the reuse plans; however, this impact is not expected to be significant.

- **Parking**

Because of the large amount of paved parking at the base, parking is not anticipated to be a problem with either reuse plan. As land uses are finalized, specific parking plans would be created for both plans. Alternatives to single passenger vehicles should be encouraged, as necessary, to ensure that enough spaces are available.

- **Construction Traffic**

No construction activity will occur under the No-action Alternative. The impact of construction traffic from either reuse plan is not expected to be significant since construction activities would occur on site, rather than on off-site roadways. Significant new construction is not proposed under the reuse plans, and any construction would likely be phased over several years.

- **Special Events**

The City Plan includes an outdoor amphitheater. The size of the amphitheater is unknown, but is assumed to have 1,000 seats. Approximately 350 trips into and out of the site are assumed for amphitheater events.

There should be no significant impacts to traffic since most events at the amphitheater likely would be held on weekends or weekday evenings.

4.5.3 Mitigating Measures

This section discusses measures to mitigate potential significant adverse transportation-related impacts from the reuse plans and the No-action Alternative. The significant impact identified under all alternatives is increased vehicular traffic using the N.E. 95th Street/Sand Point Way N.E. intersection. No significant impacts were identified for LOS, roadways, safety, construction traffic, transit, and HOV infrastructure within the immediate study area. Therefore no mitigating measures are proposed.

The 1994 City of Seattle Comprehensive Plan incorporates transportation demand management measures to reduce vehicular traffic and increase the efficiency and modality of transportation systems. In addition to these measures, the measures presented below could mitigate transportation impacts of the reuse plans.

- **Intersections**

Signal timing could be adjusted to reflect changing traffic conditions under the reuse plans, resulting in improved intersection operations.

Consider signalization of the N.E. 95th Street/Sand Point Way N.E. intersection under all three alternatives to allow the intersection to operate at LOS C or better. Other improvements in lieu of signalization may accommodate the eastbound left-turn movement that is causing this intersection to operate poorly.

- **Nonmotorized Travel**

All reuse plans should provide detailed, effectively designed and constructed, pedestrian and bicycle trails and facilities (such as sidewalks, bicycle storage racks, and benches). Pedestrian and bicycle mobility could also be promoted on the site, given the complementary uses in the area.

- **Parking**

The number of vehicles accessing the site could be controlled by encouraging alternatives to single passenger vehicles, limiting parking spaces, reserving spaces for ride-sharing vehicles, or imposing parking fees.

- **Special Events**

Special events should be limited to days and times that will not impact peak traffic periods on the surrounding roadways. A traffic plan to manage event traffic should be in place to help expedite traffic in and out of the site.

4.5.4 Unavoidable Adverse Impacts

According to the City-adopted criteria of volume-to-capacity ratios and level of service, there will be no significant unavoidable adverse impacts for any of the alternatives. Traffic on the Montlake Bridge would increase over current levels, but this increase is not considered significant since it does not violate the City-adopted volume-to-capacity ratio.

4.6 NOISE

This section summarizes the noise assessment report (Appendix J). This summary provides general background on noise levels, discusses noise regulations and guidelines, evaluates and compares the existing noise environment around the base with potential noise sources and noise levels created by activities under the alternatives, and suggests mitigation measures to reduce or limit noise levels as necessary.

4.6.1 Affected Environment

- **Noise Description**

Noise is defined as excessive or unwanted sound. It results from a combination of the intensity, duration, and character of sounds from all sources. Noise is measured in decibels, and typical source levels are shown in Table 4-31. Because people respond differently to sound at various alternate frequencies, a weighted scale decibels A-weighted (dBA) is used to approximate the sensitivity of the human ear. The human ear can detect changes in loudness of 3 dBA. The dBA scale is logarithmic, rather than linear (a 60 dBA sound is perceived to be twice as loud as a 50 dBA sound). The same is true for the number of noise sources. Doubling street traffic increases noise by 3 dBA, an amount considered slightly detectable by the human ear. Regulatory agencies use the dBA measurements to evaluate noise impacts.

Table 4-31
Representative Noise Sources and Magnitude

Source Description	Magnitude (dBA)
Threshold of audibility	0
Quiet rural area (no traffic)	20
Suburban background noise (distant traffic)	40
Urban traffic noise, 50 feet (15 m) from two-lane arterial with moderate traffic	50
Urban traffic noise, 50 feet (15 m) from busy four-lane arterial	60
Normal conversation	60
Busy freeway at 100 feet (30.5 m)	80
Jackhammer	100
Threshold of pain	130

Noise levels decreased with distance, with obstructions such as buildings or terrain, and with ground absorption, including vegetation. Noise levels can increase with reflections off hard surfaces such as pavement or nearby buildings. The effect of noise on people is

determined by its level and duration. Equivalent noise level (L_{eq}) is used to measure average noise level over select time periods. Another useful measure, day-night equivalent sound level (L_{dn}), represents an average noise level measured over a 24-hour period, with a 10 dBA penalty applied to nighttime levels.

• Noise Level Standards

The City's noise ordinance (Chapter 25.08 of the Administrative Code of the City of Seattle [Ordinance 106360], summarized in Appendix J) regulates sound levels permitted to travel from one property, or one zoning classification, to another. For example, commercial uses can transmit no more than 57 dBA to adjacent residential properties during daytime hours. Likewise, industrial uses can transmit no more than 60 dBA to residential properties. Downward adjustments of 10 dBA are made for weekday nighttime hours (10 p.m. to 7 a.m.) and weekends and holidays between 10 p.m. and 9 a.m. City zoning for Naval Station Sand Point (not applicable while the property is under federal ownership) is currently single-family residential. A portion of the property would have to be rezoned to accommodate the City Plan. The noise ordinance also sets standards for construction activities, individual automobiles, and boats and makes provisions for periodic noise sources such as construction and concerts.

The City's noise ordinance is applicable to specific activities, but does not regulate all urban noise sources, particularly the local impacts of street noise in residential areas. As a result, the noise levels measured at many locations in the City are unlikely to achieve levels as low as the ordinance requires for individual activities. When the background noise level exceeds the values specified in the ordinance, the effect of a single new activity that just meets the level allowed may be an imperceptible change in the overall noise environment.

In order to evaluate the impact of noise sources in areas that currently exceed background levels for the City's noise ordinance, this analysis of reuse alternatives will use the EPA Region 10 guidance (U.S. EPA 1980). EPA concluded that people perceive an increase of 0 to 5 dBA to be a slight rise in noise over background levels. Further, EPA determined that increases of 5 to 10 dBA were a significant increase in noise, and increases greater than 10 dBA were very significant (termed "serious").

This DEIS analysis considers a noise impact significant if one of the following applies:

- In an area that currently experiences lower sound levels than those listed in the noise ordinance, noise above the ordinance is significant.
- In an area that currently has background noise levels exceeding the ordinance, an increase greater than 5 dBA is significant.

The City's noise ordinance may or may not apply to the Muckleshoot Tribe. Whether the City could enforce the noise ordinance to obtain compliance of activities associated with the Muckleshoot Tribe's Plan has not been determined.

- **Existing Noise Levels**

Noise levels were measured at five locations typifying the area noise environment around Naval Station Sand Point (Figure 4-23). For example, Location 2, at the south entrance to the base along Magnuson Park Road, received the bulk of automobile traffic entering and exiting the site. Likewise, Location 5, at the north entrance to the base, typifies background noise levels along Sand Point Way N.E. Noise readings were taken over 24-hour periods between March 30 and April 8, 1994, when the Navy occupied the base. Although the major noise generator is traffic, the measurements also include other ambient noise (i.e. passing aircraft, barking dogs, etc.) Included are measurements for the following:

L_{dn}	=	24-hour average noise levels
$L_{eq \text{ day}}$	=	Average noise levels from 7 a.m. to 8 p.m.
$L_{eq \text{ night}}$	=	Average noise levels from 8 p.m. to 1 a.m.
$L_{max \text{ day}}$	=	Average maximum noise levels from 7 a.m. to 8 p.m.
$L_{max \text{ night}}$	=	Average maximum noise levels from 8 p.m. to 1 a.m.

Data on Figure 4-23 indicate that L_{dn} outside of residences along Sand Point Way N.E. are typical of a busy urban arterial. Location 4 readings are slightly higher due to accelerating vehicles turning from the NOAA entrance.

4.6.2 Direct and Indirect Environmental Impacts

Noise associated with the two reuse plans (at build-out) is expected to originate from one of four categories: (1) traffic (off site and on site); (2) construction; (3) heating, ventilating, and other mechanical equipment; and (4) other sources (people, activities, and equipment). Noise generated in the first three categories is expected to be similar for both reuse plans, whereas that generated by "other" sources is more plan-specific. Existing and projected noise levels from off-site traffic near the base are provided in Table 4-32. Existing and projected noise levels in this table are predicted levels from calibrated models and existing traffic data, rather than from actual measurements. (Note: the predicted levels are within 2 percent of the measured values in the immediate vicinity.)

- **Reuse Plans**

Construction Noise. Construction noise levels are regulated by the City noise ordinance. Noise levels that comply with the maximum allowable noise levels permitted by the

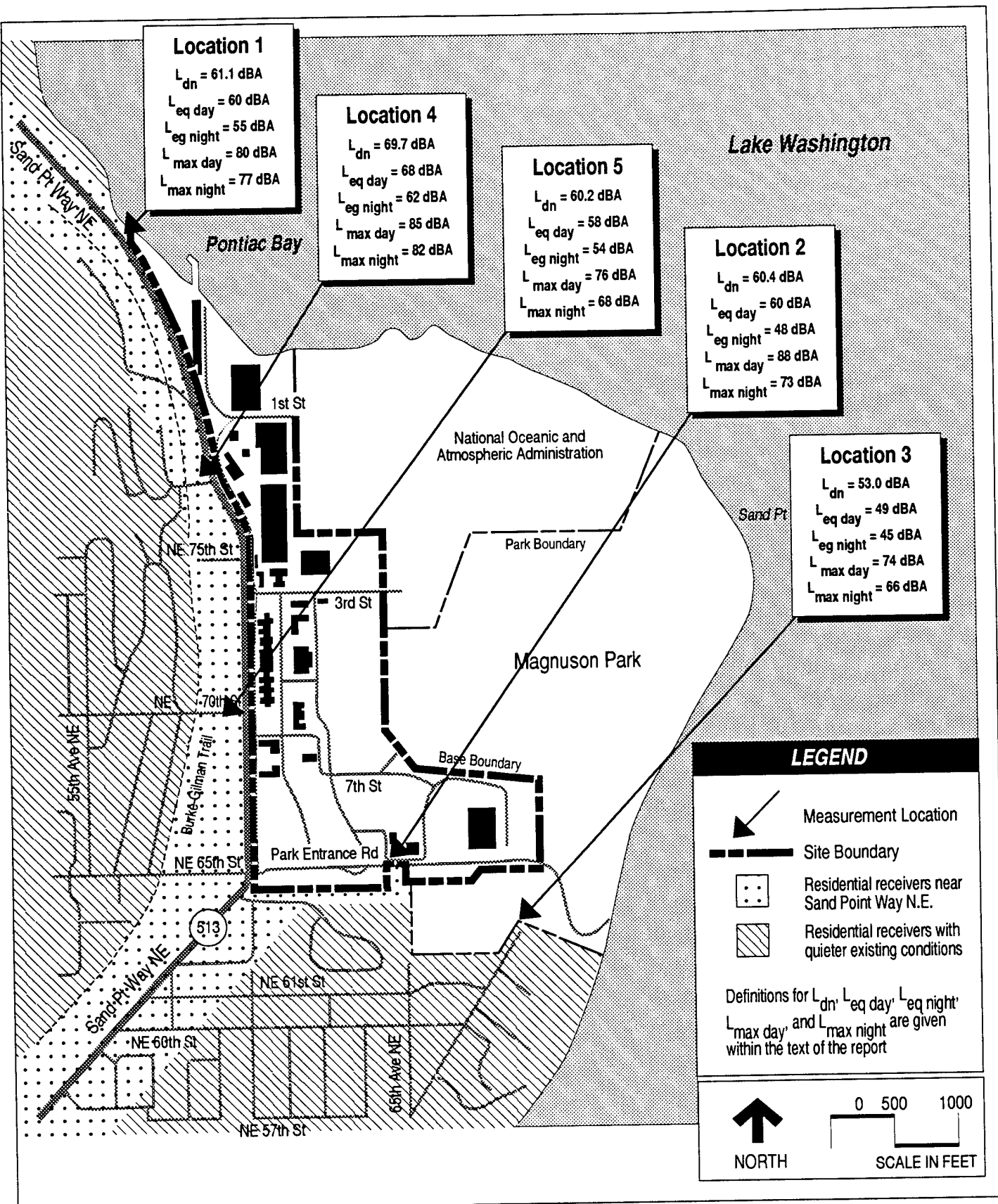


Figure 4-23
Noise Levels at Five Locations Around Naval Station Sand Point

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Table 4-32
Existing and Projected Noise Levels From Off-Site Traffic

Road Section	Equivalent Noise Level (L _{eq})			
	Existing Traffic	City Plan	Muckleshoot Plan	No Action
Sand Point Way N.E., north of NOAA entrance	63	65	67	63
Sand Point Way N.E., north of base entrance	67	70	72	67
Sand Point Way N.E. and N.E. 65th St.	68	68	71	68

Notes:

L(eq) - equivalent (constant) noise level.

NOAA - National Oceanic and Atmospheric Administration

Seattle noise ordinance can be as great as 99 dBA for short periods of time. The construction planned for Naval Station Sand Point is typical for construction projects. Construction noise levels will be slightly audible at the closest residential areas, but will not be intrusive most of the time. For brief periods, the noise levels may increase (when construction activity is closest to the residential property or particularly noisy construction activities occur), and the resulting impact may be intrusive, while still complying with the ordinance. It is assumed the construction activities will comply with the noise ordinance and, therefore, will not result in a significant impact.

On-Site Traffic. Once on site, the traffic will disperse to its various destinations. Overall noise levels from traffic produced on site will, therefore, be less concentrated than the traffic noise produced by the vehicles traveling to and from the site on public streets. Expected noise levels and impacts are, therefore, lower than predicted for traffic noise on Sand Point Way. Impacts are expected to be slight at most. Traffic noise, as a whole, is not regulated by the ordinance, although noise from individual vehicles must be lower than specified maximum levels.

HVAC Equipment Associated With On-Site Buildings. The occupied buildings for both of the alternatives will require HVAC equipment to provide tempered air for the occupants. This equipment will be placed either in mechanical rooms within buildings, or on rooftops of buildings. Both configurations of equipment, for the size of buildings that would be associated with these alternatives, produce approximately 60 dBA at 50 feet (15 m) from the equipment, if the equipment is unmitigated. Assuming no other ambient noise (traffic etc.) at a distance of 200 feet (61 m) (the distance of the closest off-site residential properties), the expected sound levels are 48 dBA. According to the City noise ordinance, this is just above the acceptable night-time level (47 dBA) for noise generated by commercial property and received by residential property. This difference is imperceptible to humans. (If the HVAC equipment is on the residential building, acceptable night-time levels are 45 dBA.) Noise levels at on-site residences could be

somewhat higher because they are closer to the HVAC equipment. However, existing traffic noise on surrounding roadways exceeds 60 dBA, and HVAC noise may not be as noticeable at the residences as the traffic.

It is, therefore, likely that mitigation for mechanical equipment in buildings within 400 feet (122 meters) of Sand Point Way N.E. and on on-site residences may be necessary to meet the City ordinance. The design engineers for each project should calculate expected noise levels and project these noise levels to the distance of the closest residential property. Mitigation measures should be designed specifically to mitigate noise to not exceed 42 dBA. (This 42 dBA level is used instead of the allowable 47 dBA, to account for noise levels from several buildings combining to create a violation of the City noise ordinance, although each individual building would be in compliance.)

• City Plan and Options

Most of the proposed uses of the City Plan will generate little or no noise audible to off-site residential receivers. Examples of these types of activities are the North Shore Recreation Area, which, among other things, proposes a sailing center for small boats; the film studio in the Education and Community Activities Area (assuming that studio activities occur inside the building with the doors closed and that the hours are controlled); the senior center or community center within the same activities area; and the baseball fields within the proposed recreational area. Activities associated with these types of uses will be unamplified voices outside and louder activities inside, mitigated by the exterior shells of the buildings.

Some proposed activities, however, have the potential to create an impact. These activities are listed below, along with their projected noise levels and resulting potential impacts.

Children's Playground. Uses designated as community and social services within the City Plan, as well as the Montessori School campus, may have playgrounds for children. Children on playgrounds produce roughly 60 dBA at 50 feet or 15 m (30 children), according to a previous measurement conducted by Michael R. Yantis Associates for an unrelated project. Assuming a distance of 200 feet (60 m) to the closest off-site residences, the expected noise levels are 48 dBA at the closest residential community. This level meets the City noise ordinance for daytime activities and is lower than existing noise levels. The expected impact is, therefore, slight at most. Noise levels at on-site residences will be somewhat higher since some housing will be closer to the playground.

Fire Engine Movement. It is expected that the training center run by the Seattle Fire Department would involve some movement of fire engines and related equipment. Using a reference sound level of 90 dBA at 50 feet (15 m) for engine noise, expected

sound levels at residential properties 200 feet (61 m) removed is 78 dBA. This is a maximum sound level and compares to existing maximum levels of roughly 75 to 80 dBA produced by traffic on Sand Point Way N.E. The resulting noise impact would, therefore, be slight. Certain on-site residents would be more seriously affected. It should be noted, however, that 78 dBA exceeds the maximum permissible level according to the City noise ordinance. The maximum noise level for the shortest duration is 72 dBA, produced by commercial property and received by residential properties. This exceedance might be mitigated by moving the fire training facility far enough from residential property to stay within the maximum 72 dBA limit in any 1 hour (as long as the sound was not produced for more than 1-1/2 minutes in any 1 hour). The analysis did not assume the presence of a siren. If a siren is present, impacts will be greater and most likely will be significant for the duration of the activity.

Outdoor Amphitheater. The City has not specified the types of performances to be held in the amphitheater, but three levels of events are assumed possible. At a reference distance of 125 feet (38 m) from the stage, an amplified music concert would produce approximately 100 dBA, a small musical group would produce approximately 85 dBA, and an amplified voice would produce 80 dBA. Using the City's site plans, the closest off-site residential property to the stage of the amphitheater would be approximately 500 feet. Resulting sound levels in the residential areas are 88 dBA, 73 dBA, and 68 dBA for the three different types of events, respectively.

Sound from the amphitheater will travel beyond the residential community next to Sand Point Way N.E. and into the further removed residential area, which experiences quieter existing sound levels. At 1,000 feet (305 m) from the stage, the expected noise levels are 74 dBA for an amplified music concert, 59 dBA for a small musical group, and 54 dBA for voice amplification.

Comparing the expected sound levels to existing daytime sound levels, the voice amplification would produce a slight impact at both distances—500 (152 m) and 1,000 feet (305 m) from the stage. (Measurement Location 3 was used to represent the quietest residential areas east and west of Sand Point Way N.E.) Small musical groups would produce a significant impact at residential areas close to Naval Station Sand Point and a slight impact at residential areas further removed. Amplified music concerts would produce a serious impact in all residential areas.

Nighttime activity in the amphitheater would produce a serious impact at residential areas close to Naval Station Sand Point for all three activity types. It would produce a significant impact at residential areas further removed from Naval Station Sand Point for voice amplification and a serious impact for any sort of musical performance. Certain on-site residents would be even more seriously affected by this source.

Mitigation for the amphitheater would be to orient it so that it faces away from the residential area to the west. However, this could impact residential property across the lake. Nighttime performances of small musical groups or amplified music concerts would be audible at shoreline property on the east side of Lake Washington, but would not cause a significant impact. Even if the amphitheater were oriented to face east, amplified music concerts could still seriously impact residential communities to the west of the project site and on site.

The City noise ordinance could be exceeded by small musical groups and amplified music concerts at the closest off-site residential area during daytime hours and would be exceeded by any amplified activity (voice, small musical groups, or amplified music concerts) during nighttime, as defined in the ordinance (after 10:00 p.m.). Orientation of the amphitheater away from the residential community could still not meet the City noise ordinance for musical groups or amplified music concerts and would be marginal for voice amplification. Variances are permitted by the City.

1,500-Seat Indoor Theater. Impacts from an indoor theater would be lower than those expected for the amphitheater, but would depend on the construction of the exterior shell. If the existing building (Building 30) is used for the shell, the attenuation could be as little as 10 dBA overall from interior to exterior due to the light construction. Considering this worst case scenario, impacts from amplified music concerts would still be serious at residential areas west of Sand Point Way N.E., but impacts from small musical groups or voice amplification would be slight. Sound levels for other than amplified music concerts could meet the City noise ordinance without additional mitigation. If a new skin is constructed on the theater exterior, it could be constructed to allow amplified music concerts to occur without producing significant impact on the off-site residential community.

Baseball/Softball Fields. Crowd noise from baseball and softball fields is not anticipated to affect residential areas surrounding Naval Station Sand Point, but use of a public address system could produce some impact. Using a distance of 1,000 feet (305 m) to the closest off-site residences to Sand Point Way N.E. and 1,500 feet (457 m) to the residential area west of the Burke-Gilman Trail, expected sound levels are roughly 64 dBA next to Sand Point Way N.E. and 50 dBA beyond the Burke-Gilman Trail. Corresponding impacts are slight for daytime and nighttime activity at residential areas west of the Burke-Gilman Trail, but could be significant for residential property between Sand Point Way N.E. and the Burke-Gilman Trail, and for on-site residences. This impact could be mitigated by orienting speakers away from the residential areas.

• Options to the City Plan

The impacts on noise would be similar to those described above for the City Plan, with the following exceptions. A larger presence of Seattle Community College on Naval

Station Sand Point would generate some additional traffic; however, the increase in traffic would not be enough to result in a significant increase in noise.

Ballard High School. Noise associated with the 2-year use of Building 9 for Ballard High School is not anticipated to result in an adverse impact to noise levels at nearby residences. The noise associated with students and staff of the high school would be comparable to noise levels for the children's playground and the ballfields (48 dBA @ 200 feet [61 m] distance). The Seattle School District has completed over 20 environmental analyses in recent years, and noise has not been identified as a significant public concern (Richmond 1996).

- **Muckleshoot Plan**

The Muckleshoot Plan uses were not as clearly defined as those for the City Plan. As a result, potential noise impacts cannot be defined as accurately. Any activities or uses that correspond with uses in the City Plan could have similar impacts, depending on the location of the activities.

As with the City Plan, most activities associated with the Muckleshoot Plan will produce little or no impact. Muckleshoot Plan activities identified as potentially causing an impact are described below.

Recreational/Commercial Area. As discussed in the City Plan, the major potential for impacts due to recreational/commercial use would stem from use of a public address system. Use of such a system could cause slight to significant impacts, depending on PA system orientation and location.

Warehousing/Light Industrial Area. Although this category could create impacts to residential communities from manufacturing processes (hammering, dust collectors, etc.), the site map included in the Muckleshoot Plan indicates that most of the buildings in this area will be used for storage and that only one building might have light industrial use. Other documents within the plan indicate that several existing buildings have proposed light industrial uses. Assuming all industrial use would meet City noise ordinance requirements, potential impacts to the off-site residential community closest to Sand Point Way N.E. would be slight at most, and the potential impact to residential areas west of the Burke-Gilman Trail would also be slight at most.

Commercial Area. It is difficult to assess noise impacts to residential property close to Lake Washington from commercial fishing by the Tribe. This is due to variations in operation and numbers of people present. Tribe personnel indicated approximately 30 motor boats could be stored at Naval Station Sand Point, and 10 boats could be used at any one time.

To assess potential impact from a single motorized fishing boat, a reference level of 74 dBA at 50 feet (15 m) was used to predict expected noise levels. This level corresponds with the maximum allowable level for water craft allowed by the City noise ordinance. It should be noted that fishing vessels are exempt from this ordinance, so that 74 dBA is not a regulated maximum level, but rather has been used as a typical maximum for water craft that would normally use Lake Washington. If the fishing boat produces this noise level (which assumes either a high rate of speed or acceleration) and is traveling 200 feet (61 m) from the shore, the resulting sound level on the shore would be approximately 64 dBA. Times of fishing activity, according to Tribe personnel, are likely to be between 9:00 a.m. and dusk.

The 64 dBA produced by one fishing boat would be clearly audible at nearby shoreline residential properties. If approximately one boat passed by every 5 minutes for the hour between 9:00 a.m. and 10:00 a.m., the combined noise levels produced by the boats would produce a significant impact on the property ($L_{eq(1hr)}$ of 58 dBA compared to existing daytime noise levels of 50 dBA L_{eq}). Boats traveling closer to shore, or more boats departing in a shorter overall time, could produce a very significant impact.

Considering all these factors, impact from fishing activity on the property bordering the lake probably would range from slight to significant, depending on the manner of operation and the boats.

- **Traffic Noise Increase on Sand Point Way N.E. Due to City (including Options) and Muckleshoot Plans**

An increase in traffic along Sand Point Way N.E. will occur as a result of the operation of either the City or the Muckleshoot Plan. Predictions of the expected traffic noise for the proposed two alternatives were made based on information in Section 4.5. A noise prediction accounts for noise created by all traffic on all streets near the prediction location, but is usually dominated by traffic on the closest street. Prediction locations were chosen to represent the typical home set-back distance from the right-of-way of Sand Point Way N.E.

At most locations, the noise impact due to traffic increase is expected to be slight under both reuse plans. The largest increase due to truck traffic is expected for the Muckleshoot Plan on the section of Sand Point Way N.E. south of the entrance to Naval Station Sand Point. The impact would be characterized as significant by EPA (U.S. EPA 1980). Actual truck increases projected for the Muckleshoot Plan are not known. The projected noise impacts are valid only if existing truck traffic increases significantly as a result of the Muckleshoot Plan.

- **Summary of Noise Impacts From Reuse Plans**

Several activities proposed under the reuse plans cannot be completely mitigated to avoid all significant impacts, particularly for noise received at residential areas on Naval Station Sand Point. The following summarizes significant impacts that either would exceed the City noise ordinance in areas with existing quiet background levels, or would exceed EPA's criteria for increases in areas with high background noise levels.

City Plan and Options to the City Plan. If conducted, outdoor amplified music concerts are predicted to have a significant impact. The impact could be significant at night when noise levels have to be 10 dBA less than during the daytime. Similarly, if an amplified public address system is used at the ballfields at night, a significant impact on noise levels could occur. HVAC units on buildings could impact residences.

Muckleshoot Plan. The Muckleshoot Plan includes motorized fishing vessels. Operating these vessels near shore could significantly impact noise levels. Heavy trucks operating at night could impact residences. Similarly, if an amplified public address system is used at the ballfields at night, a significant impact on noise levels could occur. HVAC units on buildings could impact residences.

- **No-Action Alternative**

No use-related noise would be generated from the No-action Alternative, since the base would remain closed.

4.6.3 Mitigating Measures

- **All Reuse Plans**

Mitigating measures for noise resulting from activities proposed in both reuse plans could include the following:

- Perform an acoustical analysis for new HVAC equipment used for on-site buildings to verify compliance with the City noise ordinance. Because multiple buildings are possible, the noise level from any one building's mechanical system should not exceed 42 dBA at the closest residential property.

- **City Plan**

Mitigating measures that could be employed by future users proposed in the City Plan include the following:

- Limit noise levels produced by the outdoor amphitheater to 85 dBA at the farthest seating locations in the amphitheater. Orient the amphitheater to face east, rather than west.
- Regulate concert and/or performance hours of operation.
- Design the 1,500-seat indoor theater to limit sound levels immediately outside the exterior shell of the theater to 80 dBA.
- If public address speakers are used in association with athletic fields, orient them to face east.
- Limit noise levels from the fire-training facility to City noise ordinance limits (72 dBA for 1.5 minutes in a 1-hour period). Prohibit use of sirens, and use muffler baffles on training vehicles.

- **Muckleshoot Plan**

Mitigating measures that could be employed by future users proposed in the Muckleshoot Plan include the following:

- If public address speakers are used in association with athletic fields, orient them to face east.
- Limit the speed of fishing boats departing from or arriving at the Naval Station Sand Point property to no more than 5 miles (8 km) per hour within 400 feet (122 m) of the shore, unless the boats can demonstrate that faster speeds do not produce more than 50 dBA at the closest shoreline property. (The 50 dBA limit allows for operation of multiple fishing boats at the same time, with their total noise only slightly impacting the shoreline properties.)
- Prohibit movement of heavy trucks (with large diesel engines) on Naval Station Sand Point between 12:00 midnight and 5:00 a.m.

- **No-action Alternative**

No mitigation is required.

4.6 Noise

4.6.4 Unavoidable Adverse Impacts

None.

4.7 PUBLIC SERVICES AND UTILITIES

This section discusses affected environment, projected impacts, and mitigating measures related to the water, wastewater and sanitary sewer, stormwater, solid waste, electric, heating, cable television, and telephone systems on and near Naval Station Sand Point.

4.7.1 Affected Environment

This section describes existing public services and utilities on and near the Naval Station Sand Point property.

- **Drinking Water System**

Naval Station Sand Point directly connects to the City water system, which is supplied by three sources: the Cedar River Watershed, South Fork of the Tolt River Watershed, and the Highline Well Field. All three sources are outside Seattle city limits. The Seattle Water Department (SWD) maintains 1,663 miles (2,676 km) of distribution mains, 11 distribution reservoirs, 8 standpipes, 4 tanks, 17 pumping stations, and 172,203 metered service lines.

Existing peak capacity of SWD's water sources is 350 million gallons per day (mgd) (1,325 million liters). Existing peak storage capacity is 5,156 mgd (19,515 million liters). Existing peak capacity of the transmission lines is 335 mgd (1,268 million liters). In 1992, customers in SWD's service area used an average of 100 gallons (379 liters) per capita per day. SWD sells water to other providers in the region; therefore, this figure includes water sold to other purveyors.

When occupied by the Navy, average daily water consumption on Naval Station Sand Point was 146,000 gallons per day (gpd) (552,610 liters). SWD's 16-inch-diameter (41-cm) water main on Sand Point Way N.E. currently provides water service to the base. An 8-inch-diameter (20-cm) water line connects with this main in the 6500 block, and an 8-inch-diameter (20-cm) line connects in the 7600 block. Direct fire hydrant connections to the City's main are at the north end of the base. Water for Magnuson Park is supplied through Naval Station Sand Point lines, with a separate meter for the park.

The looped on-base distribution system contains 28,000 feet (8,534 m) of 1.5- to 16-inch-diameter (3 to 41 cm) water lines, of which 99 percent are unlined cast iron with leaded joints. The Navy's utilities report (U.S. Navy 1986) listed the condition of the 50- to 65-year-old system as fair. Preliminary investigation by SWD determined that the system is constructed of substandard materials and often substandard pipe sizes. Horizontal separation of water lines from sewer and storm sewer lines is also substandard, and leakage problems have occurred at Naval Station Sand Point in the past several years.

Current fire flow at Naval Station Sand Point is at least 1,000 gallons (7,254 m) per minute through at least one hydrant. This level meets the City's informal standard for residential areas. A higher value is desirable. The condition of the existing piping system is unknown.

- **Wastewater and Sanitary Sewerage System**

The existing on-base sanitary sewerage system at Naval Station Sand Point was originally installed in the 1940s (Figure 4-24). The system consists of 23,800 linear feet of pipe (7,254 m) and five pump stations. The pipes are a combination of concrete and vitrified tile, varying in diameter from 6 to 15 inches (15 to 38 cm). The pump stations are located near Buildings 2, 5, 11, 193, and 228. Each station has two pumps: the main pump and a backup pump used during shutdown of the main pump and during peak-flow conditions. The pumps are electric and have backup diesel generators capable of providing power for up to 8 hours. Power transfer is not automatic.

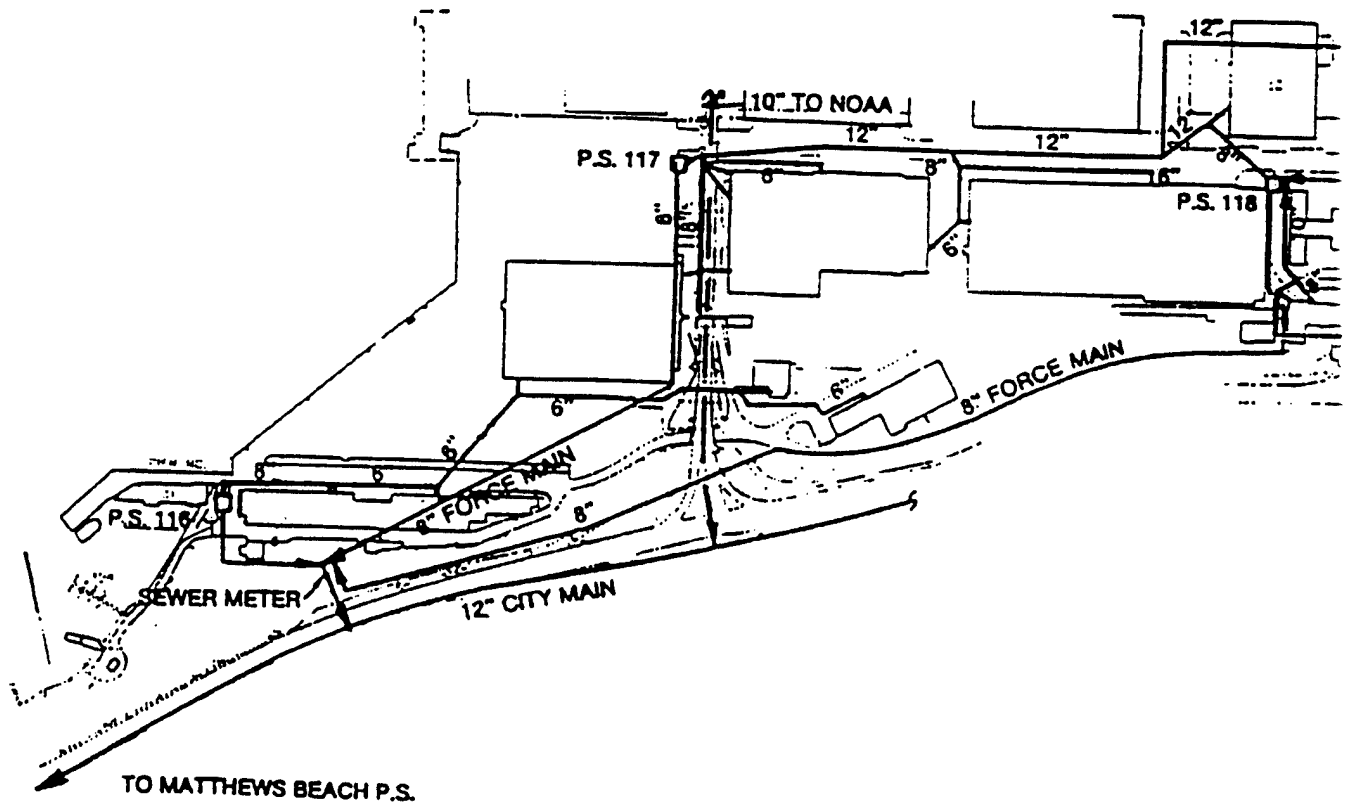
Groundwater infiltration into the Naval Station Sand Point system has been a problem during high-water-table conditions, especially during periods of heavy rainfall.

When fully occupied, average daily wastewater flow from the base was approximately 149,000 gpd (563,965 liters/day). Wastewater is transported from the base's sewerage system to the City's 12-inch-diameter (30.5 cm) gravity sewer main that runs north along Sand Point Way N.E., west of Building 115. A small section of the south portion of the base connects with the system south of Building 344, which serves adjacent University of Washington housing and then connects with the City's system. The City's system feeds into King County Department of Metropolitan Services' (Metro's) larger lines that convey the wastewater to Metro's West Point treatment plant. Current average daily flow at West Point is approximately 120 mgd (503 million liters); the existing capacity is 133 mgd (50.3 million liters). The plant provides primary and secondary treatment to remove 90 percent of solids. A planned expansion in 2006 will increase capacity to 165 mgd (625 million liters).

- **Stormwater Piped System**

About two-thirds of the surface area at Naval Station Sand Point is impervious; the remaining one-third is vegetated. Most of the stormwater runoff from the impervious surface flows to the on-base piped drainage system, installed in the 1940s (Figure 4-25). A portion of the runoff flows on the surface directly to Lake Washington.

Naval Station Sand Point's drainage system easily accommodates existing stormwater flow. In addition to serving Naval Station Sand Point (approximately 33 acres [13 hectares] of buildings and 70 additional acres [28 hectares] of impervious surfaces on the base), the drainage system receives runoff from portions of nearby NOAA property, Magnuson Park, part of Sand Point Way N.E., and an area west of the roadway Naval



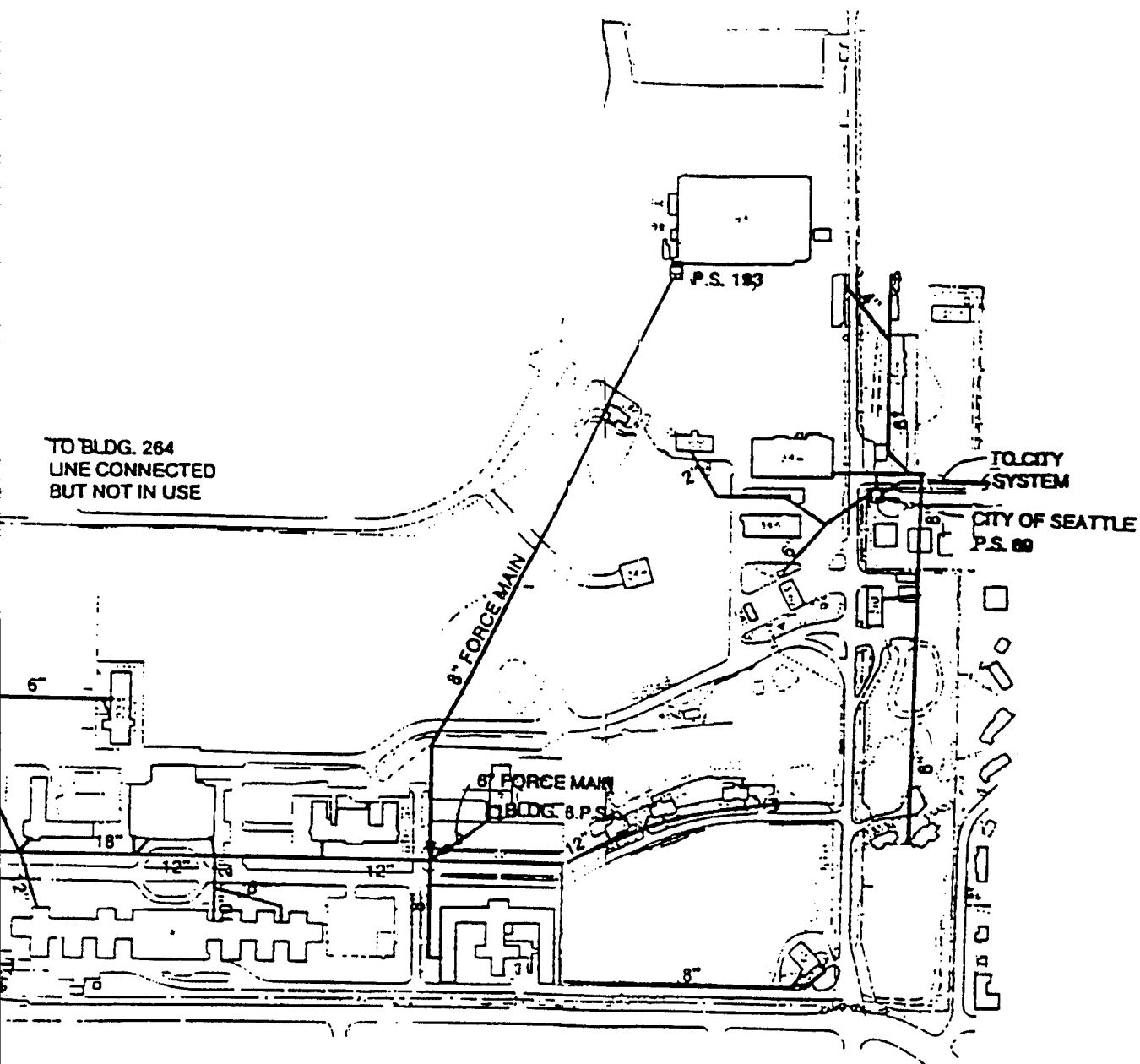
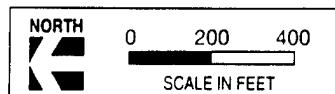


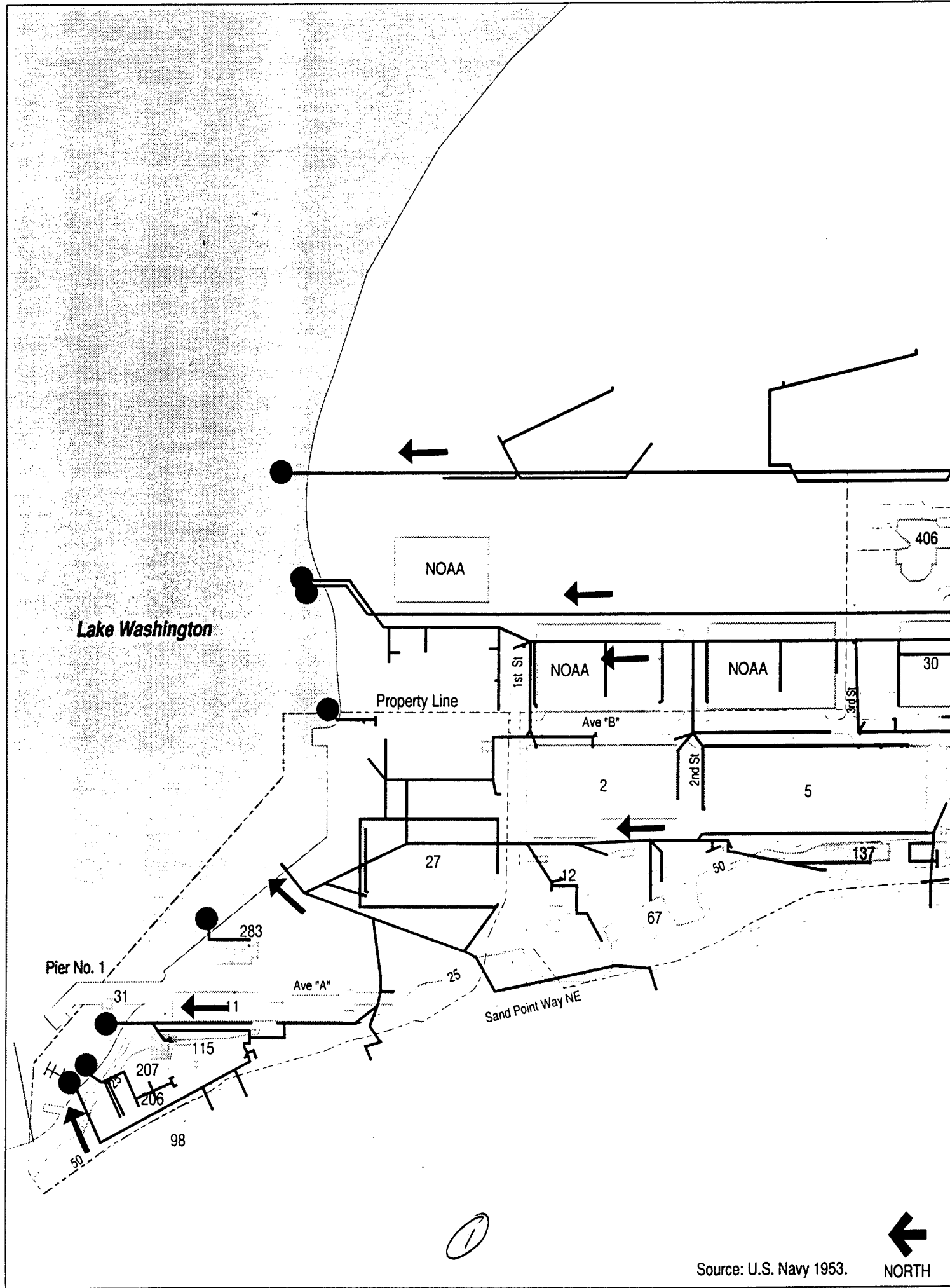
Figure 4-24
Sewage Collection System at
Naval Station Sand Point



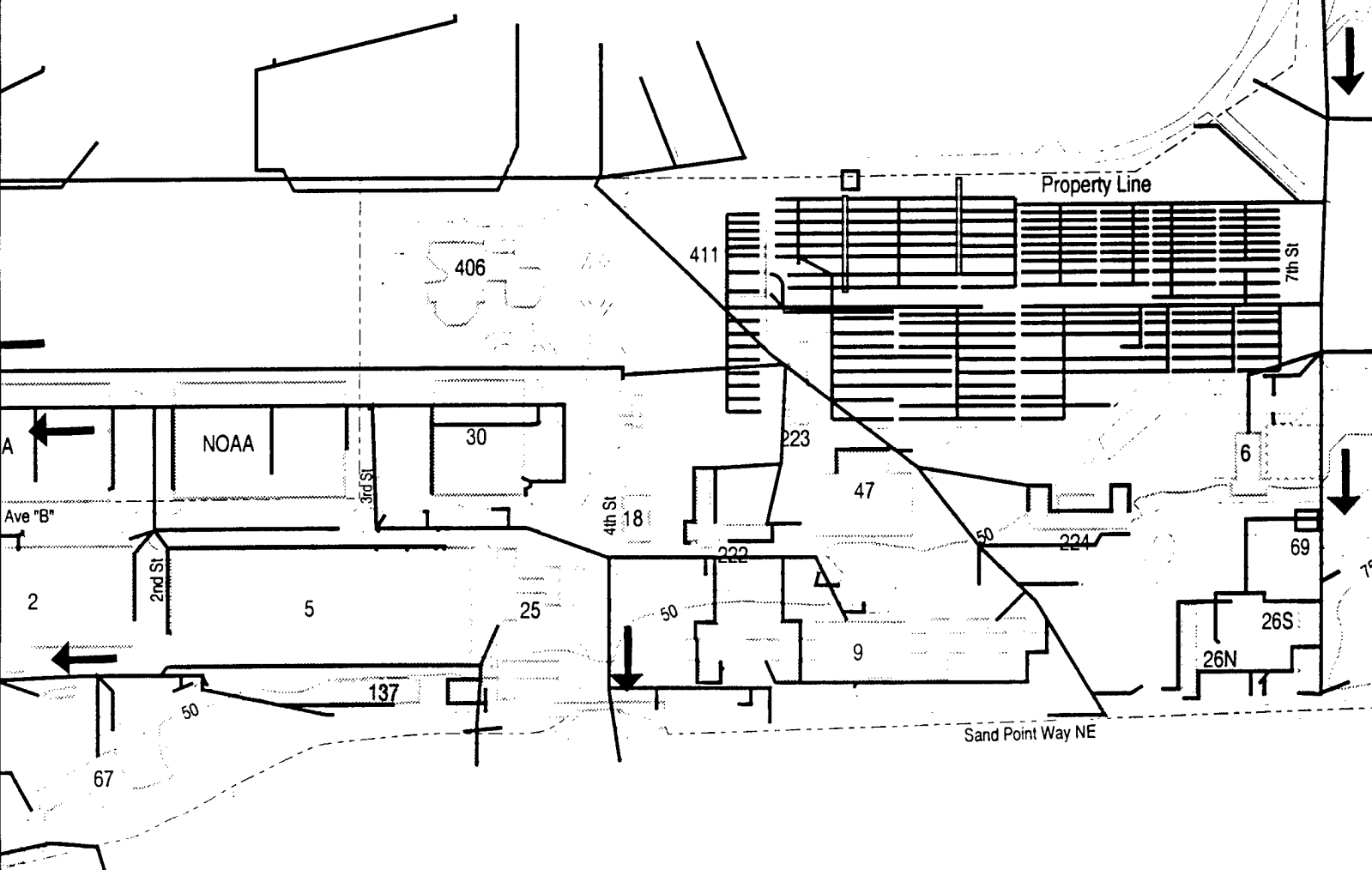
NAVAL STATION
SAND POINT
Draft EIS
November 1996

Source: U.S. Navy, November 1986.

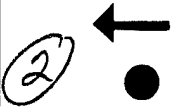
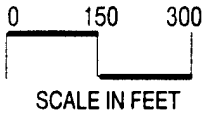
3



MAGNUSON PARK



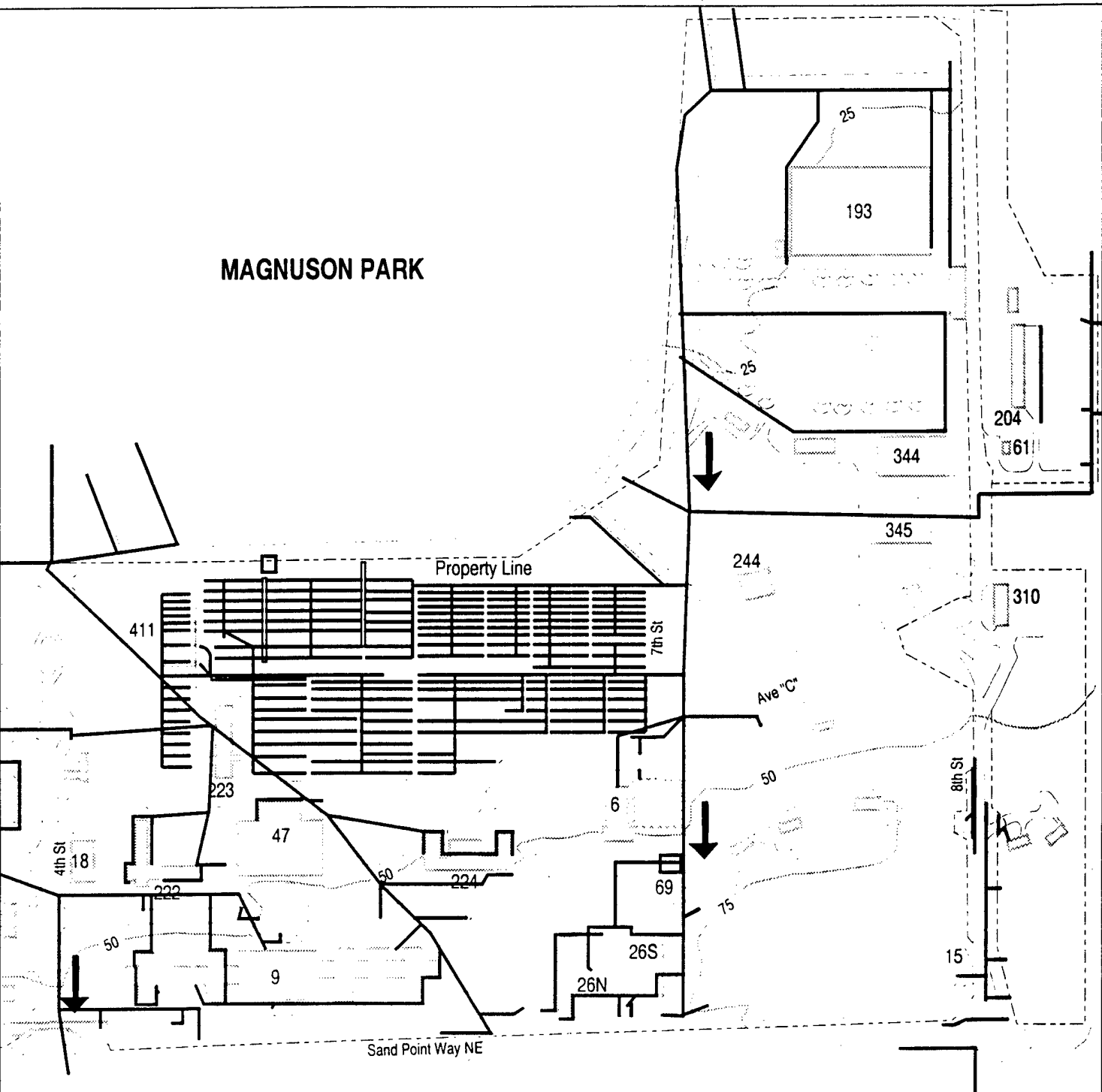
Source: U.S. Navy 1953.



- LEGEND:
- Property Line
 - Foundation Only
 - Bldg Location and Number
 - Elevation Contours in Feet Above Mean Sea Level
 - Direction of Drainage
 - Storm Drain Outfall

St

MAGNUSON PARK



LEGEND:

- Property Line
- Foundation Only
- Bldg Location and Number
- Elevation Contours in Feet Above Mean Sea Level
- Direction of Drainage
- Storm Drain Outfall

Figure 4-25
Stormwater Drainage System at
Naval Station Sand Point

NAVAL STATION
SAND POINT
Draft EIS
November 1996

150 300

SCALE IN FEET

3

Naval Station Sand Point is divided into four major drainage basins, each with its own outfall to Lake Washington. Trunk lines range from 12 to 48 inches (30.5 to 122 cm) in diameter, with capacities ranging from 28 to 93 cubic feet (0.8 to 2.6 m³ per second (cfs)). Their combined discharge capacity is approximately 216 cfs, which is adequate to handle a 25-year storm flow (approximately 210 cfs [6 m³]). Outfalls that serve more than one building are located west of Building 11 (16-inch-diameter [11 cm]) and north of Building 27 (42-inch-diameter [107 cm]), and four off-site outfalls are located east of the base (two are 30 inches [76 cm] in diameter, one is 48 inches [122 cm] in diameter, and one is 42 inches [107 cm] in diameter). The system currently includes 15 existing oil/water separators that are periodically maintained by the Navy.

- **Solid Waste (Garbage)**

Waste Management, Inc., provides solid waste disposal service at Naval Station Sand Point. Waste from Naval Station Sand Point is transported to the Columbia Ridge Landfill in Gilliam County, Oregon. The design capacity of this facility is more than 1,000,000 tons (907,200 metric tons) per year. The landfill receives 4,000 (3,629 metric tons) to 4,500 (4,082 metric tons) tons of solid waste per day. Landfill life is approximately 32 years. Naval Station Sand Point generated about 3,800 tons (3,447 metric tons) of solid waste in fiscal year 1992 and about 3,400 tons (3,084.5 metric tons) in fiscal year 1993.

Recycling began in 1991. Navy personnel hauled recyclables to SeaDruNar twice weekly and metals to Riverside Metals Company as needed.

- **Electricity**

Naval Station Sand Point is served by Seattle City Light's (City Light) North Substation, which is rated at 13,000 kilovolt-amperes (kVA). The base's current load is 9,800 kVA during the winter peak. As of April 1992, the North Substation operated at 115 percent utilization during winter peak conditions. Once a capacity addition at the Canal Substation (near Fremont) is completed, excess load from the North Substation will be transferred to the Canal Substation.

City Light owns and maintains approximately 2,750 circuit-miles (4,425 km) of distribution lines within the City limits. Approximately 1,800 miles (2,896 km) are overhead, and 950 miles (1,539 km) are underground. The existing peak capacity of City Light-owned energy resources as of August 1992 is 1,573 megawatts (MW). If long-term purchase contract capability is considered, the minimum total confirmed 1-hour capability is 2,049 MW. The total amount of energy produced and purchased by City Light in 1991 totals 1,306 average megawatts (aMW). Energy used by consumers is less than the amount of energy produced because of transmission and distribution losses, City Light's own use, and sales to other utilities. Table 4-33 shows the demand for electricity in 1991 by customer type within the City Light service area.

Table 4-33
1991 Electricity Consumption

Type	Number of Customers	Total (MWh)	Per Customer (aMW)
Residential	296,886	3,348,694	382.1
Commercial and government	30,305	4,160,805	474.7
Industrial	297	1,460,796	166.7
Total	327,488	8,970,295	1,023.5

Notes:

MWh - megawatt-hours

aMW - average megawatts

Source: City Planning 1993

The Navy and City Light upgraded electrical service to Naval Station Sand Point in 1980. All Naval Station Sand Point buildings are currently served by a City Light transformer near the main gate. Electricity consumption is measured at the City Light meter between the transformer and the Navy's main switchgear. The underground distribution system is adequate to serve the Navy's uses.

City Light serves Naval Station Sand Point through a 26-kV underground cable that feeds a 5,000-kVA transformer system. The transformer provides a 4,160-volt (V) secondary server. The transformer is owned by City Light, but the switching equipment is owned by the Navy. In fiscal year 1992, Naval Station Sand Point used 10,938,000 kilowatt-hours/year (kWh/yr) of electricity. Service to individual structures is provided by underground wiring, which was upgraded in 1980. Magnuson Park, NOAA, and NBS buildings have separate electrical service.

• Heating System

All buildings on Naval Station Sand Point are currently heated by the base's central steam plant in Building 12. This heating plant houses three boilers rated at 27,000, 40,000, and 20,000 pounds (12,245, 18,141, and 9,070 kg/hr, respectively) of steam per hour (pph). All three boilers are reportedly in good condition; the oldest should not need replacement until 2001. Boiler use is alternated to allow time for preventive maintenance.

The system's primary fuel supply is interruptible natural gas. During periods of high demand when natural gas is not available, the plant switches to a backup supply of No. 2 fuel oil. The boilers operate at 100 pounds (45 kg) per square inch gauge (psig) and can

burn a maximum of 8,000 gallons (30,280 liters) of fuel oil per day; the normal average consumption during winter is about 6,000 gpd (22,710 liters). Natural gas consumption at the base is approximately 100 million cubic feet (3 million m³) per year.

Steam is distributed to 43 buildings through underground insulated piping. Condensate is returned by gravity and pumping through underground pipelines. Most of the piping, installed in the 1940s, is reportedly in fair condition, with an 80 to 90 percent condensate return to the plant. The remaining 10 to 20 percent is derived from City domestic water.

The three boilers were installed consecutively in 1977, 1983, and 1989. The design life of the boilers is 20 years, but normal life expectancy with good maintenance is 30 to 40 years. The boilers and controls have been upgraded to meet all national and local emission standards and have a good thermal efficiency of 82 percent. Some piping in the building is still insulated with asbestos-containing material; the lagged boiler casings have been abated and reinsulated with non-asbestos-containing materials.

Natural Gas. Washington Natural Gas (WNG) provides interruptible service to the base via a 6-inch-diameter (15 cm), steel-wrapped main on Sand Point Way N.E. A 4-inch-diameter (10 cm) line connects to the boiler (Building 12) to provide heating fuel for steam heat for all buildings at Naval Station Sand Point. Natural gas use at the base during occupancy was at capacity (1.2 million therms per year).

The existing natural gas supply to Naval Station Sand Point is insufficient to provide constant service to the base. During peak-demand time (6:00 to 8:00 a.m.) or when the temperature drops below 32°F (0°C), the gas demand exceeds the capacity of the existing pipeline and the current WNG system cannot provide sufficient gas to maintain a boiler fire. WNG normally gives at least 2 hours notice before curtailing gas service. When gas is curtailed, the hot boiler is shut off, and the unit is refired on oil. Four aboveground oil tanks are the only fuel supply during gas interruption, which normally lasts from 3 to 4 hours, but in extremely cold weather can last several days. Gas curtailments up to 2 weeks have occurred at Naval Station Sand Point during gas line maintenance by WNG.

Fuel Oil Tank. No. 2 heating oil is currently stored in four 8,000-gallon (30,280-liter) steel double-walled aboveground storage tanks (ASTs) built in 1994 and located on the east side of the central steam plant in Building 12. The tanks are maintained as a backup fuel supply when the natural gas system cannot provide enough gas to maintain a boiler fire. The amount of oil consumption at Naval Station Sand Point depends on the weather and the frequency of interruption of natural gas service. In 1993, approximately 90,000 gallons (340,650 liters) of No. 2 fuel oil were used, with maximum use of about 8,000 gallons (30,280 liters) per day. Fuel oil is delivered by tank truck and is pumped to the steam plant through a 3-inch (8-cm)-diameter steel pipe. Lighting is provided at the side of the steam plant to permit night tank filling.

- **Cable Television**

Cable service to all residential buildings is provided by Viacom Cablevision. The office, earth station, and area receiving center for the north end of Seattle, including Naval Station Sand Point, are located at N.E. 89th Street and Roosevelt Way N.E. The overall trunk and distribution system is considered in good condition. The on-site receiving point is in Building 5.

- **Telephone**

Telephone service is provided by U.S. WEST (U.S. West) Communications. One thousand telephone lines with the 526 prefix were reserved for Navy use at Naval Station Sand Point. When fully occupied by the Navy, 652 lines were in use. Now these lines are available for other users in the U.S. WEST system. The U.S. WEST Lakeview central switching office at N.E. 64th Street and 11th Avenue N.E. serves Naval Station Sand Point. Data regarding capacity of this facility are unavailable. Main feeder lines run along Sand Point Way N.E. and provide service to the base. The existing system was upgraded with fiber optics.

- **Buildings Utility Systems**

The buildings on Naval Station Sand Point range from early 1930s to the mid 1980s construction. Most major buildings have had some form of utility system upgrades through the years, but few have been upgraded in the past 10 years, and most do not meet current codes. Few buildings have fire sprinkler systems. Electrical distribution in a few buildings has been upgraded, but most do not meet current codes.

4.7.2 Direct and Indirect Environmental Impacts

- **Off-Site Utility Systems (for the City, the Muckleshoot, and the No-action Alternatives)**

The City Plan and options, the Muckleshoot Plan, and the No-action Alternative will have no significant impacts on the supply of public services and utilities, including energy supply, servicing Naval Station Sand Point. The utility demand expected for the reuse plans is within the range of the demand under the Navy's use in the last 10 years. Therefore, significant impacts to off-site utility systems are not anticipated. Specific industrial activities, currently not detailed in the Muckleshoot Plan, would have to be evaluated because they may create a utility service demand that cannot be accommodated by existing utilities. The existing systems servicing the site are adequate for the No-action Alternative.

The off-site utility systems are upgraded as a normal part of area growth by the responsible utility and generally are budgeted as maintenance.

- **On-Site Utility Systems (for the City, the Muckleshoot, and the No-action Alternatives)**

The on-site utility systems are adequate to serve activities proposed under the reuse plans and the No-action Alternative on a short-term basis with no significant impacts. Because both reuse plans propose upgrades to the on-site utility systems, no significant impacts are expected.

For those systems that require improvement, the reuser will inspect and then repair or upgrade the system. The following bullets briefly outline expected upgrades by the reuser:

- The existing on-site water system is expected to be upgraded to current standards by the reuser.
- The reuse plans do not indicate any significant increase in paved areas. Therefore, the amount of stormwater would not increase, and the need for expanded systems is not warranted. However, the condition of the system should be analyzed because of its age. Location of the oil/water separators with respect to parking areas and discharge of stormwater to Lake Washington would also need further evaluation when parking/vehicle access is established. Reusers will have to maintain and operate the oil/water separators and the storm drainage system to ensure that collected oil is removed before the oil reservoir over-flow and that stormwater pipelines are kept open and flowing.
- The existing sanitary sewer system piping is also old enough so that upgrades are generally required. The age and condition of the pumps would also have to be assessed.
- The electric service distribution was upgraded in 1980. Continued use of these systems is expected with some upgrade.
- Continued use of the central steam plant for the long term may not be economical. Individual buildings may be upgraded with HVAC equipment that specifically meets the requirements of the building and occupants. The individual HVAC equipment will eliminate steam line losses, thus reducing fuel consumption. In addition, the City Plan would result in a net reduction in heated building space due to the demolition of 300,000 square feet (27,870 m²) of building. The new aboveground fuel storage tanks at

the steam plant were chosen because they could be moved to other buildings, thus making the fuel supply system more flexible.

- The cable television service at the base was at capacity during base activity. Cable companies are upgrading to fiber-optics in all areas, and the system capacity will probably increase when this improvement occurs.

For the City Plan and options and the Muckleshoot Plan, all occupants of the site will have to contract with one of two state-approved solid waste disposal firms currently licensed to pick up solid waste in the City. The approved firms are Waste Management of Seattle and Emerald City Disposal and Recycling. The City, as the local government with responsibility, has developed a solid waste management plan consistent with RCW 70.95 and WAC Chapters 173-304 and 173-351. In addition, the City has adopted goals to recycle 60 percent of its overall waste by 1998.

The volume of solid waste generated by the City and Muckleshoot Plans is not expected to exceed the average volume of Navy disposal over the past 10 years, because the proposed uses and activities in the Plans will be similar to the Navy's previous uses and activities.

4.7.3 Mitigating Measures

- **City Plan and Options and Muckleshoot Plan**

Off-Site Utility Systems. No mitigating measures are required.

On-Site Utility Systems. For both the City Plan and options and the Muckleshoot Plan, the utility system for each facility will require evaluation and possible upgrading when the facility's occupancy and use are determined. In general, the following specific mitigating measures could be implemented by the reuser if needed:

- Upgrade the water systems by installing low-water-use toilets, shower-flow limiters, and other water conservation measures to reduce the peak demand for water per occupant. Maintain or replace the on-site buried water distribution piping.
- Install high efficiency natural gas HVAC units in each building. This action, together with improved thermal insulation, will reduce the overall quantity of natural gas required for heating the existing buildings on site. New, on-site natural gas distribution piping will be required.
- Upgrade electrical systems by installing energy-efficient lighting, motors, and equipment. Install new electrical safety devices as the reuse is implemented, and new electrical loads for each building are established.

4.7 Public Services and Utilities

As buildings are placed in service, replace the single electrical metering for individual building metering. Install street lighting to meet City standards. Upgrade on-site distribution to a 26-kV system.

- Maintain the stormwater drainage system by cleaning catch basins and pumping oil/water separators.
- Consider relining the piping within the first 5 years; survey to detect for leaks.

- **No-Action Alternative**

None.

4.7.4 Unavoidable Adverse Impacts

None.

4.8 PUBLIC HEALTH AND SAFETY

This section discusses the impacts of the No-action Alternative and the two reuse plans on crime and law enforcement, fire protection, medical services, emergency medical services, and environmental health at and near Naval Station Sand Point.

4.8.1 Affected Environment

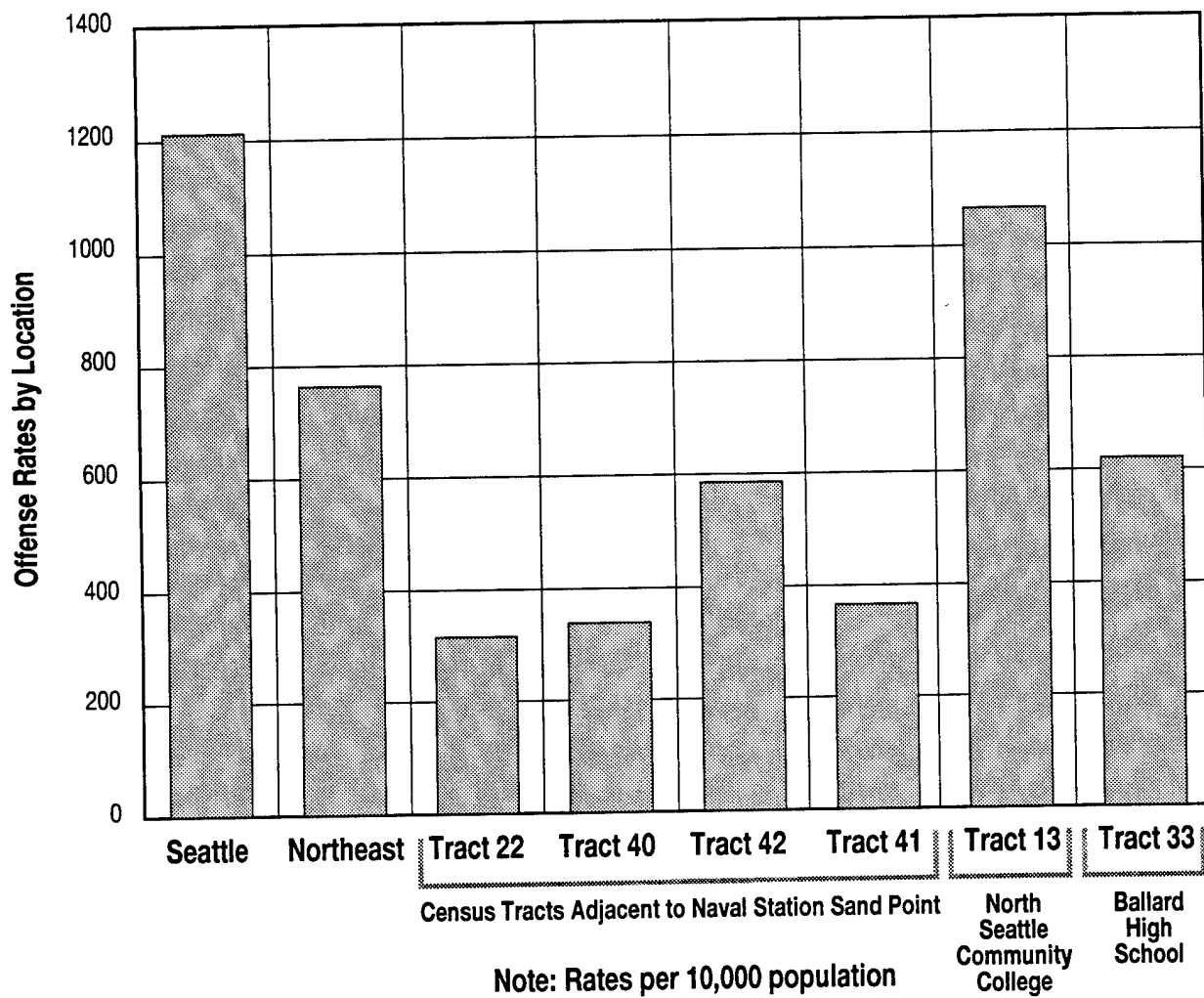
• Crime and Law Enforcement

A technical report addressing crime-related issues was prepared and is included in this EIS as Appendix K. The results of that study are incorporated into the following discussion.

An analysis of crime trends citywide and in the census tracts adjacent to Naval Station Sand Point reveals that serious crime (referred to as Part I offenses, which includes murder, rape, robbery, assault, burglary of a home or business, vehicle theft, theft, and arson) has remained fairly constant over the past 10 years. Property crimes have decreased; violent offenses, which constitute a much smaller proportion of total crime, have shown a greater variation. In the census tracts adjacent to the base, the number of reported offenses is very low and stable compared with the city as a whole and with the northeast. Rates in the tract containing the community college are similar to the city as a whole, while rates in the tract containing Ballard High are similar to those in northeast Seattle. Figure 4-26 shows a comparison of 1993 Part I offense crime rates for the city, Northeast Seattle, census tracts in the Naval Station Sand Point area, and census tracts containing North Seattle Community College and Ballard High School. (Refer to Figure 4-7 in Section 4.3 shows the location of these census tracts.)

The North Precinct of the City of Seattle Police Department, whose jurisdiction covers all of Seattle north of the water boundary of Union Bay, Portage Bay, Lake Union, and Salmon Bay, provides police protection for the above-mentioned census tracts (22, 40, 41, 42, 13, and 33). The precinct has been divided into three sectors (U, B, and N). Naval Station Sand Point area is served by the U sector, which covers the area from Lake Washington, Union Bay, and Lake Union north to N.E. 85th St. and from Aurora Ave. N. (SR 99) east to Lake Washington. More specifically, the U-3 sector precinct encompasses Naval Station Sand Point. This area is shown in Figure 4-27.

In the U sector, between five and nine squad cars are generally on patrol, depending on the time of day and day of the week. Services from the precinct station at 10049 College Way N. include patrol, traffic, and investigation. Police response time varies with traffic conditions and other factors, including the type of call (nuisance versus emergency). The citywide emergency response time average for 1993 and the first half of 1994 was approximately 9 minutes (Pirak 1995). If an officer from the U sector cannot respond to a call, then an officer is dispatched from another sector.



Source: Fehr and Tjaden 1994, 1996.

Figure 4-26
Comparison of 1993 City-Wide and Study Area Crime Rates

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Figure 4-27
City of Seattle Police Department Service Boundaries in
the Vicinity of Naval Station Sand Point

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When the base was in operation, the Navy provided its own security patrol (military police and shore patrol), consisting of 24 military and 12 civilian personnel. Response time was 3 to 4 minutes.

- **Fire Protection**

The Seattle Fire Department divides the city into six battalion areas. (The Emergency Medical Services Division [paramedic] Battalion covers all areas of Seattle.) Naval Station Sand Point area is served by Battalion 6, which generally covers the geographic area between the northern city limits, Portage Bay, Lake Washington, and I-5, plus a small area between 23rd Ave. E., I-5, and Mercer St. (Figure 4-28). Seven stations are in this battalion area. The nearest fire stations to the Naval Station Sand Point are Station 38, located at 5503 33rd Ave. N.E., and Station 40, located at 9501 35th Ave. N.E. Station 38 is staffed by one officer and two firefighters in charge of Engine 38. Station 40 is staffed by one officer and two firefighters in charge of Engine 40.

Table 4-34 shows calls for service for Engine 38, Engine 40, and the city as a whole. The average response time for fire alarms is 4 to 5 minutes, depending on location and traffic conditions. Although peak traffic can slow fire response, alternative routes have been established to avoid congestion.

Table 4-34
1992 Seattle Fire Department Engine Company Responses

Engine Company No.	Total Responses	Aid Responses ^a
Engine 38	1,400	997
Engine 40	1,261	882
City Total	48,780	30,271

^aAid responses are emergency medical-type responses, as opposed to fire calls.

Source: Seattle Fire Department 1992

The City currently provides fire protection for the base. When the base was in operation, the 14-person Navy civilian force had 12 firefighters, a fire inspector, and a fire chief. The base fire station, located in Building 18, had two pumper fire trucks; response time was 5 minutes. In 1992, the Navy fire department responded to two trash bin fires and a grass fire at Magnuson Park. Fireflow was discussed in Section 4.7.1.

- **Emergency Medical and Medical Services**

Emergency Medical Services. Currently, emergency medical services at Naval Station Sand Point are provided by the City. Through its fire department, the Navy formerly

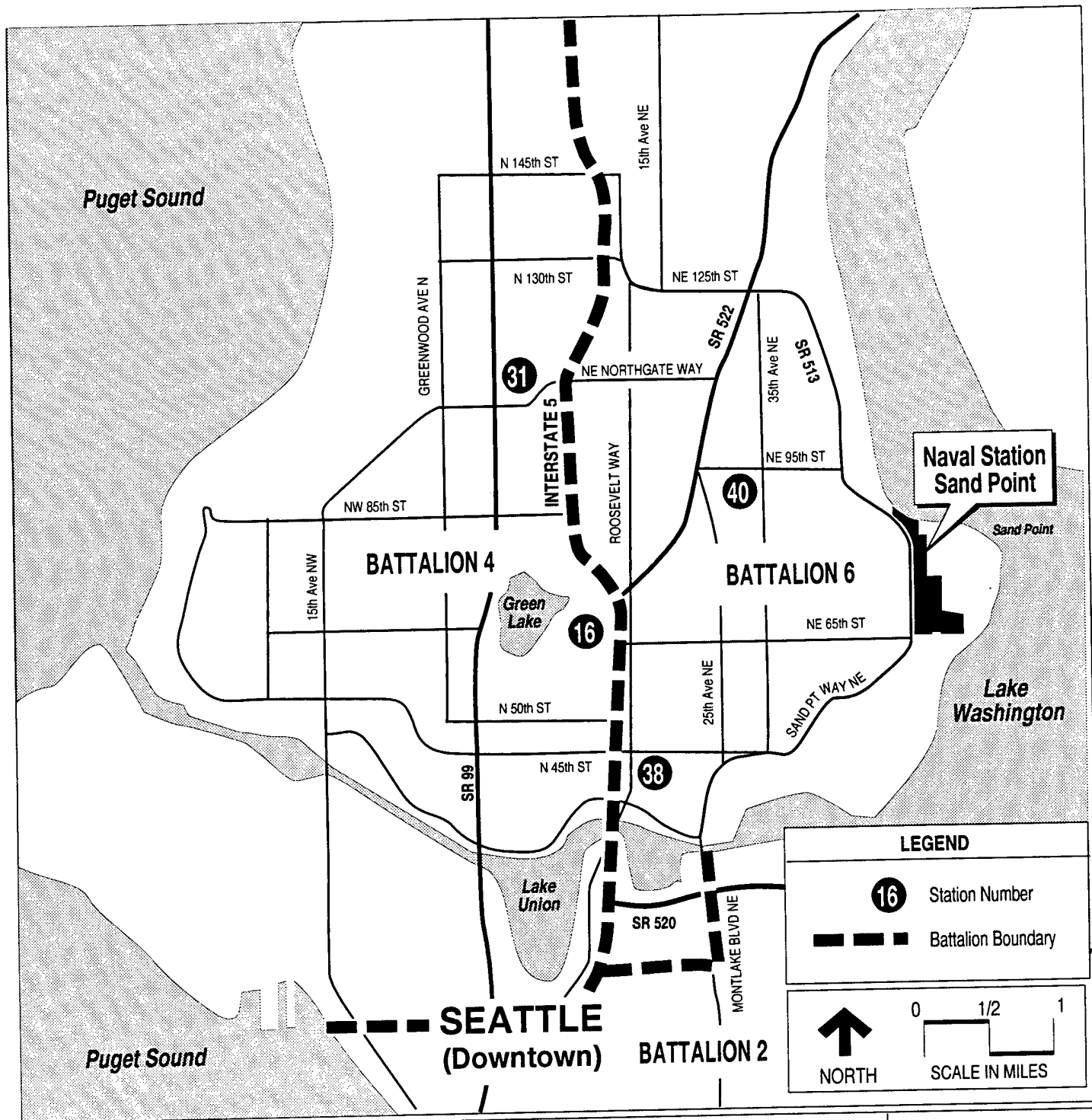


Figure 4-28
City of Seattle Fire Department Services in the Vicinity
of Naval Station Sand Point

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provided first response emergency medical technicians (EMTs) who maintained basic life support until the arrival of a Seattle Fire Department medic unit. The Navy's first response time was approximately 3 minutes.

The Seattle Fire Department Emergency Medical Services (EMS) Division, known to the public as Medic One, functions as Battalion 3. Its primary function is to provide advanced life support services to Seattle residents. Medical supervision for the program is provided by the UW School of Medicine. Medic units or private ambulances can be used to transport patients for additional emergency care. Medic One response time is approximately 7 to 9 minutes.

The medic units nearest to Naval Station Sand Point are located at Stations 31 and 16 (Figure 4-28). The Medic-31 specialized unit is at Fire Station 31, located at 1319 N. Northgate Way. The station includes one to two officers and firefighters in charge of Engine 31, one to three officers and firefighters assigned to Ladder Truck 5, and two paramedics. The Medic-16 specialized unit is at Fire Station 16, located at 6846 Oswego Place N.E. The station is staffed by one to two officers and firefighters in charge of Engine 16 and two paramedics.

Medical Services. The Seattle-King County area is the regional center in the Pacific Northwest for medical services, supporting 26 general/acute-care hospitals and four special-purpose hospitals, as well as numerous outpatient facilities of all types. Three hospitals are within the vicinity of Naval Station Sand Point (Figure 4-29): Children's Hospital and Medical Center (4800 Sand Point Way N.E.), Fifth Avenue Hospital at Northgate (10560 5th Ave. N.E.), and UW Medical Center (1959 N.E. Pacific St.). Children's and the UW Medical Centers are regional facilities, whereas the Fifth Avenue Hospital serves a more immediate area.

Children's Hospital and Medical Center offers a wide variety of services to children of all ages. In 1992, the facility had 208 beds and logged 81,276 clinic visits and 24,704 emergency room visits. The amount of space at Children's is inadequate for present and future needs. The condition of existing space is not appropriate for the future needs of a regional pediatric center.

The Fifth Avenue Hospital at Northgate is an immediate-care clinic providing acute medical and surgical facilities. In 1993, the facility had 38 beds. In November 1993, there were 63 admissions and a 33 percent occupancy rate, indicating excess capacity.

The UW Medical Center serves as a regional referral center, a teaching hospital for the UW School of Medicine, and a major research institution. There are more than 80 specialty clinics and multidisciplinary specialty centers. From 1991 to 1992, the UW Medical Center had 450 beds, 14,729 admissions, 111,571 patient days, 23,833 emergency visits, and 190,402 clinic visits.



Figure 4-29
Hospitals and Medical Facilities in the Vicinity of Naval Station Sand Point

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More than 15 percent of Seattle residents (60 percent of low-income residents) receive their health care from Seattle-King County Health Department centers or community clinics. The public health facilities nearest Naval Station Sand Point are Pacific Medical Center-Northgate (10416 5th Ave. N.E.), North Seattle Public Health Center (10501 Meridian Ave. N.), and the 45th Street Community Clinic (1629 N. 45th St.).

The Pacific Medical Center-Northgate is a full-care, fully staffed medical facility. Patients are seen on an outpatient basis. The North Seattle Public Health Center also is a full-care, fully staffed medical facility. The public health center has a 2-week waiting period for new patients.

At the time Naval Station Sand Point was in operation, the on-base dispensary/medical clinic, located in Building 29, provided medical services to both retired and active-duty military personnel and dependents (approximately 36,000 outpatient visits per year). Currently, retired military members and their eligible dependents may use Naval Station Puget Sound, Everett, or Madigan Hospital, Fort Lewis, facilities for health care services formerly provided at Naval Station Sand Point.

• Environmental Health

Potential environmental health risks may be associated with events such as spills of hazardous materials, use of pesticides and herbicides, and management of hazardous waste. These risks are not discussed in this EIS because sufficiently detailed information currently is not available about future uses of the base.

In general, regulations, such as CERCLA, RCRA, and TSCA, and agencies, such as the Occupational Safety and Health Administration (OSHA) and the State Department of Ecology, regulate the use and handling of hazardous waste and substances. If activities comply with applicable laws, there would be no significant impacts. It is not expected that such environmental health hazards would increase on the base with either of the reuse plans, except perhaps during grading, construction, or intrusive land operations, when unknown materials may be unearthed. Again, regulations would require cleanups to meet mandatory standards or risk-based concentrations.

Soils. The Navy has completed 3 years of investigation and cleanup of underground storage tanks and contaminated soils at Naval Station Sand Point. These investigations and cleanup actions have been documented in several reports (URS 1995a, 1995b, 1995c, 1995d, 1995e, 1994a, 1994b, 1994c, 1994d, 1993e, 1993d). Since fall 1993, cleanup actions have been directed by the BCT, which is composed of representatives from the Navy and Ecology. The City and the Tribe have coordinated with the BCT.

In order to analyze the site, Ecology divided Naval Station Sand Point into six parcels as shown on Figure 4-30. In some inaccessible areas on these parcels, chemicals are present at concentrations that do not comply with State of Washington MTCA cleanup

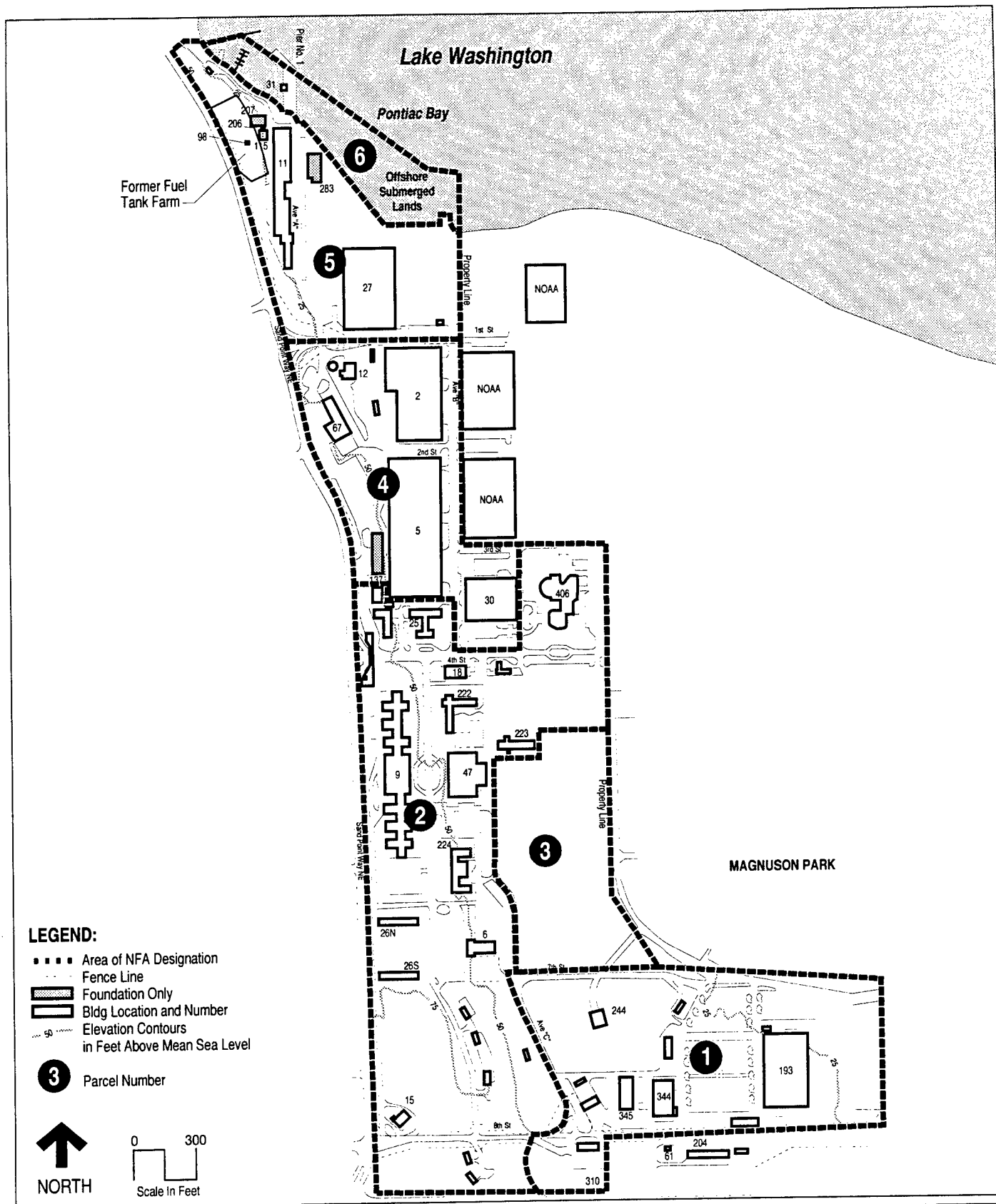


Figure 4-30
Department of Ecology's Parcels for Environmental Cleanup

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levels. However, the BCT has determined that further cleanup is not required at this time because current remediation of these chemicals would jeopardize structural integrity of these facilities and the chemicals do not currently pose a danger to human health or the environment, nor are they expected to be a hazard in the future. Each parcel and its remaining chemicals are as follows:

- **Parcel 1—South Base, Commissary and Auto Facilities:** Soils with petroleum hydrocarbons that exceed MTCA cleanup levels remain under Building 345.
- **Parcel 2—Residential Area:** There are no chemicals remaining that exceed cleanup levels.
- **Parcel 3—Ball Fields:** There are no chemicals remaining that exceed cleanup levels.
- **Parcel 4—Light Industry:** Soils under the floor in Building 2 and in grass strip on the north side of Building 30 contain metals; arsenic (Building 2 only) exceeds MTCA cleanup levels. Soils under the foundation of the former Building 137 contain Stoddard's solvent exceeding MTCA cleanup levels.
- **Parcel 5—North Shore:** Soils with petroleum hydrocarbons that exceed MTCA cleanup levels remain under the tarmac east of Building 11 at one discrete location.
- **Parcel 6—Off-Shore Bay and Sediments:** Sediment samples collected from Pontiac Bay in Lake Washington have concentrations of polycyclic aromatic hydrocarbons (PAHs) and metals. Ecology has not established cleanup levels for freshwater sediments; however, Ecology and the Navy worked together to develop standards for evaluating freshwater sediments off Naval Station Sand Point using bioassay analyses to modify marine sediment cleanup levels. Bioassay results indicate that a small area of sediment adjacent to the NOAA property line (near NOAA pier) has chemicals that affected test organisms (Figure 4-31). The Navy may choose to either conduct a cleanup in this limited area or transfer it with deed restrictions to a future owner, recognizing that the federal government will be responsible at a future date. Until cleanup is conducted, activities that disturb sediment (such as aquatic construction) must be limited to prevent exposure to humans and wildlife.

Asbestos. Twelve buildings requiring action under Navy guidance (OPNAVINST 5100.23C, Chapter 12) have been remediated by abating infractions in open and accessible areas (See Table 4-35). Although asbestos remains present in most of the

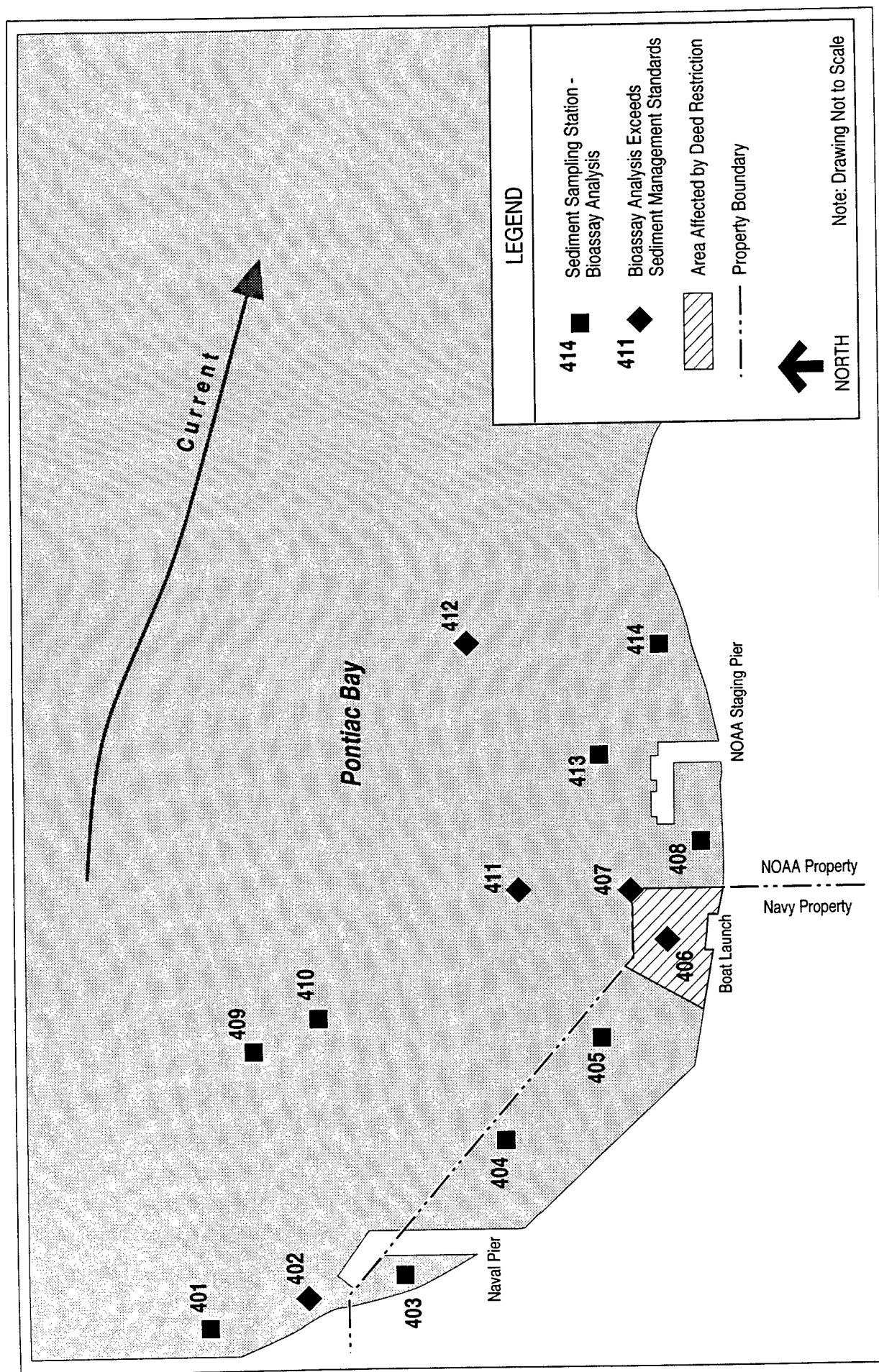


Figure 4-31
Bioassay Sampling Stations at Naval Station Sand Point

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Table 4-35
On-Base Buildings Containing Asbestos and Requiring Action

Building Number	Function
2	Marine Corps training
5	Warehouse
9	Enlisted barracks
25	Administration
26	Bachelor officer quarters
29	Dispensary
30	Administration
47	Recreation facility
192	Administration

*Abated

buildings on site, the friable asbestos is encapsulated and does not present a health hazard if properly maintained. All buildings comply with Navy regulations.

Lead-Based Paint. A lead-based paint survey was completed by the Navy in residential structures and buildings that may be used for childcare facilities (Table 4-36). Lead-based paint was found in all buildings surveyed except the brig (Building 406). Lead-based paint is regulated by the Lead-Based Paint Poisoning and Prevention Act of 1971 and P.L. 102-550, Title 10, Housing and Community Development Act of 1992. Chipped, cracked, and bubbled paint in Buildings 330, 331, and 332 (buildings intended for use by children under 6) was abated.

4.8.2 Direct and Indirect Environmental Impacts

- **Law Enforcement**

On-Base Area. Census Tract 23.98 (See Figure 4-7 in Section 4.3) is the tract that includes Naval Station Sand Point. Table 4-37 presents the number of projected Part I offenses in Census Tract 23.98 for all alternatives. Part I offenses include murder, rape, robbery, assault, burglary of a home or business, vehicle theft, theft, and arson. The projected crime rate for the no-action alternative was based on the 1993 crime rate, when the Navy occupied the base. Table 4-37 shows that the reuse plans would result in an increase in crime on the base over the 1993 crime rate. This increase would be generated by an increase in people using the site.

Off-Base Area. Analysis of comparable public housing in Seattle suggests that there is no empirical basis to believe that serious crime will significantly increase in the census tracts adjacent to Naval Station Sand Point as a result of public housing. Crime rates

Table 4-36
On-Base Buildings Surveyed and Containing Lead-Based Paint

Building Number	Function
2	Marine Corps training
5	Warehouse
9	Enlisted barracks
25	Administration
26	Bachelor officer quarters
29	Dispensary
30	Administration
47	Recreation facility
192	Administration
222	Administration
223	Family Service Center
224	Bachelor enlisted quarters
330*	Family housing
331*	Family housing
332*	Family housing
333	Family housing
334	Family housing

*Abated

around two temporary transitional housing programs in Census Tracts 67 and 105 have actually fallen over the past few years after establishment of the housing programs. The data do not support a conclusion of increased crime resulting from the City's housing plans for Naval Station Sand Point.

Analysis of comparable educational facilities in Seattle also suggests that there is no empirical basis to believe that serious crime will significantly increase in the census tracts adjacent to the base as a result of higher education facilities (under either the Muckleshoot Plan or the Option to the City Plan). Crime rates in Census Tract 5302 (University of Washington) are one of the lowest in the city and have decreased by 38 percent since 1990. In 1993, the census tract containing Seattle University (Tract 86) had a significantly higher rate of Part I offenses than Census Tract 5302, reflecting the variation in crime rates of the communities in which the two universities are located. Part I offenses on the Seattle University campus account for less than one-third of the Part I offenses in Census Tract 86. The crime rate for Census Tract 13, in which the North Seattle Community College is located, falls between the rates for the University of Washington and Seattle University and is less than the city average.

Table 4-37
Existing and Projected Number of Part I Offenses per Year
for Census Tract 23.98 by Primary Land Use

Part I Offense	No. of Offenses 1993	Projected Number of Offenses									
		No Action		Muckleshoot Plan ^a		City Plan ^a		Option to City Plan Without High School ^b		Option to City Plan With High School ^b	
		With Mitigation ^a	Without Mitigation ^a	With Mitigation	Without Mitigation	With Mitigation	Without Mitigation	With Mitigation	Without Mitigation	With Mitigation	Without Mitigation
Murder/homicide	0	0	0	0	0	0	0	0	0	0	0
Rape	0	0	0	0	1	0	0	0	0	0	0
Robbery	1	2	4	3	8	4	6	4	7	4	7
Aggravated assault	7	3	6	5	12	6	9	7	11	7	12
Residential burglary	1	8	16	12	33	15	25	16	26	17	29
Nonresidential burglary	2	3	6	4	11	5	9	5	9	6	10
Theft	55	44	88	66	175	81	131	87	145	94	158
Theft of vehicle	1	6	13	9	25	11	19	12	20	13	22
Arson	0	0	1	1	2	1	1	1	2	1	2
Part I Total	67	66	134	100	267	122	201	132	220	142	240

^aNo action with mitigation was derived from the number of offenses reported to the Seattle Police Department in Census Tract 23.98 (in Magnuson Park) for 1993.

^bThe projected number of offenses for no action without mitigation is intended to represent a worst-case scenario without security and fences (page 25 of Appendix K).

^cProjections for the Muckleshoot Plan are primarily based on the addition of 5,000 to 7,000 college students.

^dProjections for the original City Plan are primarily based on the addition of 553 new residents.

^eProjections for this option are based on the addition of 500 community college students.

^fProjections for the Ballard High School option are based on the addition of 1,000 high school students

Note: Numbers for specific types of offenses (murder, rape, etc.) are proportioned based on the proportions for the Northeast Subarea of the city.

Source: Fehr and Tjaden 1994

The neighborhoods surrounding Naval Station Sand Point exhibit characteristics resistant to high crime levels. Well-managed programs should not jeopardize these characteristics. Therefore, no significant crime impacts from any of the alternatives are expected on census tracts adjacent to Naval Station Sand Point.

Under the City Plan and options, the Seattle Police Department would provide police protection. Other than specifying the goal of security, no details are presented in the City Plan on how security will be provided. No building is designated for security use. The increase in crime and traffic projected for Naval Station Sand Point under the City Plan and to a somewhat larger degree under the options to the City Plan would result in an increase in calls for service from the Seattle Police Department. The department does not have a formula for projecting the increase in number of officers or squad cars required.

Under the Muckleshoot Plan, criminal jurisdiction is less clear. According to the Muckleshoot Tribe, jurisdiction would be under the State of Washington and King County. The City has stated that the Muckleshoot Plan will require clarification of the jurisdiction of the Seattle Police Department and/or plans for coordination of public safety coverage with tribal police. Several alternatives exist for providing security, such as using tribal police and/or contracting for police services with the Seattle Police Department or a private security firm. For example, the Tribe is forming its own police force to provide security at its reservation in Auburn. King County formerly provided sole security to that location but now shares jurisdiction with the Tribe (Leonard 1996). For any institution of higher education to receive federal financial assistance, the federal Crime Awareness and Campus Security Act requires police services and the reporting of campus crimes.

The Muckleshoot Plan envisions continued use of the existing security gatehouse as well as Building 41, which was used for a police station and identification for security. The Muckleshoot Plan also states that the existing brig (Building 406) will be used as an interim jail facility for Native Americans for "time-out" periods "in an environment more suitable to their culture" than the current practice of incarceration in the King County jail (Muckleshoot Indian Tribe 1993). This facility would operate in conjunction with the alcohol and drug program and the counseling program associated with the college campus.

Under the no-action alternative, the Navy would remove its police force but would continue to guard the property. The site is now under the concurrent jurisdiction of the City of Seattle for police protection, as well as for fire protection and emergency medical services. This means that if summoned, the appropriate City service departments would respond.

• Fire Protection

The City Plan does not present any impacts above those that would be presented by normal growth, and since the options to the City Plan would result in only a small increase in on-site residents, the options' impacts would not differ from those of the City Plan. Under the City Plan, fire protection would be provided solely by the City of Seattle Fire Department. Fire response would be provided from Stations 38 and 40, described above. The City of Seattle Fire Department's existing facilities are considered adequate to meet the needs of the City Plan. According to the Seattle Fire Department, its existing facilities, equipment, and number of firefighters are adequate to provide for the City Plan, particularly in light of the fact that the City currently provides backup protection to the base.

Under the City Plan and options, the on-base fire station (Building 18) would be converted to art exhibition, administration, and classroom use in the Arts, Culture, and Community Center Area. Among the specific options being considered for Zone 2, the Education and Community Activities Area, is a proposal by the Seattle Fire Department for a training center. Although it would not be the normal response, firefighters on training at the proposed training center would be available if a fire were to break out. The City Plan also addresses emergency access and states that an emergency access easement would be required from the new N.E. 80th Street (the current NOAA entrance road) and the new 63rd Avenue N.E. (now Avenue "B") to the north waterfront (on Pontiac Bay).

Under the City Plan and options, legal standards and other requirements will have to be met for fire safety (for fire flow, fire hydrants, and building alarms and sprinkler systems). A fire protection plan would be developed by the new users, with the involvement of the City fire marshal. Specific standards would depend on proposals for use of individual buildings and use of the property as a whole. Factors to be considered include permit requirements for new construction and/or substantial remodeling, intended use of the buildings (residential versus educational, children versus adults), and types of events (e.g., theater) that would be permitted.

As with police protection, fire protection jurisdiction under the Muckleshoot Plan is unclear. According to the Muckleshoot Tribe, fire protection would be provided by King County. However, King County has no fire stations in the area. The City considers mutual aid agreements only with jurisdictions that comply with City fire codes. The Seattle Fire Department has stated that clarification is needed on who has jurisdiction. At the Tribe's reservation in Auburn, Fire District 46 provides fire protection. The Muckleshoot Plan also includes retention of the base fire station. The Tribe is planning to supplement City fire protection, although specific plans (such as number of firefighters and equipment) have not yet been developed.

Under the Muckleshoot Plan, the Seattle fire code, building code, and hazardous materials regulations would not apply, because the land would be federal land held in trust for the Tribe. The City's codes are stricter than state and federal codes. The Seattle fire marshal's office has expressed concerns that City codes would not apply.

Under the No-action Alternative, the Navy would no longer provide fire protection for Naval Station Sand Point; however, the City would provide protection. Because of the lack of activity at Naval Station Sand Point under this alternative, fires would be less likely to occur than under the two reuse plans.

- **Emergency Medical and Medical Services**

Emergency Medical Services. Under the reuse plans, the Navy would no longer provide first response emergency medical service.

Under the City Plan and options, all emergency medical services would be provided by the Seattle Fire Department or private ambulance services. As with fire protection services, according to the Seattle Fire Department, the City Plan and options would not result in a significant increase in emergency service needs.

Under the Muckleshoot Plan, as with fire and police protection, jurisdiction for emergency medical service is unclear. Clarification of jurisdiction is needed to fully determine impacts. At the Tribe's reservation in Auburn, Fire District 46 responds to emergency medical calls. The Muckleshoot Plan does not appear to cause any unusual impacts on City or private emergency medical services or impacts different from those of the City Plan. If the City or private companies provide emergency medical services to Naval Station Sand Point, the Muckleshoot Plan would not result in a significant increase in emergency service needs. If, as proposed, the fire station is used for fire protection service, it may also include EMTs to provide a quick first response.

Under the No-action Alternative, no emergency medical services would be required. However, should the City emergency medical unit be called, it would respond.

Medical Services. The Navy-operated Naval Station Sand Point dispensary/medical clinic in Building 29 has closed. Former patients receive care through other DoD programs in other locations.

The City Plan states: "The Homeless Coalition has identified a range of support services critical to the successful housing of homeless and low-income households." One of these services proposed for Naval Station Sand Point is health care for residents. This health care could possibly be expanded to serve the broader community.

The Muckleshoot Plan proposes a health clinic as part of the drug and alcohol program, which would include prenatal care and alcohol prevention pretreatment. This program is proposed for Building 29. The plan also calls for 24-hour health care as part of the seniors' program, possibly in Building 223, the proposed family service center.

Given the variety and number of medical care facilities available in Seattle, and near Naval Station Sand Point specifically, and given the proposed facilities in the reuse plans, no significant adverse medical services impacts are expected under the reuse plans. Under the options to the City Plan, the impacts are expected to be similar to those described for the City Plan.

Under the No-action Alternative, no medical care would be provided at Naval Station Sand Point.

• Environmental Health

Contaminated Soils and Sediments. Naval Station Sand Point has been cleaned up with the exception of sediments beneath Lake Washington and soils near Building 30 and beneath Building 345, Building 2, the foundation of Building 137, and the tarmac east of Building 11. Those areas with remaining contaminants are not likely to create any impacts, provided that the soils and sediments are left alone. Deed restrictions will govern any modifications or alterations to these sites.

No environmental impacts will result from the No-action Alternative because hazardous waste on the base has been remediated to comply with CERCLA and MTCA. Contaminated areas would remain in soils as listed above and in sediments beneath Lake Washington. They pose no risk to human health if they remain undisturbed.

Groundwater. Groundwater was monitored at 6-month intervals for one year at the former fuel tank farm in Ecology's Parcel 5 (see Figure 4-30) to assess the effectiveness of the soil removal action. Monitoring results indicated that contaminated soil was adequately removed. Monitoring of wells near Buildings 137 and 2 confirmed that contamination in soils was not migrating to the groundwater.

Asbestos. Inhalation of asbestos fibers can cause lung disease. Demolition and remodeling proposed by both reuse plans could result in friable asbestos that may pose a risk to workers or reuse occupants if they do not comply with health and safety regulations (40 CFR 61; WAC 296-65-001 to 050; WAC 296-62-077 to 07761).

Lead-Based Paint. Lead-based paint that remains unremediated in structures the City Plan, the options to the City Plan, or the Muckleshoot Plan propose to house children (residential or day care) may pose a health risk. Children are especially susceptible to lead poisoning. Exposure to low levels of lead during childhood is known to impede development and may cause learning and behavioral problems.

4.8.3 Mitigating Measures

• Law Enforcement

As described in more detail in Appendix K, mitigating measures can have a positive influence in reducing the likelihood of crime. The measures discussed in this section are based on the literature review included in Appendix K. This literature review has shown these measures to be effective in situations similar to the uses proposed for Naval Station Sand Point.

Among possible mitigating measures are appropriate levels of law enforcement and security services on site (particularly community policing), availability of appropriate social and health services, sound management, and—of considerable significance—application of "crime prevention through environmental design" (CPTED) techniques in land use plans and designs for the site.

The following mitigating measures could apply to the City Plan and options and the Muckleshoot Plan:

- Implement crime prevention activities, such as reducing opportunities for criminal victimization, establishing block watches, instituting community policing (citizens working in cooperation with police), marking property, and establishing drug-free zones. (Drug-free zones are areas defined under state law as places where anyone caught distributing illegal drugs receives a harsher sentence. These zones include areas within 1,000 feet (305 m) of a school or public park.)
- Incorporate a CPTED project during the site and building design. CPTED refers to proper design and effective use of the built environment to reduce the fear and incidence of crime. Although analyzing Naval Station Sand Point for these techniques is outside the scope of this EIS, project managers and architects can contract with CPTED specialists to ensure that these techniques are properly implemented.

For the City Plan and options, the following additional mitigating measures could apply:

- Improve tenant screening by incorporating criminal record checks into the screening process.
- Provide the social and health service programs for homeless housing described in the *At Home at Sand Point* proposal by the Seattle-King County Coalition for the Homeless.
- Restrict access to the housing development by using electronic ID systems.

- Establish foot patrols and appoint resident and police liaisons.
- Establish mini-precinct stations on the grounds and house police officers on site.
- Sweep the public housing for drug dealers and persons not listed on resident leases.

Under the No-action Alternative, the Navy would provide security.

- **Fire Protection**

The City Plan and options address emergency access and require an emergency access easement from the new NE 80th Street and the new 63rd Avenue NE.

The Muckleshoot Plan includes provision of a fire station (the existing Naval Station Sand Point station) to aid in mitigating fire protection impacts. The Seattle Fire Department has raised concerns about whether the Muckleshoot Plan would meet City codes, which the City requires in order to enter a mutual aid agreement with the Tribe. Therefore, another mitigating measure could be the condition that the Tribe meet all Seattle fire, building, and hazardous materials codes.

The No-action Alternative would likely result in fewer fires than either reuse plan. Because the Seattle Fire Department would respond in the event of a fire, no further mitigation is necessary.

- **Emergency Medical and Medical Services**

No mitigating measures are required.

- **Environmental Health**

Ecology concurs that the Navy has completed remedial actions and has written a "no further action" letter to the Navy which indicates that no further action is required at this time to protect human health and the environment. However, Ecology has recommended that the Navy impose deed restrictions for those areas where chemicals remain at concentrations exceeding cleanup levels. Deed restrictions would limit site use or activities and notify future users of property conditions. Pursuant to CERCLA and the National and Hazardous Substances Pollution Contingency Plan (NCP), the Navy intends to impose deed restrictions when the property is conveyed.

- **Parcel 1.** If Building 193 or the Auto Hobby Shop (Building 310) is demolished, soils under the building should be sampled.

- **Parcel 4.** If Building 2 or 30 is demolished, soils will need additional sampling to determine the extent and magnitude of contamination. If Building 137 area soils are removed, cleanup will be necessary.
- **Parcel 5.** If the tarmac paving of the former runway east of Building 11 is removed, petroleum-contaminated soils may be left in place to biodegrade or may have to be remediated.
- **Parcel 6.** A deed restriction should be issued to notify future owners of contaminated sediments and to limit activities that may disturb sediments.

Asbestos. Proposed demolition and remodeling by both reuse plans may require abatement of friable asbestos by the reuse entity, pursuant to WAC 296-65-001 to 050. No further mitigating measures are necessary.

Lead-Based Paint. Occupants of structures used as residential or childcare facilities should be aware that, with the exception of the brig, all buildings tested were found to contain lead-based paint. If so, the building should be inspected regularly or observed with vigilance by the occupant to identify any chipping, bubbling, or cracking of the paint. These conditions should be promptly cleaned up and repainted.

4.8.4 Unavoidable Adverse Impacts

- **Crime and Law Enforcement**

None.

- **Fire Protection, Medical, and Emergency Medical Services**

None.

- **Environmental Health**

None.

4.9 EARTH

4.9.1 Affected Environment

This section describes the soils, geology, potential erosion hazards, topography, and seismic hazards at and near the Naval Station Sand Point property. The study area discussed in this section is shown on Figure 4-32.

The area that now comprises the base was originally low, swampy land. Construction of the Lake Washington Ship Canal from 1911 to 1916 altered the profile of the land by lowering the level of Lake Washington 8 feet (2.4 m). Subsequent landfills eliminated much of the original Pontiac Bay, at the north end of the property, and all of Mud Lake, at the south end of the property, as geographic features. Naval Station Sand Point is a developed site today; its soils, geology, and topography do not predate its construction.

- **Soils**

U.S. Soil Conservation Service (SCS) soil survey maps do not include heavily urbanized areas such as the City (including the Naval Station Sand Point area), because the soils generally have been disturbed or filled and are no longer considered native. SCS simply classifies soils in these areas as urban soils. Soils at Naval Station Sand Point are classified as modified areas, areas that have been heavily filled, thereby changing the original topography (Liesch et al. 1963). Based on historical photos, interviews with Sand Point personnel, and review of Seattle earthquake maps and lithologic studies of soil and rock composition of the area, surficial soils (soils at the surface) at Naval Station Sand Point appear to be composed predominately of fill (Washington Surveying and Rating Bureau 1966). The surficial fill lies above unconsolidated materials consisting of glacial till; mixtures of clay, sand, and gravel; and layers of sand, gravel, and clays. The surficial soils consist of sandy and silty loams generally conducive to rapid water transfer and unsuitable for sustaining heavy structural loads.

Drilling and stratigraphic research conducted at Naval Station Sand Point indicate four lithological units (Figures 4-33, 4-34, and 4-35). The upper unit is fill material composed of sand, gravel, clay, and demolition debris. Beneath the first unit is glacial till composed of a dry, very dense, gray till with few, small 1/16- to 1/8-inch (0.16- to 0.32-cm) subrounded gravels. Beneath this glacial till unit is a water-bearing, hydric zone composed of clayey, sandy gravels to clayey, gravelly sands. The deepest unit is a very dense gray till unit similar to the till above the water-bearing unit. The depths of the various units vary with the cross sections. Cross-sections A'-A represents an area near the shoreline with a range of elevations from near or below sea level to approximately 40 feet (12 m) above mean sea level (msl). Cross-section B'-B represents an area further from the shoreline with a range of elevations from near or below msl to approximately 90 feet (27 m) above msl. Cross-section B'-B differs from A'-A in that it

UNCONSOLIDATED DEPOSITS

ma—modified areas

Areas in which extensive excavation, filling or construction have greatly modified or obscured the original geology and topography. Thickness of fill is 50 feet or more.

Qa—sedimentary deposits, undifferentiated

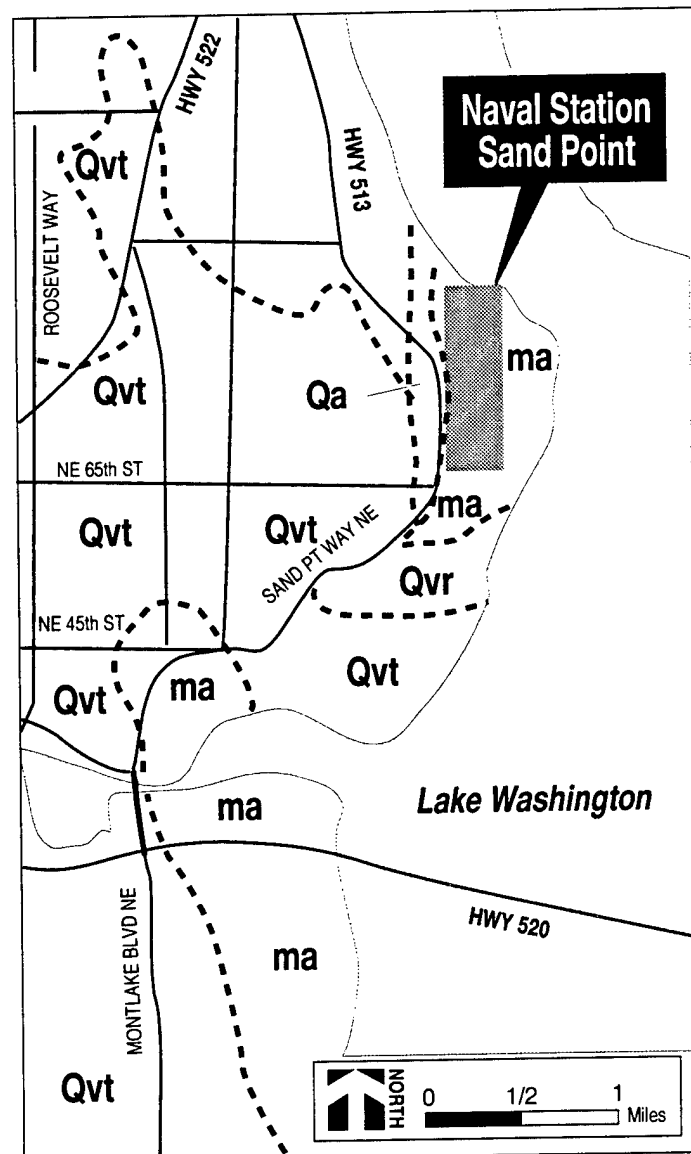
Interfingering beds of clay, silt, muck, peat, sand, and gravel, as much as 340 feet thick. Where peat is exposed at the surface, it is shown separately as Qp. Coarse-grained material is moderately permeable. Water commonly contains objectionable quantities of iron.

Qvr—recessional stratified drift, undifferentiated

Predominantly light-gray sand and gravel. The stratified drift is 100 feet or more thick. The upper surface is commonly a terrace. Permeability is medium to high.

Qvt—till

Predominantly light-gray till but includes small amounts of stratified sand and gravel both within and overlying the till. The till is hard, unsorted mixture of clay, silt, sand, and gravel, 150 feet or more thick. Although the till is relatively impermeable, thin beds of sand and gravel mapped with the till commonly yield small quantities of perched or semiperched water.



Source: Liesch et al. 1963

Figure 4-32
Geologic Map of Naval Station Sand Point and Surrounding Area

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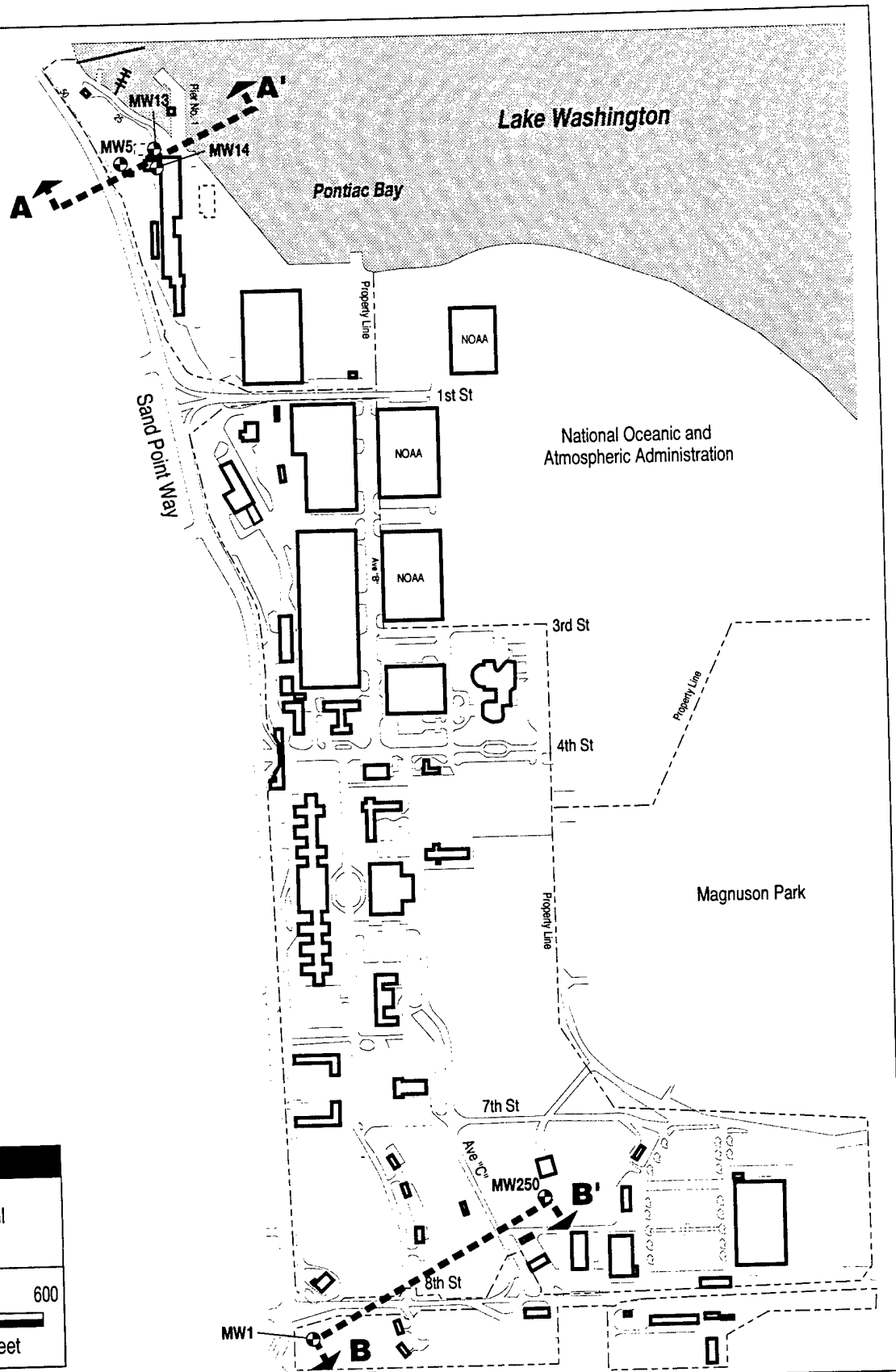
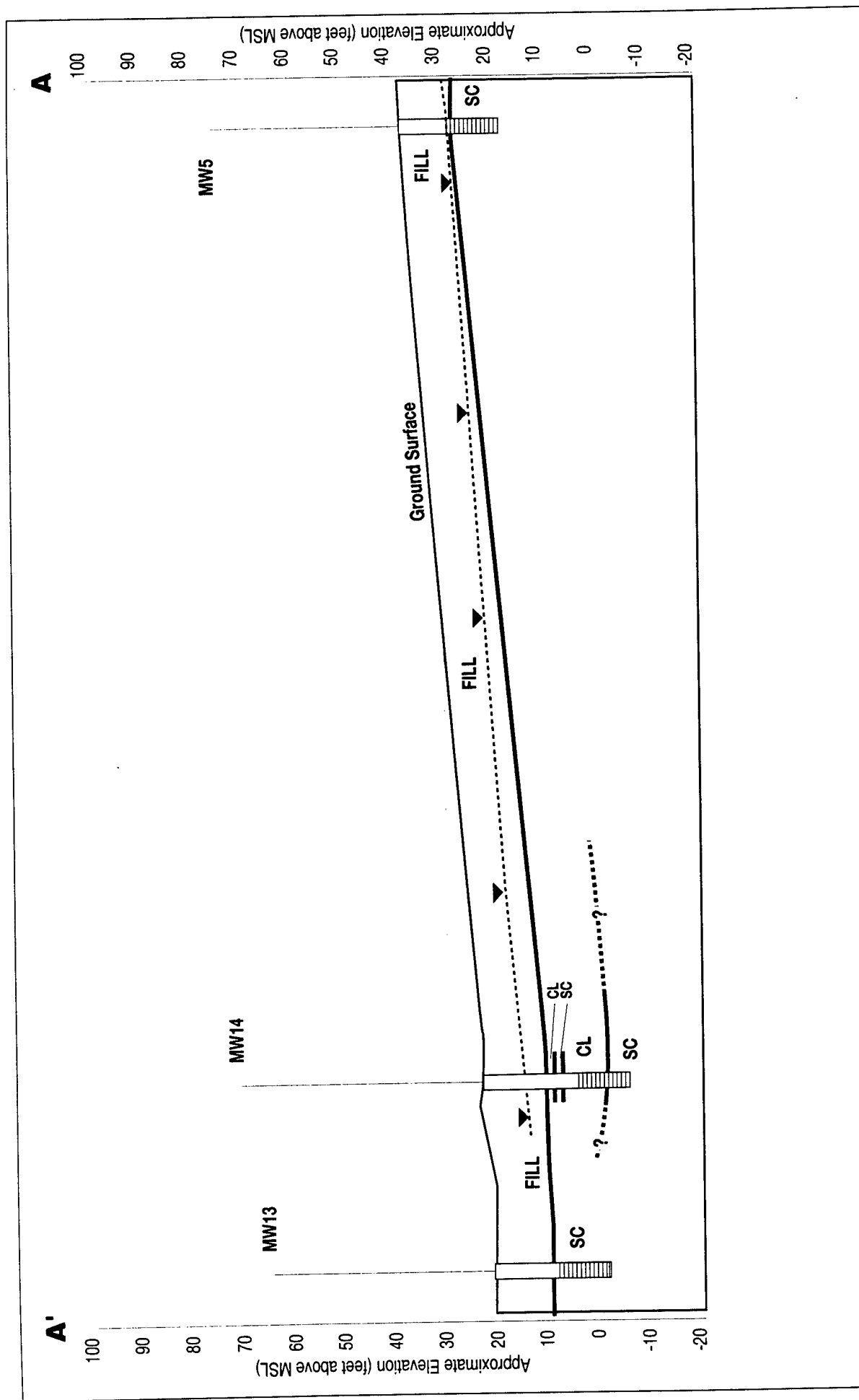


Figure 4-33
Locations of Geological Cross Sections A'-A and B'-B

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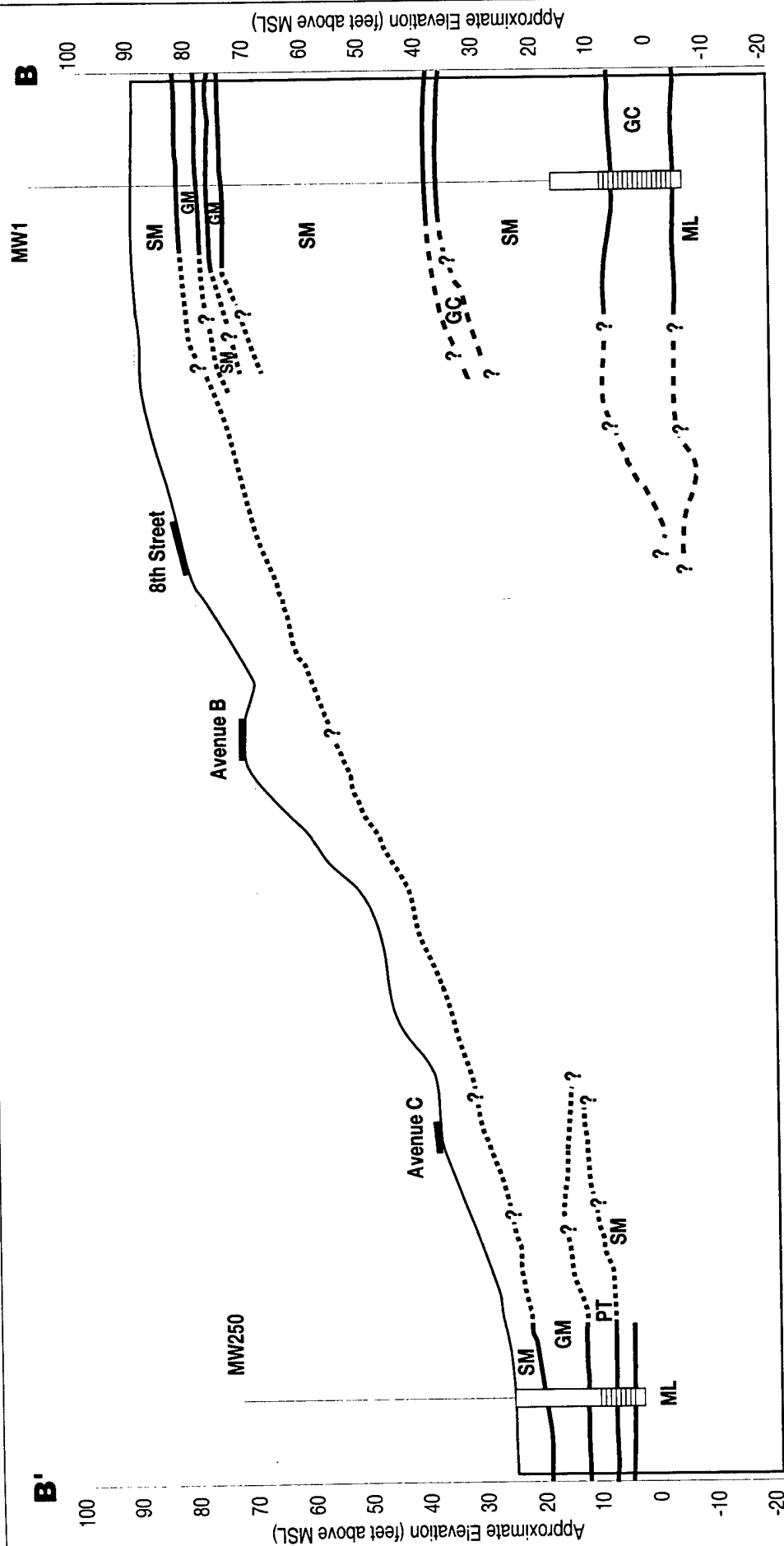


LEGEND:

- CL = Sandy, Silty Clays
- FILL = Fill Material
- SC = Clayey Sands
- = Potentiometric Surface
- ..?.. = Inferred Geologic Layer

Figure 4-34
Soil Type for
Cross Section A'-A

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LEGEND:

GC	= Clayey, Sandy Gravels	SM	= Silty Sands
GM	= Silty, Sandy Gravels	.. ? ..	= Inferred Geologic Layer
ML	= Silts, Clays, and Very Fine Sand With Low Plasticity	MW	= Monitoring Well
PT	= Peat, Highly Organic Soils		

shows a larger area of overlying till in the portion with the higher elevation and does not indicate the presence of fill material at the drill sites.

- **Geology**

The area encompassing Naval Station Sand Point is in the Puget Trough physiographic province, which occupies the broad lowland between the Olympic Mountains and the Northern Cascade Mountains (NOAA 1978). The station is in the Puget Sound Lowlands, characterized by a thick layer of unconsolidated materials deposited during the Pleistocene Epoch (the early part of the most recent geologic period).

Pleistocene deposits in and around Seattle indicate that continental ice moved to positions south of Seattle on at least five occasions. The drift deposited during these glaciations includes concrete-like lodgment till, lacustrine (lake) silt, fine sand and clay, and advance and recessional outwash composed of sand or sand and gravel. The intervening nonglacial periods are represented by deposits of fluvial sand and gravel, overbank silt and clay deposits, and peat (Galaster and Laprade 1991).

Much of the surface area at Naval Station Sand Point has been modified by construction-related activities (Figure 4-32). Naval Station Sand Point is underlain by glacial till of the Vashon Stade of the Fraser glaciation. Remnants of an ablation till, deposited by the receding glacier, are found locally. The till is reportedly as much as 150 feet (46 m) thick in portions of northwest King County (Liesch 1963). The till generally ranges from a gravelly, sandy silt to silty sand with varied quantities of clay and scattered cobbles and boulders. The upper portion of the till is generally more permeable than the basal till and may contain limited quantities of water (Galaster and Laprade 1991).

- **Potential Erosion Hazards**

Because of the generally low intensity of local rainfall in the area and because of the low erodibility of the vegetated soil at Sand Point, erosion typically is negligible.

The water level in Lake Washington is artificially controlled by the Hiram M. Chittenden Locks. The flood hazard potential for Naval Station Sand Point is very low as the lake is not subject to tidal influences or high wave action (URS 1993a).

- **Topography**

Topography at Naval Station Sand Point is characteristic of a former airfield. Most of the property is relatively flat, with the exception of the western third. Elevation contours near former landing strips begin at 25 feet (8 m) above msl and terrace west to approximately 50 feet above msl. Topography contour lines generally run parallel to Sand Point Way N.E. The highest elevation, 96 feet (29 m) above msl, is in the southwest corner of the property (URS 1993a). Figure 4-36 shows the areas with slopes

of 40 percent or greater at Sand Point that are identified on the City of Seattle (1993) *Environmentally Critical Areas Folio*.

Types of landslides common in the Seattle area include slumps, debris avalanches, earth flows, debris falls, and mud flows. Slope stability in Seattle and surrounding areas is a function of slope angle and geologic conditions at a specific site. Slope failure occurs where the tops of hills are capped by a low-permeability till. Where this cap is not continuous, water can percolate into the underlying Vashon advance outwash. Water percolates down through the sand until it encounters clay or silt layers, then travels horizontally until it reaches an exposed hillside, and emerges as a spring. If the infiltration rate is higher in the clay or silt layers than the horizontal flow toward the sides of the hill, then the clay or silt layer can become saturated, and a slope failure may occur (Galaster and Laprade 1991). No significant landslides, recent or historical, were identified at Naval Station Sand Point (City of Seattle (1993) *Environmentally Critical Areas Folio* 1993).

- **Seismic Hazards**

Regional Seismicity. The current tectonics and seismicity of the Puget Sound region are mainly the results of stresses imposed by the interaction of three lithospheric plates, the Pacific, American, and Juan de Fuca plates. The two largest plates (American and Pacific) are estimated to move at a rate of 5.8 centimeters per year (Atwater 1970).

Earthquakes in the Puget Sound region occur in two separate depth zones separated by a seismic unit. Most earthquakes occur in the upper seismic zone, which is approximately 30 kilometers deep. In western Washington, hundreds of temblors detectable by instrument occur annually; perhaps only 24 are strong enough to be felt by humans. Major earthquakes of magnitude 6 or greater on the Richter scale have an estimated average return rate of about 25 years (Weichart and Hyndman 1983).

A 7.1-magnitude earthquake northeast of Olympia in 1949 and a 6.5-magnitude earthquake in Seattle in 1965 are the largest recorded earthquakes in the region. Although the epicenters of these quakes were apparently deep, several known or inferred faults could potentially generate sizable earthquakes at shallow depths. None of these faults is known to be currently active (Gower et al. 1985).

According to seismotectonic maps of the Puget Sound region, no faults transect Naval Station Sand Point. A possible fault zone with evidence of Quaternary movement is located 6 miles (9.7 km) south of Sand Point, running west to east from Bainbridge Island, across the tip of Alki Point, through Bellevue, and terminating east of Lake Sammamish (Gower et al. 1985).

The short-term seismic record in the Pacific Northwest cannot be viewed as representative of long-term hazards from large earthquakes. It is not yet possible to predict exactly when the next earthquake will occur, or how large it will be.

The City of Seattle and the Uniform Building Codes require that additions or alterations shall not be made to an existing building or structure that would cause it to be in violation of the codes, including seismic requirements. In general, an engineering analysis is required to show that the capacity of the structure to withstand a seismic event has not been compromised. An analysis is not required for a nonstructural alteration, and historic buildings may be exempt under certain conditions and uses. Naval Station Sand Point and Seattle are currently classified in Seismic Zone 3 (the highest level is Zone 4).

Liquefaction. Liquefaction, a common occurrence during major earthquakes, results from the loss of substantial strength in water-saturated cohesionless soil because of intense ground shaking. The effect on buildings can be severe, with extensive damage resulting from settling, tilting, and floating. Liquefaction occurs when saturated sand or silt is shaken with enough violence to rearrange individual grains. This rearrangement tends to compact the soil, which, in turn, loses all shear strength and assumes the properties of a heavy liquid. The liquefied material could then cause landslides or loss of bearing strength under foundations or roadways. According to the City of Seattle (1993) *Environmentally Critical Areas Folio*, liquefaction zones exist in portions of the base (see Figure 4-37). Buildings 2, 11, 12, 15, 26N, 26S, 27, 193, 195, 299, 333, 334, and 409 are wholly or partially within the potential area of liquefaction.

4.9.2 Direct and Indirect Environmental Impacts

The City Plan and options, the Muckleshoot Plan, and the No-Action Alternative will have no significant impacts related to soils, geology, and topography. Any new construction that occurs as part of the City Plan and options, or the Muckleshoot Plan would require some grading, but this would have an insignificant effect on site topography. An earthquake that causes strong ground shaking and/or liquefaction could result in damage to structures or personal injury under all alternatives. However, it is impossible to predict the nature or extent of damage that could occur in the event of an earthquake.

4.9.3 Mitigating Measures

Mitigating measures for the City Plan and options and the Muckleshoot Plan could include the following:

- Site any new construction according to the ability of the soil to support the structure.

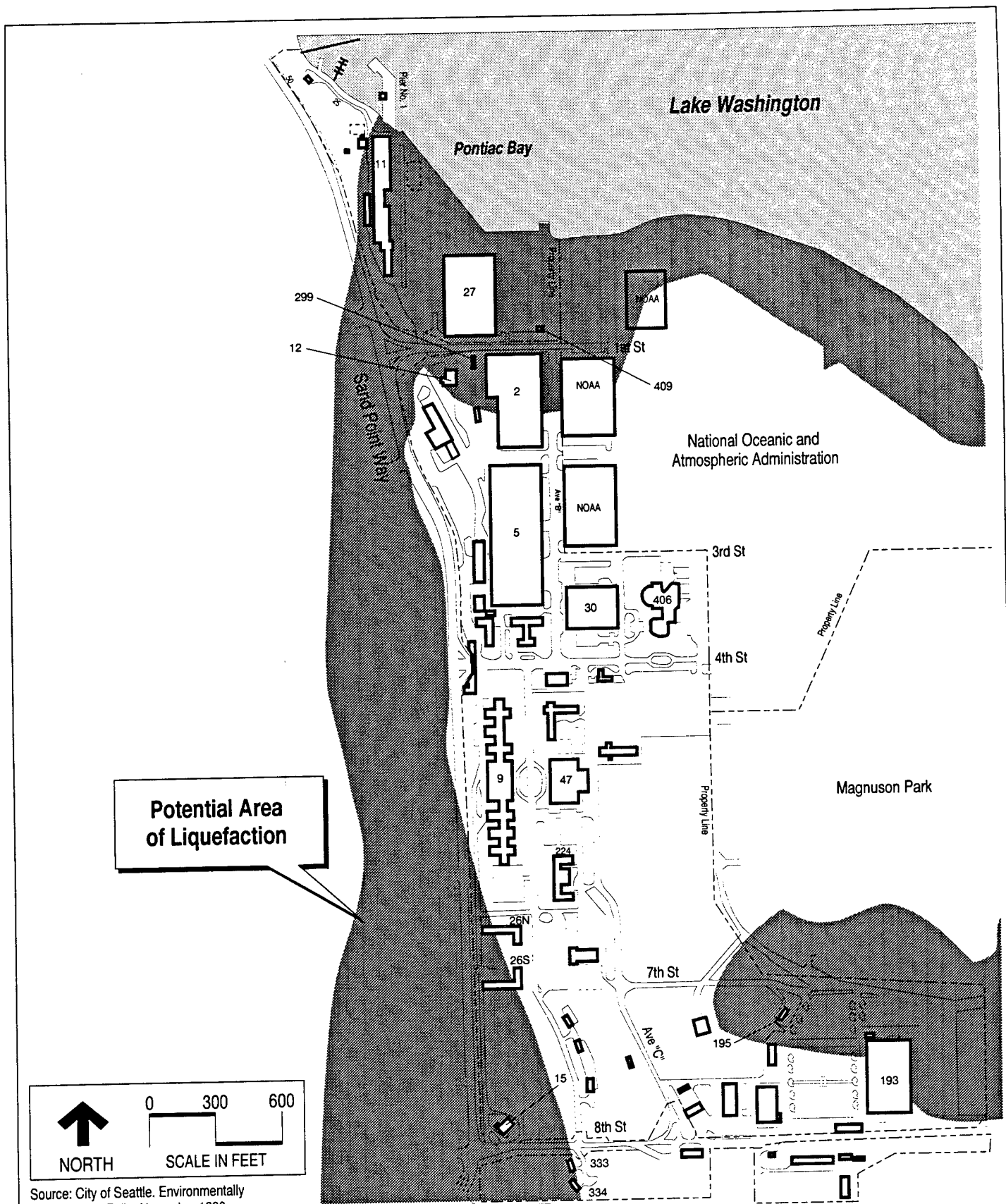


Figure 4-37
Liquefaction Areas

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4.9 Earth

- Evaluate structures for seismic hazards, and consider appropriate upgrades to protect historic structures and reuse populations.

4.9.4 Unavoidable Adverse Impacts

None.

4.10 BIOLOGICAL RESOURCES/ENDANGERED SPECIES

Biological resources include plants and animals that may be affected by the proposed reuse plans and the No-Action Alternative. For purposes of this report, biological resources/endangered species are divided into vegetation, wildlife, (including threatened and endangered species), sensitive habitats, and endangered species.

The following discussion is based on a field visit to Naval Station Sand Point in March 1994, aerial photographs, contacts with federal and state agencies, and published information (SCS 1992; Hunn 1982; Wahl and Paulson 1991). In addition, an updated list of endangered and threatened species and candidate species was obtained from the U.S. Fish and Wildlife Service (USFWS). This list was attached to a comment letter sent to the Navy (Naval Facilities Engineering Command, Engineering Field Activity [EFA] Northwest) on June 12, 1996, and is included in Appendix L of this document. Information was also obtained from a 1995 biological assessment prepared for the proposed construction of the Armed Forces Reserve Center in Seattle, which included an alternative located on NOAA property, contiguous to the Naval Station Sand Point property.

4.10.1 Affected Environment

• Vegetation, Wildlife, and Wetlands

Vegetation. There is little naturally occurring vegetation at Naval Station Sand Point. The ground surface is largely paved except for manicured lawns. Native tree species, which include big leaf maple (*Acer macrophyllum*), cottonwood (*Populus trichocarpa*), red alder (*Alnus rubra*), western red cedar (*Thuja plicata*), and madrone (*Arbutus menziesii*), can be found on the southwest end of the site and along the road entering Magnuson Park. A commemorative white spruce (*Picea glauca*) was planted near the southeast corner of Building 25 in 1931. This tree is dedicated to "The Sons of Washington and all Prisoners of War Missing in Action." Ornamental tree plantings, such as deodar cedars (*Cedrus deodora*), that line the street near Building 9 contribute to the landscape Naval Station Sand Point. Brush species found on the north end of the site next to the boathouse include hazel, elderberry, and snowberry. Gorse, an extremely noxious weed, was identified in 1992 on the north end of Naval Station Sand Point.

Wildlife. No native wildlife habitat exists at Naval Station Sand Point. During the 1994 site visit, the only three species observed on the base were the northwestern crow, the European starling, and the rock dove. These are common species in urban areas of minimal quantity and diversity of vegetation. The base, which has shoreline adjacent to Pontiac Bay, provides habitat and shelter from high winds and waves for many seabirds and waterfowl. During the site visit, gadwall, American widgeon, American coot, mallard, bufflehead, horned grebe, and double-crested cormorant were observed along the shore in Pontiac Bay. The cormorants, grebes, and bufflehead were actively feeding

30 feet (9 m) off shore. Many American coot and American widgeon were foraging on a small area of grass along the shoreline of the NOAA property.

Although a comprehensive list of wildlife on Naval Station Sand Point does not exist, Appendix L lists wildlife observed or generally known to inhabit the area around Naval Station Sand Point or within Seattle city limits. The animals listed in Appendix L should be considered potential inhabitants of the base or Magnuson Park, which is next to the base. In addition to these species, many migratory waterfowl species and fish-eating species of birds inhabit the Lake Washington area.

Many wildlife species occur on the edges of Naval Station Sand Point. Near the base boundary north of 3rd Street, NOAA maintains a large open field of unmanicured grass and weed species. Signs of small mammals were noted in this field. Grass clippings found in an extensive runway system beneath the matted grass indicated the likely presence of a dense population of voles (*Microtus* sp.). The presence of these small mammals attracted two red-tailed hawks, which were observed hunting in the area. Two snipe were also observed in this area during the site visit.

The eastern side of Magnuson Park borders Lake Washington and thus provides habitat for a number of water birds, including diving ducks, gulls, Barrow's goldeneyes, and, occasionally, loons. Although this area may be used by water birds for feeding and resting during good weather, Pontiac Bay appears to be more heavily used for shelter during inclement weather. People, dogs, and cats are likely to deter species not adapted to human presence from use of the near shoreline area.

Lake Washington also provides habitat for many species of fish and amphibians. Fish species common to Lake Washington include resident and anadromous varieties of cutthroat and rainbow trout, three species of salmon (chinook, coho, and sockeye), white sturgeon, longfin smelt, carp, goldfish, squawfish, tench, redbelly shiner, longnose dace, peamouth, brown bullhead, largemouth and smallmouth bass, black crappie, yellow perch, and crayfish. Amphibian species include the painted turtle, the red-legged frog, and the Pacific tree frog.

Wetlands. Two wetlands are identified (NSPS Natural Resources Management Plan 1992) within the current boundaries of the base (Figure 4-38). The most prominent wetland is Lake Washington, classified as limnetic, open water, and permanently flooded. Approximately 1,800 feet (549 meters) of lake Washington shoreline extends along the northern boundary of the base. The landward boundary of this wetland on the base is the water line. Another identified wetland is in the drainage ditch below the officer quarters (Buildings 330, 331, and 332); it is classified as palustrine (not lake associated), with emergent vegetation and a saturated, semipermanent, or seasonal hydrologic regime. The actual size and value of the wetland (drainage ditch) has not been determined at this time, but will be determined before construction.

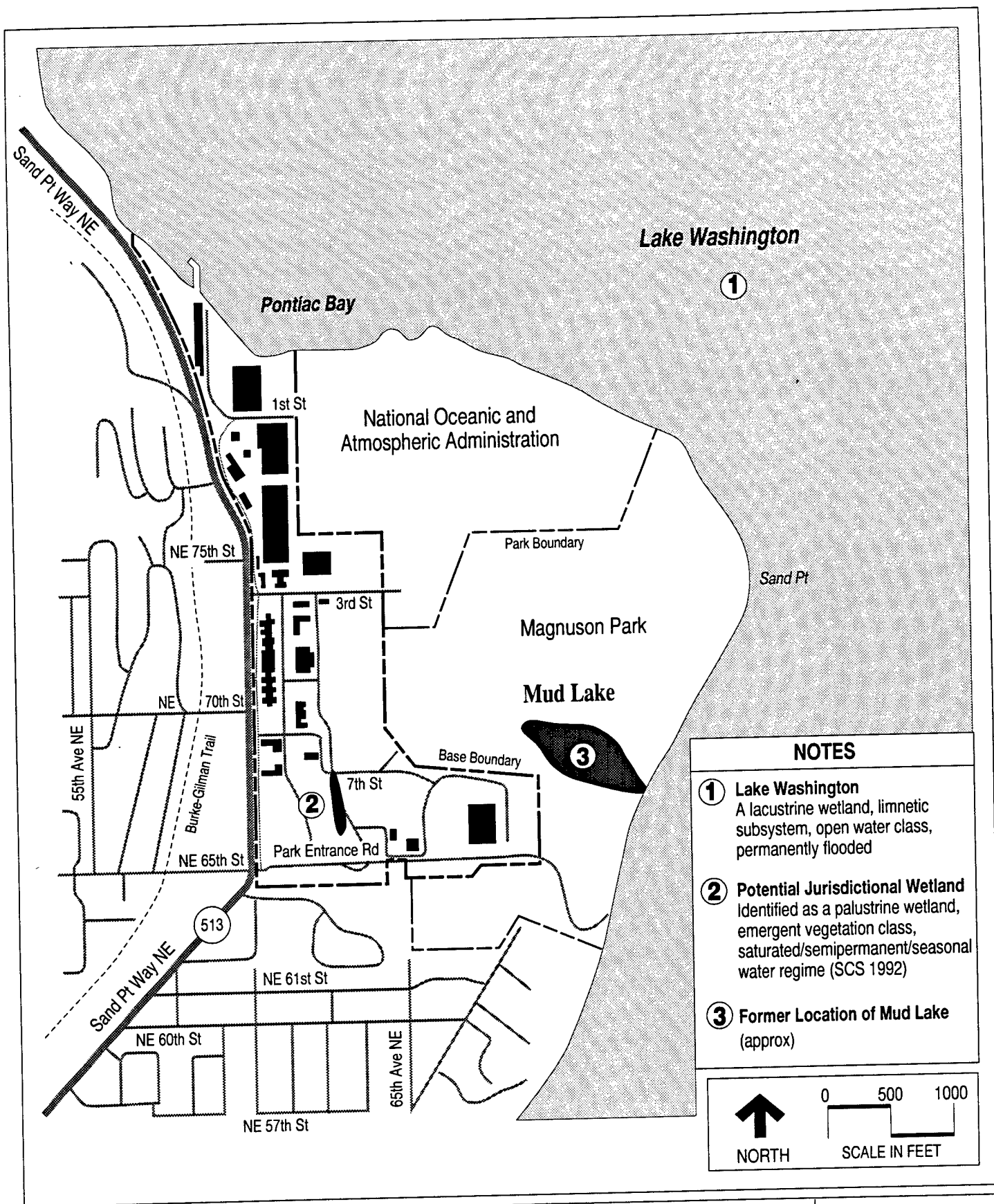


Figure 4-38
Wetlands

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- **Endangered Species**

Species with declining populations are provided legal protection by the federal ESA. This act affords protection by requiring consultation with the USFWS for projects with potential impacts to species formally listed as threatened or endangered and species proposed for listing (candidates) and awaiting final rulemaking. Candidates for federal listing are not protected by law, although some federal agencies do accord some level of nonmandatory protection or management considerations to these species. For properties conveyed to nonfederal parties, those parties would be subject to the prohibitions listed in Section 9 of the ESA (16 USC 1538) and 50 CFR Part 17, Subparts C, D, F, and G. The State of Washington also lists species as endangered, threatened, and sensitive and also designates candidates under review for potential listing.

The Navy prepared a biological assessment for alternative sites being considered for the construction of an Armed Forces Reserve Center in Seattle. Alternative 4 in that report includes the excess NOAA property immediately adjacent to Naval Station Sand Point. The potential impacts of the Resource Center on endangered and threatened species near Naval Station Sand Point are analyzed in Alternative 4 of the report. Since analysis and listing of endangered and threatened species in the biological assessment was completed within the past year, it remains current.

Bald Eagles. Bald eagles, a federal- and state-listed threatened species are present in the general vicinity of Lake Washington. The closest known nest is in Denny Park, approximately 3 miles (5 km) from the project site, on the east shore of Lake Washington. A nest is currently under construction near the University of Washington Arboretum, approximately 3 miles (5 km) southwest of Naval Station Sand Point (Biological Assessment 1995). A third nest is located approximately 5 miles (8 km) from the site at Seward Park, south of the Interstate 90. The eagles range widely when foraging for fish and waterbirds in or over salt and freshwaters; they have been sighted flying over Naval Station Sand Point or occasionally perching on parking lot light poles on the NOAA site (Biological Assessment 1995). Naval Station Sand Point provides no habitat that could supply the basic needs of bald eagles. Currently the few large trees in the area are limited to the extreme southern and northern edges of Magnuson Park. These trees are thin and structurally inadequate to support bald eagle nesting or roosting. In addition, the few pine trees in the area would not be adequate to provide shelter and lack access for the bald eagle.

Peregrine Falcons. Peregrine falcons, a federal and state-listed endangered species (currently under consideration by USFWS for downlisting to threatened), are reported to occur as spring and fall migrants in the Naval Station Sand Point vicinity (Biological Assessment 1995). Peregrine falcons have nested periodically on the Washington Mutual Tower in downtown Seattle since 1994. Other peregrines migrate through the Puget Sound region to stop or overwinter. Peregrines prey predominantly on birds in flight

such as rock doves or starlings, although occasionally they eat small mammals and insects (Biological Assessment, 1995).

Wintering peregrine falcons are occasionally seen near Naval Station Sand Point (Biological Assessment 1995). The open grasslands in the vicinity, along with an abundant prey source, could provide suitable habitat. The pines or poplars in the area could provide perching sites, but there are no tall buildings or cliffs that peregrines could use for nesting sites (Biological Assessment 1995).

Candidate Species. The only candidate species listed near Naval Station Sand Point is the spotted frog. However, the lack of marshes and ponds and the presence of blackberries and open grasslands on the lakeshore at Naval Station Sand Point provide no suitable habitat for the frog, and it is unlikely to be present. Species of concern (species whose conservation standing is of concern to USFWS, but for which status information is still needed) near Naval Station Sand Point include the long-eared myotis, the long-legged myotis, the northwestern pond turtle, the olive-sided fly-catcher, and the Pacific western big-eared bat. These species are unlikely to be present at Naval Station Sand Point due to lack of suitable habitat (riparian, forests, etc.). There are no known reports of any bats roosting in the buildings on Naval Station Sand Point.

4.10.2 Direct and Indirect Environmental Impacts

- **Vegetation, Wildlife, and Wetlands**

None of the alternatives will have a significant impact related to vegetation, wildlife, or wetlands. Little or no vegetation will be removed under any of these alternatives. Native wildlife habitat does not exist at Naval Station Sand Point and will not be impacted. Existing wetlands will not be adversely impacted by any of the alternatives; however, by proposing a wetlands near former Mud Lake, the City Plan and options will have a beneficial impact through restoration of wetland habitat.

- **Endangered Species**

Construction and operation activities proposed for the site will have no effect on endangered or threatened species (peregrine falcon, bald eagle) because there would be no effect on critical habitat or the distribution or abundance of potential prey species.

4.10.3 Mitigating Measures

None of the alternatives will have a significant impact on vegetation, wildlife, wetlands, or endangered species; therefore, no further mitigating measures are necessary.

4.10 Biological Resources/Endangered Species

4.10.4 Unavoidable Adverse Impacts

None.

4.11 WATER

This section describes water issues at Naval Station Sand Point, discusses impacts on water of the two reuse plans and the No-Action Alternative, and suggests means of mitigating potential impacts.

4.11.1 Affected Environment

Shallow groundwater at Naval Station Sand Point occurs primarily within the relatively permeable fluvial interglacial deposits contained within or between the low-permeability till units that underlie the site. The continuity of these units beneath the site has not been well defined. Groundwater flow is generally east toward Lake Washington from a recharge area in the uplands west of the station. The water table lies about 10.5 feet (3.2 m) below the ground surface. Groundwater in the lower areas of the station flows under artesian conditions. The water moves up through discontinuous areas of the till unit and enters Lake Washington. Surface water filtering through the fill material seasonally becomes trapped on top of the till unit in low areas (URS 1993a).

Knowledge of the groundwater system at Sand Point is limited. United States Geological Survey (USGS) studies and URS investigations conducted in the area focused on possible contamination of the shallow groundwater, but investigations were limited to specific sites. No deep drilling was conducted in the area.

Well data compiled from information available at Ecology indicated no wells or borings within a 2-mile (3 km) radius of Naval Station Sand Point. The low permeability and limited extent of isolated water-bearing units in the shallow subsurface limit their usefulness as viable drinking water sources.

The boundaries of Sand Point contain no perennial streams or freshwater bodies. The closest stream is Thornton Creek, which is approximately 0.25 mile (0.4 km) northwest of the facility (URS 1993a). Lake Washington abuts Naval Station Sand Point on the north.

The lowering of the lake's level in 1916, caused by the construction of the Lake Washington Ship Canal, significantly altered the shoreline configuration in the Sand Point area, diminishing the size of Mud Lake and Pontiac Bay. Subsequently, during the initial phase of naval station construction in the late 1920s and 1930s, the Naval Station Sand Point landscape was leveled, and both Mud Lake and part of Pontiac Bay were filled to accommodate runways and buildings. Drainage from the site and all neighborhoods west of the station discharges to Lake Washington through Naval Station Sand Point, the NOAA facility, or Magnuson Park (see Figure 4-25) via outfalls and overland runoff. Historically, the primary water quality concern was algae and its effect on water color and clarity; however, today the water quality of Lake Washington is excellent.

The stormwater drainage system at Naval Station Sand Point is described in Section 4.7.1. Sediments in Pontiac Bay are discussed in Section 4.8.1.

4.11.2 Direct and Indirect Environmental Impacts

The amount and type of pollutants in stormwater runoff can be modified by changes in the amount of impervious surface, the type of activity, or both. The change in activity can be evaluated from two perspectives—actual change in use or change in traffic—because most pollutants washed from paved surfaces to water bodies originate from automobiles.

To the extent that the amount and type of pollutants transported to Lake Washington change, the water quality of the lake may change. For both reuse plans, demolition and excavation activities may result in increased sedimentation in the lake.

• City Plan and Options

City Plan. The City Plan decreases the amount of impervious surface by about 30 acres (12 hectares). This reduction would occur primarily in the south end of the project area that includes the commissary (Building 193) and related buildings. The City Plan would demolish these buildings and restore the Mud Lake wetland and grassed recreational areas. The amount of nutrients in the runoff to Lake Washington (such as phosphorus) may increase, depending on the use of fertilizers to maintain recreation areas. Given the size of Lake Washington, the overall impact of the increased phosphorus is not significant. Localized effects may occur; that is, algae may increase within the immediate vicinity of outfalls and immediately after storms that occur during the growth season. Conversion of impervious surface to grass fields and a wetland should reduce the total amount of metals and petroleum hydrocarbons draining to Lake Washington.

Increased boating activity in the North Shore Recreation Area may impact water quality in the immediate vicinity of the marina. However, most boats would be unmotorized sail boats. If allowed, dockside maintenance of boats could result in the discharge of pollutants from such items as spilled paints, dust particles from hull work, and engine fluids.

With the proposed City Plan, traffic volumes probably would not change significantly, compared to levels occurring when the station was in full operation. Therefore, traffic-related pollutants should not significantly increase.

Options to the City Plan. Additional excavation activities due to new construction of housing units may produce sedimentation in the lake above that expected under the City Plan. New construction called for under the options to the City Plan would increase the amount of impervious surface on the site over that proposed in the City Plan. However,

this increase cannot be predicted at this point since it depends on the housing design. Other impacts would be similar to those described above.

- **Muckleshoot Plan**

The amount of impervious surface at Naval Station Sand Point would decrease, although to a lesser extent than under the City Plan (approximately 13 acres [5 hectares]) less of new recreational land use area and potentially more parking in the educational land use area than City Plan). Beneficial impacts (more open space than at present, including reestablishing Mud Lake) would be similar to those described under the City Plan, although not as pronounced.

The primary change to existing activities under the Muckleshoot Plan with respect to water quality is the conversion of most of the administration and maintenance area to warehousing and light industrial. As with the City Plan, the Tribe's plan will generally cause little outdoor activity that could affect water quality, except for traffic. Additional traffic created by the Muckleshoot Plan is likely to increase traffic-related pollutants, oil, etc. The impact on Lake Washington will likely be limited to the immediate area of the outfalls. The concentrations of pollutants, such as metals, may increase in the sediment around each outfall.

The potential for direct discharge of pollutants from boating activity exists due to the number and frequency of boats.

- **No-action Alternative**

Although there would be no decrease in impervious surfaces, pollutants draining to Lake Washington would decrease from when the station was in operation, because of reduced traffic volumes and lack of activity at the station.

4.11.3 Mitigating Measures

Mitigating measures for the City Plan and options and the Muckleshoot Plan could include the following:

- Reduce adverse water quality and sedimentation impacts from boating in the northeast area by prohibiting on-site maintenance of engines or hulls. Well-posted signs could indicate to the boat owner that such activity is prohibited. If total prohibition is not desired or practical, maintenance activity could be limited to "within hull" activities. A best management practices (BMP) plan should be developed and its implementation placed under the responsibility of an employee on the site. Boat owners could be made aware of their responsibilities by signs, brochures, and, where appropriate, lease language.

4.11 Water

- Reduce and control site-generated traffic (see Transportation-Mitigating Measures, Section 4.5.3) in order to reduce potential vehicle-related pollutants.
- Develop a BMP plan for excavation activities resulting from renovation (or demolition) of buildings and utility construction so that sediments are not transported to Lake Washington.
- Install biofiltration collection systems (such as grass-lined swales), if feasible, to trap silt and other particles harmful to adjacent aquatic habitats.
- Divert some runoff from surface flow to Lake Washington into the newly-created Mud Lake wetland systems for detention and further treatment.

4.11.4 Unavoidable Adverse Impacts

None.

4.12 AIR QUALITY

This section presents information on existing conditions and the environmental impacts of the reuse plans and no-action alternative on air quality. Data for this section were derived primarily from the PSAPCA, NOAA, Ecology, EPA, and the transportation analysis (Appendix H).

The study area for the air quality analysis is defined by the intersections studied for traffic impact (Figure 4-11), Naval Station Sand Point, and the immediate surrounding area.

4.12.1 Affected Environment

- **Climate**

The climate for Naval Station Sand Point is characterized as midlatitude marine temperate, or maritime, with warm summers and cool, moist winters. The Olympic Mountains (west) shield the area from intense Pacific Ocean storms, and the Northern Cascade Mountains (east) protect the area from the extreme temperature regimes that occur in eastern Washington.

- **Wind Speed and Direction**

Ecology maintains a meteorological station at Naval Station Sand Point on NOAA property. The station's instrumentation continuously monitors temperature, wind speed, wind direction, standard deviation of wind speed and wind direction, mixing heights, and precipitation.

PSAPCA analyzed and summarized wind speed and wind direction data from Naval Station Sand Point from 1945 to 1954; this period is representative of current data. The following wind speed and wind direction information is from this 9-year data record:

- The prevailing wind direction is from the south to southwest during fall and winter. During late spring and summer, the wind direction gradually shifts to the west and northwest.
- Calm and light-to-variable winds (L/V) are observed 3.5 percent of the year; wind speeds from 1.1 to 3.9 knots (2 to 7 km/hr) are observed 19.2 percent of the year; wind speeds from 4 to 6.9 knots (7 to 13 km/hr) are observed 34.1 percent of the year; and wind speeds greater than 7 knots (13 km/hr) are observed 43.2 percent of the year.

- **Temperature**

Summer temperatures average about 64°F (18°C), with occasional occurrences of 90°F (32.5°C) and above. Winter temperatures drop below freezing an average of only 15 days a year.

Thirty-year weather data collected at the University of Washington from 1931 to 1960 indicate a mean annual temperature of 53°F (12°C), with a low mean monthly temperature of 40°F (4°C) in January and a high mean monthly temperature of 66°F (19°C) in July.

- **Precipitation**

Annual rainfall averages 36.2 inches (980 mm), with 82 percent of the total precipitation occurring between October and April. The wettest months are November, December, and January, with average monthly rainfall between 5 and 7 inches (130 and 180 mm). The maximum 24-hour recorded rainfall exceeds 2.5 inches (63 mm).

- **Ambient Air Quality Standards**

The following paragraphs present information concerning the regulatory basis for data collection, analysis, interpretation, presentation, and uses of air quality data. Air quality is regulated by federal, state, and local agencies to prevent atmospheric pollution. Air quality is monitored and compared to enforceable criteria or standards for selected pollutants.

Daily Air Quality. In the Puget Sound Basin, PSAPCA uses the national Pollutant Standards Index (PSI) to report daily air quality. PSI is a nationally used, uniform method for reporting daily air quality levels. PSAPCA has used this method in cooperation with Ecology since 1980 to report PSI values for Everett, Seattle, and Tacoma. PSAPCA calculates PSI by converting the pollutant levels measured each day to a scale on which health risk is rated. The index scale categorizes air quality by the use of the following descriptions and numerical ranges:

- From 0 to 50: good
- From 51 to 100: moderate
- From 101 to 199: unhealthful
- From 200 to 299: very unhealthful

Table 4-38 summarizes the PSAPCA reports from 1986 through 1992 for Seattle.

Regulatory Overview. Section 176 (c) of the Clean Air Act requires that federal actions conform to the appropriate State Implementation Plan (SIP) in air quality non-attainment areas. To conform with the Clean Air Act Amendments of 1990 (CAAA),

Table 4-38
Seattle Air Quality

Year	Good (No. of Days)	Moderate (No. of Days)	Unhealthful (No. of Days)	Very Unhealthful (No. of Days)
1986	130	226	8	1
1987	120	238	7	0
1988	215	146	5	0
1989	231	134	0	0
1990	239	126	0	0
1991	256	109	0	0
1992	238	127	1	0

Source: PSAPCA 1986 through 1992

the State of Washington must submit a SIP and obtain approval from EPA. As defined in the Clean Air Act (as amended in 1990) conformity to a SIP means eliminating or reducing the number and severity of violations of the national Ambient Air Quality Standards (NAAQS). The rule for determining conformity of general federal actions was promulgated by EPA and became effective in January 1994 (40 CFR Part 93). According to EPA, activities associated with property disposal at military closure and realignment bases through sale or transfer of title are not covered by the conformity rule (FR 1993b).

On the basis of the CAAA, EPA delegates responsibility to state and local governments to prevent and control air pollution at its source. Emissions from stationary sources (industrial facilities) and mobile sources (motor vehicles) are regulated under the act. The major purpose of CAAA is to protect human health and welfare by using standards or criteria that set maximum numerical limits or concentrations of pollutants permitted in air. EPA uses the NAAQS for six major criteria pollutants: carbon monoxide, particulate matter, ozone, sulfur dioxide, lead, and nitrogen dioxide. These "criteria pollutants" were selected on the basis of specific scientific and health-based effects on human and environmental target populations. Federal law requires that these pollutants meet the national primary standards that protect health. Ecology and PSAPCA have established state and local ambient air quality standards that are at least as stringent as the national standards for the six pollutants.

In 1992, PSAPCA reported that the Puget Sound region was in continued compliance with the standards for sulfur dioxide, lead, and nitrogen dioxide. In specific locations, the region had been out of compliance with the standards for carbon monoxide, particulate matter, and ozone. However, from 1991 through 1993, no violations of ambient air quality standards have been reported in the region. EPA officially

determines attainment status for each pollutant. Several years without violations of standards are required to redesignate an area's status as "attainment."

This section discusses only three criteria pollutants—carbon monoxide (CO), ozone, and particulate matter—for the following reasons:

- These three pollutants have historically exceeded regulatory standards in the Seattle area.
- The sources of carbon monoxide, particulate matter, and ozone precursor emissions (volatile organic compounds and oxides of nitrogen) include traffic, the major source expected from the Naval Station Sand Point alternatives.

- **Monitoring Station Locations**

PSAPCA and Ecology separately maintain and operate 18 ambient air quality and meteorological stations in the Puget Sound region. The stations closest to Naval Station Sand Point that monitor the three priority pollutants are in the University District (1307 N.E. 45th Street) and northeast Seattle (17711 Ballinger Way N.E.) for carbon monoxide, in Lake Forest Park (20050 S.E. 56th) for particulate matter, and in Issaquah (Lake Sammamish State Park) for ozone.

- **Criteria Pollutant Summaries**

The following paragraphs briefly describe and summarize data for the criteria pollutants carbon monoxide, ozone, and particulate matter.

Carbon Monoxide. Carbon monoxide is a colorless, odorless, toxic gas formed primarily as a product of incomplete fossil-fuel combustion processes. In highly industrialized countries, the predominant CO production source is the internal combustion engine, the primary mover for vehicles. In addition, rapid urbanization and attendant traffic congestion are ideal conditions for producing elevated levels of CO. Engine emission studies, as well as vehicle emissions inspection programs, have proved that idling vehicles produce more CO per pound of fuel burned than moving vehicles.

The primary (health-related) national ambient air quality standard for CO is 9 ppm averaged over 8 hours and 35 ppm averaged over 1 hour. Under federal regulations, these levels can be exceeded only once per year without violating the standard. Recorded exceedances of the standard in the Puget Sound region and in other parts of the United States indicate that inversion layers are often associated with increased concentrations of CO. CO concentrations are generally higher during autumn and winter because traffic congestion occurs with concentrated shopping during the holidays and

because stable atmospheric conditions (inversions) and light wind limit the dispersion of pollutants (PSAPCA 1992).

To reduce CO concentrations in the region, Ecology requires periodic testing of most automobiles in an EPA-approved inspection and maintenance (I&M) program. The program has been extended, although CO levels are within standards. Recently, PSAPCA chose to no longer require oxygenated gasoline as a means to reduce CO during winter months; PSAPCA's board believed that such a requirement was unwarranted given the low ambient CO levels in the Seattle area.

Table 4-39 profiles ambient CO data from 1986 through 1992 in the University District (the CO monitoring station closest to Naval Station Sand Point). Because one CO exceedance per year is allowed by the EPA, the table lists only the second highest recorded concentration, rather than the highest recorded concentration.

Table 4-39
Historical Ambient Carbon Monoxide Data

Year	Second Highest 1-Hour Concentration (ppm) ^a	Number of Exceedances	Second Highest 8-Hour Average Concentration (ppm) ^b	Number of Exceedances
1986	19	0	12	3
1987	17	0	10	4
1988	15	0	10	3
1989	12	0	8	0
1990 ^c	10.3	0	8.0	0
1991	11.2	0	7.8	0
1992	17.1	0	9.2	1

^aLimit of 35 ppm may be exceeded once per year

^bLimit of 9 ppm may be exceeded once per year

^cFurther detailed monitoring analysis began in 1990

Source: PSAPCA 1986 through 1992

Ozone. Ozone is a pungent-smelling, colorless gas produced by a complex series of sunlight-enhanced photochemical reactions involving nitrogen oxides, volatile organic compounds, and intermediate compounds. Ozone formation in the lower atmosphere is a function of atmospheric conditions and the total mix of precursor emissions from motor vehicles, nonindustrial or residential heating sources, and industrial fossil fuel combustion processes in an area. Because ozone formation is a photochemical process, the greatest concentrations are seen during periods of warm temperatures and intense sunlight (spring and summer) (PSAPCA 1992). In the Puget Sound region, ozone concentrations are the highest during hot days from mid-May to mid-September. Unlike

direct pollutants such as CO, ozone concentrations do not always decrease with increasing distance from the source of emission. Observations show that ozone concentrations increase downwind of urban or industrial areas. Ozone concentrations increase as a parcel of air moves downwind as a result of the precursor mixing and photochemical reactions that progressively occur.

The primary national ambient air quality standard for ozone is 0.12 ppm averaged over 1 hour. In 1987, the Puget Sound region attained the ozone standard, but during the summer of 1990 monitoring data indicated exceedances or noncompliance with the standard. The ozone NAAQS is exceeded when two 1-hour average concentrations in one calendar year are greater than 0.12 ppm. If an average of two exceedances occur per year for 3 years, the area will likely be classified as a nonattainment area for ozone. Table 4-40 shows historical ozone data for the Puget Sound region.

Table 4-40
Historical Ambient Ozone Data
Lake Sammamish State Park Monitoring Station

Year	Second Highest 1-Hour Average Concentration (ppm) ^a	Number of Exceedances
1986	0.11	0
1987	0.09	0
1988	0.11	0
1989	0.08	0
1990 ^b	0.123	0 ^c
1991	0.100	0
1992	0.092	0

^aLimit of 0.12 ppm may be exceeded once per year

^bFurther detailed monitoring analysis began in 1990

^cNo exceedance was recorded because data are rounded to the nearest 0.01. Also see footnote "a," above.

Source: PSAPCA 1986 through 1992

Particulate Matter. Particulate matter consists of small, discrete, solid or aerosol particles suspended and dispersed in air. Particulate matter is generally fine particles of smoke, dust, pollen, soot, and other organic or inorganic debris. Particulate matter is divided into two groups, based on aerodynamic diameter: total suspended particulates (TSP) and the fraction of TSP less than 10 micrometers in diameter (PM₁₀). In July 1987, PM₁₀ standards superseded TSP standards. The primary NAAQS for PM₁₀ is 150 micrograms per cubic meter (Fg/m³), averaged over 24 hours, and the secondary standard is 50 Fg/m³ annual arithmetic mean.

In 1992, PSAPCA reported that none of the daily or annual average PM_{10} values exceeded the level of either standard. Data for the 3-year period ending in 1992, the last year for which data are available, also indicated that the Puget Sound region was in compliance with the 24-hour and annual standards.

Only one station monitors PM_{10} near Naval Station Sand Point. The station is in Lake Forest Park, a relatively recent addition to the regional monitoring network. Table 4-41 shows historical data for PM_{10} at this station. The increase in 24-hour data in 1991 is attributed to fugitive dust created by traffic on roads that were sanded during a severe winter storm.

Table 4-41
Historical Ambient Particulate Matter Data
Lake Forest Park Monitoring Station

Year	Second Highest Annual Arithmetic Average (Fg/m^3) ^a	Number of Exceedances	Second Highest 24-Hour Average (Fg/m^3) ^b	Number of Exceedances
1989	Not measured	Not measured	85	0
1990	26.7	0	99	0
1991	28.3	0	131	0
1992	26.3	0	69	0

^aLimit of 50 Fg/m^3 may be exceeded once per year

^bLimit of 150 Fg/m^3 may be exceeded once per year

4.12.2 Direct and Indirect Environmental Impacts

This section describes environmental impacts of the reuse plans and No-action Alternative in five areas: federal requirements, emissions credits, vehicular traffic, construction and demolition, and the heating plant.

- **Emissions Credits**

In some cases, air emissions from a source, such as a Navy base, are registered in an emissions bank so that they are traded or sold. In these cases, closure of the source, such as a base, would result in emissions credits being available. These credits then may be sold or transferred to other sources. In the case of Naval Station Sand Point, no emissions are registered in the bank; therefore, no transfers are possible.

- **Vehicular Traffic**

EPA establishes air quality modeling requirements and guidance to evaluate CO emissions caused by vehicular traffic at one or more roadway intersections. EPA's CO

modeling guidance presents a consistent, scientifically acceptable method to estimate air quality impacts of vehicular traffic at intersections and determine whether such impacts potentially exceed NAAQS for CO (U.S. EPA 1992).

The modeling guidance is appropriate for an EIS in which identification of potential CO intersection "hotspots" has medium to high priority. Ranking and selection procedures are detailed in the guidance document, which uses signalized intersections as the basis for each procedure. The guidance document indicates that "intersections that are LOS A, B, or C probably do not require further analysis, i.e., the delay and congestion would not likely cause or contribute to a potential CO exceedance of the NAAQS" (EPA 1992).

LOS designations and peak-hour traffic volumes were used to determine the necessity for air quality modeling at specific intersections. According to Table 4-25 and Figure 4-15, the only intersection that shows a LOS level greater than C for existing conditions is N.E. 95th Street and Sand Point Way N.E. This intersection, which is currently unsignalized, had a LOS D designation for 1993. Under all alternatives, this intersection would be designated LOS F in 2000, which is considered unacceptable for traffic. However, total traffic volumes at this intersection would be lower than 3,000 vehicles during the p.m. peak hour (Figures 4-18 and 4-19). Therefore, according to PSAPCA, CO levels are not expected to exceed the NAAQS.

With no action, traffic on the Montlake Bridge would worsen. With the City Plan or the Muckleshoot Plan, traffic on the Montlake Bridge during the a.m. and p.m. peak periods would increase—a 5 percent increase would result from the City Plan, and a 10 percent increase would result from the Muckleshoot Plan (see Table 4-30).

Air quality impacts from these two plans could be a concern for two reasons: the existing high volumes on the Montlake Bridge (well over 3,000 vehicles per hour) and the air monitoring data for the University District. During 1992, the University District air quality monitoring station (the one closest to the Montlake Bridge) was the only monitoring station in the four counties of King, Kitsap, Pierce, and Snohomish that exceeded the primary (health-related) CO standard (8-hour standard).

Further consideration of these potential impacts, however, suggests that neither reuse plan would cause air quality to degrade. A single exceedance is not a violation, so the 1992 exceedance at the University District station was not so categorized. In 1993, no exceedances or violations occurred. CO levels should continue to drop because cleaner cars are replacing older models and due to the inspection and maintenance program in the region. Therefore, even with increased traffic volumes, CO should not exceed standards in the region as a result of either the City or the Muckleshoot Plan.

Traffic volumes resulting from implementation of the options to the City Plan are expected to fall between the volumes predicted for the City and Muckleshoot Plans.

Since air quality impacts are not predicted to result from either of those volumes, the City Plan options should not result in adverse air quality impacts.

The No-Action Alternative would not contribute base-related traffic volumes to Sand Point Way N.E. or the Montlake Bridge. Base-related vehicular contributions to existing criteria pollutant concentrations would decrease.

- **Construction and Demolition**

The City Plan proposes construction of a Mud Lake wetland area, a tennis center, an outdoor amphitheater, housing, and other facilities as described in Appendix C. The City Plan also proposes demolition of several structures (as shown in Table 2-2) for the Magnuson Park open space/recreation expansion area and the Magnuson Park Arts, Culture, and Community Center. Under the Options to the City Plan, there would be 110 new units of housing constructed. The Muckleshoot Plan does not specifically reference any new construction although it does propose some remodeling and demolition of existing structures (as shown in Table 2-2).

Under the City and Muckleshoot Plans, during construction and demolition, the potential for air pollution from construction sites would increase due to the use of heavy equipment, trucks, and razing of structures. Most of this temporary impact will occur at the construction and demolition sites and will consist of particulate matter generated from movement of soil and the entrainment of dust by wind, vehicles, and demolition activities. Normal exhaust emissions from operation of demolition and earthwork equipment will also add insignificantly to regional concentrations of CO and PM₁₀. These impacts would be short-term, temporary, and intermittent.

Asbestos is another air pollution concern during demolition and remodeling. As described in Section 4.8, an asbestos survey of the base has been conducted. Asbestos removal would require compliance with regulations enforced by PSAPCA.

Construction under the options to the City Plan would result in a short-term increase in related emissions (dust and vehicle), but is not expected to be significant.

The No-Action Alternative would not result in air emissions from construction or demolition activity.

- **Heating Plant**

The existing heating plant burned interruptible natural gas and fuel oil. Because the City Plan and options and Muckleshoot Plan propose no significant increases in fuel consumption, no significant changes in air quality are expected. The reduction in built space by approximately 30,000 square feet proposed under the City Plan and options, and to a lesser amount under the Muckleshoot Plan, would reduce heating demand,

4.12 Air Quality

saving fuel and reducing emissions. Under the No-Action Alternative, a decrease in oxides of nitrogen and CO emissions would be expected because the heating plant would be used minimally.

4.12.3 Mitigating Measures

No mitigating measures are required.

4.12.4 Unavoidable Adverse Impacts

None.

5.0 CUMULATIVE, IRREVERSIBLE, AND PRODUCTIVITY EFFECTS

5.1 CUMULATIVE IMPACTS

Along with the direct and indirect impacts addressed in Section 4.0, NEPA requires that cumulative impacts be evaluated. Cumulative impacts are defined as the impacts that result from the incremental impact of action when added to other past, present, and reasonably foreseeable future actions, regardless of who undertakes them. Cumulative impacts can result from individually minor but collectively significant actions (40 CFR 1508.7). This section addresses the cumulative impacts associated with the City Plan and the Muckleshoot Plan for the Sand Point Naval Base.

Because details of the reuse plans are not yet fully developed, a qualitative approach is taken to assess the cumulative impacts for each element of the environment discussed in this EIS.

5.1.1 Land Use

None.

5.1.2 Historic and Cultural Resources

None.

5.1.3 Socioeconomics

None.

5.1.4 Recreation

The open space and recreation areas proposed under both reuse plans would expand Magnuson Park, contributing to the city-wide park system, and furthering the policies in the Seattle Parks COMPLAN that call for an increase in recreational and open space.

5.1.5 Transportation

Under the no-action alternative, traffic is projected to increase 1 percent per year in Seattle in the worst case. Both reuse plans would add trips to this increasing traffic in the Sand Point area and over the Montlake Bridge, which is nearing capacity.

5.1.6 Noise

The reuse plans will add noise to an area that is already experiencing noise levels above those allowed under the City ordinance.

5.1.7 Public Services and Utilities

Cumulative impacts on utilities are likely, given the age and condition of the utilities systems at Sand Point Naval Base. Reuse under either the City or the Muckleshoot Plan would require that impacts to the off-base utility systems be mitigated. There would be no significant cumulative impacts on public services.

5.1.8 Public Health and Safety

None.

5.1.9 Earth

None.

5.1.10 Biological Resources

Under the City Plan, improvements to ecological habitats, such as the creation of wetlands, will cumulatively encourage plant and wildlife diversity in an urban environment, provide corridor links for the movement of wildlife and for plant seed dispersal in the city, and improve water quality.

5.1.11 Water

There will be a beneficial cumulative impact on water quality from the City Plan as described above, under Biological Resources

5.1.12 Air Quality

None.

5.2 IRREVERSIBLE OR IRRETRIEVABLE COMMITMENTS OF RESOURCES

This section evaluates the impact of the City Plan and the Muckleshoot Plan on nonrenewable resources and the impacts that the use of these resources will have on future generations.

Irreversible effects primarily result from use or destruction of a specific resource, such as energy that cannot be replaced within a reasonable time frame. Irretrievable resource commitments involve the loss in value of an affected resource that cannot be restored as a result of the action, such as extinction of a threatened or endangered species or the disturbance of a cultural site.

The use of energy is addressed in Section 4.7. Although the use of energy resources, such as electricity, is irretrievable, energy supplies will not be significantly affected by the implementation of either reuse plan.

Natural resources such as sand and gravel may be used during construction or modification of structures. Although such resources are not replaceable, their use will not significantly affect available supplies. Timber resources can be replaced through replanting of production forests.

5.2.1 City Plan and Options to the City Plan

Irreversible and irretrievable commitment of resources includes energy required during construction or demolition activities, and energy required during operation of proposed uses (lighting, heating and cooling, electrical appliances, and cooking).

5.2.2 Muckleshoot Plan

Irreversible and irretrievable commitment of resources includes energy required during reconstruction or demolition activities and energy required during operation of proposed uses (lighting, heating and cooling, electrical appliances, and cooking).

5.3 RELATIONSHIP BETWEEN SHORT-TERM USES AND LONG-TERM PRODUCTIVITY

This section evaluates the effect of the City Plan and options and the Muckleshoot Plan on productivity (agriculture, mineral extraction, or timber production) of land that is already developed by the Navy. Because the Sand Point Naval Base is developed, it is not currently productive. Neither reuse plan will restore short- or long-term commercial and natural productivity; however, under the City Plan, restored wetland habitats will be more ecologically productive in terms of biodiversity.

The Muckleshoot Plan would result in increased commercial fishing in the Lake Washington area, but this is not expected to significantly affect the Lake's productivity.

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LIST OF PREPARERS

Cindy Baker (Land Use)--MS Soil Science, University of Washington, 1982. Sixteen years' experience.

Leonard A. Carey (Property Values)--BA Economics, University of Washington, 1944. Twenty-five years' experience.

Alan Carpenter (Noise and Air)--M.S.E., Air Resources Management, University of Washington, 1981. Twenty years' experience.

Sue Comis (Project Management, Socioeconomics, Public Health and Safety)--MA Urban Planning, University of Washington, 1980. Sixteen years' experience.

Larry M. Fehr (Public Health and Safety)--MPA Public Administration, University of Washington, 1983. Twenty-one years' experience.

Scott Greenberg (Project Management, Public Services and Utilities)--MA Urban Planning, University of Washington, 1983. Sixteen years' experience.

Jeff Kesner (Earth)--BS Combined Science, Youngstown State University, 1987. Three years' experience.

Bruce Haldors (Transportation)--MS Civil Engineering, University of California, Berkeley, 1991. Seven years' experience.

Gary Minton (Water Quality)--PhD Environmental Engineering, University of Washington, 1972. Twenty-two years' experience.

Don Laford (Public Services & Utilities)--MS Engineering Management, Rensselaer Polytechnic Institute, 1967. Thirty-seven years' experience.

Michael B. Lamb (Property Values)--BA Political Science and Business Administration, University of Portland, 1966. Twenty-six years' experience.

Vivianne Larkin (Public Health and Safety)--MBA with BS Chemistry, University of Denver, University of Oregon, 1986. Seventeen years' experience.

Dawn Neely (Project Management)--BA Historic Preservation, 1977. MS College of William & Mary, 1986. Twenty years' experience.

Frank Okamoto (Air Quality)--BS Chemical Engineering, University of North Dakota, 1984. Ten years' experience.

Rick Reanier (Historic/Cultural)--PhD Anthropology, (Archaeology), University of Washington, 1992. Twenty-four years' experience.

Sharon Rodman (Biological Resources)--MS Botany, University of Durban, 1991. Seventeen years' experience.

Lorraine Spencer (Land Use)--BA Political Science, University of Washington, 1991. Three years' experience.

Claus D. Tjaden (Public Health and Safety)--PhD Sociology, University of Colorado, Boulder, 1989. Twenty-three years' experience.

Jennifer Vrynios (Transportation)--BS Civil Engineering, Valparaiso University, 1986. Eight years' experience.

Michael R. Yantis (Noise)--MS Mechanical Engineering, University of Washington, 1974. Twenty years' experience.