22 February 2006

SR 520 Bridge Replacement and HOV Project Draft EIS

6-Lane Alternative Options

Addendum to Cultural Resources Discipline Report

Washington State Department of Transportation

SoundTransit

U.S. Department of Transportation
Federal Highway Administration

SR 520 Bridge Replacement and HOV Project EIS
6-Lane Alternative Options

Addendum to Cultural Resources Discipline Report

Prepared for

Washington State Department of Transportation
Federal Highway Administration
Sound Transit

Lead Author
Lori Durio, MFA and James C. Bard, Ph.D, RPA
CH2M HILL

Consultant Team
Parametrix, Inc.
CH2M HILL
Parsons Brinckerhoff
Michael Minor and Associates
BOAS, Inc.

February 22, 2006

Contents

Attachment

List of Exhibits

Acronyms and Abbreviations

ACHP	Advisory Council on Historic Preservation
APE	Area of Potential Effect
DAHP	Department of Archaeology and Historic Preservation
dBA	decibel (A-weighted scale)
DOE	determination of eligibility
FHWA	Federal Highway Administration
GIS	Geographic Information System
HABS/HAER	Historic American Building Survey/Historic American Engineering Record
MOHAI	Museum of History and Industry
NAC	Noise Abatement Criteria
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NPS	National Park Service
NOAA	National Oceanic and Atmospheric Administration
NRHP	National Register of Historic Places
SEPA	State Environmental Policy Act
SHPO	State Historic Preservation Office
WSDOT	Washington State Department of Transportation
WHR	Washington Heritage Register

Introduction

This addendum to the *Cultural Resources Discipline Report* (Appendix D to the *Draft SR 520 Bridge Replacement and HOV Project Environmental Impact Statement* [Draft EIS]; CH2M HILL 2006) describes the affected environment and environmental consequences of three options to the 6-Lane Alternative. Two of these options are in Seattle, and one is on the Eastside.

What are the key points of this report?

New study areas were added to the area of potential effect (APE) for the original 6-Lane Alternative. A total of 52 additional properties were surveyed in the new Seattle study areas, of which 32 are eligible for or listed in the NRHP. Included within the Seattle study areas are three National Register of Historic Places- (NRHP) and Washington Heritage Register- (WHR) listed historic properties: the Montlake Bridge, the Montlake Cut, and the University of Washington Canoe House. The Montlake Bridge and Montlake Cut are also designated Seattle landmarks. There is also one NRHP-eligible historic district (the Montlake Historic District) and one NRHP-eligible building, the University of Washington Club in the Seattle study area. The Eastside study area added to the APE does not contain any NRHP-listed or eligible historic resources.

The cultural resources discipline team expects that the 6 Lanes with Pacific Street Interchange option would have generally lesser noise effects on historic resources than the original 6-Lane Alternative, but much greater visual intrusion on the Montlake Historic District and the NRHP-listed Montlake Cut, Montlake Bridge, and Canoe House. This option is expected to have an adverse effect on the setting of the Canoe House. This option would also directly affect the National Oceanic and Atmospheric Administration (NOAA) Northwest Fisheries Science Center property and demolish the Museum of History and Industry (MOHAI), although it would take less NOAA property than the original 6-Lane Alternative.

The cultural resources discipline team anticipates that the Second Montlake Bridge option would have a greater visual and audible effect on the Montlake Historic District, Montlake Bridge, Montlake Cut, and Canoe House than the original 6-Lane Alternative. It would also

directly affect the NOAA Northwest Fisheries Science Center property and demolish the Museum of History and Industry (MOHAI). This option would also involve the removal of two more historic properties than the original 6-Lane Alternative. This option also has the potential to negatively affect the setting and feeling of the historic Montlake Bridge if the new bridge is not designed and constructed to be compatible with the historic bridge.

A comparison of the two Seattle area options shows that the Second Montlake Bridge option would cause an increase in audible effects, while the 6 Lanes with Pacific Street Interchange option would cause a decrease in audible effects. Although both options would result in increased visual effects to the Montlake Historic District, Montlake Bridge, Montlake Cut, and Canoe House, the 6 Lanes with Pacific Street Interchange option would have a greater visual effect on the Montlake Historic District and the Canoe House, while the Second Montlake Bridge option would have a greater visual effect on the Montlake Cut and the Montlake Bridge. The Second Montlake Bridge option would also affect the setting of the Montlake Bridge much more than the 6 Lanes with Pacific Street Interchange option would. In addition, the 6 Lanes with Pacific Street Interchange option would have a detrimental visual effect on the University of Washington Club. It would also have an adverse effect on the setting of the Canoe House, while the Second Montlake Bridge option would not.

Both options would result in demolition of MOHAI and a direct effect to the NOAA Northwest Fisheries Science Center property, although the 6 Lanes with Pacific Street Interchange option would take slightly less property from NOAA. The Second Montlake Bridge option would require the demolition of two additional properties in the Montlake Historic District, while the 6 Lanes with Pacific Street Interchange option would require no additional demolitions. In addition, the 6 Lanes with Pacific Street Interchange option would result in the conversion of pavement to landscaped open space with the removal of the SR 520/Montlake Boulevard interchange ramps. The Second Montlake Bridge option would not have this beneficial effect.

The South Kirkland Park-and-Ride Transit Access – 108th Avenue Northeast option would not affect any known historic resources in the study area beyond those discussed in the *Cultural Resources Discipline Report* for the original 6-Lane Alternative.

The cultural resources team also recommends that the following additional archaeological and ethnographic investigation work be conducted: (1) subsurface testing in archaeological high probability areas to determine whether or not buried sites are present and (2) conducting oral history interviews with Lake Duwamish descendants to determine whether or not traditional cultural properties are present (BOAS Inc. 2005, 2006). Adverse effects on cultural resources can be mitigated through a variety of methods, depending on the type and severity of effect and the significance of the individual resource.

What options are being considered in this addendum?

6 Lanes with Pacific Street Interchange Option

This option would remove the Montlake interchange along SR 520 and would construct a new interchange at Pacific Street, just east of the Montlake interchange. **Exhibit 1** shows the proposed lane configuration for this option.

The new interchange would be primarily located over the WSDOT-owned peninsula near the Washington Park Arboretum. A new on- and off-ramp to and from the north would extend to Pacific Street at the University of Washington. A column-supported ramp of four general-purpose lanes (two lanes in each direction) extending over Union Bay (referred to as the Union Bay Bridge in this addendum) from the new interchange would touch down at the University of Washington Husky Stadium parking lot before joining the intersection of Pacific Street and Montlake Boulevard. At that intersection, the roadway would be lowered 8 to 10 feet from the existing elevation to provide vehicle-only access. The intersection would be covered to allow pedestrian access above and away from vehicular traffic.

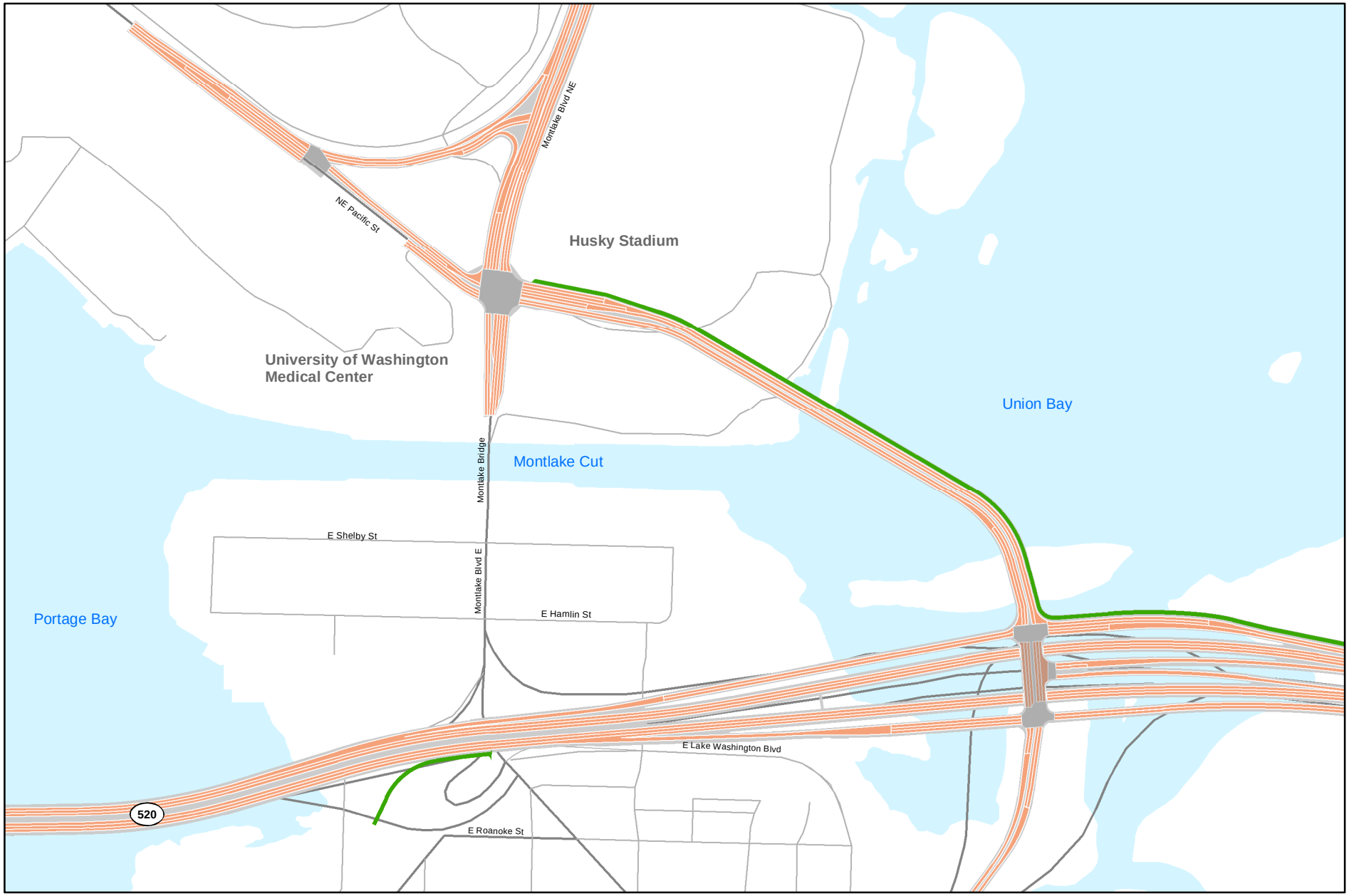

Exhibit 1. **Lane Configuration of the 6 Lanes with Pacific Street Interchange Option**
SR 520 Bridge Replacement and HOV Project

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The roadway on Montlake Boulevard north of Pacific Street would be widened to the east until just south of Northeast 45th Street. The navigational channel crossed by the new Union Bay Bridge would be the same width as the existing Union Bay reach (175 feet), with a vertical clearance of either 70 or 110 feet.[1] Columns would be placed just outside the width of the ship canal to not block boat traffic.

Ramps to and from Lake Washington Boulevard would still be included in this option; however, their footprint would be slightly different from the original 6-Lane Alternative. The ramp connections to and from Lake Washington Boulevard and to and from the Union Bay Bridge would construct a full diamond interchange, as opposed to a partial diamond interchange under the original 6-Lane Alternative. This full diamond interchange would provide more access to and from Lake Washington Boulevard. No access to or from SR 520 would be provided at Montlake Boulevard.

From Montlake Boulevard to I-5, SR 520 would be six lanes wide (three in either direction). The profile of the Portage Bay Bridge would not differ under this option from the original 6-Lane Alternative. Buses would access SR 520 via the Union Bay Bridge through the University area, providing for a more direct connection between buses and the proposed Sound Transit North Link Station at Husky Stadium. Instead of connecting to the Montlake interchange as in the original 6-Lane Alternative, the bicycle/pedestrian path would follow the Union Bay Bridge from SR 520 and would end at the Pacific Street interchange, close to the Burke-Gilman Trail.

Second Montlake Bridge Option

The intent of the Second Montlake Bridge option is to narrow the SR 520 footprint through the Montlake neighborhood, while providing for transit (bus) access from SR 520 to the University of Washington. **Exhibit 2** shows the proposed lane configuration for this option, which would be the same as the No Montlake Freeway Transit Stop option, except that it would also include a second Montlake bridge across the Montlake Cut. This bridge would be a parallel bascule (draw) bridge

[1] The establishment of a new governing clearance would prevent any vessel with a higher clearance requirement from traveling east from the Montlake Cut to Lake Washington north of the Evergreen Point Bridge. Before establishing a new governing clearance, the Coast Guard will consider whether vessels requiring a higher clearance have an essential use in north Lake Washington. Two vessels with a vertical clearance higher than 70 feet are known to travel this part of the lake. No vessels with a vertical clearance higher than 110 feet travel this part of the lake.

Option Lane Configuration
Bicycle/Pedestrian Path
Shoulders and Barriers
Intersections

N

0 125 250 500 Feet

Exhibit 2. **Lane Configuration of the Second Montlake Bridge Option**

SR 520 Bridge Replacement and HOV Project

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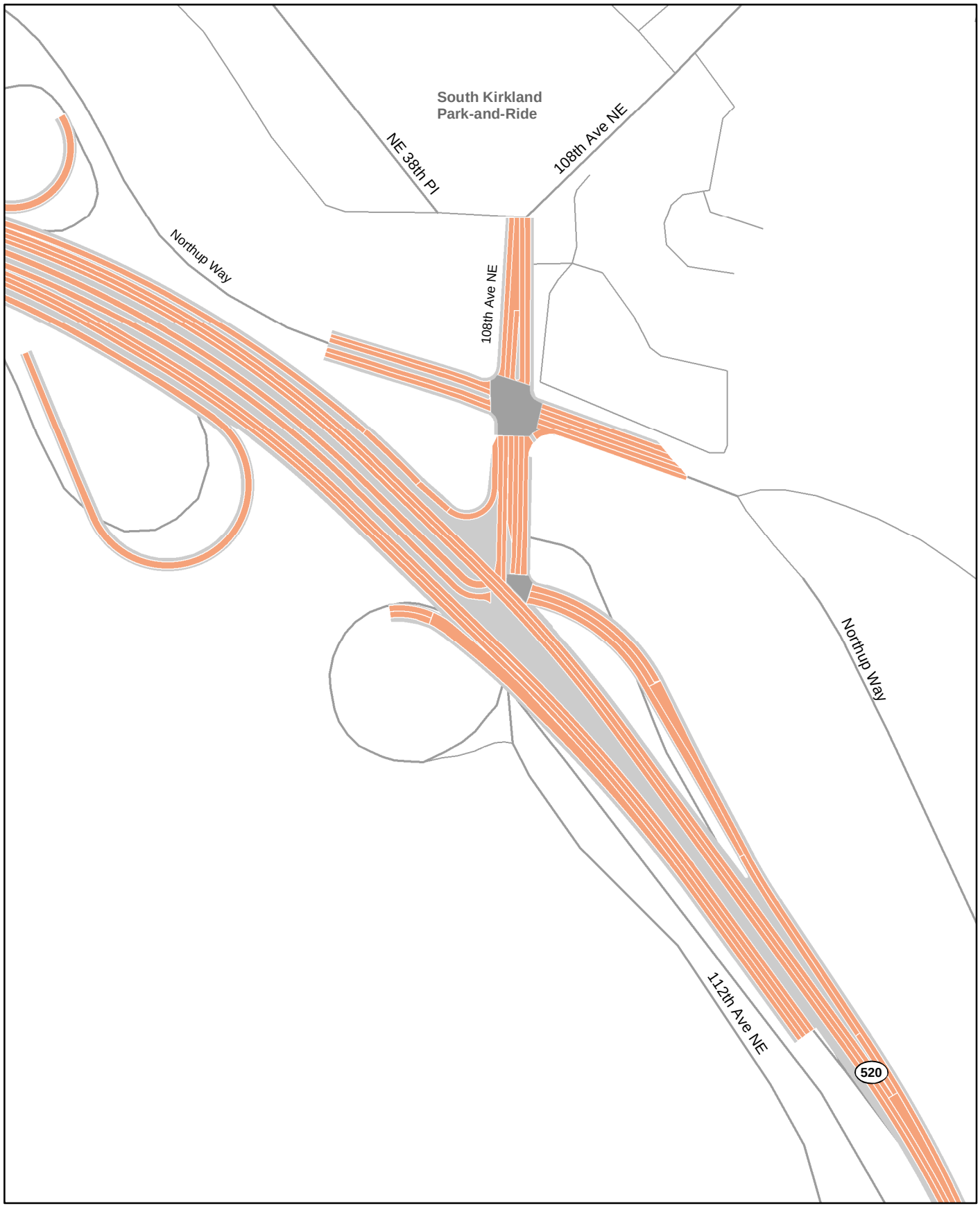
located just east of the existing Montlake Bridge. One bridge would carry northbound traffic, and one would carry southbound traffic.

South Kirkland Park-and-Ride Transit Access – 108th Avenue Northeast Option

The intent of the South Kirkland Park-and-Ride Transit Access – 108th Avenue Northeast option is to improve access for buses to the South Kirkland Park-and-Ride from eastbound SR 520 and from the South Kirkland Park-and-Ride to westbound SR 520. This option, which is shown in **Exhibit 3**, would add a new transit/HOV-only westbound on-ramp from 108th Avenue Northeast and a new transit/HOV-only eastbound off-ramp to 108th Avenue Northeast.

The footprint of SR 520 east of Bellevue Way would be widened slightly to accommodate the new ramps. Both 108th Avenue Northeast and Northup Way would be widened and improved under this option. One lane would be added to 108th Avenue Northeast between the eastbound on-ramp and 38th Place Northeast. Along with the additional through lane on 108th Avenue Northeast, the northbound leg of the 108th Avenue Northeast/Northup Way intersection would be channelized to include two exclusive left-turn lanes, a through lane, and a shared through/right-turn lane.

There is also a possibility for adding a westbound second left-turn lane at the 108th Avenue Northeast/Northup Way intersection to facilitate clearing the left-turn queue and serving a higher number of westbound left-turn and through trips.



Option Lane Configuration
Shoulders and Barriers
Intersections

N

0 125 250 500 Feet

Exhibit 3. **Lane Configuration for the South Kirkland Park-and-Ride Transit Access - 108th Avenue Northeast Option**
SR 520 Bridge Replacement and HOV Project

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Affected Environment

What additional information was collected for this analysis?

For this addendum, three additional areas of study were added to the APE established for the original 6-Lane Alternative. The cultural resources discipline team conducted research in these study areas. The research focused on the three cultural resource types: archaeological resources, traditional cultural resources, and historic buildings and structures. The research included pedestrian field surveys for archaeological resources, ethnographic research for traditional cultural resources, and field surveys for historic buildings and structures. These efforts determined that there are no known archaeological or ethnographic resources in the new study areas. The literature search identified three historic resources that are listed in the NRHP: the Montlake Bridge, the Montlake Cut, and the University of Washington Canoe House. The field studies gathered information on 52 additional buildings. The team collected information on these additional properties to determine if they were eligible for the NRHP, WHR, or as potential Seattle landmarks and evaluated these properties in accordance with National Park Service (1991a, 1991b) guidance. For properties previously determined eligible and for those recommended as eligible in this report, the team collected information to study how the properties could be affected by the options. The team then analyzed these potential effects using the guidance provided in Section 106 of the National Historic Preservation Act (NHPA) to determine if the effects to the eligible properties would be adverse.

How was the information collected?

As described in the *Cultural Resources Discipline Report*, the cultural resources discipline team contacted state local agencies and affected Indian Tribes to obtain information about existing archaeological resources, traditional cultural places, and historic buildings and structures. The team used this information to characterize and assess the potential effects of the proposed alternatives. A list of these contacts is provided in Attachment 1.

The team collected information from the sources listed in Attachment 1 to describe the existing baseline cultural resource conditions in the project area and to identify the existing cultural resources in the study area. Additional information on potential effects was gathered from the *Addendum to Visual Quality and Aesthetics Discipline Report*, the *Addendum to Land Use, Economics, and Relocations Discipline Report*, and the *Addendum to Noise Discipline Report*.

How were archaeological resources investigated?

To augment the archaeological and ethnographic investigations conducted for and described in the *Cultural Resources Discipline Report*, the cultural resources team prepared a preliminary ethnographic and geoarchaeological study (BOAS 2005) and an Addendum (BOAS 2006), The purpose of these investigations was to more precisely locate areas where there is a high probability of encountering archaeological remains, which would help WSDOT avoid disturbing these culturally sensitive areas.

The cultural resources discipline team conducted background research and conducted on-the-ground field reconnaissance surveys in the project study areas. The background research, conducted at the SHPO's office and at local libraries, revealed that there are no known or recorded archaeological sites or traditional cultural properties along the SR 520 corridor APE or within the additional study areas described in this addendum. Background research confirmed that the project area lies within lands and waters once occupied by several Puget Sound Tribes, whose descendants are represented by federally recognized Indian Tribes including the Suquamish, Muckleshoot, Snoqualmie, Yakama, and Tulalip Tribes. Because of this, the project area is considered to have a high level of archaeological sensitivity.

Information evaluated for this report included:

- Previous cultural resource studies, including archaeological site records and cultural resources reports
- Environmental background reports, including environmental histories and geological (geomorphologic or geoarchaeological) analyses
- Ethnographic and historic background material, including relevant ethnographic reports, oral histories, local histories, newspaper

articles, census data, city directories, historic photographs, and historic maps

- Various types of information collected from tribal consultations

Based on this background information, known and predicted sites of high, moderate, and low probability were identified for hunter-fisher-gatherer, ethnographic, and historic period archaeological resources for the project area.

Field reconnaissance strategies were devised to identify archaeological sites in the APE and in the additional study areas using information gathered about known resources and the patterns of prehistoric use of the area. The field reconnaissance survey crews examined all open and undeveloped areas in the APE of the additional study areas. The surveys were conducted using pedestrian transects at intervals appropriate for the level of existing urban development. Standard transect width in open and surveyable areas was 20 meters (65.6 feet). In other areas, surveyors conducted reconnaissance among landscaped and developed areas to identify areas of ground surface exposure to inspect, such as open fields and unlandscaped open space.

What tribal consultations were included?

WSDOT, in cooperation with Sound Transit, has initiated the Section 106 process and is coordinating with the SHPO, ACHP, and affected Indian Tribes. As the lead federal agency, FHWA conducts government-to-government consultations with the Tribes. WSDOT and Sound Transit are assisting FHWA with the consultations. These ongoing consultations began during the Trans-Lake Washington Study and will continue through project design and construction. Attachment 2 in the *Cultural Resources Discipline Report* includes records of the agencies' meetings and correspondence with potentially affected Tribes.

Government-to-government consultation recognizes that cultural resources are important to the Indian people, whose ancestors used the land for many generations in prehistoric and historic times. The interests of the Tribes include burial and sacred site protection and perpetuation of traditional hunting, fishing, and native plant gathering activities. Historic use of natural resources produced a life way that is still integral to the maintenance of tribal culture.

How were historical resources investigated?

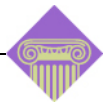
The cultural resources discipline team defined a study area for each additional 6-Lane Alternative option with guidance from WSDOT and State Historic Preservation Office (SHPO) staff. All buildings and structures that predate 1961 within these areas were then surveyed by the cultural resources discipline team. The year 1961 was selected to cover all resources that would be 45 or more years old at the time of issuance of the Record of Decision for the SR 520 project—and could be 50 or more years old by the time some parts of the project are built. The team then identified and evaluated literature about historical resources; collected existing data, including archival records, building permits, historic photographs, and maps; and analyzed these data to assess the NRHP and/or WHR eligibility of the properties (NPS 1991a, 1991b), and also their potential for city or county landmark designation.

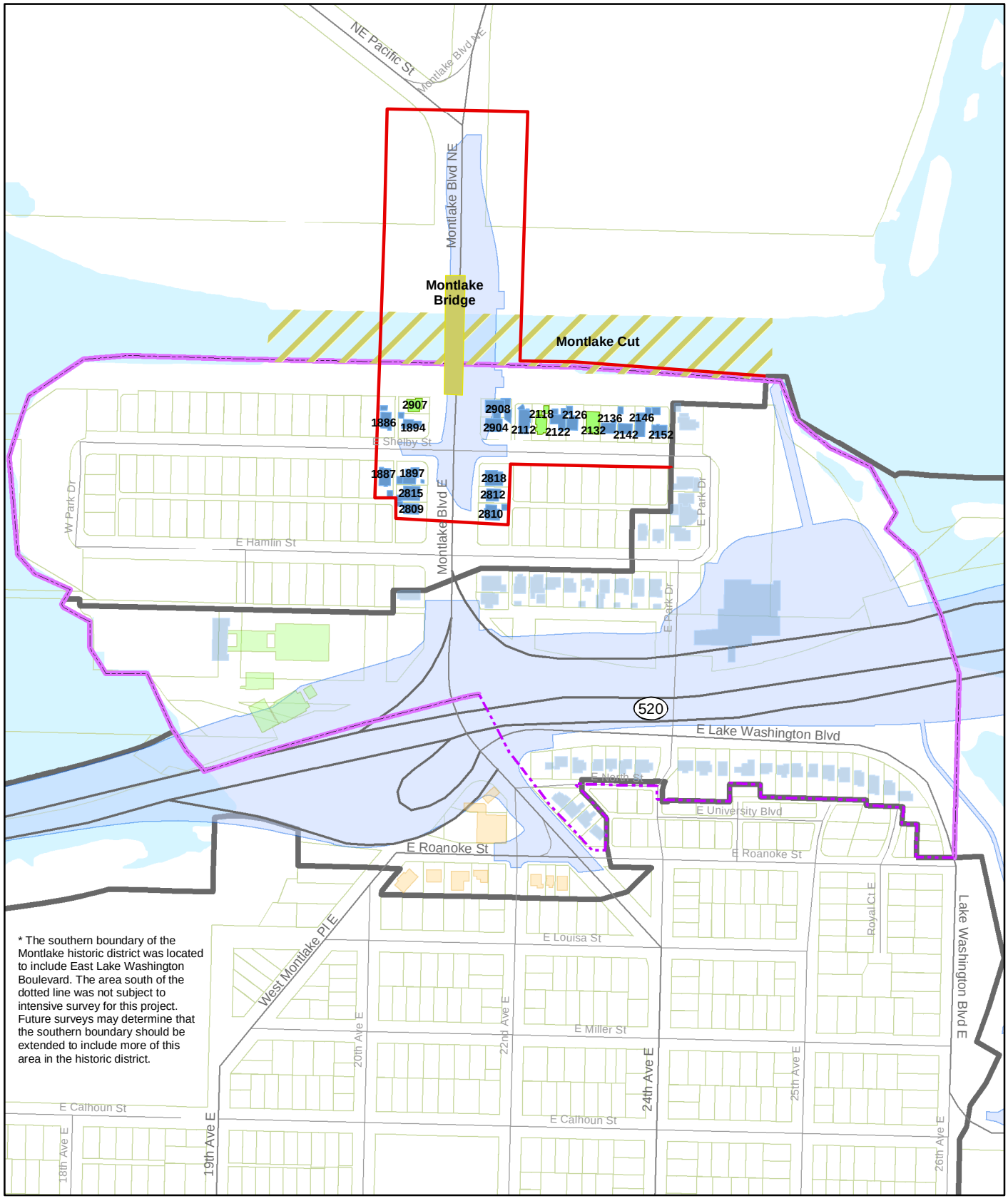
The study areas were based on the Geographic Information System (GIS) map layer and informal guidance from DAHP and WSDOT staff, gained during a field visit of the project area[2]. The study areas are shown on **Exhibits 4, 5** (**5a** through **5c**), and **6.**

The cultural resources team conducted a field survey of those resources in the study areas that predated 1961 and had not been previously surveyed. This survey included a systematic review of all buildings built before 1961 that had not already been designated as landmarks. The team also reevaluated buildings identified during earlier surveys to confirm that these buildings were still standing and had retained their architectural integrity. Every building surveyed is noted by address or name on the study area exhibits. The team prepared a form for all buildings and structures with pre-1961 construction dates.

The Montlake Historic District was previously identified through field survey and archival research under the original 6-Lane Alternative, and recorded as NRHP-eligible. Only a portion of this eligible historic district would be affected by the proposed project, so the team did not survey all properties in the historic district, only those that were within the boundaries of the APE. Additional sections of the Montlake Historic District were included in the Seattle study areas for these

[2] These study areas were based on agreements reached during a field visit to the project area on Tuesday, October 25, 2005, between Russell Holter/SHPO, Connie Walker Gray/WSDOT, and Lori Durio/CH2M HILL.





Note: Buildings with address labels were surveyed as part of the SR 520 Bridge Replacement and HOV Project, Second Montlake Bridge Option

Exhibit 4. **Cultural Resources in the Second Montlake Bridge Option Study Area**
SR 520 Bridge Replacement and HOV Project

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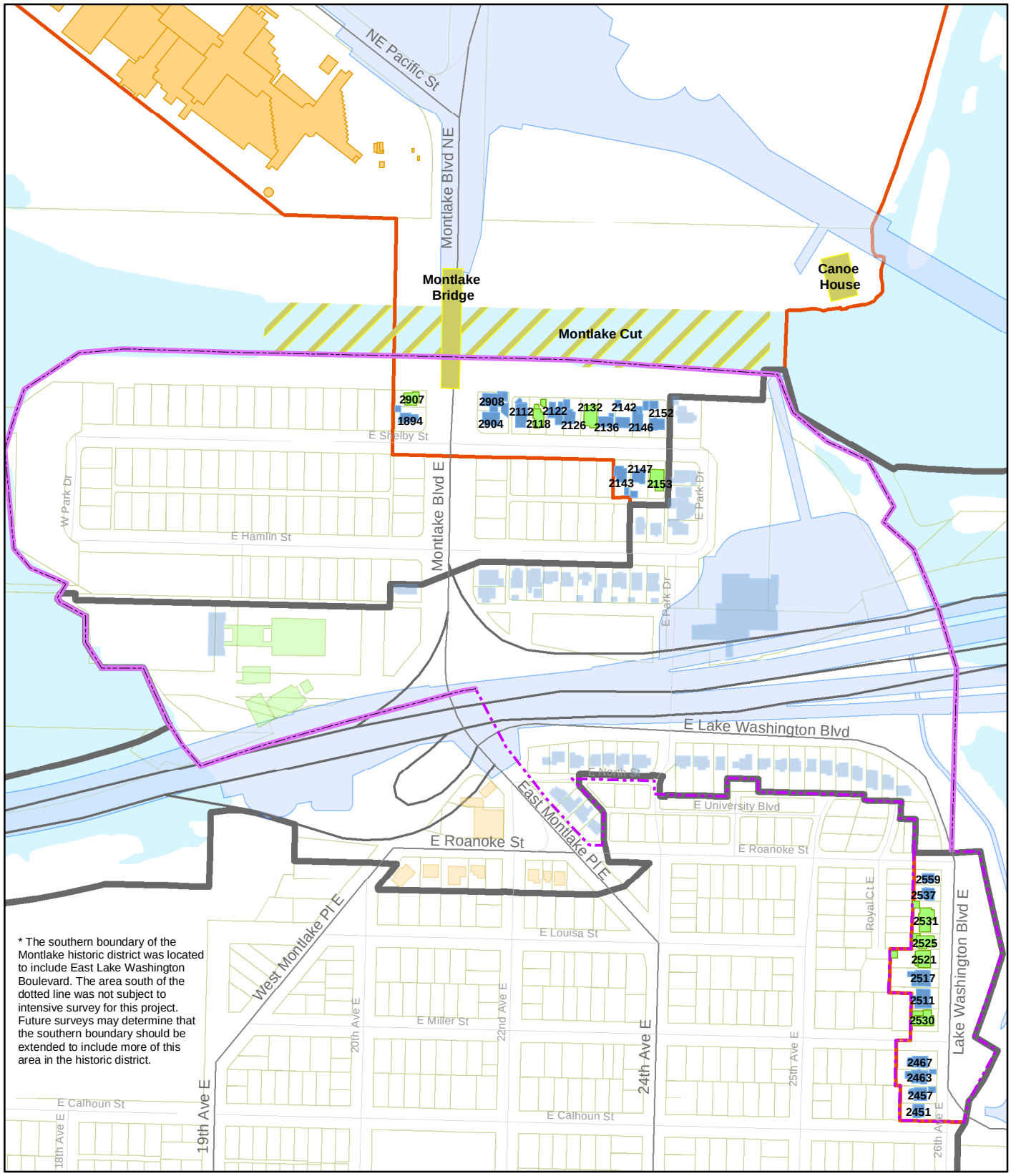
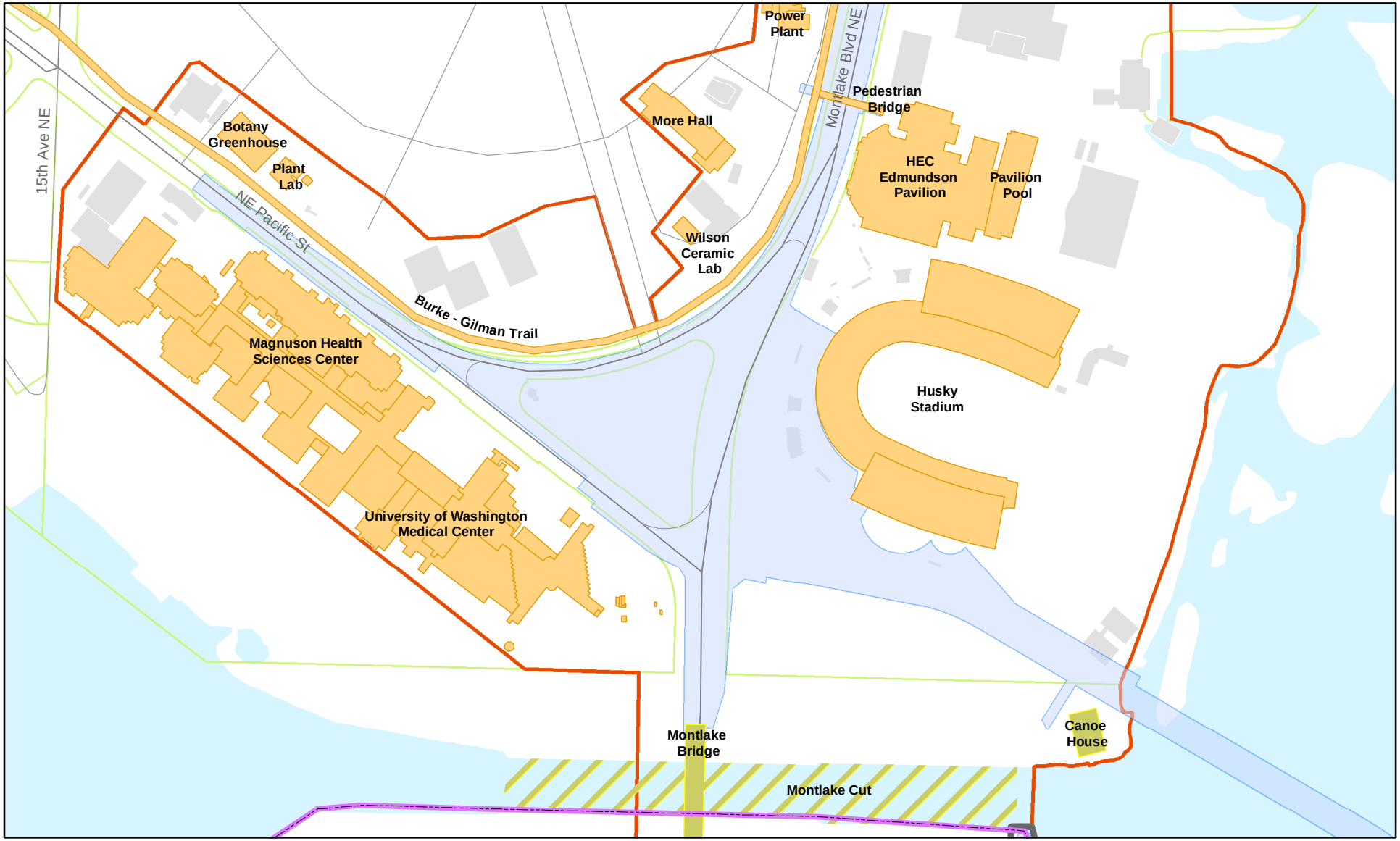


Exhibit 5a. **Cultural Resources in the 6 Lanes with Pacific Street Interchange Option Study Area**
SR 520 Bridge Replacement and HOV Project

Note: Buildings with address labels were surveyed as part of the SR 520 Bridge Replacement and HOV Project, 6 Lanes with Pacific Street Interchange Option



Original 6-Lane Alternative APE Line

6 Lanes with Pacific Street Interchange Study Area

6 Lanes with Pacific Street Interchange Footprint

Potentially Eligible Historic District

Parcel Boundaries

NRHP Listed

Not NRHP Eligible

* Note: Buildings with address labels were surveyed as part of the SR 520 Bridge Replacement and HOV Project, 6 Lanes with Pacific Street Interchange option

* Grayed structures denote those contructed after 1961.

N

0 200 400 Feet

Exhibit 5b. **Cultural Resources in the 6 Lanes with Pacific Street Interchange Option Study Area**
SR 520 Bridge Replacement and HOV Project

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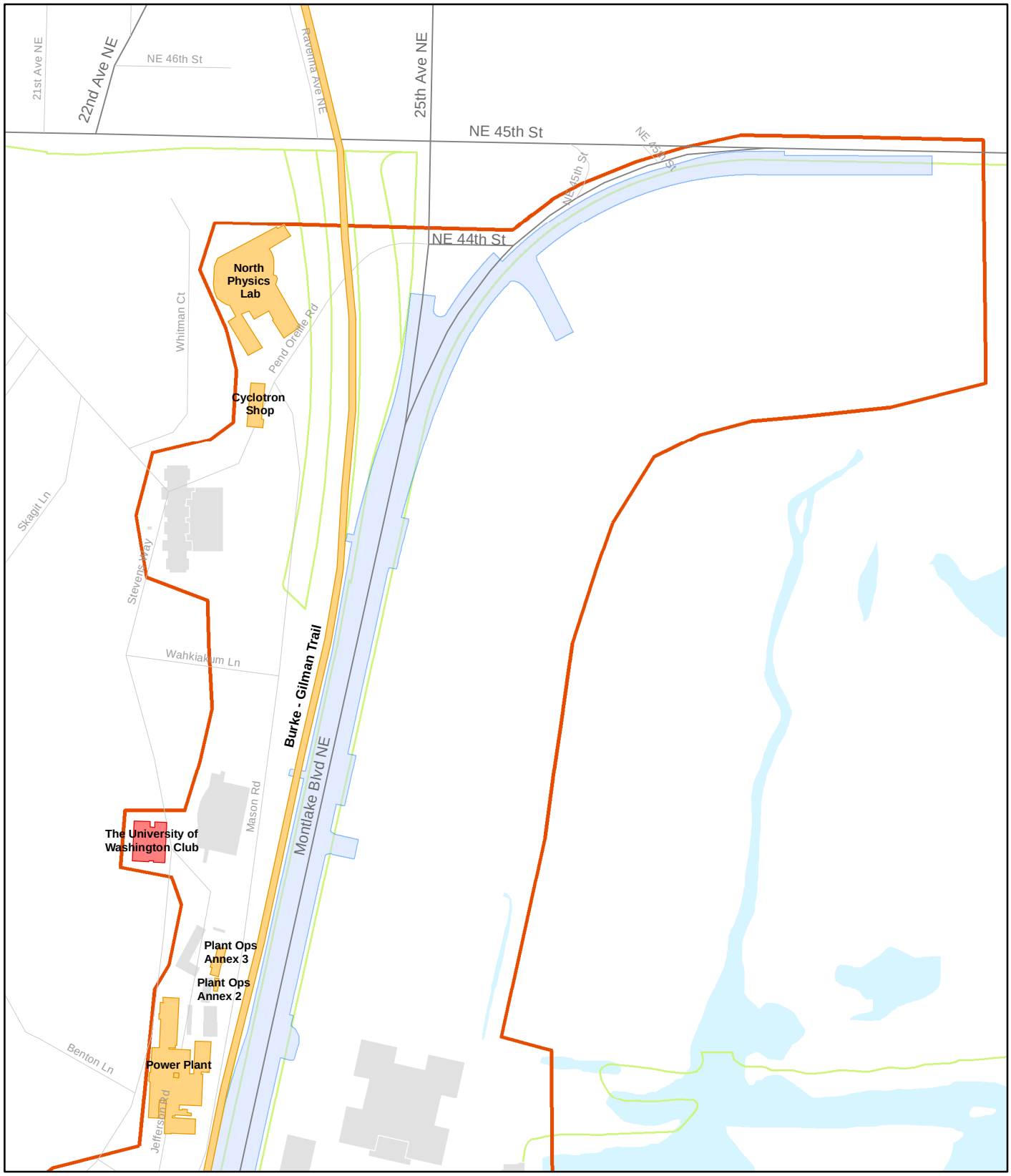

6 Lanes with Pacific Street Interchange Study Area

Parcel Boundaries

6 Lanes with Pacific Street Interchange Footprint

NRHP Eligible

Not NRHP Eligible

Note: Buildings with address labels were surveyed as part of the SR 520 Bridge Replacement and HOV Project, 6 Lanes with Pacific Street Interchange Option

* Grayed structures denote those contructed after 1961.

N

0 200 400 Feet

Exhibit 5c. **Cultural Resources in the 6 Lanes with Pacific Street Interchange Option Study Area**

SR 520 Bridge Replacement and HOV Project

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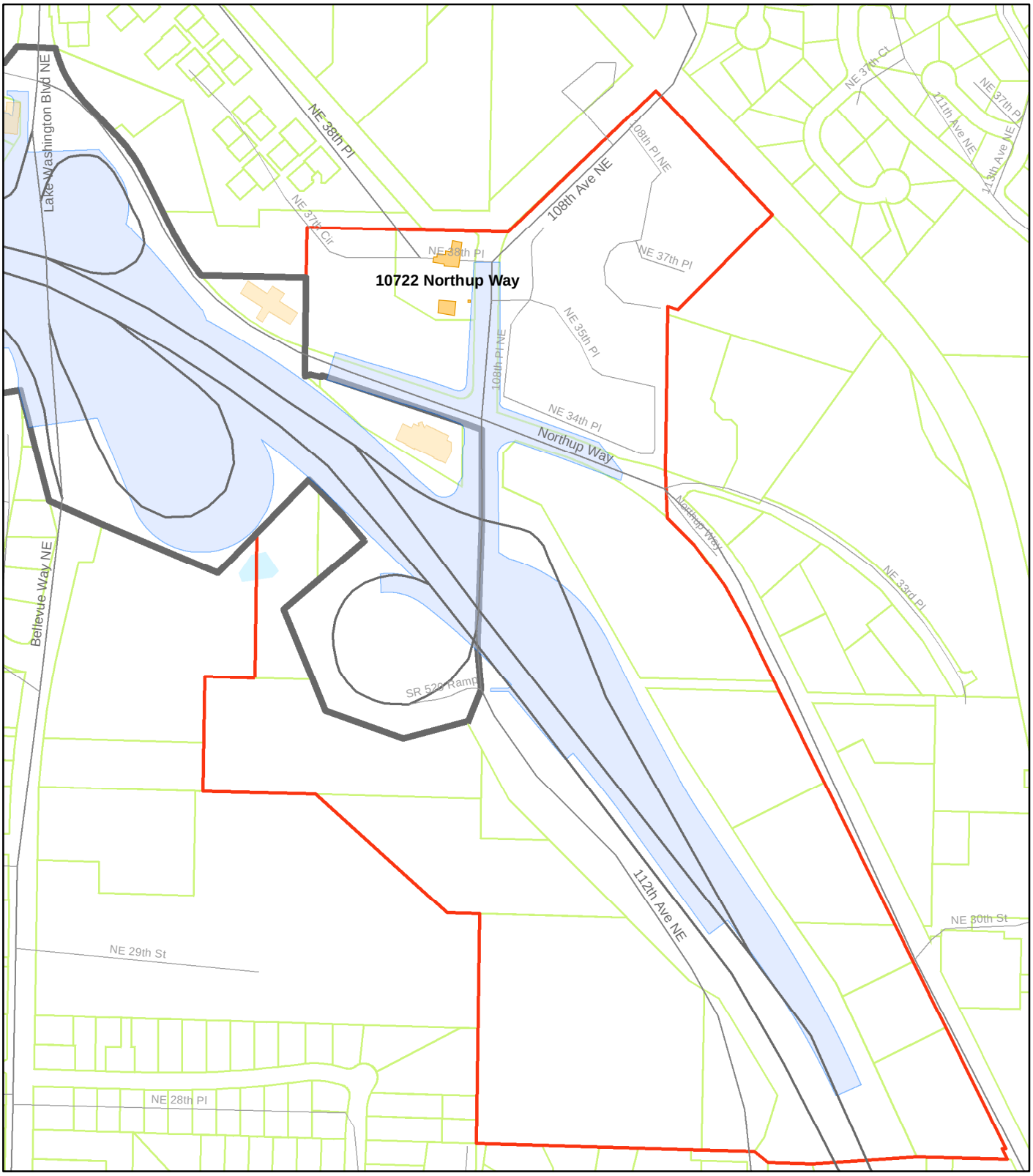

Original 6-Lane Alternative APE Line

South Kirkland Park-and-Ride Transit Access - 108th Avenue Northeast Study Area

South Kirkland Park-and-Ride Transit Access - 108th Avenue Northeast Footprint

Not NRHP Eligible

Parcel Boundaries

** Lighter shaded structures denote no change from the orginal 6-Lane Alternative*

* Note: Buildings with address labels were surveyed as part of the SR 520 Bridge Replacement and HOV Project, South Kirkland Park-and-Ride Transit Access - 108th Avenue Northeast option

N

0 200 400 Feet

Exhibit 6. **Cultural Resources in the South Kirkland Park-and-Ride Transit Access - 108th Avenue Northeast Option Study Area**

SR 520 Bridge Replacement and HOV Project

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options. For more information on this eligible historic district, see the *Cultural Resources Discipline Report* section entitled, "*What eligible historic resources are in the Seattle project area?*"

The cultural resources team photographed all potentially historic buildings and structures in the study area and entered data onto DAHP historic property inventory forms. These forms describe each building's key characteristics, construction date, and provide a brief history of uses. To collect information on these properties, the team searched city directories, city building permit files, University of Washington archives, and King County Tax Assessor property record cards, as noted above, and evaluated the surveyed buildings in accordance with NRHP and WHR criteria. The team completed determinations of eligibility (DOEs) for each building that appeared to meet the criteria for the NRHP and/or the WHR. The team also evaluated those buildings in Seattle to determine their potential eligibility as possible Seattle local landmarks under the City of Seattle's landmark designation program. We did not use the King County landmarks criteria because the study area did not include any unincorporated areas in which King County Landmarks Commission jurisdiction would apply. Although properties within the City of Bellevue were included in the study area, Bellevue does not have any historic preservation regulations or a landmark program (City of Bellevue 2005).

What is the history of the area?

Archaeological and Ethnographic Context

The archaeological and ethnographic context of both the Seattle and Eastside project areas is provided in the *Cultural Resources Discipline Report* and amplified by BOAS (2005). The context provided by CH2M HILL (CH2M HILL 2006) and BOAS (2005) covers all parts of the additional study area.

Historic Context

Seattle

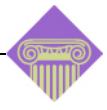
The Montlake neighborhood in Seattle was developed beginning in 1909. The main era of construction was from the 1910s through the 1930s. Two brothers, Calvin and William Hagan, with partner James Corner (Sherwood 1974a) probably originated the name Montlake as they developed the Montlake Park Addition, which is between Portage and Union Bays and defined by East Shelby and East Hamlin Streets, now north of SR 520. Its northern boundary is the Montlake Cut.

The University of Washington is directly north of the Montlake Cut. The University of Washington was established in 1861 by an act of the Territorial Legislature. The University's first campus, when it was called the "Territorial University," was roughly six blocks north of what was then "downtown." That site is now located near the center of downtown Seattle. Classes at the Territorial University began November 4, 1861, eight years before the City of Seattle was incorporated.

By the late 1880s and early 1890s, the University concluded that its location and facilities were no longer adequate and a much larger campus was needed—one removed from the early City's encroaching "downtown." The present site of the campus (roughly 4 miles north of the initial campus) was selected, and in 1893 the state legislature authorized purchase of the current site (University of Washington 2003). Five buildings remaining on campus date from this period of development (1895-1902).

A large number of campus master plans have influenced the siting of buildings on campus and the landscaped open spaces between them. Early influences came from the 1891 Boone Plan, 1900 Oval Plan, and 1904 Olmsted Plan. Later influences came from such campus plans as the 1915 Regents Plan, 1920 Bebb & Gould Plan, 1935 Jones & Bindon Plan, a 1940 Plan, 1948 Plan, 1962 Thiry Plan, 1963 Walker & McGough Plan, 1983 Land Use Plan, the 1991 – 2001 General Physical Development Plan, the 1995 Southwest Campus Plan, the 1997 North Campus Sector Plan, and the 1997 East Campus Sector Plan.

Perhaps the largest event that shaped the character of the south portion of the Central Campus—and the siting of buildings and open spaces in that area—was the 1909 Alaska–Yukon–Pacific Exposition, which took place on campus from June 1, 1909, to October 16, 1909. The site of the exposition was chosen in 1906, and the layout of building sites, vistas, and open spaces was based on a 1909 Olmsted Brothers Plan for the exposition. Most notable in this plan is Rainier Vista. Like most international expositions, the 1909 exposition included several permanent structures designed to become a part of the university campus, along with temporary buildings. Structures that have remained include Frosh Pond/Drumheller Fountain, Architecture Hall, Cunningham Hall, Engineering Annex, and statue of George Washington (unveiled on Flag Day, June 14, 1909).



The current University of Washington campus reflects, to some degree, all of these plans. But no clear remnant exists of any particular plan or style of architecture except for the Rainier Vista central axial landscape, which dates from the Olmstead Brothers Plan of 1909. Buildings of a number of different periods are scattered over the campus grounds in varying degrees of integrity, with no clear intact groupings by date or style. It does not appear that any groupings or areas that might qualify as historic districts exist within the area of the University of Washington campus surveyed for this project.

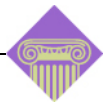
After the university relocated to its present location in 1895, the surrounding area became known as the University District (Courtois et al. 1999). By 1900, the university had an enrollment of 614 students, nearly twice the number it had five years earlier. With the growth of the university, the surrounding area began to develop also. In 1902 a grammar school was constructed in the area, as well as fraternity and sorority houses. By 1906 there was a bank, public library, several churches, and a small commercial zone in the University District. The 1909 Alaska-Yukon-Pacific Exposition gave a substantial economic boost to the area, spawning hotels, commercial ventures, additional streetcar lines, and housing developments.

In 1917, the Montlake Cut (NRHP-listed) was completed, bordering the southern edge of the University of Washington campus. For the next two years, portions of the campus were taken over for war preparations. It was during this time that the Canoe House (NRHP-listed) was constructed as a seaplane hangar. It was given to the University in 1922 and was used as a shell house for crew activities.

The Montlake Bridge (NRHP-listed) was constructed in 1924 to span the Montlake Cut. Improved access through bridges and other transportation methods added to the desirability of the University District and it continued to thrive as a residential section. In the 1950s and 1960s, the University of Washington saw its greatest enrollment expansion due to the post-World War II GI bill (Courtois et al. 1999). The university complex expanded to the east, west, and south, and many new buildings were constructed during this period.

Eastside

Bellevue was platted in 1904, and was historically the center for berry farming in King County (Stein 1998). Throughout the first half of the twentieth century, farming remained the most important industry on the Eastside. The opening of the Lacey V. Murrow Bridge across Lake



Washington (the location of the current I-90 Bridge) in 1939 changed Bellevue from a small rural community to a Seattle suburb. In 1946, developer Kemper Freeman opened the first shopping center on the Eastside (Bellevue Square in downtown Bellevue), which spawned commercial growth around the center (Stein 1998). Bellevue incorporated in 1953 with a plan to grow into a prosperous city. The opening of the Evergreen Point Bridge in 1963 further fueled the development of the Eastside, and Bellevue reaped many benefits, becoming a commercial center on its own and no longer merely a bedroom community for Seattle. Few remnants remain of the former Bellevue agricultural community.

What archaeological and ethnographic sites are in the project area?

Seattle

As described in the *Cultural Resources Discipline Report*, no recorded archaeological sites are present within the Seattle APE; however, Foster Island is a known area of cultural significance. Additional ethnographic research, including the collection of oral histories, is required to determine whether or not Foster Island would qualify as a traditional cultural property. Additional subsurface testing is required to determine whether or not buried archaeological deposits are present.

Eastside

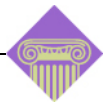
No known or recorded archaeological sites are present in the Eastside APE and additional study area.

What new project areas are most likely to have archaeological sites?

Seattle

The cultural resources team identified areas of high archaeological probability in the Seattle project area (see Exhibit 42 in the *Cultural Resources Discipline Report*). BOAS (2006:11-12) defined two new archaeological high probability areas within the new study areas, and two high probability areas previously identified (BOAS 2005) for the original 6-Lane Alternative would be expanded or altered under the Seattle project area options (see BOAS 2006: Appendix H).

High probability area #5 (BOAS 2006: Appendix H) was previously identified between the western shoreline of Union Bay and Foster



Island and encompasses the original APE in the vicinity of the historic Miller Street landfill. The boundary of this high probability area is shifted slightly to the west to include the 6 Lanes with Pacific Street interchange option.

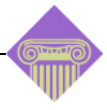
High probability area #7 (BOAS 2006: Appendix H) was previously identified as one of two high probability areas in the original 6-Lane Alternative APE where it crosses Foster Island. The study area for the 6 Lanes with Pacific Street Interchange option is slightly wider in the southern direction across Foster Island, in the vicinity of probability area #7. With this option, this high probability area is slightly larger immediately south of the existing SR 520 right-of-way.

High probability area #15 is a newly identified area within the 6 Lanes with Pacific Street interchange option study area (BOAS 2006: Appendix H). It is located on Union Bay north of the Montlake Cut, near the eastern entrance to the cut. The old university shellhouse (Canoe House) was built in 1918 on land exposed by the lowering of Lake Washington; the Waterfront Activities Center is located just to the north. The APE passes between these two facilities before crossing the University of Washington's E12 parking lot to the west. The parking lot is located on a higher ground, and there may be some pre-1916 lakeshore deposits along the unpaved section of the terrace between the parking lot and the lower post-1916 surface. Unfortunately, geotechnical data do not indicate how much of the original shoreline surface remains in the area and how much disturbance has taken place.

High probability area #16 lies adjacent to Montlake Boulevard immediately north of the Intramural Activities Building (BOAS 2006: Appendix H) in the vicinity of the historical shoreline of Union Bay, as well as the University Steam Plant ethnographic location and the east end of the "Indian trail" that cuts across the University grounds. Surface inspection suggests that there may be small remnants of the historical shoreline that have escaped significant grading, cutting, and filling, although the available geotechnical data suggest that extensive filling has occurred in the vicinity and the area is adjacent to Montlake Boulevard and the University of Washington facilities.

Eastside

The areas of high archaeological probability and the ethnographic sites in the Eastside project area are described in the *Cultural Resources Discipline Report*. The geomorphological and ethnographic study (BOAS



2006:12) identified one high probability area within the new study area. This is an area within the footprint of the South Kirkland Park-and-Ride Transit Access – 108th Avenue Northeast option. With this option, the study area is expanded along the southern edge of the cloverleaf southeast of the SR 520/Bellevue Way interchange. The APE expands into a low marshland adjacent to Northup Creek (BOAS 2006: Appendix H).

What historic buildings and structures are in the project area?

Seattle

The cultural resources discipline team categorized properties based on the criteria laid out by the NRHP and the City of Seattle Landmarks Preservation Board:

- Listed on the NRHP
- Eligible for listing on the NRHP
- Not eligible for listing on the NRHP
- Eligible for listing on the WHR
- Listed on the WHR
- Designated Seattle landmarks
- Potentially eligible Seattle landmarks

The Seattle study areas contain:

- Three NRHP-listed properties—the Montlake Cut, the Montlake Bridge, and the University of Washington Canoe House (the Montlake Cut and Montlake Bridge are also designated Seattle landmarks)
- One NRHP-eligible historic district (the Montlake Historic District) which has 26 contributing properties within the study areas in addition to those discussed in the *Cultural Resources Discipline Report*, 9 properties that are non-contributing due to a lack of integrity or significance, and 1 that was built after 1961
- One NRHP-eligible building, the University of Washington Club on the campus.

There are also 13 additional properties within the Seattle study areas (all located on the University of Washington campus) that are 50 years old or older but are not eligible for the NRHP or WHR, or as potential

Seattle landmarks. This represents a total of 53 properties surveyed in the Seattle study areas.

Exhibit 7 (7a and **7b)** lists all properties within the Seattle study areas that predate 1961, along with their NRHP status. Exhibits 4 and 5 (5a through 5 c) illustrate all the structures surveyed within the Seattle study areas and denotes their eligibility.

NRHP-Eligible Montlake Historic District

As described earlier, the Montlake neighborhood was first developed in 1909, with most construction occurring from the 1910s through the 1930s. The side streets appear to have been paved in 1926 (Gould 2000). The residential styles in the district are cohesive, mainly Craftsman, Tudor Revival, and Colonial Revival, but the houses are "individually distinctive" (Gould 2000). **Exhibits 8** and **9** demonstrate some of the diversity of architectural styles found in the neighborhood. 2158 East Shelby Street is a large Tudor Revival style house with picturesque details from 1925. Across the street, 2159 East Shelby Street is a Colonial Revival-style residence from 1914 that mimics the Georgian period. There are noteworthy nonresidential buildings in the area including the Montlake Bridge; MOHAI; the Seattle Yacht Club; the NOAA

Exhibit 7a. Summary of Pre-1961 Properties in the Historic/Architectural Study Areas—Seattle Project Area

Montlake Eligible Historic District		
Street Name	**Street Address**	**Comments**
East Shelby Street	1886	Contributing[a]
	1887	Contributing
	1894	Contributing
	1897	Contributing
	2112	Contributing
	2118	Non-Contributing - loss of integrity
	2122	Contributing
	2126	Contributing
	2132	Non-Contributing - loss of integrity
	2136	Contributing
	2142	Contributing
	2143	Contributing
	2146	Contributing
	2147	Contributing
	2152	Contributing
	2153	Non-Contributing - constructed 1970
Montlake Boulevard East	2809	Contributing

Exhibit 7a. Summary of Pre-1961 Properties in the Historic/Architectural Study Areas—Seattle Project Area

Montlake Eligible Historic District		
Street Name	**Street Address**	**Comments**
	2810	Contributing
	2812	Contributing
	2815	Contributing
	2818	Contributing
	2904	Contributing
	2907	Non-Contributing - loss of integrity
	2908	Contributing
Lake Washington Boulevard East	2451	Contributing
	2457	Contributing
	2463	Contributing
	2467	Contributing
	2511	Non-Contributing - lack of significance
	2517	Non-Contributing - lack of significance
	2521	Non-Contributing - loss of integrity
	2525	Non-Contributing - loss of integrity
Lake Washington Boulevard East (continued)	2531	Non-Contributing - loss of integrity
	2537	Contributing
	2559	Contributing
East Miller Street	2530	Non-Contributing - loss of integrity

[a]"Contributing" denotes those buildings that comprise a historic district, even though they may lack individual distinction, because they contribute to the character of the district. These components must possess integrity individually, as well as add to the district's integrity.

Exhibit 7b. Summary of Pre-1961 Properties in the Historic/Architectural Study Areas—Seattle Project Area

Property Name	Seattle Landmark Status	NRHP Status
Montlake Cut	Designated	Listed as contributing element to the "Chittenden Locks and Lake Washington Ship Canal" Historic District
Montlake Bridge	Designated	Listed as contributing element to "Historic Bridges and Tunnels of Washington State" Thematic Listing
Canoe House		Individually listed
University of Washington Club		Recommended as eligible for listing under criterion C
Wilson Ceramic Lab		Not Eligible - Fails to meet any of the four NRHP criteria
More Hall		Not Eligible - Fails to meet any of the four NRHP criteria
Plant Lab		Not Eligible - Fails to meet any of the four NRHP criteria
Botany Greenhouse		Not Eligible - Fails to meet any of the four NRHP criteria
Power Plant		Not Eligible - Fails to meet any of the four NRHP criteria and has suffered significant loss of integrity
Hec Edmundson Pavilion		Not Eligible - Has suffered significant loss of integrity
Pavilion Pool		Not Eligible - Fails to meet any of the four NRHP criteria
Pedestrian Bridge		Not Eligible - Fails to meet any of the four NRHP criteria
Cyclotron Shop		Not Eligible - Fails to meet any of the four NRHP criteria
UW Medical Center /Magnuson Health Sciences Center		Not Eligible - Has suffered significant loss of integrity
North Physics Lab		Not Eligible - Fails to meet any of the four NRHP criteria
Burke-Gilman Trail		Not Eligible - Historic railway has suffered significant loss of integrity, and trail was not constructed until 1974
UW Husky Stadium		Not Eligible - Has suffered significant loss of integrity

Exhibit 8. 2158 East Shelby Street, Montlake Historic District

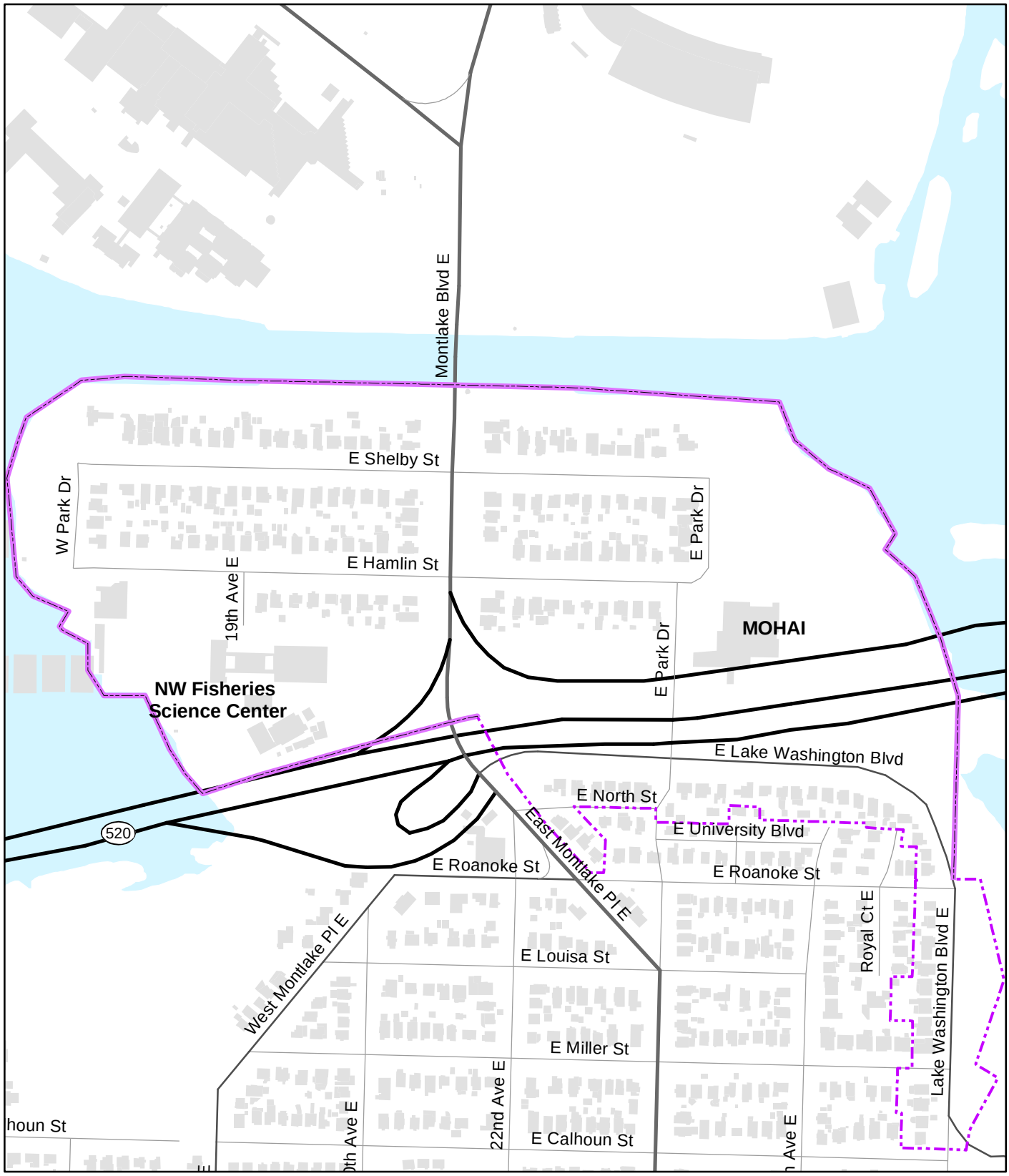
Exhibit 9. 2159 East Shelby Street, Montlake Historic District

Northwest Fisheries Science Center building; and structures such as gateways, pavilions, the Arboretum Aqueduct, and other bridges in Washington Park Arboretum, which borders the neighborhood.

Exhibit 10 shows the proposed boundaries of the NRHP-eligible Montlake Historic District, with a period of significance of 1909-1952, from the platting of the neighborhood to the construction of MOHAI.

Based on the survey conducted by the cultural resources discipline team, historical resources within and surrounding the study areas comprise an eligible National Register Historic District under criterion C. These properties are significant for their architectural characteristics, representing the distinct design styles from the early twentieth century, terminating with the early mid-century design of MOHAI (designed 1950). As a group, they represent a distinguishable entity recognizable as the Montlake Historic District.

Resources within this district include an architecturally cohesive residential neighborhood, largely developed from 1909 until c. 1945; the Seattle Yacht Club, established in 1892, which moved to its current Montlake location on Portage Bay and constructed the present clubhouse in 1920; MOHAI, designed in 1950 by noted Seattle architect Paul Thiry and completed in 1952, a local museum that focuses on Seattle area history and development; and the NOAA Northwest Fisheries Science Center building, the first federal fisheries building constructed on the West Coast, designed by John Graham, Sr. and built in 1931.



* The southern boundary of the Montlake historic district was located to include East Lake Washington Boulevard. The area south of the dotted line was not subject to intensive survey for this project. Future surveys may determine that the southern boundary should be extended to include more of this area in the historic district.

Historic District

Building

N

0 250 500 Feet

Exhibit 10. **Montlake Historic District**

SR 520 Bridge Replacement and HOV Project

File Path: P:\Parametrix\168395\180171 SR 520 Bridge Replacement\GIS\Layouts\CulturalResources\HistoricDistricts.mxd

The nonresidential resources noted above are located on the periphery of the district and contribute to the physical and cultural fabric of the district's residential core. The Seattle Yacht Club and MOHAI are recreational and/or cultural institutions that support and enhance the residential quality of the neighborhood. The NOAA Northwest Fisheries Science Center building, constructed during the time of greatest development in the neighborhood, is geographically contiguous with the historic district. Its development on the "canal reserve land" (see the *Cultural Resources Discipline* Report for a description of the canal reserve land) is intimately tied to the history of the Montlake Cut and the original log canal, important elements of the Montlake area.

For purposes of this study, the north, east, and west boundaries are the traditional and natural geographic boundaries of the original Montlake Park Addition. The southern boundary was drawn along the rear property lines of those lots facing East Lake Washington Boulevard between Montlake Boulevard and East Calhoun Street, and along the rear property lines of those lots facing East Montlake Place East between East North Street and East Roanoke Street. This was done to include those houses along East Lake Washington Boulevard, which are some of the finest architectural examples in the neighborhood, and the completely intact streetscape.

This area south of SR 520, originally known as Interlaken, was developed separately from, though concurrently with, the neighborhood north of SR 520. As discussed earlier, Calvin and William Hagan, with partner James Corner (Sherwood 1974a) seem to have originated the name Montlake as they developed the Montlake Park Addition, the section between the lakes defined by East Shelby and East Hamlin Streets. John Boyer of the Interlaken Investment Company was developing the southern part of the neighborhood, the section now on the south side of SR 520, at the same time. He preferred the name Interlaken but later agreed to Montlake as the name for the entire neighborhood (Gould 2000), which is generally accepted today. The name Montlake frequently appears on maps such as the Thomas Guide as the label for the entire neighborhood, with the southern boundary often listed as Interlaken Park or Interlaken Boulevard from the Washington Park Arboretum to Portage Bay. A windshield survey, which involved driving among the blocks of the original Interlaken area south of East Lake Washington Boulevard, indicated a decrease in integrity with a greater rate of intrusions (houses less than 50 years old)

as one progressed southward. As shown in Exhibit 5, an intensive survey was conducted only for those resources that were within the study area. However, further intensive survey in the future may determine that more of this area should be included in the historic district.

Although the Montlake neighborhood was compromised by the building of SR 520 in the early 1960s, most of it remains intact. Taken as a whole, it represents a significant, cohesive collection of residential architecture typical of early twentieth century Seattle, with a combination of builders' houses and high-style, architect-designed houses. While many of the individual buildings have experienced minor alterations, such as window replacements and rear additions, most of these do not detract significantly from the integrity of the resources. Only a rare few have been so altered as to make them non-contributing (approximately 9 percent). Approximately 4 percent of houses in the district were constructed after the period of significance (1952).

Montlake Cut

Exhibit 11. View of Montlake Cut looking east.

The Montlake Cut is listed in the NRHP and WHR as a contributing element of the Chittenden Locks and Lake Washington Ship Canal District (**Exhibit 11**). It is also a designated Seattle landmark. The NRHP nomination form for this district is included in Attachment 2. This district is recognized for its transportation significance at the local level under criteria A and C. As an element of the district, Montlake Cut is part of a continuous waterway of man-made channels and inland water bodies that extends nearly 8 miles between Puget Sound and Lake Washington. The project was conceived and designed over a period of years and was completed under the U.S. Army Corps of Engineers and dedicated in 1917. The Montlake Cut is a half-mile long channel which joins Portage Bay of Lake Union to Union Bay of Lake Washington. It is bordered by the University of Washington tract on the north shore and by the Montlake Park addition to the plat of Seattle on the south shore. The site encompasses 20 acres (Potter 1977). Although the Cut itself is 100 feet wide, the right-of-way controlled by the Corps of Engineers is 325 feet wide. The channel is dredged to a depth of 30 feet. The tops of the concrete revetments on both sides are used as a waterside walk, and there are trails also atop the embankments on both sides. On the south

shore is a recreational trail (Waterfront Trail) that extends from West Montlake Park to McCurdy Park on the east, continuing to the marshes of Foster Island and the Arboretum. The Montlake Cut is spanned near the middle by the Montlake Bridge (Potter 1977). Aside from repairs and a normal amount of upgrading, the Montlake Cut has been little altered since its completion and thus retains a high level of integrity.

Montlake Bridge

Exhibit 12. Montlake Bridge.

The Montlake Bridge (**Exhibit 12**) is listed in the NRHP and WHR as part of a thematic nomination for historic bridges and tunnels in Washington state, and is a designated Seattle landmark. The NRHP inventory form from the Washington State Bridge Inventory is provided in Attachment 2. It was listed for its engineering significance at the local level under criterion C. It was constructed in 1924 across the Montlake Cut, both named for the adjacent neighborhood to the south. It was the fourth double-leaf trunnion bascule (draw) bridge built across the Ship Channel. The foundations for the bridge were actually constructed in 1912, at the time the canal was excavated, to conserve costs.

The bridge originally carried two street car tracks where there is now a roadway. "The original floor system consisted of creosoted timbers and planking with wood-block pavement" (Soderberg 1980). The bridge is uniquely visible due to its two ornate towers that rise more than 100 feet above the water. The towers of the Montlake Bridge are a prominent visual feature and provide a monumental entrance to the University of Washington campus. "These ornate towers…conspicuously set the Montlake Bridge apart from the other bascule bridges spanning the ship canal…." (Soderberg 1980). Although the design of the towers was credited to Howells and Albertson, a firm best known for their design of the Northern Life Tower, now known as the Seattle Tower (1927-29) (Ochsner 1998) on the NRHP form, other sources credit Carl Gould (SDOT). Gould designed many of the University of Washington campus buildings and it seems likely that he did design the Gothic Revival towers of the bridge. However, it appears that other prominent architects advised him on the design of the bridge, including A.H. Albertson, Edgar Blair, and Harlan Thomas (Kreisman 1999).

The steel for the bridge was fabricated and erected by the Wallace Equipment Company. A. Munster was the acting bridge engineer of the City of Seattle during the construction, and J.D. Blackwell was city engineer, with D.W. McMorris as assistant engineer (Soderberg 1980). The bridge has experienced upgrades, repair, and roadbed modernization but remains essentially intact with a high level of integrity.

Canoe House

The Canoe House, previously known as the Shell House and Naval Military Hangar, is individually listed in the NRHP and WHR (**Exhibit 13**) for its architectural significance at the local level under criterion C. The NRHP nomination form for this building is provided in Attachment 2. It was built in 1918 during World War I, when the Navy occupied a portion of the University of Washington. It was built to shelter seaplanes as part of the Navy's temporary training camp, but was completed too late to be of use, and thus appears to never have been used for its intended purpose. The Canoe House is located on the shoreline on the north bank of Montlake Cut where it flows into Union Bay, half on University of Washington property and half on property of the U.S. Army Corps of Engineers, Seattle District. It is backed by an embankment to the north and west, and beyond that is Husky Stadium, surrounded by several acres of surfaced parking.

Exhibit 13. Canoe House.

The building has a rectangular footprint and sits on a concrete slab 88 by 120 feet. It has a gambrel roof and is clad in wood shingles. Down the side walls are large double-hung sash windows, in pairs, with 9/9 lights (window sashes that are nine panes wide by nine panes tall). Some of the original openings have been filled in or modified and other openings have been added. The large opening on the south end of the building is described on the NRHP inventory form as follows. "Across the south end a large triple-section sliding door with window panes in the upper portions is suspended from an overhead track approximately 24 feet in height. The track is extended beyond the face of the structure with outriggers which enable the doors to be drawn clear of the opening" (Potter 1975).

The building was given to the University of Washington in 1922, and improvements were made at that time to convert it to use as

headquarters for campus crew racing. In 1949, after a new facility was built for crew activities, the building was renamed the Canoe House and used for canoe storage and a sailboat rental concession, and further improvements were made at that time (Potter 1975). The Canoe House is well maintained, retains good integrity, and is still used for canoe and sailboat storage and rental activities.

University of Washington Club

The University of Washington Club was incorporated in 1909 (**Exhibit 14**). The purpose of the Club is "to provide a meeting place for members to come together…to exchange ideas and information which furthers the scholarly, educational and social objectives of the University" (University of Washington Club online n.d.). Its original building was part of the Forestry exhibit at the Alaska Yukon Pacific Exposition, and was known as the Hoo Hoo House Lumberman's Fraternity or Hoo Hoo Club, designed by Ellsworth Storey. At the conclusion of the Exposition, the building was left for a faculty club.

Exhibit 14. University of Washington Club.

In 1958, the Hoo Hoo House was demolished and the current building was constructed. Completed in 1960, it was designed by noted Seattle architects Victor Steinbrueck and Paul Hayden-Kirk. It has been noted as an outstanding example of the Northwest regional interpretation of the International style of architecture. Also known as the Faculty Center building, it received a Seattle American Institute of Architects Honor Award in 1960 (Ochsner 1998). The dining room has a panoramic view of the mountains and Lake Washington. Below is a downstairs lounge that features wood balusters salvaged from Storey's Hoo Hoo House.

This building is recommended as eligible for the NRHP under criterion C for its outstanding architectural design and as the work of prominent architects Steinbrueck and Hayden-Kirk. Although the building has experienced some modifications, such as the glass enclosure of part of the south section, it retains sufficient integrity to be easily recognizable as the original Steinbrueck/Hayden-Kirk design.

Eastside

No known or recorded historic buildings or structures are present in the Eastside study area. This area has been heavily developed in recent years and few historic structures remain. One additional property at 10722 Northup Way in Bellevue was recorded but it is not eligible for the NRHP or WHR due to its lack of significance and compromised integrity.

Potential Effects of the Project

What methods were used to evaluate effects?

Section 106 of the NHPA creates a process for reviewing the effects of federally assisted projects on properties listed on or eligible for the NRHP. The cultural resources discipline team applied the Criteria of Effect and Adverse Effect to determine whether the proposed project would affect a property and whether those effects should be considered adverse. The proposed project would have an effect if it changed in any way the characteristics that qualify a property for inclusion in the NRHP, for better or for worse. The proposed project would have an adverse effect if it diminished the integrity of such characteristics.

Potential adverse effects on historic and cultural resources include, but are not limited to (36 CFR 800.5, Adverse Effect):

- Physical destruction of or damage to all or part of the property
- Alteration of a property (including restoration, rehabilitation, or repair that is not consistent with the Secretary's of the Interior's standards for the treatment of historic properties)
- Removal of the property from its historic location
- Change of the character of the property's use or of physical features within the property's setting that contribute to its historic significance
- Introduction of visual, atmospheric or audible elements that diminish the integrity of the property's significant historic features

Specific effects that may be introduced by these options include:

- Alteration of the physical setting by introduction of new or widened traffic lanes that is incompatible with the historic setting. Such alterations to the setting of a historic building can degrade the characteristics of integrity of the building (its setting or feeling) through physical impairment or visual intrusion.
- Alteration of the physical setting by adding a new bridge across the Montlake Cut, located immediately east of the existing bridge. This could degrade the characteristics of integrity of the Montlake Historic District and the existing NRHP-listed Montlake Bridge.
- Alteration of the physical setting by a new Union Bay Bridge, which could degrade the characteristics of integrity (setting or feeling) of the Montlake Historic District, the Montlake Bridge, and the Canoe House.
- Alteration of the physical setting by decreased property lot size. This type of alteration to the setting of a historic building can also degrade characteristics of integrity of the building (its setting or feeling) through physical impairment or visual intrusion that might otherwise contribute to that building's eligibility for listing on the NRHP and/or WHR.
- Beneficial effects of decreased visual and audible intrusion in the Montlake Historic District from the removal of the Montlake interchange at SR 520.

The following sections describe the potential operational and construction effects on cultural resources by location and option, and summarize the potential effects for all known cultural resources within the study areas.

What are the effects of the 6 Lanes with Pacific Street Interchange option?

The APE of the 6 Lanes with Pacific Street Interchange option does not contain any known archaeological or ethnographic sites. Construction in archaeological high probability areas, if not mitigated through scientific data recovery or other suitable measures, could result in adverse effects if eligible archaeological sites were discovered prior to or during construction. The cultural resources team recommends

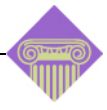
additional work (collecting oral histories from Lakes Duwamish descendants and subsurface testing in accessible locations) be conducted.

This option would have many of the same effects on historic buildings and structures in the Seattle study area as the original 6-Lane Alternative (see the *Cultural Resources Discipline Report* for more detailed information on these effects). The differences are described below.

In the Montlake Historic District north of SR 520, the peak-hour traffic noise levels would decrease between 1 and 6 dBA, which would be lower than under the original 6-Lane Alternative levels, due to traffic shifting from using Montlake Boulevard to using the Pacific Street interchange. South of SR 520, houses in the study area along East Lake Washington Boulevard and Lake Washington Boulevard East in the Montlake Historic District would also experience a slight decrease in peak-hour traffic noise levels. This would be due to reduced traffic on Lake Washington Boulevard and the elimination of on- and off-ramps at SR 520. Due to these decreased noise effects, this option would have a beneficial effect on the Montlake Historic District. For more information on noise effects for this option, see the *Addendum to Noise Discipline Report*.

The permanent removal of the on- and off-ramps at the SR 520/ Montlake Boulevard interchange would result in a beneficial effect to the Montlake Historic District because of the conversion of pavement to landscaped open space, as it was before the intrusion of SR 520. Compared to the original 6-Lane Alternative, less property would be removed from the NOAA Northwest Fisheries Science Center, although it would still experience a loss of property and buildings and an alteration to the setting of the historic building on the site. MOHAI would still be demolished under this option, just as under the original 6-Lane Alternative.

The new Union Bay Bridge could be as high as 110 feet above the water near the Montlake Cut and would dominate views from the east and north sides of the Montlake Historic District. This would result in a dramatic change to the visual setting of the Montlake Historic District, constituting an effect under Section 106. However, this effect is not expected to be adverse, as it will not diminish the integrity of the district's historic features. For more information on visual effects under



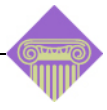
this option, see *Addendum to Visual Quality and Aesthetics Discipline Report.*

The study area includes a portion of the Arboretum; that area of the Arboretum south of SR 520 would experience a slight increase in peak-hour traffic noise levels of 3 to 5 dBA due to the new Pacific Street interchange structure. Noise levels throughout the Arboretum study area would change because of the new location of the ramps to Lake Washington Boulevard and added traffic using the new interchange. However, all these levels would be under the state Noise Abatement Criteria (NAC) (see the *Noise Discipline Report* [Michael Minor and Associates 2005] for a description of the NAC) and would not be considered an adverse effect. Visually, the new Union Bay Bridge would dominate views from Marsh and Foster islands in the Arboretum. In addition, two sets of columns on Marsh Island and the bridge overhead would physically and visually encroach upon the island's setting. However, this is not expected to have an adverse effect on the Arboretum.

The Canoe House, Montlake Bridge, and Montlake Cut are expected to have decreased noise levels due to reduced traffic on the Montlake Bridge. This would have a beneficial effect on these NRHP-listed resources. The new Union Bay Bridge would have a detrimental visual effect on the setting of these resources, including an adverse effect on the setting of the Canoe House and the Montlake Bridge.

The towers of the Montlake Bridge are prominent visual features of the area, as noted earlier. The Union Bay Bridge would obscure the view of the Montlake Bridge and towers from Lake Union, and would dramatically alter the view of the towers from the west end of the Montlake Cut. As these towers are a significant feature of the Montlake Bridge, the introduction of the visual intrusion from the Union Bay Bridge would diminish the integrity of this significant historic feature and constitute an adverse effect.

The Pacific Street/Montlake Boulevard intersection immediately north of the Montlake Bridge would be noticeably different due to the Union Bay Bridge's terminus in the south Husky Stadium parking lot and the lowered roadway at Montlake Boulevard, which would also affect the setting of the bridge. But these effects are not expected to be adverse. However, the new bridge and its piers immediately adjacent to the Canoe House are anticipated to cause such a change to the setting and feeling of the Canoe House that it would be considered an adverse



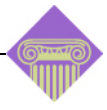
effect. At this location, the Union Bay Bridge structure would be about 80 feet wide and 80 to 90 feet above the waterfront. Along with the span itself, the placement of two bridge support columns would affect the Canoe House surroundings as well as its operations. These columns would be 20 feet by 20 feet, with one at the canoe launching dock and the other located about 20 feet upland.

The Union Bay Bridge would be either 70 feet or 110 feet above the water at its highest point just west of the Ship Canal, and would be highly visible from the Canoe House. The bridge overhead and the new piers would encroach upon the broad view from the Canoe House and its view toward the Arboretum. For more information of the effects of this option on recreational activities related to the Canoe House, see *Addendum to Recreation Discipline Report*.

The new Union Bay Bridge would also have a visual effect on the NRHP-eligible University of Washington Club, which currently enjoys an open vista of Lake Washington. This vista would be interrupted by the new bridge; however, this is not expected to be an adverse effect because it would not diminish the integrity of the property's significant historic features as noted under criterion C.

General construction-related effects described in the *Cultural Resources Discipline Report* would also apply to this option. In addition, the Canoe House launching dock would be displaced and access to the Canoe House would be impaired during the duration of the construction phase. The Canoe House and surrounding facilities would experience periodic closures during construction. In addition, the east end of the Montlake Cut may experience periods of restricted access during construction of the Union Bay Bridge.

The 6 Lanes with Pacific Street Interchange option is expected to have generally lesser noise effects on historic resources than the original 6-Lane Alternative, but much greater visual intrusion on the Montlake Historic District and the NRHP-listed Montlake Cut, Montlake Bridge, and Canoe House. It is expected to have an adverse effect on the setting of the Canoe House and the Montlake Bridge. It would still directly affect the NOAA Northwest Fisheries Science Center property and demolish MOHAI, although it would take less NOAA property than the original 6-Lane Alternative.



Attachment 3 summarizes the effects of the 6 Lanes with Pacific Street Interchange option on historic buildings and structures that have been determined eligible for the NRHP in the Seattle study area.

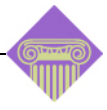
What are the effects of the Second Montlake Bridge option?

The Second Montlake Bridge option would not affect any known archaeological or ethnographic sites. Construction in archaeological high probability areas, if not mitigated through scientific data recovery or other suitable measures, could result in adverse effects if eligible archaeological sites are discovered prior to or during construction. The cultural resources discipline team recommends additional work (collecting oral histories from Lakes Duwamish descendants and subsurface testing in accessible locations) be conducted.

This option would have the same effects as the original 6-Lane Alternative, in addition to the effects described below. See the *Cultural Resources Discipline Report* for more detailed information on the effects caused by the original 6-Lane Alternative.

In the Montlake Historic District north of SR 520, this option would result in a slight but noticeable increase in peak-hour traffic noise of 3 dBA at areas closer to Montlake Boulevard because of extra travel lanes and increased speeds. The removal of two residential structures on the east side of Montlake Boulevard at East Shelby Street (2904 and 2908 Montlake Boulevard East) would also result in increased noise at residences on East Shelby Street previously shielded by these two buildings. While this would be considered an effect under Section 106, it is not considered adverse because it would not diminish the integrity of the properties' significant historic features.

This option would have a greater visual effect on the Montlake Historic District and the NRHP-listed Montlake Cut and Montlake Bridge than the original 6-Lane Alternative because the addition of a new bridge alongside the existing Montlake Bridge would alter the setting of the neighborhood and the historic bridge, and add a second span across the Cut. It would also have a visual effect on the NRHP-listed Canoe House, which now has a clear view of the historic Montlake Bridge. However, it is unlikely to be an adverse effect because it would not diminish the integrity of the property's significant historic features.



As mentioned in the preceding paragraph, this option would also affect the Montlake Historic District through the removal of two houses, which are contributing elements to the district. It would also remove a swath of mature trees and shrubs, affecting the physical setting of the district and the bridge. The removal of these two buildings would have an adverse effect on the historic district as a whole due to the physical removal of contributing elements of the historic district.

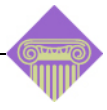
The second Montlake Bridge could adversely affect the setting and feeling of the historic bridge. The Montlake Bridge was listed under criterion C for its design and engineering qualities. An adverse effect could be avoided if the new bridge were designed and constructed in a manner that is sensitive to the historic bridge. If designed appropriately, the new bridge would be unlikely to substantially degrade the integrity of those attributes that contribute to the Montlake Bridge's eligibility.

The University of Washington Club is not expected to experience any effects related to this option.

General construction-related effects described in the *Cultural Resources Discipline Report* would also apply to this option. In addition, the construction of the second Montlake Bridge would introduce construction effects to the historic Montlake Bridge and the portion of the Montlake Historic District that abuts it, including noise, vibration, dust, traffic detours, and vegetation removal.

The Second Montlake Bridge option is anticipated to have a greater visual and audible effect on the Montlake Historic District, Montlake Bridge, Montlake Cut, and Canoe House than the original 6-Lane Alternative. It would also involve the removal of two more historic properties than the original 6-Lane Alternative. This option also has the potential to negatively affect the setting and feeling of the historic Montlake Bridge if the new bridge is not designed and constructed to be compatible with the historic bridge.

Attachment 4 summarizes the effects of the Second Montlake Bridge option on historic buildings and structures that have been determined eligible for the NRHP in the Seattle study area.



What are the effects of the South Kirkland Park-and-Ride Transit Access – 108th Avenue Northeast option?

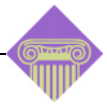
The South Kirkland Park-and-Ride Transit Access – 108th Avenue Northeast option would not affect any known archaeological or ethnographic sites. Construction in archaeological high probability areas, if not mitigated through scientific data recovery or other suitable measures, could result in adverse effects if eligible archaeological sites are discovered prior to or during construction. The cultural resources discipline team recommends additional work (collecting oral histories from people of Lakes Duwamish descent and subsurface testing in accessible locations) be conducted prior to selection of either the 4-Lane or the original 6-Lane Alternative.

This option would not affect any known historic resources in the study area beyond those discussed in the *Cultural Resources Discipline Report* for the original 6-Lane Alternative.

Mitigation

The Section 106 process provides a procedure to seek ways to avoid, minimize, or mitigate adverse effects on historic properties. Participants in the Section 106 process include agency officials; the Advisory Council; consulting parties such as the SHPO, Indian tribes and local government representatives; and the public. "The views of the public are essential to informed federal decisionmaking in the Section 106 process" (36 CFR Part 800, subpart A, 800.2).

During the Section 106 consultation, the public is also be involved in the identification and evaluation of historic properties, assessment of adverse effects, and development of alternatives and modifications that could avoid, minimize, or mitigate adverse effects. Agency officials must provide the public with information about the project and its effects on historic properties, and seek public comment and input. Agency officials may follow NEPA procedures for public involvement in order to comply with this aspect of Section 106. At the conclusion of the process, a Memorandum of Agreement is executed. This document



records the terms and conditions agreed upon to resolve the adverse effects of the project on historic properties, and is signed by the agency, SHPO, and other consulting parties as appropriate.

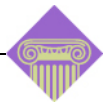
Required or potential means of avoiding, minimizing, or mitigating adverse effects on historic properties include, but are not limited to:

- Modification of project design to avoid or limit physical alteration, visual, atmospheric, or long-term noise effects
- Relocation of historic resource to appropriate new site
- Modification of construction methods to avoid or limit construction-related effects
- Documentation of resource according to Historic American Building Survey/Historic American Engineering Record (HABS/HAER) standards

When an avoidance alternative is not feasible, and it would be necessary to acquire and remove a historic resource, in some cases the resource may be moved to another site, or the resource may be demolished. The relocation or demolition of a historic property requires consultation with the SHPO. Issues to be considered include methods of documentation, site selection, relocation methods, and rehabilitation design.

What has been done to avoid or minimize adverse effects on archaeological sites?

Additional work should be conducted prior to selection of a build alternative; archaeologists should conduct subsurface exploration (shovel and/or auger probes or backhoe trenches) in archaeological high probability areas to check for the presence/absence of subsurface archaeological sites and oral history interviews should be conducted with Tribes who have Lakes Duwamish descendants. All of the affected tribes will be invited to monitor the archaeological testing. If archaeological sites were found, and if they were determined to be eligible historic properties, appropriate mitigation measures would be developed in consultation with affected Tribes and the SHPO. Mitigation measures could include avoidance through redesign, conducting scientific excavation and analysis (data recovery) if avoidance through redesign is not feasible, and monitoring construction in high probability areas by both archaeologists and tribal monitors.



What has been done to avoid or minimize adverse effects on ethnographic resources?

Additional work should be conducted prior to selection of a build alternative and option, including oral history interviews conducted with Tribes who have Lakes Duwamish descendants, as mentioned in the *Cultural Resources Discipline Report.* If oral history interviews confirm the presence and eligibility of a traditional cultural property on Foster Island or elsewhere, appropriate mitigation measures will be developed in consultation with affected Tribes and the SHPO.

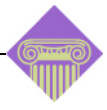
WSDOT will continue to consult with Tribes to identify ethnographic resources. If any ethnographic resources are present in the selected build alternative, WSDOT will consult with the Tribes and the SHPO to arrange either avoidance or mitigation. If avoidance is not feasible, WSDOT will develop suitable compensatory mitigation measures. Mitigation measures could include field studies to ensure that no human remains are present in the areas to be disturbed by construction; preparation and publication of a report that addresses the cultural history of Foster Island and the Lakes Duwamish people who lived in the project area; commemoration through public displays the cultural importance of the area; or sponsorship or support of other off-site environmental restoration projects of importance to the Tribes.

How could the project compensate for adverse effects on historic buildings and structures?

The general mitigation concepts expressed in the *Cultural Resources Discipline Report* would apply to the 6-Lane Alternative options as well. Additional suggested mitigation is listed below:

6 Lanes with Pacific Street Interchange Option:

- The Union Bay Bridge should be designed to be as unobtrusive as possible by, for example, using a narrow profile and reduced-column design.
- Columns supporting SR 520 and the Union Bay Bridge over the Arboretum should be located to avoid the trails and maintain as much openness as possible. Every effort should be made to keep the Canoe House accessible and functional during and after construction of the Union Bay Bridge.
- Every precaution should be taken to ensure that the Canoe House is not adversely physically affected during construction of the bridge

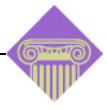


by vibrations, excavations, or heavy equipment. No construction staging or storage should occur immediately adjacent to the Canoe House.

- Other mitigation could include documentation of the Canoe House to HABS/HAER standards in its present setting, and funding and placement of a plaque on the Canoe House property explaining the history and significance of the resource.

Second Montlake Bridge Option:

- The design of the second Montlake Bridge should be compatible with that of the existing historic bridge. The design should not replicate nor compete with the existing bridge, and the towers and light standards on the existing bridge should remain the prominent visual features of the crossing.
- Safeguards, such as physical barriers and ongoing monitoring, should be put in place to ensure that the existing historic Montlake Bridge is protected and not adversely physically affected during construction of the second Montlake Bridge.
- The two residential buildings on Montlake Boulevard that would be removed under the Second Montlake Bridge option should be recorded to HABS/HAER standards before demolition, and all architectural elements should be salvaged, such as historic doors, windows, brackets, and moldings.
- After removal of the two houses on Montlake Boulevard, fencing should be erected and vegetation should be planted to form a landscape screen and buffer between Montlake Boulevard and the adjacent houses on East Shelby Street.



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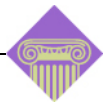

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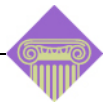

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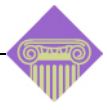


Attachment 1

Agencies and Organizations Contacted

Agencies and Organizations Contacted

- Washington Department of Archaeology and Historic Preservation (DAHP)—Dr. Robert Whitlam, state archaeologist; Mr. Michael Houser, architectural historian; and Mr. Greg Griffith, Deputy SHPO
- NRHP
- WHR
- Determinations of NRHP Eligibility at DAHP
- Historic Resources Inventory files at DAHP
- Archaeological Site Inventory files at DAHP
- Federally recognized Indian Tribes: Suquamish Tribe, Muckleshoot Indian Tribe, Tulalip Tribe, Yakama Nation, and Snoqualmie Indian Tribe
- Federally nonrecognized Indian Tribes: Duwamish Tribe and Kikiallus Indian Nation
- TCP files at DAHP
- King County Historic Preservation Program:
  - Consultation with Ms. Kate Kraft (Landmark Program Coordinator)
  - Inventory forms
  - List of historical organizations
  - Overview of King County history
  - Landmarks preservation in King County
  - Landmarks designation criteria
  - Incorporations in King County
  - Archival resources in King County
  - List of jurisdictions in King County and their historical preservation resources
  - King County Historic Landmarks list
- King County Assessor's Office
- Seattle Municipal Archives: database of photographs for neighborhoods

- Seattle Public Utilities Engineering Department: records vault (city maps, plat books, historic aerial photos)
- Seattle Department of Parks: Mr. David Goldberg
- City of Seattle Historic Preservation Division (Department of Neighborhoods):
  - List of historic landmarks
  - Ms. Elizabeth Chave, Landmarks Preservation Board
  - Ms. Karen Gordon, Seattle City Historic Preservation Officer
- Historic Seattle Organization: neighborhood inventories
- Friends of Seattle's Olmsted Parks: Mr. Doug Jackson
- HistoryLink, an online encyclopedia of Seattle, King County, and Washington State history
- University of Washington
  - Suzzallo Library
  - Special Collections and Manuscripts
  - The Burke Museum
  - School of Architecture Library
  - School of Architecture: Professor Jeffrey Ochsner and Professor Grant Hildebrand
- Museum of History and Industry (MOHAI): historic photographs database
  - Mr. Feliks Banel, Deputy Director for External Affairs
- Seattle Public Library – Seattle Room
- Bellevue Public Library
- Eastside Heritage Center
  - Ms. Mary Ellen Piro and Ms. Katie Innes
  - Bellevue Historical/Cultural Survey
- U.S. Army Corps of Engineers-Seattle District Cultural Resources Staff
- Association for Washington Archaeology
- King County Road Services Division: Ms. Fennelle Miller

- DOCOMOMO US–Seattle Chapter (Documentation and Conservation of buildings, sites and neighborhoods of the Modern Movement)

Attachment 2

National Register of Historic Places Inventory Nomination Forms

Montlake Bridge

25N 4E 16,21

K1 228

NAER INVENTORY

U.S. Department of the Interior
Heritage Conservation and Recreation Service

1. SITE I.D. NO

2 INDUSTRIAL CLASSIFICATION: Bridges, Trestles, and Aqueducts

MOVE: bascule

513/12

3 PRIORITY: 1

5 DATE: 1924

4 DANGER OF DEMOLITION? (SPECIFY THREAT) ☐ YES ☐ NO ☒ UNKNOWN

6 GOVT SOURCE OF THREAT: OWNER ADMIN

7 OWNER/ADMIN: City of Seattle

8 NAME(S) OF STRUCTURE: Montlake Bridge

9 OWNER'S ADDRESS: Engineering Department
Seattle Municipal Building, Room 704
Seattle, Washington 98104

10 STATE COUNTY: WA 033 — COUNTY NAME: King — CITY/VICINITY: Seattle — CONG DIST: 03

STATE COUNTY: — COUNTY NAME: — CITY/VICINITY: — CONG DIST:

11 SITE ADDRESS (STREET & NO.): Crossing: Lake Union Ship Canal
.2 N. Jct. SR 520

12 EXISTING SURVEYS: ☐ NR ☐ NHL ☐ HABS ☐ HAER-I ☐ HAER ☐ NPS ☐ CL6
☐ CONF ☐ STATE ☐ COUNTY ☐ LOCAL ☐ OTHER

13 SPECIAL FEATURES (DESCRIBE BELOW): ☐ INTERIOR INTACT ☐ EXTERIOR INTACT ☐ ENVIRONS INTACT

14 UTM ZONE: 10 — EASTING: 552310 — NORTHING: 5277140 — SIGN:
SCALE: ☒ 1:24 ☐ 1:62.5 ☐ OTHER — QUAD NAME: Seattle North, Washington

UTM ZONE: — EASTING: — NORTHING: — SIGN:
SCALE: ☐ 1:24 ☐ 1:62.5 ☐ OTHER — QUAD NAME:

15 CONDITION: 70 ☐ EXCELLENT 71 ☐ GOOD 72 ☐ FAIR 73 ☐ DETERIORATED 74 ☐ RUINS 75 ☐ UNEXPOSED 76 ☐ ALTERED ☐ DESTROYED 85 ☐ DEMOLISHED

16 INVENTORIED BY: Lisa Soderberg — AFFILIATION: HAER/Washington State Bridge Inventory — DATE: September 1980

17 DESCRIPTION AND BACKGROUND HISTORY INCLUDING CONSTRUCTION DATE(S) HISTORICAL DATE(S) PHYSICAL DIMENSIONS MATERIALS EXTANT EQUIPMENT AND IMPORTANT BUILDERS ENGINEERS ETC

The Montlake Avenue Bridge was the fourth double-leaf trunnion bascule bridge to be constructed across Seattle's ship canal. Although the bridge was not completed until 1924, five years after the completion of the Eastlake Avenue, Fremont Avenue, and 15th Avenue Northwest Bridges, its construction was planned when the ship canal was built. In order to conserve costs, foundations for the Montlake Bridge were constructed in 1913 at the time that the canal was excavated, long before detailed plans of the bridge were prepared.

The design of the bridge had to be adapted to the existing foundations. The pier foundations had been built so close to the edge of the canal that it was necessary to alter the design of the moving mechanism so that the width of the canal would not be reduced by the bridge.

(CONT OVER)

18 ORIGINAL USE: vehicular — PRESENT USE: vehicular — ADAPTIVE USE:

19 REFERENCES—HISTORICAL REFERENCES PERSONAL CONTACTS AND/OR OTHER

City Engineering Department files.
"Double-leaf Bascule bridge over Canal at Seattle," Engineering News-Record, Vol. 95, 19 November 1925, pp. 826-827.

(CONT OVER)

20 URBAN AREA 50,000 POP OR MORE? ☒ YES ☐ NO

21: N W

22 PUBLIC ACCESSIBILITY: ☐ YES, LIMITED ☐ YES UNLIMITED ☐ NO ☐ UNKNOWN

23 EDITOR INDEXER:

24 LOCATED IN AN HISTORIC DISTRICT? ☐ YES ☒ NO — NAME: — DISTRICT I.D. NO:

FOR NPS USE ONLY — HCRS REGION:

GPO 871 981

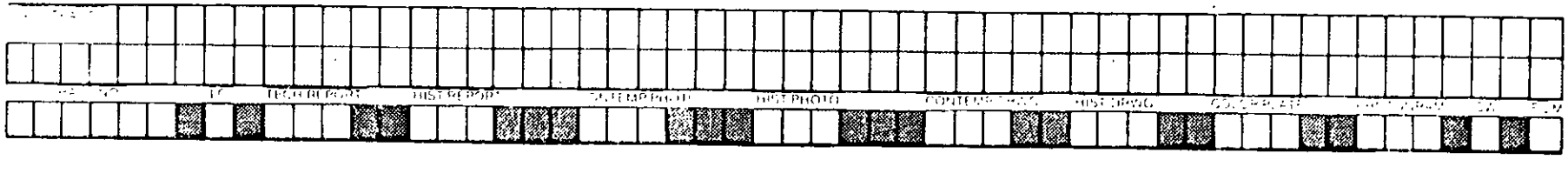
Description (continued)

A unique feature in the Montlake Avenue Bridge was the use of trunnions that are supported on a cantilever projection extending from the pier. This design eliminated the need for the transverse cross girder that was used in the earlier bascule bridges that were across the canal. Because there was no need to place framing around the cross-girder, the space between the trunnion brackets could be used for the moving mechanism of the bridge. However, this design causes an eccentric trunnion load on the pier as the bascule span is raised or lowered. In order to support this load, deep, narrow transverse girders connecting the two piers at a level below that required for clearance of moving parts were built to carry the forward bearing of the moving leaf. The problem of supporting this eccentric load was further complicated by the fact that the main piers did not rest on stable ground. Although the material in the cut was stable, there was a layer of fine sand below the water level of the canal. Therefore, it was necessary to design a bridge that carried the load of the structure independently of the surface of the slope. "This was accomplished by driving seventy 14-inch and 16-inch steel pipes down to the desired elevation, excavating the material inside them, driving wooden piles by means of followers through the pipes to the depth necessary to develop the required bearing capacity, and filling the pipes with concrete." In order to prevent the slipping of the embankment, and to avoid any change in span length between trunnions, the piers were braced at the point where they intersect the slope of the cut. A reinforced concrete strut designed for either tension or compression was built to connect the pier to a concrete anchor that was embedded in the slope, 134 feet from the edge of the canal. The anchor also helped to maintain an even pressure on the foundation when the structure was under live load and during the operation of the bascule leaves.

The foundations support a 345 foot structure which consists of a 182 foot bascule span and concrete T-beam approach spans. The bascule bridge which originally carried two street car tracks provides a 40-foot wide roadway. Although the tracks have long since disappeared, vestiges of the electric railway system are visible in the steel superstructure above the roadway that once carried the cables. The original floor system consisted of creosoted timbers and planking with wood-block pavement.

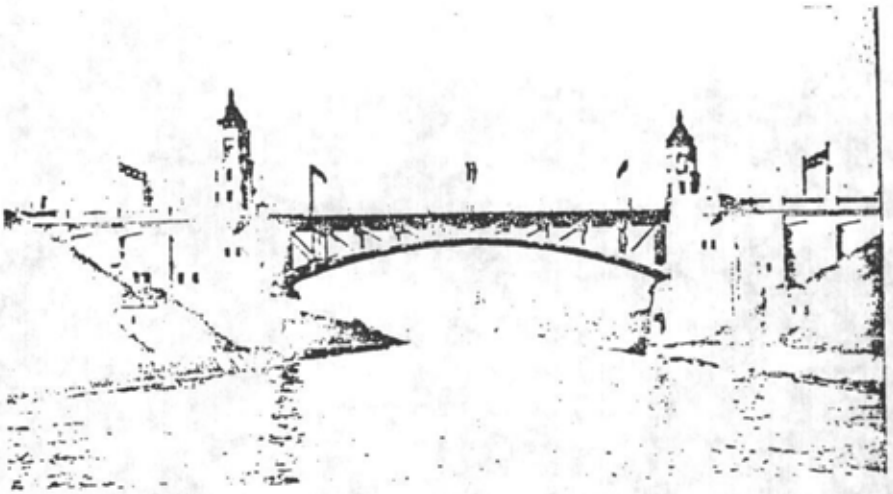
The bridge is framed by two towers that rise more than 100 feet above the water providing a monumental east entrance to the University of Washington grounds. These ornate towers which conspicuously set the Montlake Bridge apart from the other bascule bridges spanning the ship canal, were designed by Howells and Albertson.

The Montlake Bridge was constructed by the city of Seattle at a cost of $670,000. The steel was fabricated and erected by the Wallace Equipment Company. A. Munster, acting bridge engineer of the City of Seattle supervised the construction. J.D. Blackwell was city engineer and D.W. McMorris was assistant engineer.

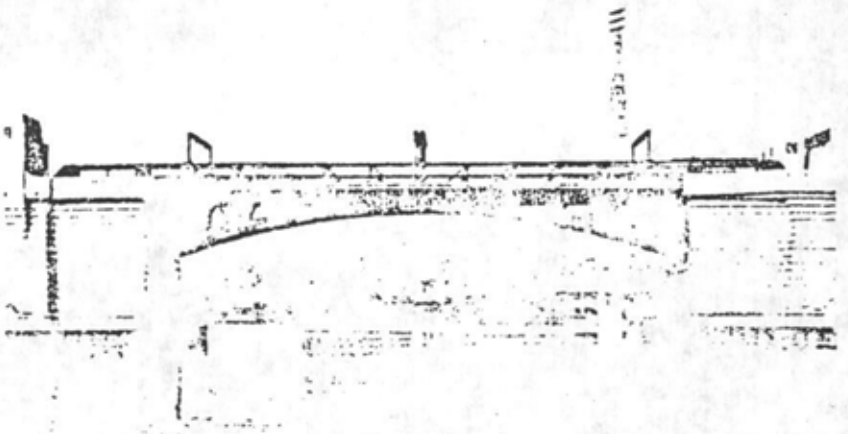


25. Photos and Sketch Map of Location

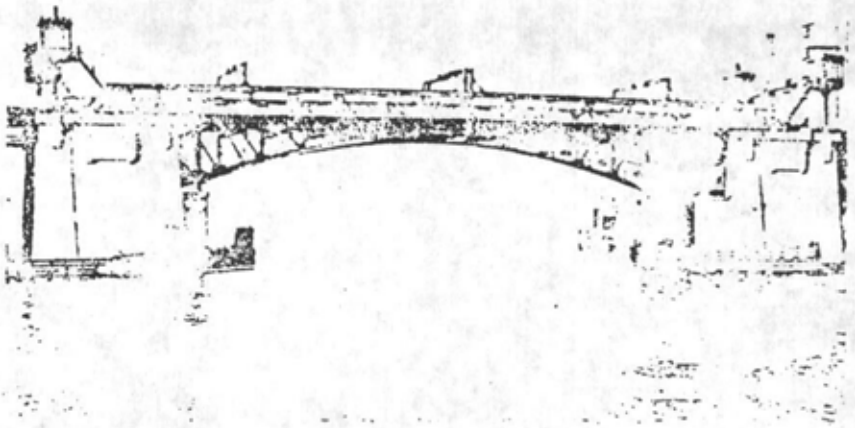
CANAL BRIDGES



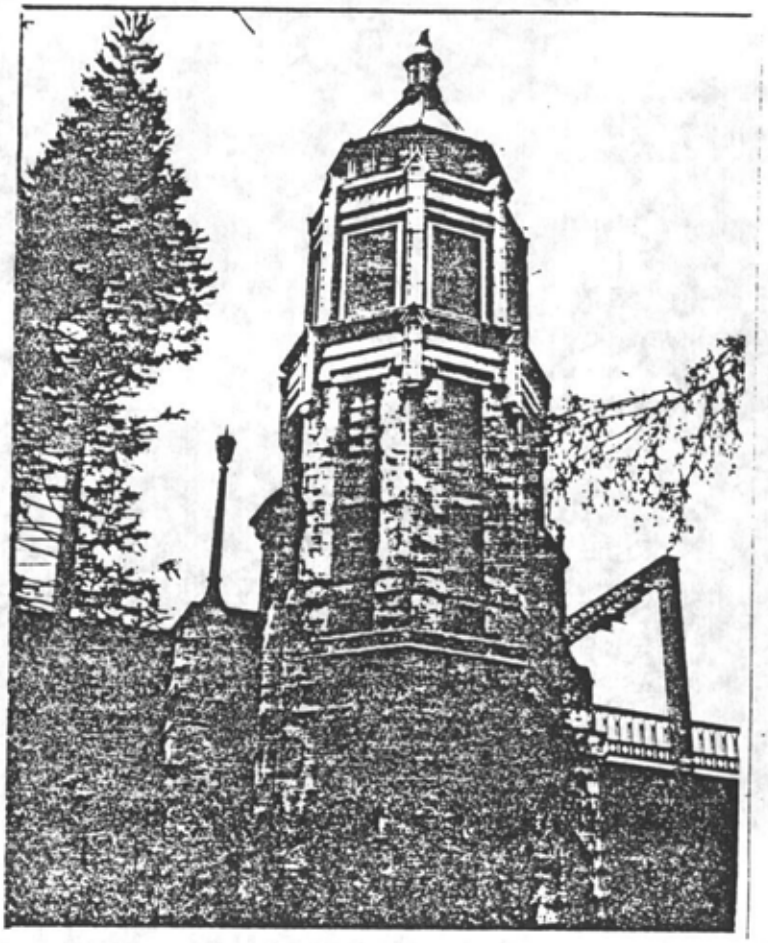
Montlake Bridge



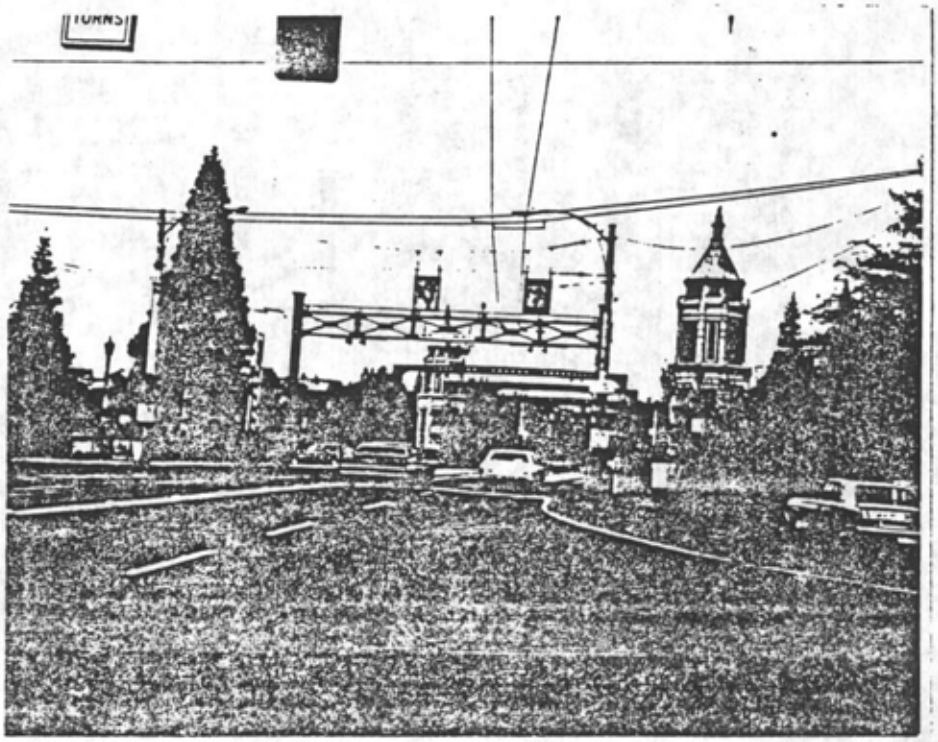
University Bridge



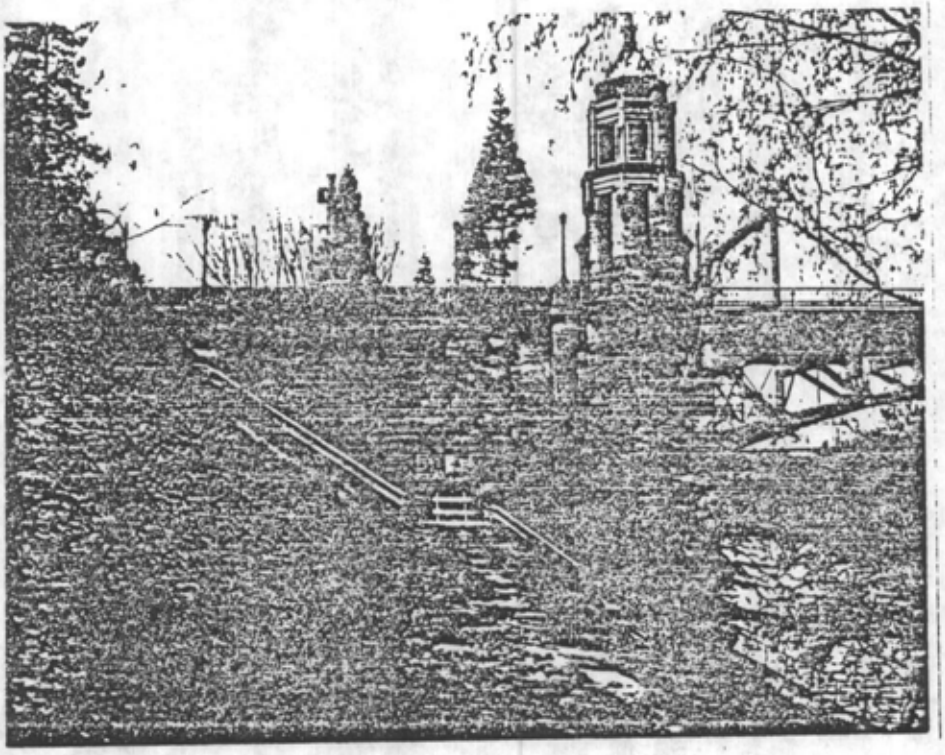
Ballard Bridge



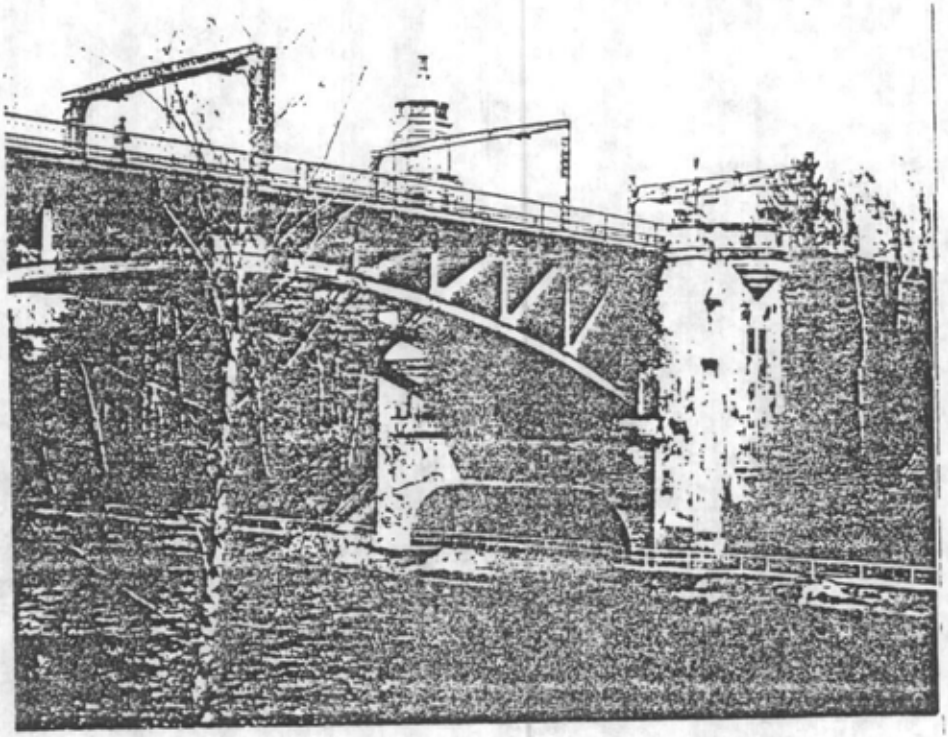
Montlake Avenue Bridge,
tower, looking west



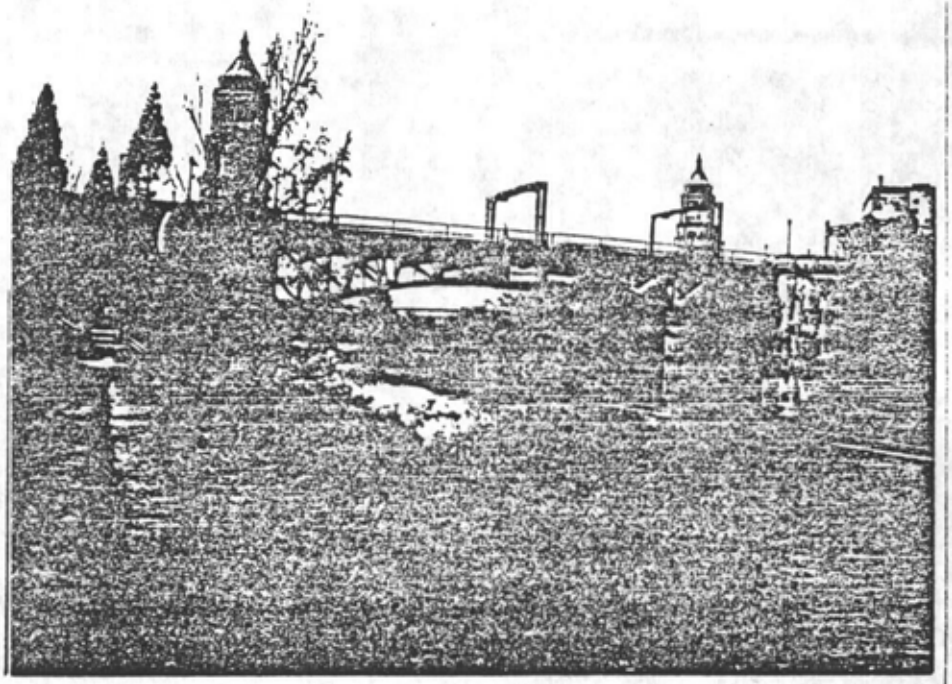
Montlake Avenue Bridge,
looking north



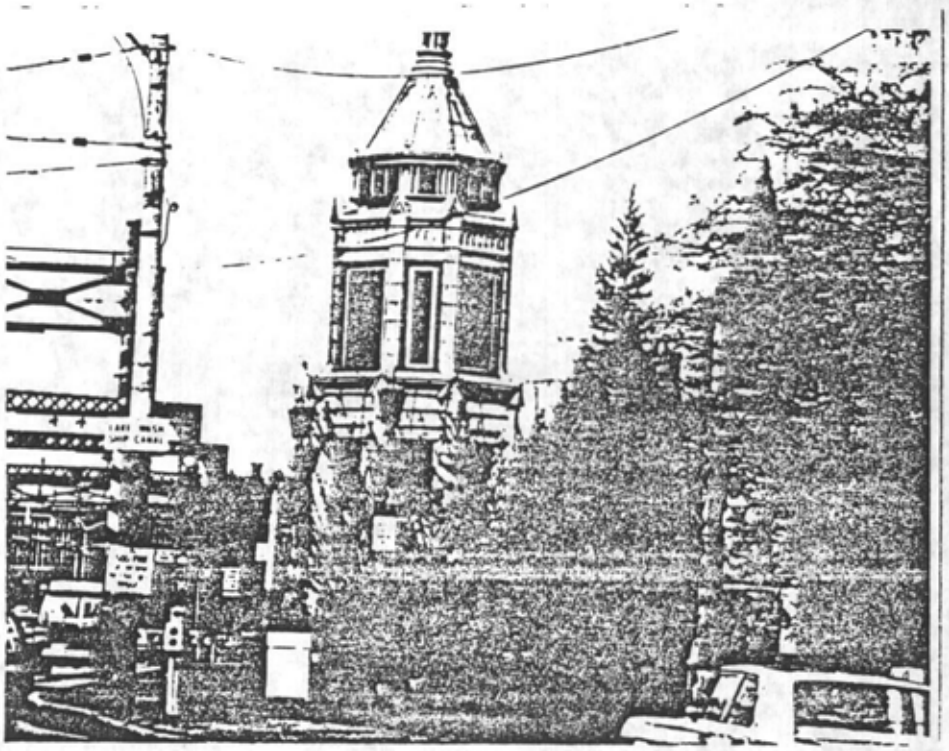
Montlake Avenue Bridge,
south tower and concrete approach, looking west



Montlake Avenue Bridge,
side elevation, looking north



Montlake Avenue Bridge,
looking west



Montlake Avenue Bridge,
south tower

Montlake Cut

10-300 (Rev. 10-74)

25N 3E 2,10,11,13
25N 4E 16,17,18,19,20,21

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

NATIONAL REGISTER OF HISTORIC PLACES INVENTORY -- NOMINATION FORM

FOR NPS USE ONLY
RECEIVED
DATE ENTERED DT 114

SEE INSTRUCTIONS IN *HOW TO COMPLETE NATIONAL REGISTER FORMS*
TYPE ALL ENTRIES -- COMPLETE APPLICABLE SECTIONS

1 NAME

HISTORIC: Chittenden (Hiram M.) Locks and Related Features of the Lake Washington Ship Canal

AND/OR COMMON:

2 LOCATION

STREET & NUMBER:

__NOT FOR PUBLICATION

CITY, TOWN: Seattle __ VICINITY OF

CONGRESSIONAL DISTRICT: 1st - Hon. Joel Pritchard

STATE: Washington CODE: 53 COUNTY: King CODE: 033

3 CLASSIFICATION

CATEGORY	OWNERSHIP	STATUS	PRESENT USE	
__DISTRICT	X PUBLIC	X OCCUPIED	__AGRICULTURE	__MUSEUM
X BUILDING(S)	__PRIVATE	__UNOCCUPIED	__COMMERCIAL	__PARK
X STRUCTURE	__BOTH	__WORK IN PROGRESS	__EDUCATIONAL	__PRIVATE RESIDENCE
__SITE	**PUBLIC ACQUISITION**	**ACCESSIBLE**	__ENTERTAINMENT	__RELIGIOUS
__OBJECT	__IN PROCESS	__YES: RESTRICTED	__GOVERNMENT	__SCIENTIFIC
	__BEING CONSIDERED	X YES: UNRESTRICTED	__INDUSTRIAL	X TRANSPORTATION
		__NO	__MILITARY	X OTHER: Recreation

4 OWNER OF PROPERTY

Montlake Cut not owned by Corps but held in perpetual lease from State.

NAME: U. S. Army Corps of Engineers, Seattle District

STREET & NUMBER: North Pacific Division
4725 East Marginal Way South

CITY, TOWN: Seattle __ VICINITY OF

STATE: Washington 98134

5 LOCATION OF LEGAL DESCRIPTION

COURTHOUSE, REGISTRY OF DEEDS, ETC.: Real Estate Division, Seattle District, U. S. Army Corps of Engineers

STREET & NUMBER: 4725 East Marginal Way South

CITY, TOWN: Seattle

STATE: Washington 98134

6 REPRESENTATION IN EXISTING SURVEYS

TITLE: Inventory authorized by Executive Order 11593
"Protection and Enhancement of the Cultural Environment"

DATE: April 4, 1972 X FEDERAL __STATE __COUNTY __LOCAL

DEPOSITORY FOR SURVEY RECORDS: Department of the Army, Office of the Chief of Engineers

CITY, TOWN: Washington

STATE: D.C. 20314

7 DESCRIPTION

CONDITION		CHECK ONE	CHECK ONE
__EXCELLENT	__DETERIORATED	__UNALTERED	X ORIGINAL SITE
X GOOD	__RUINS	X ALTERED	__MOVED DATE_____
__FAIR	__UNEXPOSED		

DESCRIBE THE PRESENT AND ORIGINAL (IF KNOWN) PHYSICAL APPEARANCE

SUMMARY STATEMENT

By making a continuous waterway of man-made channels and inland bodies extending nearly eight miles between Puget Sound and Lake Washington, the Lake Washington Ship Canal opened up a vast fresh-water harbor to ocean-going vessels and thus complemented Seattle's deep-water port facilities in Elliott Bay. The project was conceived and planned over a period of years in cooperation with private enterprise and local government and was completed under auspices of the U. S. Army Corps of Engineers and dedicated in 1917. Its primary components are a fixed dam and double locks and a 17-acre reservation at Salmon Bay in the Ballard District; a channel slightly more than a mile long known as the Fremont Cut, which connects the Salmon Bay Waterway to Lake Union; and a half-mile long channel known as the Montlake Cut, which in turn joins Lake Union to Lake Washington. These engineering features have been little altered since their completion sixty years ago, except for repairs and a normal amount of upgrading, and they have remained under the jurisdiction of the Department of the Army. At the locks site, now officially designated the Hiram M. Chittenden Locks, approximately half of the structures supporting the operation of the locks have been added since the 1940s. However, the initial complex of ten or twelve concrete accessory buildings is intact. Moreover, for the most part, the Corps of Engineers Master Plan for the project provides for the preservation and enhancement of historical elements.

LEGAL DESCRIPTION

The Hiram M. Chittenden Locks of the Lake Washington Ship Canal are located in SE¼ Sec. 10, T.25N., R.3E. and in SW¼ Sec. 11, T.25N., R.3E., of the Willamette Meridian. The engineering feature straddles the Salmon Bay Waterway, and the accompanying government reservation is sited amidst the Ballard Tide Lands on the north shore and the Seattle Tide Lands on the south shore.

The Fremont Cut of the Lake Washington Ship Canal is located in NW¼, NE¼ and SE¼ Sec. 13, T.25N., R.3E., and in SW¼ Sec. 18, T.25N., R.4E., of the Willamette Meridian. The engineering feature traverses the Ross Addition and Denny and Hoyt's Addition to the Plat of Seattle.

The Montlake Cut of the Lake Washington Ship Canal is located in S½ Sec. 16, T,25N., R.4E., of the Willamette Meridian. The engineering feature is bordered by the University of Washington tract on the north shore and, on the south shore, by the Montlake Park Addition to the Plat of Seattle.

GENERAL CHARACTERISTICS OF THE SITE

The locks and dam are situated athwart the foot of Salmon Bay, originally a tidal inlet, which gives into Shilshole Bay north of Magnolia Head in Puget Sound. To the south of the headland, in Elliott Bay, lies Seattle's principal harbor. Oriented northwest to southeast, the locks and dam span the narrowest section of the Salmon Bay Waterway, where it is some 400 feet across, approximately a mile and a half east of the entrance to Shilshole Bay. When these features raised and stabilized its water level, Salmon Bay ultimately became a freshwater body and the harbor of a sizable fishing fleet. As is pointed out in the Lake Washington Ship Canal Master Plan, lands adjoining the eight-mile waterway between Puget Sound and Lake Washington have been developed for commercial,

industrial, residential, park and other public purposes, but shoreline use of the canal is predominantly related to the maritime industry. As a consequence, boat ramps and marinas; piers, docks and wharves; marine repair shops and shipbuilding yards are typical developments in the near vicinity of the three separate parcels proposed for nomination. The first parcel of 49 acres embraces the locks and their guide piers, the spillway dam and fish ladder, and grounds owned in fee simple by the U. S. Army Corps of Engineers. The second and third parcels of 38.5 and 20 acres, respectively, are limited to the Corps' fee-owned holdings along the Fremont and Montlake Cuts.

The preponderance of the 17-acre reservation which accompanies the locks lies on the north shore of the waterway, where maintenance and administrative facilities are arranged on a modified grid perpendicular to the waterway. The westerly portion of the reservation rises to an elevation of 45 feet, and sited atop this plateau is the Lock-keeper's House, which currently serves as the residence of the District Engineer. In front of the house, a terraced embankment of dredge spoils falls off toward water grade in 5-foot intervals. A paved concourse parallel with the waterway extends the length of the lawn-covered plateau, and at its westerly end is a viewing platform or overlook with solid concrete railing. This secondary concourse is linked to a private gateway in the northwest corner of the reservation by curvilinear road segments which encompass the residential knoll. In this informally landscaped westerly section of about seven acres is a luxuriant array of mature ornamental and specimen trees, shrubs and bedding plants introduced by grounds-keeper Carl S. English and others in the 1930s and 1940s.

The high ground of the reservation slopes off gradually on the east to level terrain about 20 feet in elevation. Here the maintenance campus is laid out along the main concourse, which is essentially on axis with the spillway dam. Included in this more-or-less formal complex of classically-styled concrete structures designed by the eminent local firm of Bebb and Gould are the administration building, which is the focal point, the machine shop, office and shop building, and mechanics shop. Each of these is clustered around a courtyard which opens onto the locks. Other initial structures, the gas and oil building, carpenter and blacksmith shops and transformer house, are sited to the north in the direction of the east gateway which serves as the visitors' entrance. In the 1940s a number of new structures, some of them temporary in nature, were added on the north and on the less public easterly margin of the maintenance core. Among the newer structures are the boathouse, greenhouse, steel shop, and two large metal-clad warehouses, one of which currently serves as a district garage. An employees' parking lot was developed inside the east entrance and was well screened by plantings. The Master Plan calls for its removal eventually. The grounds are lighted by electroliers on tapered and chamfered concrete standards. However, the original single globe fixtures have been replaced with modern lamps. Public parking is provided outside reservation boundaries along Burlington Northern Railway right-of-way. Reservation boundaries which are not contiguous with the waterway are lined with security fencing.

Little over an acre of the reservation is located at the far end of the spillway dam, on the south shore of the waterway, where a rehabilitated fish ladder and new underwater

fish viewing room were completed a year ago. Adjoining the westerly end of this segment of the reservation is city-owned land which is being developed for day-use park purposes. In turn, Commodore Park will be linked by trails to the city's Discovery Park, which occupies portions of the Fort Lawton Military Reservation on Magnolia Bluff.

Lake Union is a comparatively small body covering an area of nearly one and a half square miles. Further to the interior, Lake Washington, on the other hand, has an area of 39 square miles and depths that exceed 200 feet. The Fremont Cut, like the Salmon Bay Waterway which it connects to Lake Union, also is angled to the southeast. It follows, generally, the course of an old stream bed between the Fremont District on the north shore and the base of Queen Anne Hill on the south. Taking its name from the former district, the channel is 5800 feet in length and 100 feet wide, although the Corps of Engineers' fee-owned right-of-way is 300 feet wide. The authorized depth of the channel is 30 feet. Concrete revetments on either side of the channel are here and there bolstered by rip-rap. The low banks are lined with single rows of Lombardy poplars which have been aptly described as "colonnades" because they are nearly uninterrupted from the Northern Pacific Railway Bridge on the westerly end to the Fremont Drawbridge on the east. Subsidiary landscaping of an informal nature was undertaken along the banks as a beautification project by the Seattle Garden Club in the 1950s.

The Montlake Cut follows a compass-oriented easterly course of 2500 feet through a narrow neck of land between Lake Union's Portage Bay and Union Bay in Lake Washington. The channel takes its name from the residential district on the south shore. The Montlake District is connected to the University of Washington campus on the north shore via the Montlake Drawbridge, which crosses the canal at right angles near the center. The channel width is 100 feet, although the right-of-way controlled by the Corps of Engineers is typically 325 feet wide. It is dredged to an authorized depth of 30 feet. The tops of the concrete revetments are used as waterside walks, and there are trails also about midway up either steep embankment rising to a height of about 65 feet. On the south shore a recreational trail was recently improved and developed by the Corps of Engineers in cooperation with the Seattle Garden Club. It extends from West Montlake Park on the extreme west end of the channel to Horace McCurdy Park on the east end, and it continues through and beyond the marches of Foster Island to Washington Park.

HIRAM M. CHITTENDEN LOCKS

Construction of the locks and dam was carried out within the protection of two independent coffer dams. The locks were constructed without piles on a bed of hard clay. Concrete work, generally held to have been of exceptionally durable quality, was composed of one part Portland cement, three parts sand, and six parts gravel. The concrete was mixed, lowered into the forms by bottom dump buckets, spread in layers and spaded, but no tamping was required. Particular care was taken to protect the concrete from the action of salt water during the curing process. Detailed descriptions of construction and operating methods are given in W. J. Barden and A. W. Sargent's 1926 paper published by the American Society of Civil Engineers, which is listed among the bibliographical references.