

7. Effects Analysis

This chapter provides a detailed analysis of how the Preferred Alternative would affect historic properties within the APE. This chapter applies the criteria of adverse effect to analyze how different aspects of the No Build Alternative and the Preferred Alternative would alter or diminish the integrity of historic properties.

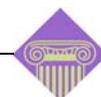
Application of Criteria of Adverse Effect

Section 106 of the NHPA and the implementing regulations require federal agencies to take into account the effects that a proposed undertaking may have on historic properties in the APE. This analysis includes the application of criteria of effect as outlined in 36 CFR 800.5.

In accordance with 36 CFR 800.5(a)(1), an adverse effect is found when an undertaking alters, directly or indirectly, any of the characteristics of a historic property that qualify the property for listing in the NRHP in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association.

Direct effects are caused by the action and occur at the same time and place. For historic properties, these can include the physical destruction or modification of all or part of a resource, as well as proximity effects, which are typically characterized as the introduction of audible, visual, and atmospheric elements that alter the qualities that make a property eligible for listing in the NRHP.

Adverse effects may also include reasonably foreseeable effects caused by the undertaking that may occur later in time or be farther removed in distance (defined as "indirect" under NEPA), or may be cumulative. These effects are discussed in greater detail in the *SR 520, I-5 to Medina: Bridge Replacement and HOV Project Indirect and Cumulative Effects Discipline Report* (see Attachment 7 to the Final EIS). When analyzing effects on historic properties, the combined impact of all effects— direct physical effects, proximity effects, and indirect effects— are considered. As defined by NEPA (40 CFR 1508.8), the terms *effect* and *impact* are used synonymously throughout this section. Adverse effect, however, is used only in a manner consistent with the definition provided in 36 CFR 800.5(a)(1), when an undertaking alters the characteristics that qualify a historic property for listing in the NRHP.



Potential adverse effects on cultural resources include, but are not limited to, the following (36 CFR 800.5):

- 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 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, and
- Introduction of visual, atmospheric, or audible elements that diminish the integrity of the property's significant historic features.

WSDOT, on behalf of FHWA, has evaluated each historic property within the APE and assessed the Preferred Alternative's effects on each property's seven aspects of integrity. The assessment resulted in one of four potential findings:

- **Does Not Alter Integrity:** Either no historic properties are present, or there is no effect of any kind, neither harmful nor beneficial, on historic properties.
- **Alters Integrity:** The undertaking affects historic properties, but does not diminish the characteristics that qualify the property for listing in the NRHP.
- **Diminishes Integrity:** There is an effect from the undertaking which alters the characteristics that qualify the property for listing in the NRHP in a way that diminishes the integrity of the historic property. This includes diminishing the integrity of the property's location, design, setting, materials, workmanship, feeling, or association.
- **Temporarily Diminishes Integrity:** There is an effect from the undertaking, and that effect temporarily (during construction of the project) alters the characteristics that qualify the property for listing in the NRHP in a way that diminishes the integrity of the historic property. This includes diminishing the integrity of the property's location, design, setting, materials, workmanship, feeling, or association.



The Preferred Alternative was reviewed to determine if aspects of the project would affect historic properties through construction or operation of the project. The Preferred Alternative would affect historic properties located in the APE. This chapter identifies and describes the potential effects of the Preferred Alternative on historic properties in accordance with Section 106 of the NHPA. Attachment 1 provides tables that list all of the historic properties in the APE; Exhibits 7-1a through 7-1j show the historic properties' locations in relation to project elements to illustrate the potential for effects. No NRHP-eligible archaeological sites were identified, so effects on archaeological sites are not discussed in this chapter.

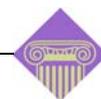
Some properties would experience more than one type of effect and these are noted in all applicable categories, as appropriate. Exhibit 7-14, which is located at the end of this chapter, summarizes historic properties whose integrity would be diminished by the Preferred Alternative.

The Preferred Alternative's construction-related impacts and permanent alterations of setting and feeling constitute an adverse effect on historic properties. This effect will be resolved through the implementation of the Programmatic Agreement, developed by WSDOT, DAHP, ACHP, affected tribes, and other consulting parties (see Attachment 9 to the Final EIS).

Methods for Identifying Potential Effects

To assess the scope of effects on historic properties during construction and operation of the Preferred Alternative, technical reports in the Final EIS (see Attachment 7 to the Final EIS) were consulted. These technical studies, summarized in the Final EIS, provided extensive information regarding myriad factors that could affect historic properties. Some of the disciplines that provided information include Transportation; Land Use, Economics, and Relocations; Social Elements; Visual Quality and Aesthetics; Noise; Air Quality; Geology and Soils; and Navigable Waterways (the discipline reports and addenda and errata are provided in Attachment 7 to the Final EIS). Many effects on historic properties are associated with changes in setting and feeling from noise and visual impacts.

The noise analysis for historic properties uses the noise data provided in the Noise Discipline Report Addendum and Errata (see Attachment 7 to the Final EIS) to evaluate whether the introduction of audible

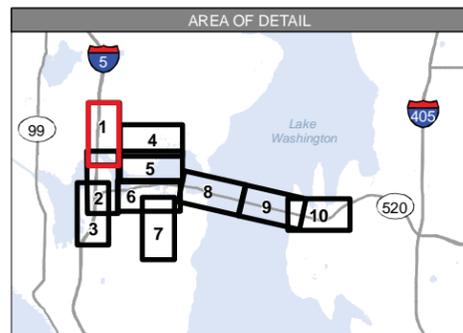
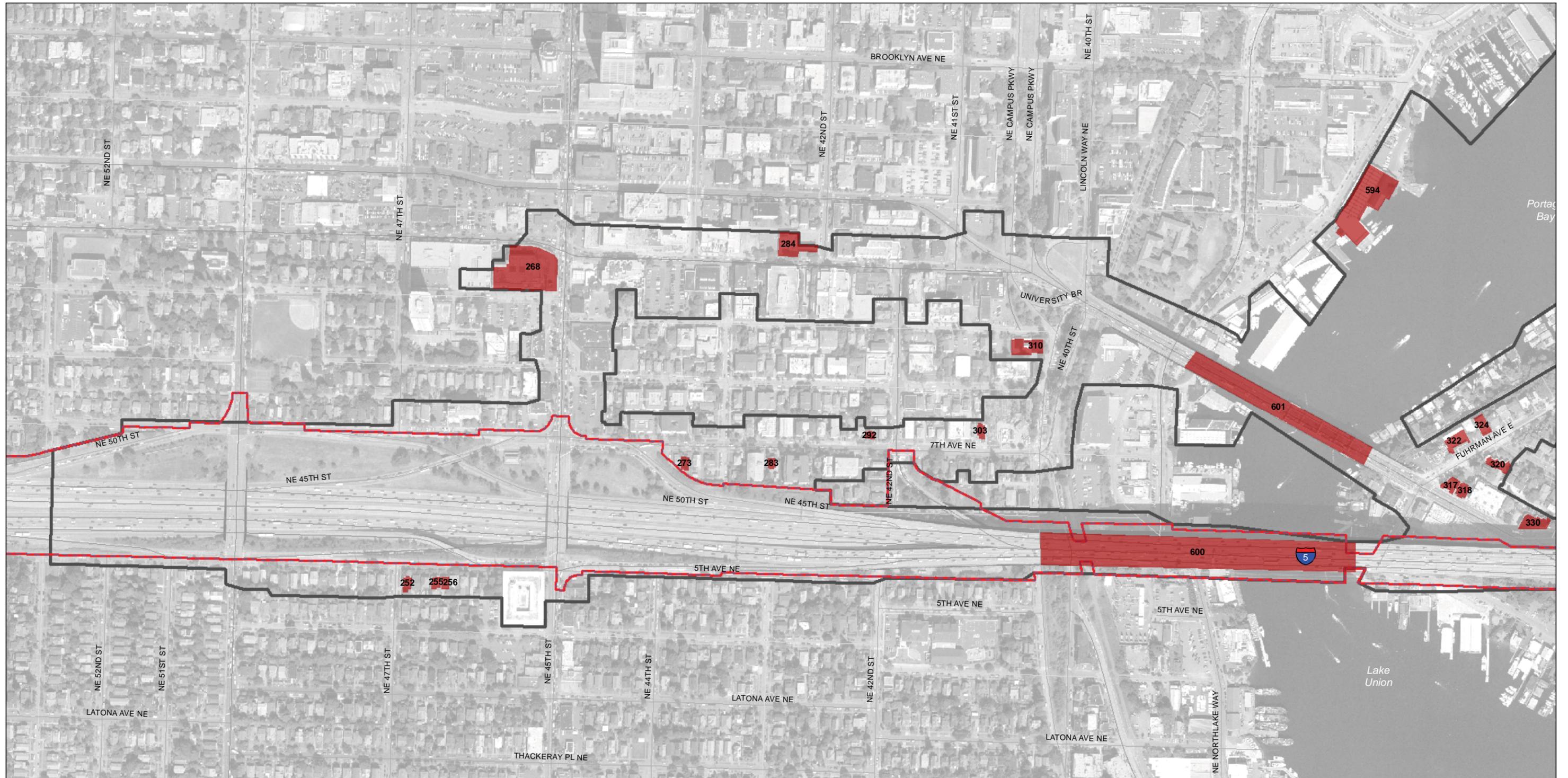


elements or changes in noise levels would diminish the qualities of significance of historic properties. FHWA and WSDOT have developed guidelines regarding noise levels, which are referenced in the effects analysis for historic properties where appropriate (see Attachment 7 to the Final EIS). The guidelines indicate that a change in noise levels of 3 A-weighted decibels (dBA) is the smallest change audible to humans, a 5 dBA change is readily perceptible, and a change of 10 dBA is perceived as either halving or doubling the relative loudness. These measurements are used only to gauge the relative changes in noise and evaluate whether introducing noise or changes to existing noise levels would diminish the qualities of significance of historic properties, which vary by property. Noise modeling completed for the project indicates that where recommended along the SR 520 corridor, noise walls would meet all FHWA and WSDOT requirements for avoidance and minimization of negative noise effects. In areas where noise walls are warranted, they would only be constructed if approved by the affected communities. These measures are taken into account when analyzing noise effects on historic properties.

Evaluating visual impacts on historic properties involves an understanding of the aspects of the property which render it eligible for inclusion in the NRHP under specific criteria, and how introducing visual elements or changes to the existing visual setting would affect the qualities of significance of the property. Visual effects could include removing structures and vegetation in the immediate property vicinity, introducing new visual elements, or other viewshed interruptions that could alter the significance of the historic property. Information from and visualizations developed for the *Visual Quality and Aesthetics Discipline Report* (see Attachment 7 to the Final EIS) aided in assessing the effects of the Preferred Alternative.

This analysis of effects from the Preferred Alternative is organized by the three study areas along the project corridor: Seattle, Lake Washington, and the Eastside transition area. Within the Seattle study area, project elements are described by geographic segments (I-5/Roanoke, Portage Bay, Montlake, and West Approach), as illustrated in Exhibit 1-1. In the case of effects caused by construction truck hauling, effects are analyzed by geographic segment, when appropriate, but are also evaluated specifically, as discussed below.





- NRHP Eligibility**
- NRHP Listed
 - NRHP Eligible
 - Contributing
 - Contributing and Eligible
 - Historic District Boundary
 - Area of Potential Effects
 - Proposed Right-of-way
 - Existing Right-of-way
 - Limits of Construction
 - General-Purpose Lane
 - HOV, Direct Access, and/or Transit-Only Lane
 - Lid
 - Proposed Bicycle/Pedestrian Path

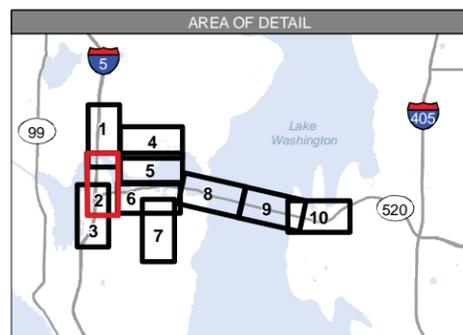
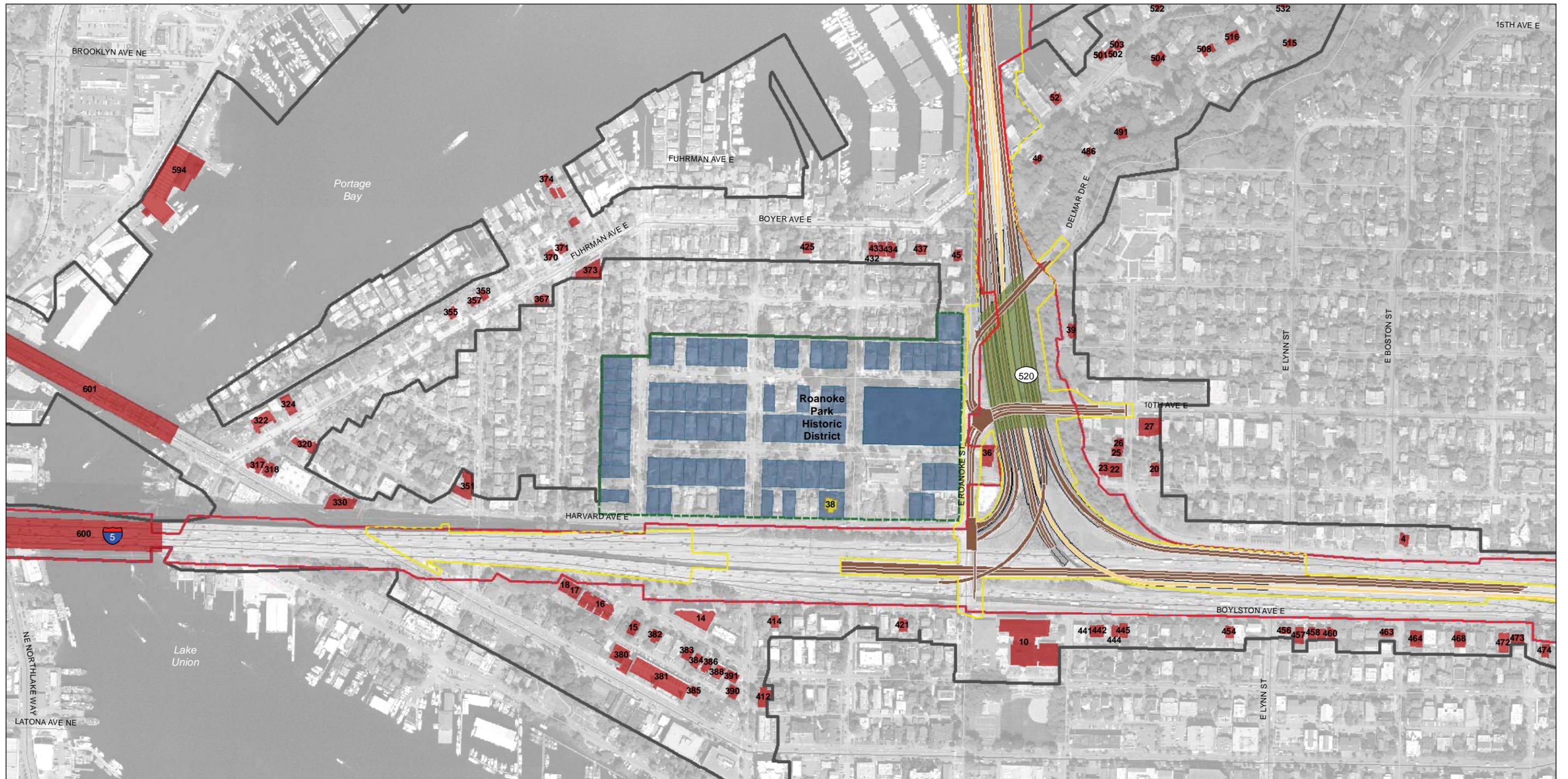
NOTE: Property ID Numbers displayed on the map correspond to those in the tables in Attachment 1 - "Master Lists of Identified Properties for the SR 520, I-5 to Medina Project"

Source: King County (2005) GIS Data (Streams and Streets), King County (2007) GIS Data (Water Bodies), King County (2008) GIS Data (Parcel), CH2M HILL (2008) GIS Data (Parks). Horizontal datum for all layers is NAD83(91); vertical datum for layers is NAVD88.

Exhibit 7-1a. Project Elements of the Preferred Alternative and Historic Properties, Sheet 1

SR 520, I-5 to Medina: Bridge Replacement and HOV Project





- | | | |
|---------------------------|----------------------------|--|
| NRHP Eligibility | Historic District Boundary | General-Purpose Lane |
| NRHP Listed | Area of Potential Effects | HOV, Direct Access, and/or Transit-Only Lane |
| NRHP Eligible | Proposed Right-of-way | Lid |
| Contributing | Existing Right-of-way | Proposed Bicycle/Pedestrian Path |
| Contributing and Eligible | Limits of Construction | |

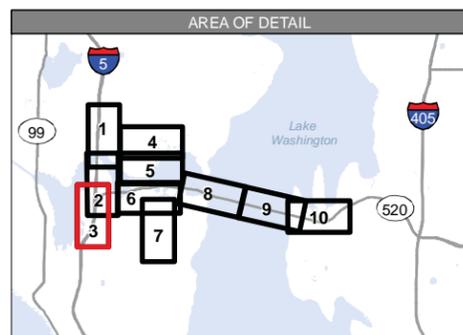
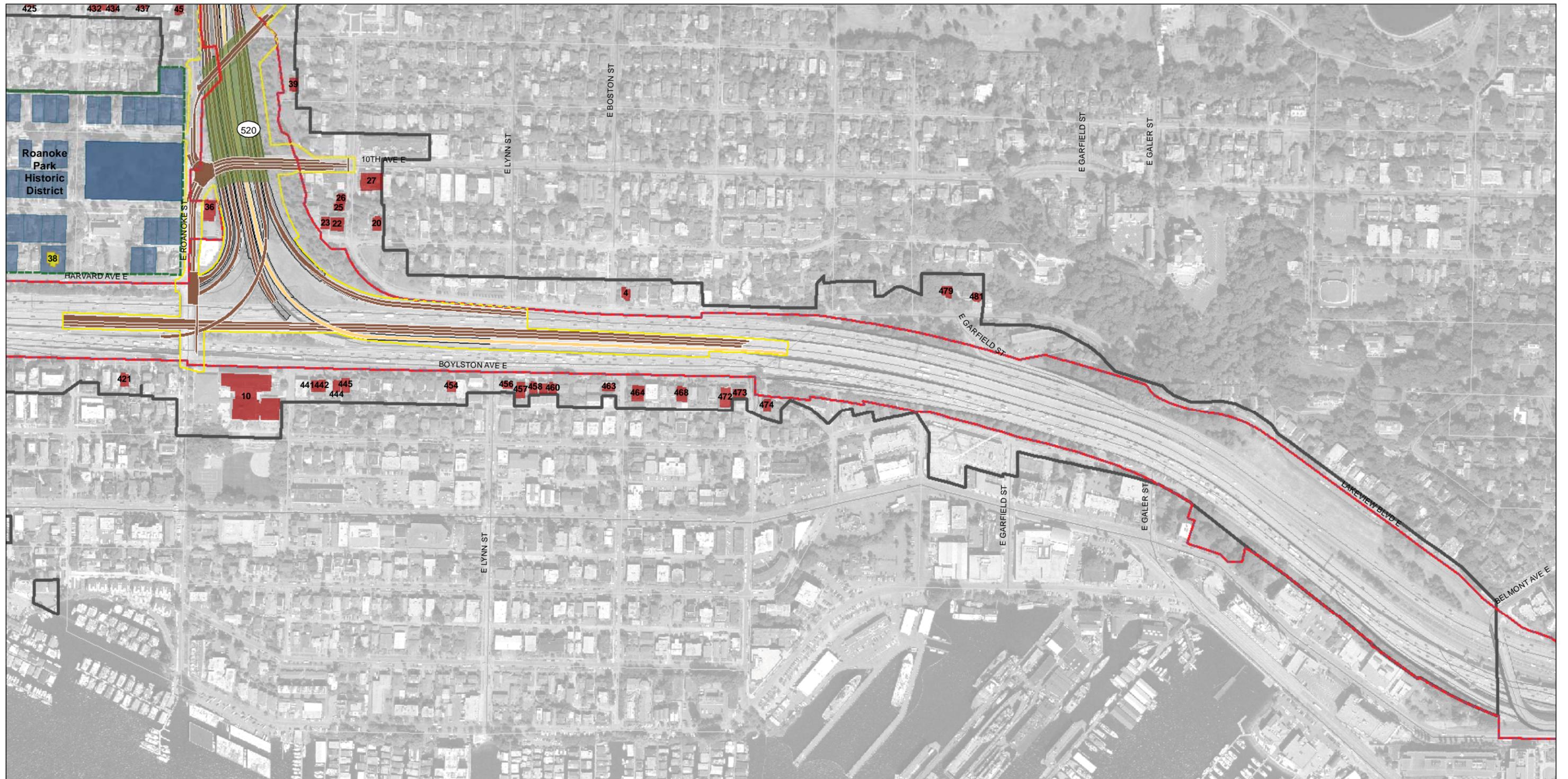
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Exhibit 7-1b. Project Elements of the Preferred Alternative and Historic Properties, Sheet 2

SR 520, I-5 to Medina: Bridge Replacement and HOV Project



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|---------------------------|----------------------------|--|
| NRHP Eligibility | Historic District Boundary | General-Purpose Lane |
| NRHP Listed | Area of Potential Effects | HOV, Direct Access, and/or Transit-Only Lane |
| NRHP Eligible | Proposed Right-of-way | Lid |
| Contributing | Existing Right-of-way | Proposed Bicycle/Pedestrian Path |
| Contributing and Eligible | Limits of Construction | |

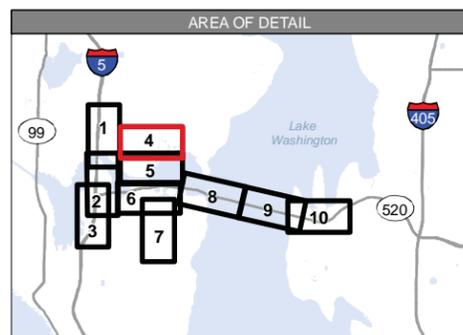
NOTE: Property ID Numbers displayed on the map correspond to those in the tables in Attachment 1 - "Master Lists of Identified Properties for the SR 520, I-5 to Medina Project"

Source: King County (2005) GIS Data (Streams and Streets), King County (2007) GIS Data (Water Bodies), King County (2008) GIS Data (Parcel), CH2M HILL (2008) GIS Data (Parks). Horizontal datum for all layers is NAD83(91); vertical datum for layers is NAVD88.



Exhibit 7-1c. Project Elements of the Preferred Alternative and Historic Properties, Sheet 3

SR 520, I-5 to Medina: Bridge Replacement and HOV Project



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|---------------------------|----------------------------|--|
| NRHP Eligibility | Historic District Boundary | General-Purpose Lane |
| NRHP Listed | Area of Potential Effects | HOV, Direct Access, and/or Transit-Only Lane |
| NRHP Eligible | Proposed Right-of-way | Lid |
| Contributing | Existing Right-of-way | Proposed Bicycle/Pedestrian Path |
| Contributing and Eligible | Limits of Construction | |

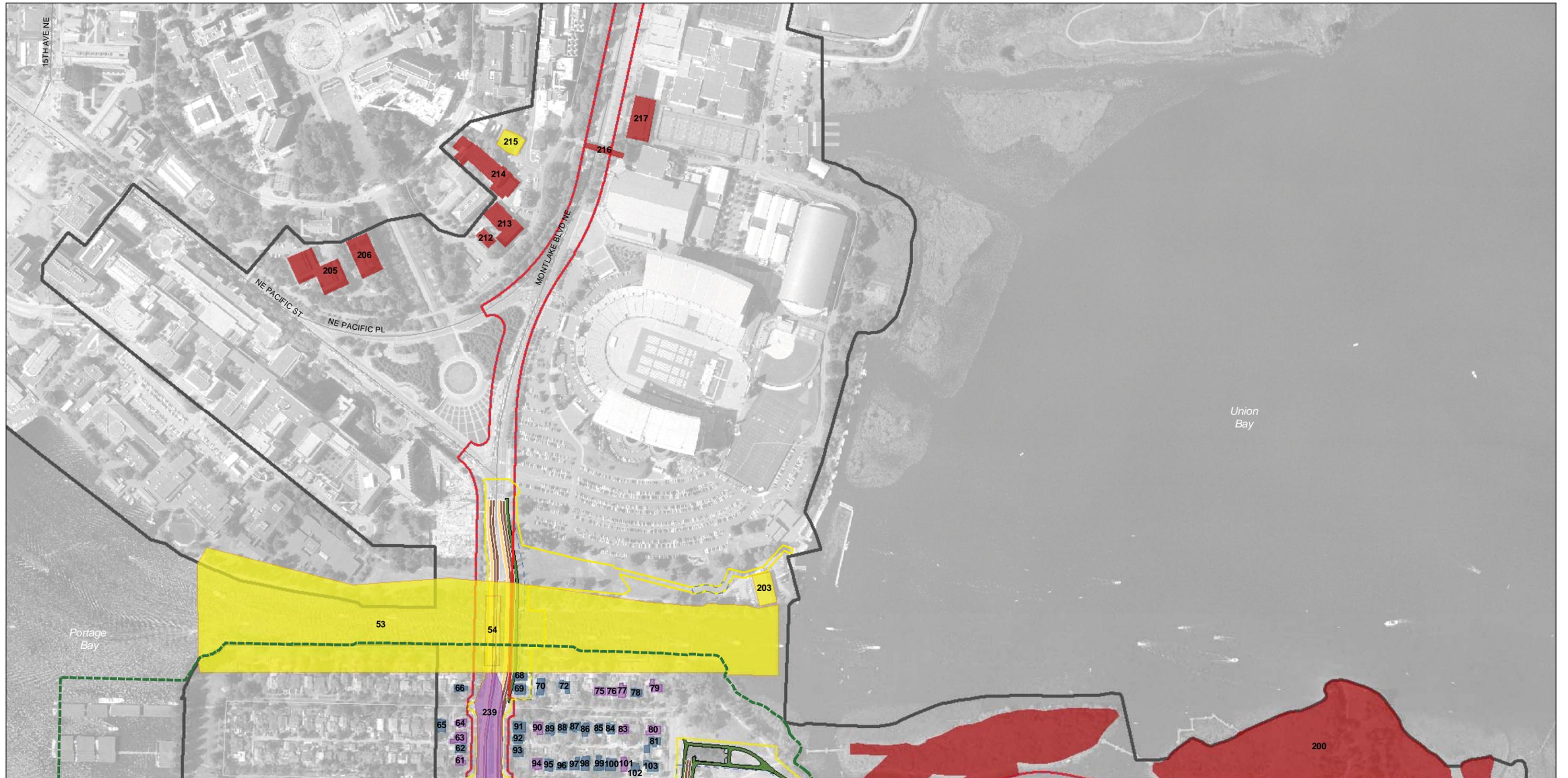
NOTE: Property ID Numbers displayed on the map correspond to those in the tables in Attachment 1 - "Master Lists of Identified Properties for the SR 520, I-5 to Medina Project"

Source: King County (2005) GIS Data (Streams and Streets), King County (2007) GIS Data (Water Bodies), King County (2008) GIS Data (Parcel), CH2M HILL (2008) GIS Data (Parks). Horizontal datum for all layers is NAD83(91); vertical datum for layers is NAVD88.



Exhibit 7-1d. Project Elements of the Preferred Alternative and Historic Properties, Sheet 4

SR 520, I-5 to Medina: Bridge Replacement and HOV Project



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|---------------------------|----------------------------|--|
| NRHP Eligibility | Historic District Boundary | General-Purpose Lane |
| NRHP Listed | Area of Potential Effects | HOV, Direct Access, and/or Transit-Only Lane |
| NRHP Eligible | Proposed Right-of-way | Lid |
| Contributing | Existing Right-of-way | Proposed Bicycle/Pedestrian Path |
| Contributing and Eligible | Limits of Construction | |

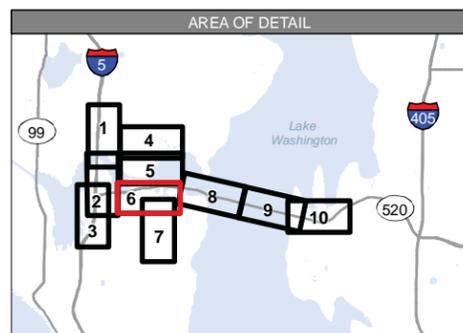
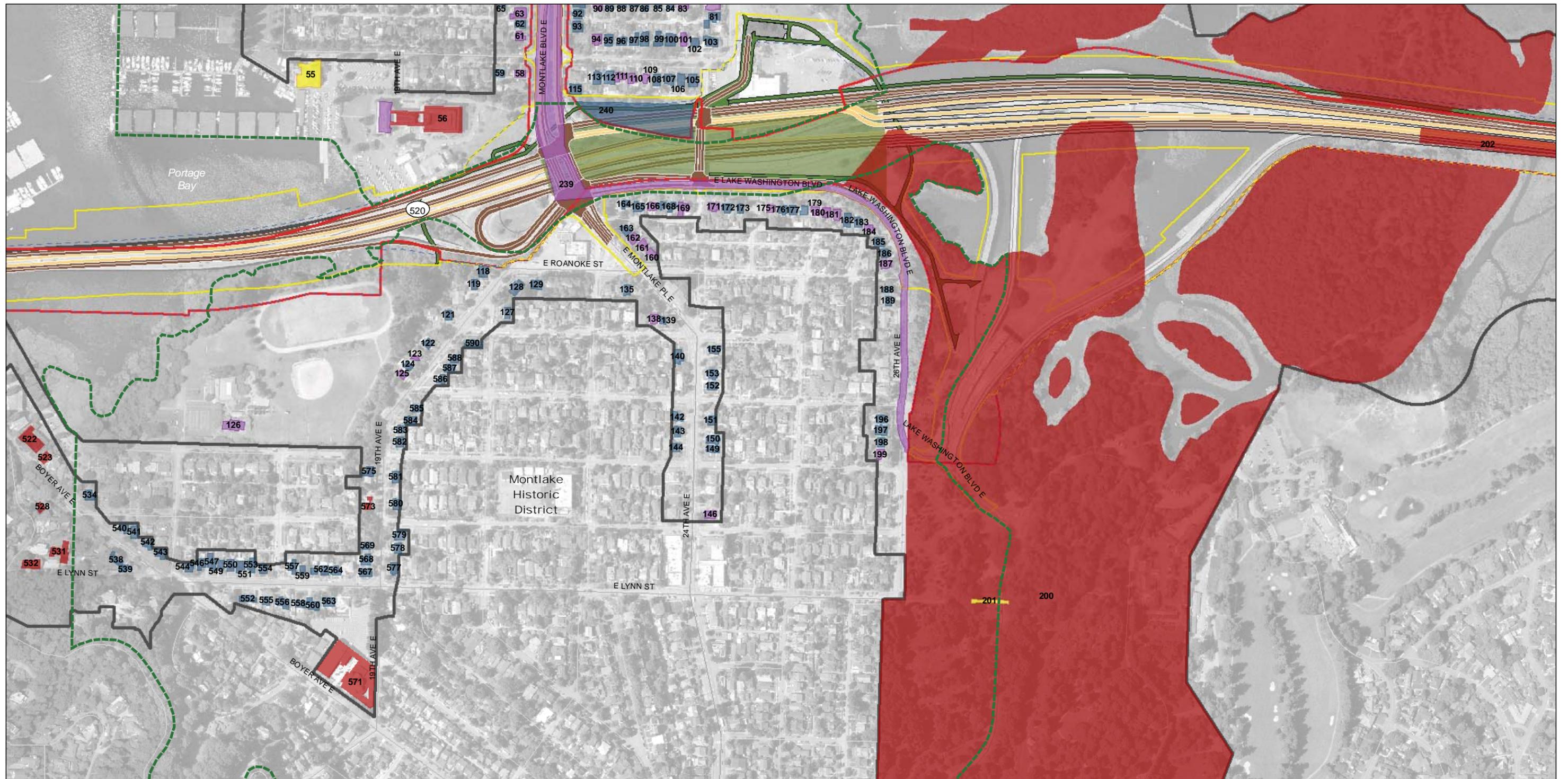
NOTE: Property ID Numbers displayed on the map correspond to those in the tables in Attachment 1 - "Master Lists of Identified Properties for the SR 520, I-5 to Medina Project"

Source: King County (2005) GIS Data (Streams and Streets), King County (2007) GIS Data (Water Bodies), King County (2008) GIS Data (Parcel), CH2M HILL (2008) GIS Data (Parks). Horizontal datum for all layers is NAD83(91); vertical datum for layers is NAVD88.



Exhibit 7-1e. Project Elements of the Preferred Alternative and Historic Properties, Sheet 5

SR 520, I-5 to Medina: Bridge Replacement and HOV Project



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|---------------------------|----------------------------|--|
| NRHP Eligibility | Historic District Boundary | General-Purpose Lane |
| NRHP Listed | Area of Potential Effects | HOV, Direct Access, and/or Transit-Only Lane |
| NRHP Eligible | Proposed Right-of-way | Lid |
| Contributing | Existing Right-of-way | Proposed Bicycle/Pedestrian Path |
| Contributing and Eligible | Limits of Construction | |

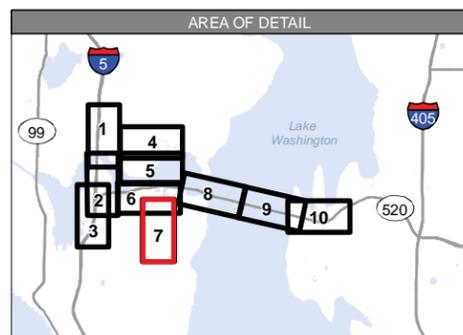
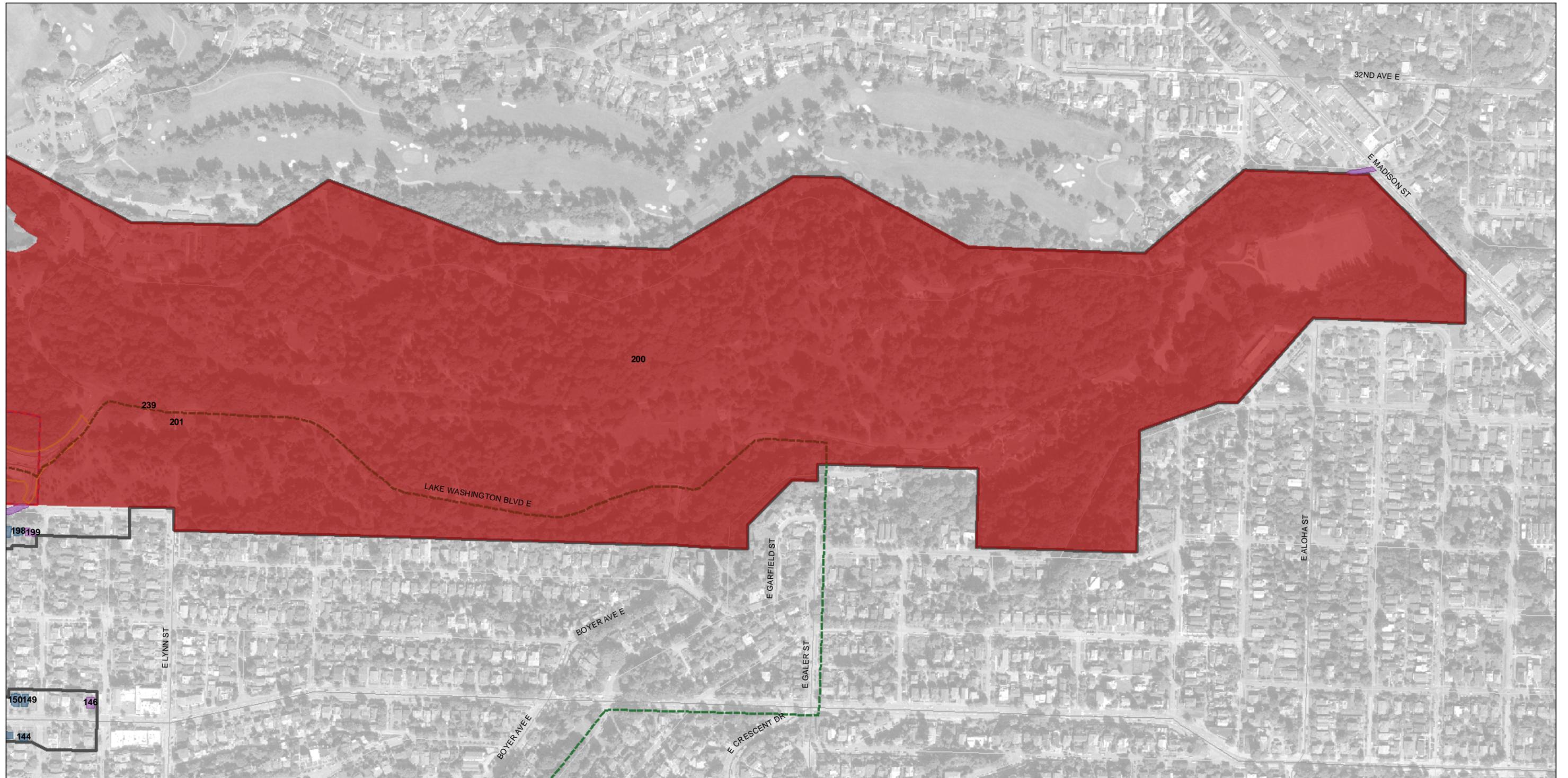
NOTE: Property ID Numbers displayed on the map correspond to those in the tables in Attachment 1 - "Master Lists of Identified Properties for the SR 520, I-5 to Medina Project"

Source: King County (2005) GIS Data (Streams and Streets), King County (2007) GIS Data (Water Bodies), King County (2008) GIS Data (Parcel), CH2M HILL (2008) GIS Data (Parks). Horizontal datum for all layers is NAD83(91); vertical datum for layers is NAVD88.



Exhibit 7-1f. Project Elements of the Preferred Alternative and Historic Properties, Sheet 6

SR 520, I-5 to Medina: Bridge Replacement and HOV Project



NRHP Eligibility

- NRHP Listed
- NRHP Eligible
- Contributing
- Contributing and Eligible

- Historic District Boundary
- Area of Potential Effects
- Proposed Right-of-way
- Existing Right-of-way
- Limits of Construction

- General-Purpose Lane
- HOV, Direct Access, and/or Transit-Only Lane
- Lid
- Proposed Bicycle/Pedestrian Path

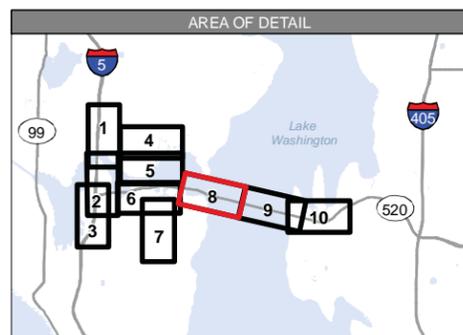
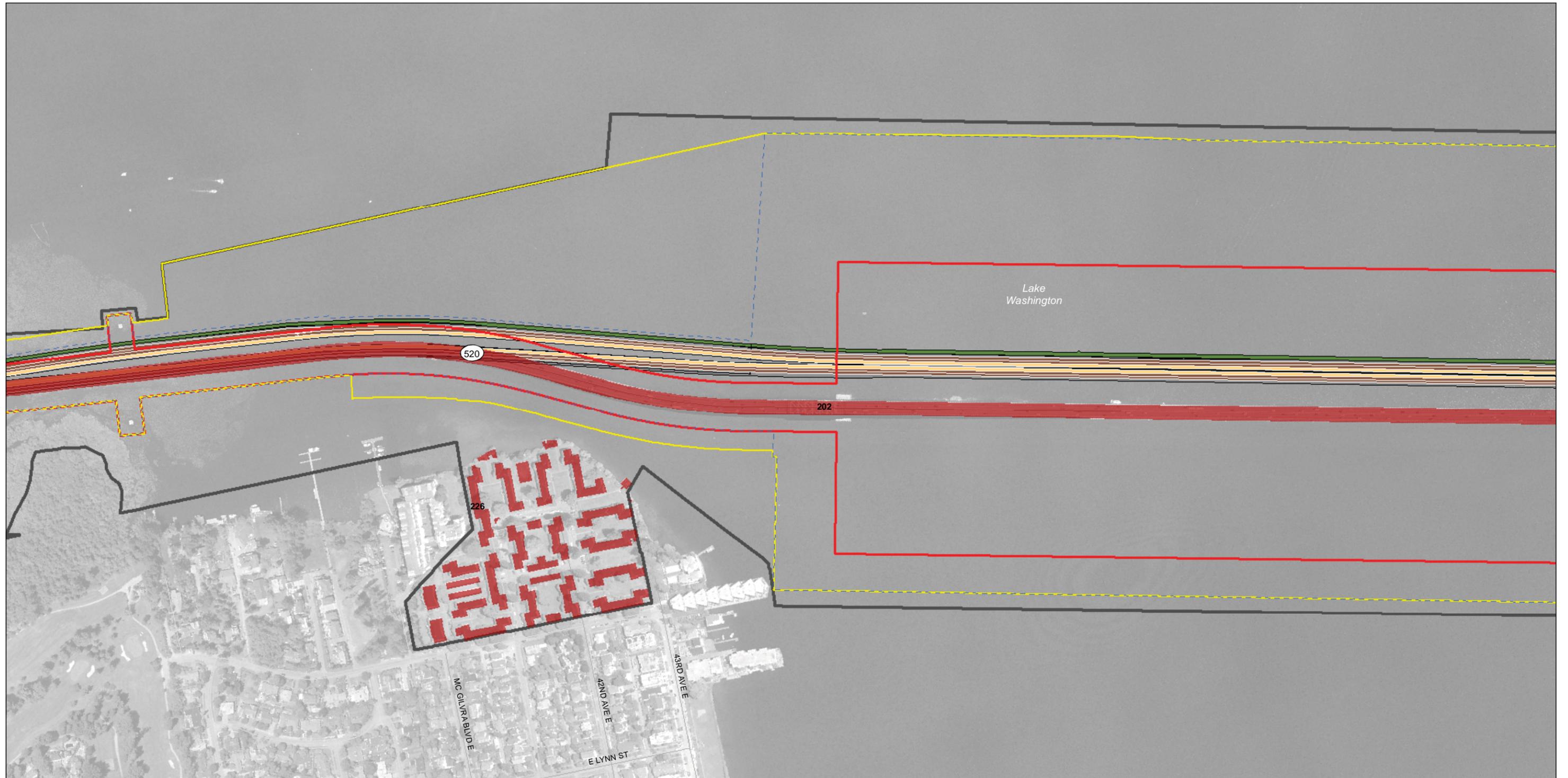
NOTE: Property ID Numbers displayed on the map correspond to those in the tables in Attachment 1 - "Master Lists of Identified Properties for the SR 520, I-5 to Medina Project"

Source: King County (2005) GIS Data (Streams and Streets), King County (2007) GIS Data (Water Bodies), King County (2008) GIS Data (Parcel), CH2M HILL (2008) GIS Data (Parks). Horizontal datum for all layers is NAD83(91); vertical datum for layers is NAVD88.



Exhibit 7-1g. Project Elements of the Preferred Alternative and Historic Properties, Sheet 7

SR 520, I-5 to Medina: Bridge Replacement and HOV Project



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|---------------------------|----------------------------|--|
| NRHP Eligibility | Historic District Boundary | General-Purpose Lane |
| NRHP Listed | Area of Potential Effects | HOV, Direct Access, and/or Transit-Only Lane |
| NRHP Eligible | Proposed Right-of-way | Lid |
| Contributing | Existing Right-of-way | Proposed Bicycle/Pedestrian Path |
| Contributing and Eligible | Limits of Construction | |

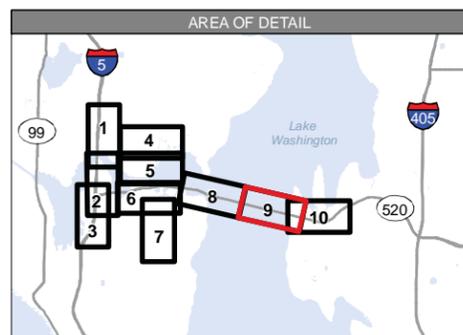
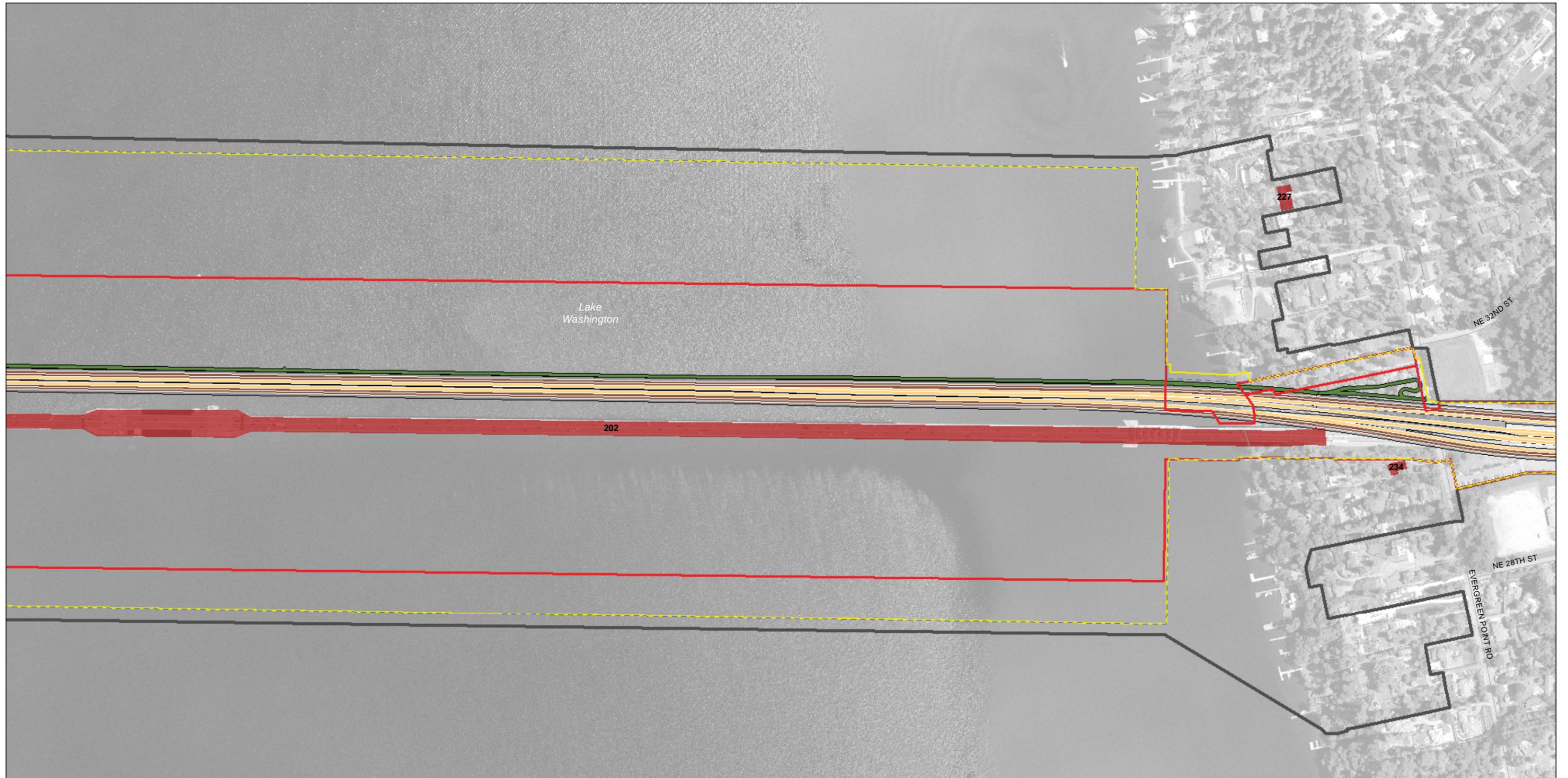
NOTE: Property ID Numbers displayed on the map correspond to those in the tables in Attachment 1 - "Master Lists of Identified Properties for the SR 520, I-5 to Medina Project"

Source: King County (2005) GIS Data (Streams and Streets), King County (2007) GIS Data (Water Bodies), King County (2008) GIS Data (Parcel), CH2M HILL (2008) GIS Data (Parks). Horizontal datum for all layers is NAD83(91); vertical datum for layers is NAVD88.



Exhibit 7-1h. Project Elements of the Preferred Alternative and Historic Properties, Sheet 8

SR 520, I-5 to Medina: Bridge Replacement and HOV Project



NRHP Eligibility

- NRHP Listed
- NRHP Eligible
- Contributing
- Contributing and Eligible

- Historic District Boundary
- Area of Potential Effects
- Proposed Right-of-way
- Existing Right-of-way
- Limits of Construction

- General-Purpose Lane
- HOV, Direct Access, and/or Transit-Only Lane
- Lid
- Proposed Bicycle/Pedestrian Path

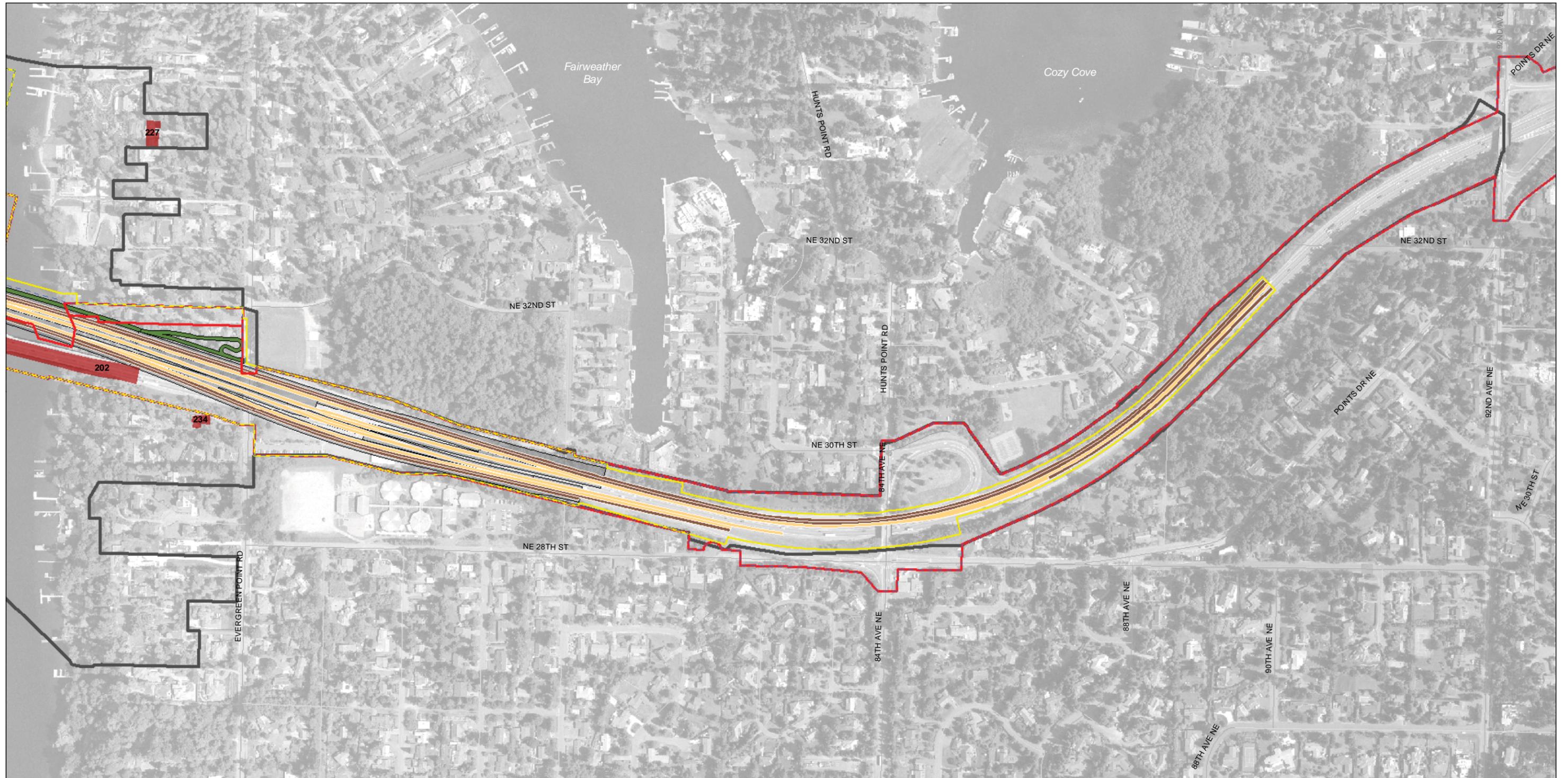
NOTE: Property ID Numbers displayed on the map correspond to those in the tables in Attachment 1 - "Master Lists of Identified Properties for the SR 520, I-5 to Medina Project"

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Exhibit 7-1i. Project Elements of the Preferred Alternative and Historic Properties, Sheet 9

SR 520, I-5 to Medina: Bridge Replacement and HOV Project



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|---------------------------|----------------------------|--|
| NRHP Eligibility | Historic District Boundary | General-Purpose Lane |
| NRHP Listed | Area of Potential Effects | HOV, Direct Access, and/or Transit-Only Lane |
| NRHP Eligible | Proposed Right-of-way | Lid |
| Contributing | Existing Right-of-way | Proposed Bicycle/Pedestrian Path |
| Contributing and Eligible | Limits of Construction | |

NOTE: Property ID Numbers displayed on the map correspond to those in the tables in Attachment 1 - "Master Lists of Identified Properties for the SR 520, I-5 to Medina Project"

Source: King County (2005) GIS Data (Streams and Streets), King County (2007) GIS Data (Water Bodies), King County (2008) GIS Data (Parcel), CH2M HILL (2008) GIS Data (Parks). Horizontal datum for all layers is NAD83(91); vertical datum for layers is NAVD88.



Exhibit 7-1j. Project Elements of the Preferred Alternative and Historic Properties, Sheet 10

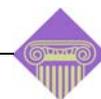
SR 520, I-5 to Medina: Bridge Replacement and HOV Project

Construction Haul Routes

During construction, the Preferred Alternative would temporarily diminish the integrity of feeling and setting of historic properties along construction haul routes. Construction haul routes (Exhibit 6-37) would expose historic properties to temporary increases in truck traffic, with accompanying potential for increases in fugitive dust, vehicle emissions, and noise. Haul truck volumes estimated for each potential haul route are intended to characterize truck activity anticipated during a typical average day of construction for the duration of use as a haul route. For potential routes where haul truck volumes may vary substantially over the construction period, peak daily volumes are also estimated.

Construction materials would be transported to and from the construction work areas by trucks and barges. Barges would provide access to offshore work areas. Trucks would travel over identified haul routes through Seattle to SR 520, I-5, and I-405. Since publication of the SDEIS (WSDOT 2010a; see Attachment 10 to the Final EIS), construction staging areas and haul routes have been revised to account for the design of the Preferred Alternative, improve traffic management, respond to comments received on the SDEIS about haul routes, and accommodate changes in the construction schedule. See the *SR 520, I-5 to Medina: Bridge Replacement and HOV Project Transportation Discipline Report* (Attachment 7 to the Final EIS) for more detailed information about truck traffic, the construction schedule, and other data pertaining to the potential haul routes.

Construction assumptions developed for this project identify major freeways such as I-5, SR 520, and I-405 as primary haul routes intended to carry the majority of project truck traffic. However, there would be times when city streets will need to be used as secondary haul routes. Secondary haul routes for the SR 520, I 5 to Medina project were identified based on criteria such as shortest off-highway mileage, providing access to locations needed for construction where direct highway access is unavailable, and the ability to accommodate truck traffic. Potential construction haul routes described here include both local and regional roadways. Local jurisdictions can limit the use of nonarterial streets for truck traffic; therefore, efforts were made to identify designated arterial streets for potential use as haul routes. Final haul routes will be determined by local jurisdictions for those actions and activities that require a street use or other jurisdictional permit. The



permit process typically takes place during the final design phase, and prior to construction.

Integrity of setting and feeling of the historic properties along these construction haul routes would be intermittently diminished by the trucks passing the buildings. The properties would maintain integrity of materials, design, workmanship, location, and association and would retain the ability to demonstrate their architectural significance, which is the criterion that makes each of them eligible for listing in the NRHP. In addition, some properties, such as Fire Station #22 and the Seward School, are also eligible under Criterion A for their association with area history. Fire Station #22 is associated with the development of the Seattle Fire Department. WSDOT committed to ensure that the fire station would remain open and that the project would not affect emergency services during construction. The Denny-Fuhrman School is eligible for listing in the NRHP because of its association with public education in Seattle and the development of the Eastlake neighborhood. The ability of the school to fulfill its educational mission and its involvement in the community would not be impaired by hauling activities.

The estimated truck peaks and averages represent a worst-case condition for each study location. To generate these estimates, program analysts assumed that all truck trips servicing each work site would need to use more than one haul route. Work sites could be accessed by more than one potential route, which could result in lower actual truck volumes during construction at some locations. To best represent how truck traffic would be experienced by a single observer, the number of trucks per day reported for this analysis is equal to twice the number of loads delivered. For example, the delivery of one load of concrete is estimated as two trucks per day because the truck is counted both when arriving and when leaving the site.

In general, the estimated number of truck trips along arterials would be relatively low compared to overall arterial volumes. The truck volume estimates would continue to be updated as construction planning and scheduling are finalized, and WSDOT will work with affected communities through the CCMP to avoid and minimize impacts. The *Transportation Discipline Report* (see Attachment 7 to the Final EIS) includes more specific discussion about haul routes, effects on traffic volumes, and scheduling. More detailed information about construction haul routes in specific geographic segments and their potential effects on historic properties is provided below.



Effects from Construction

No Build Alternative

The No Build Alternative, described in Chapter 1, would result in no construction effects on cultural resources because the project would not be built and the Evergreen Point Bridge would not be replaced. SR 520 would continue to operate as it does today, as a four-lane highway with nonstandard shoulders and without a bicycle/pedestrian path. The No Build Alternative is the baseline to which the Preferred Alternative is compared.

Preferred Alternative

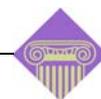
Construction of the Preferred Alternative would result in some impacts on properties in the vicinity of the project, including historic properties. These impacts could include, but are not limited to, the following:

- Fugitive dust from demolition, haul trucks, and other activities
- Nighttime glare from lighted work areas at night
- Visual effects from vegetation removal, temporary structures, construction staging and equipment, and active construction operations
- Temporary disruptions in access to homes and businesses
- Increased traffic along detour and haul routes, including truck traffic

Because the engineering design for the project is not yet final and a contractor has not been hired, specifics of some construction details are not yet defined. The analysis of construction effects is based on all currently available knowledge for the project.

Given its extent and duration, construction would have notable impacts in the vicinity of active construction areas, defined on the exhibits in this report as the limits of construction. NEPA requires WSDOT to mitigate these impacts if they cannot be avoided or minimized.

Preferred Alternative effects from construction will include, but are not limited to, construction hauling, detours, construction staging, and temporary work bridges. Construction of the SR 520, I-5 to Medina project would occur over a period of years and would result in



increased noise, dust, and traffic; visual effects; and disruptions to access to some areas near construction sites.

Seattle Study Area

Traditional Cultural Properties and Archaeological Resources

The Preferred Alternative would cross Foster Island with a pier and span bridge that would require acquisition of 0.5 acre of land on Foster Island and expansion of the right-of-way to the north of the existing alignment. Construction effects would include a construction work bridge located on the island, which would be removed after the permanent structure was completed (Exhibit 7-2).

Construction activities would generate dust and construction-related noise and vibration on Foster Island; during construction, access to the north part of the island would be restricted. Construction in this area is scheduled to take approximately 5 years (60 months). Once construction is completed, construction easements on Foster Island would be returned to park use.

In consultation with interested and affected tribes, WSDOT has determined that the construction of the Preferred Alternative would diminish the integrity of the Foster Island TCP and contribute to the project's adverse effect on historic properties.

Although no archaeological sites eligible for listing in the NRHP were found in any of the studies conducted to date, study results indicate that there is the potential for the project to affect unknown and potentially significant archaeological resources within the limits of construction. Several specific areas within the limits of construction were called out as sensitive for intact archaeological sites (or were inaccessible during the initial investigations), and were flagged for additional investigation prior to construction or monitoring during construction. Details for this monitoring or investigation will be in the project Archaeological Treatment Plan, committed to being developed in the Programmatic Agreement.

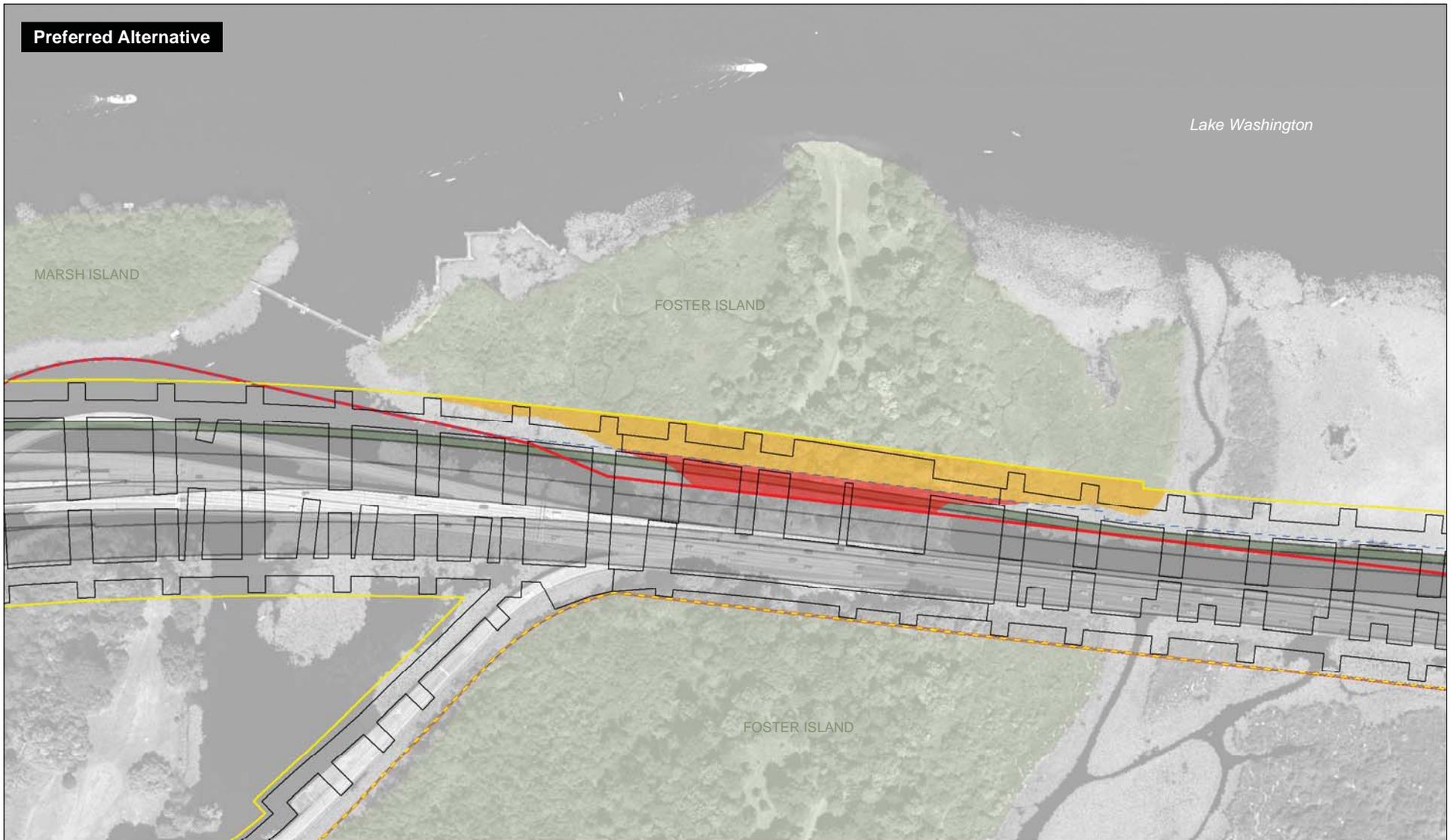
Historic Built Environment Properties

I-5/Roanoke and Portage Bay Segments

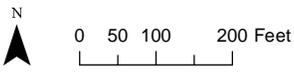
The Preferred Alternative would affect historic properties in the I-5/Roanoke segment of the Seattle study area, largely as a result of the extended project construction period. Historic properties within the



Preferred Alternative



- Permanent Acquisition
- Construction Easement
- Proposed Right-of-way
- Existing Right-of-way
- Limits of Construction
- Pavement
- Work Bridge
- Proposed Bicycle/Pedestrian Path



Source: King County (2006) Aerial Photo, CH2M HILL (2008) GIS Data (Park and Trails). Horizontal datum for all layers is NAD83(91); vertical datum for layers is NAVD88.



Exhibit 7-2. Project Elements of the Preferred Alternative on Foster Island
 SR 520, I-5 to Medina: Bridge Replacement and HOV Project

APE adjacent to SR 520 have the potential to experience effects that would alter their integrity of setting and feeling during construction. These effects will be discussed by project element and by historic property, as appropriate, in subsequent sections.

Construction of the 10th Avenue East and Delmar Drive East lid (10th and Delmar lid) over SR 520 could cause the following effects on historic properties:

- Increased vibration from demolition, heavy equipment operation, material hauling, and pile-driving
- Fugitive dust from areas where soils are exposed or stockpiled
- Visual effects from vegetation removal, temporary structures, construction staging and equipment, and active construction operations
- Temporary disruptions in access to homes and businesses
- Increased traffic along detour and haul routes

Although construction of the 10th and Delmar lid would take approximately 26 months, the noise and other effects would vary in intensity during that period, depending on which activities were occurring. Glare from nighttime construction lighting would also be experienced intermittently. Increased noise, fugitive dust, and possible vibration from demolishing and removing the 10th Avenue East and Delmar Drive East bridges over SR 520 and constructing the new 10th and Delmar lid would also affect historic properties. The following properties would experience these effects during construction to varying degrees. These properties' integrity of feeling and setting would be diminished by construction of the Preferred Alternative:

- Fire Station #22 (ID# 36)
- Seward School campus (ID# 10)
- Chung House (ID# 4)
- Talder House (ID# 20)
- Sugamura House (ID# 23)
- East Miller Condominium (ID# 22)
- Wicklund-Jarr House (ID# 25)
- Glover Homes Building (ID# 26)
- Keuss Building (ID# 27)
- Boyd House (ID# 39)

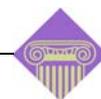


- Gunby House (ID# 45)
- Mason House (ID# 48)
- Kelley House (ID# 52)

Some of the vegetative buffer between SR 520 and historic properties (the Gunby House on the north; the Sugamura, Boyd, and Mason houses on the south) would be entirely or partially removed during construction. Although the buffer area contains a variety of mature trees, it also has several invasive species. WSDOT would retain mature trees where possible. During construction of the new roadway and lids, mature vegetation would be protected and retained to the maximum extent feasible. Although some existing buffer might be reduced, adding the 10th and Delmar lid would provide for a new type of buffer from the roadway that would be more extensive than the existing vegetative buffer. After construction is completed, permanent erosion control measures for areas affected by construction of the project would be implemented, and those areas where invasive species were cleared would be replanted with native plant materials, as appropriate, in accordance with WSDOT policy (WSDOT 2010d) and in consultation with the neighborhood. Removal of this vegetation would alter integrity of setting for the properties listed above.

The most likely travel route to access the 10th and Delmar lid construction area would be from I-5 to East Roanoke Street. Delmar Drive East is likely to experience truck traffic as a secondary travel route, mostly for egress from the lid construction area to eastbound SR 520. This potential haul route would use Delmar Drive South from SR 520 and continue east onto East Lynn Street, then north on 19th Avenue East (Exhibit 6-37). A haul route along Delmar Drive East as it nears 14th Avenue East could average 20 haul trucks per day during active construction. Estimated peak volume of 160 haul trucks per day could occur intermittently for as many as 30 nonconsecutive days over a period of roughly 21 months.

A potential haul route along Fuhrman Avenue East could be used throughout the construction period (Exhibit 6-37). This route may average 20 trucks per day when in use and may experience peak volumes up to 230 trucks per day intermittently throughout construction. To provide some context for this volume of truck traffic, more than 170 trucks and buses per day pass along Fuhrman Avenue East at Eastlake Avenue East. A potential haul route along Boyer Avenue East at East Shelby Street could also have the same typical



average volume from construction truck hauling as the route along Fuhrman Avenue East.

The Boylston Avenue East haul route would likely be used intermittently for the duration of construction, and could average approximately 25 trucks per day. Integrity of setting and feeling of all historic properties along construction haul routes would be temporarily diminished as a result of the Preferred Alternative.

There are no construction haul routes within the Roanoke Park Historic District. However, haul routes are located on the edges (outside of) the district boundaries. More discussion on potential effects on the Roanoke Park Historic District as a result of haul routes is provided later in this chapter.

Project elements of the construction of the Portage Bay Bridge would affect historic properties. The Mason and Kelley houses (both on Boyer Avenue East) and the Gunby and Boyd houses (both adjacent to SR 520) would be affected by fugitive dust and possible vibration during demolition and reconstruction of the Portage Bay Bridge and erecting of the work bridges, including pile-driving for new piers. The Mason and Kelley houses would likely also experience glare from nighttime construction lighting because they are closer to the bridge and, thus, closer to construction activities.

The following properties are farther away from the Portage Bay Bridge construction activities than the four described above, but could experience some increased noise during demolition and reconstruction of the bridge, erecting the work bridges, and possibly by some nighttime glare, due to the topography. Their integrity of setting and feeling would be altered during construction.

- Fire Station #22 (ID# 36)
- Seward School (ID# 10)
- Wicklund-Jarr House (ID# 25)
- Glover Homes Building (ID# 26)
- Keuss Building (ID# 27)

The work bridges, barges, and heavy equipment used to demolish and construct the Portage Bay Bridge would create new visual effects, particularly due to the topography of the area and the views toward the bridge from the properties on the west side of the bay. The Kelley House would be affected by visual impacts because one of the work bridges is planned to be in the location of the current Portage Bayshore



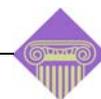
Condominium docks next door to the house. Some moorage at the Portage Bayshore Condominiums would be relocated during construction. Upon completion, the work bridges would be removed and the moorings would be restored. Portage Bay Bridge construction is anticipated to last for 5 years.

These construction impacts, such as increased noise and visual intrusions, would not permanently alter the integrity of the historic properties discussed above. The significance of these properties lies in their distinctive architectural characteristics of type, construction, period, or style, and – for Fire Station #22 and the Seward School – their association with area history. These properties also exhibit a high level of historic and architectural integrity. The construction impacts would alter the integrity of the setting and feeling of these properties, but the effects on the historic properties would not be permanent. The properties would maintain integrity of materials, design, workmanship, association, and location throughout the construction period.

Roanoke Park Historic District (ID# 37)

Construction of the Preferred Alternative would result in a number of effects on the Roanoke Park Historic District, and would diminish the district's integrity of setting and feeling. These effects include the following:

- Change to setting at times during the construction period from increased traffic on the haul routes along East Roanoke Street and Harvard Avenue East.
- Noise, fugitive dust, and possible vibration effects from construction of the reconfigured intersection at East Roanoke Street and 10th Avenue East.
- Noise, fugitive dust, and vibration from construction of the work bridges flanking the Portage Bay Bridge, demolition of the existing bridge, and construction of the new bridge.
- Noise, fugitive dust, and possible vibrations from demolition of the 10th Avenue East and Delmar Drive East overcrossings and construction of the new lid.
- Noise, fugitive dust, traffic, and possible vibration from construction, and glare from lighting for nighttime construction occurring at the I-5/SR 520 interchange, for the HOV lane crossing over I-5.



- Change in setting and feeling during the construction period from the visual interruptions of the work bridges and construction activity related to Portage Bay Bridge.
- Change in setting and feeling during the construction period from the loss of vegetative buffer between East Roanoke Street and SR 520.

No construction or construction staging would occur within Roanoke Park or the Roanoke Park Historic District. Based on analysis in the *Geology and Soils Discipline Report* (see Attachment 7 to the Final EIS), the probability of landslides in the historic district from project construction in the vicinity is expected to be low.

Detour and Haul Routes

During construction, East Roanoke Street would experience temporary lane closures and detours while the realignment work of the 10th Avenue East and Delmar Drive East intersection occurs. These could include short-term closures during off-peak times, which might require intermittent and brief detours over an approximate 15-month period. This could result in temporarily restricted access along East Roanoke Street. However, at least one lane would be open at all times to allow local traffic access on East Roanoke Street. During construction, Fire Station #22—located on East Roanoke Street and immediately adjacent to the Roanoke Park Historic District—would be fully operational, and access for emergency response would not be affected.

Harvard Avenue East and East Roanoke Street are potential haul routes that border the Roanoke Park Historic District. Because these streets could provide the most direct access to portions of the project construction sites, they are likely to experience construction truck traffic (Exhibit 6-37). As previously noted, the main travel route to access the 10th and Delmar lid construction area would likely be from I-5 to East Roanoke Street, and Delmar Drive East could operate as a secondary route for egress from the lid to eastbound SR 520. Most trucks coming from westbound SR 520 would likely use the Harvard/Roanoke exit. On East Roanoke Street at Delmar Drive East, the potential route could average as many as 30 trucks per day intermittently for approximately 21 months. Worst-case peak levels could reach as many as 170 trucks per day, which could occur periodically over 21 months.

On Harvard Avenue East, north of East Roanoke Street, haul route volumes could average 15 trucks per day for the duration of

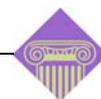


construction (approximately 66 months). The existing truck and bus count at this location is more than 690 per day, so an additional 15 trucks per day would not be a significant change. Worst-case peak volumes could reach up to 70 trucks per day, occurring for 60 nonconsecutive days throughout the active construction period. This means approximately 3 percent of total construction days could experience peak volume levels. As noted above, average haul truck volumes are estimates meant to approximate construction truck activity during a typical day for the duration of a potential haul route's use; these estimates would be updated as construction planning and scheduling progress.

These potential haul routes would temporarily diminish the integrity of setting and feeling of the Roanoke Park Historic District and its contributing elements, including the William H. Parsons House, located on Harvard Avenue East. These properties could experience higher traffic volume, fugitive dust, and increased noise from the intermittent truck traffic along these potential haul routes.

Vegetation Removal and Replanting

Some of the vegetative buffer between SR 520 and the Roanoke Park Historic District would be entirely or partially removed during construction. During construction of the new roadway and lids, mature vegetation would be protected and retained to the maximum extent feasible. As noted above, although the buffer area contains a variety of mature trees, it also has several invasive species that would be cleared and replaced with native vegetation, in accordance with WSDOT policy (WSDOT 2010d). Although some existing buffer might be reduced, adding the lid at 10th Avenue East and Delmar Drive East would provide for a new type of buffer from the roadway that would be more extensive than the existing vegetative buffer. After construction is completed, permanent erosion control measures for areas affected by construction of the project would be implemented, and those areas where invasive species were cleared would be replanted with native plant materials, as appropriate. During replanting, WSDOT would consult with members of the Roanoke Park Historic District to identify and select plantings compatible with the historic character of the area to the extent feasible. Vegetation removal and replanting would alter the district's integrity of setting.



Montlake Segment**Montlake Community Center (ID# 126)**

The Montlake Community Center Tudor Building, located at the Montlake Playfield within the boundaries of the Montlake Historic District, could be affected by fugitive dust and possible vibration during demolition and reconstruction of the Portage Bay Bridge and during erection of the work bridges.

Although the Montlake Community Center Tudor Building would experience effects from project construction, the existing gymnasium building and park vegetation would visually screen the building from most of these effects. The building's integrity of setting would be altered during construction, but the facility would still be able to function as an active community center. The character-defining architectural elements of the Tudor building would not be diminished, as it is significant in terms of architectural design and for its associations with area history.

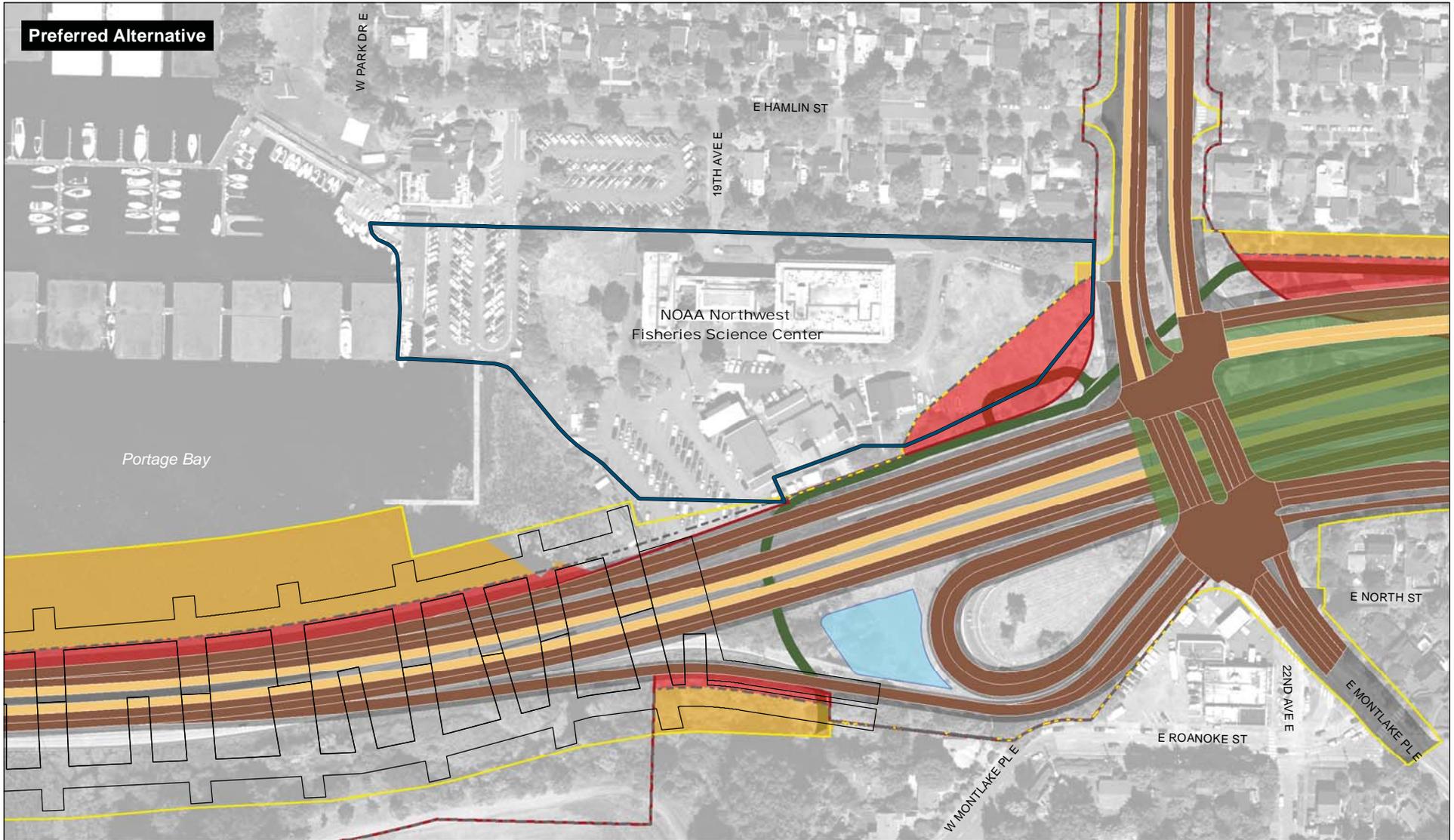
NOAA Northwest Fisheries Science Center (ID# 56)

The NOAA facility's three historic buildings house functions for the NOAA Northwest Fisheries Science Center campus. Construction of the Preferred Alternative would diminish this property's integrity of setting, feeling, and association (Exhibit 7-3).

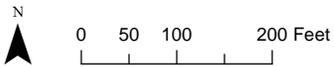
Demolition of the existing Portage Bay Bridge and construction of the work bridges and the new Portage Bay Bridge immediately adjacent to the NOAA property would generate additional dust and equipment emissions. It would also generate additional noise and create visual effects on the NOAA Northwest Fisheries Science Center buildings. Pile-driving for the construction bridges and use of heavy equipment could cause vibration effects on the property. If not adequately mitigated, these impacts have the potential to disrupt the biological experiments underway in the NOAA fish-rearing facilities and to affect sensitive equipment used for measurement and monitoring.

The construction impacts could create an acoustic environment that makes it more difficult to validate analytical results. Discussions are ongoing with NOAA officials to determine monitoring, construction management, and other measures to minimize construction effects on marine experiments and scientific activities.





- | | |
|------------------------|----------------------------------|
| NOAA Property | Proposed Bicycle/Pedestrian Path |
| Permanent Acquisition | General Purpose Lane |
| Construction Easement | HOV Lane |
| Proposed Right-of-way | Work Bridge |
| Existing Right-of-way | Stormwater Facility |
| Limits of Construction | Lid |
| Pavement | |



Source: King County (2006) Aerial Photo, CH2M HILL (2008) GIS Data (Park and Trails). Horizontal datum for all layers is NAD83(91); vertical datum for layers is NAVD88.

Exhibit 7-3. Project Elements of the Preferred Alternative at NOAA Northwest Fisheries Science Center

SR 520, I-5 to Medina: Bridge Replacement and HOV Project

To minimize potential effects disclosed in the SDEIS (WSDOT 2010a; see Attachment 10 to the Final EIS), the Preferred Alternative has narrowed the width of the Portage Bay Bridge and shifted its alignment to the south to avoid a direct impact on the structures at the NOAA facility. The Preferred Alternative would acquire 0.5 acre from the NOAA property, which does not contain any structures. There would also be a small construction easement on the northeast side of the NOAA property. Construction would also require use of a portion of the area currently used as parking for the NOAA facility. This area is on WSDOT property, so although it could not be used as parking for the NOAA facility during construction, using this portion of the parking area would not be an acquisition of NOAA property and other parking on NOAA property would not be affected. The driveway that encircles the North Campus on three sides would remain intact, so access within the property would not be altered. Exhibit 7-3 illustrates the effects on the NOAA Northwest Fisheries Science Center from construction of the Preferred Alternative.

Despite WSDOT's continuing efforts to minimize construction effects, the setting, feeling, and association of the property would be diminished during construction as a result of visual, noise, dust, and vibration effects, and the permanent loss of land. It is also likely that some aspects of the ongoing scientific activities of NOAA would be affected, which would diminish the integrity of association with the important research conducted there.

Seattle Yacht Club (ID# 55)

The Seattle Yacht Club, listed in the NRHP under Criterion A for its association with the social and maritime history of Seattle, traditionally holds Opening Day ceremonies through the Montlake Cut and on Portage Bay at the beginning of May each year. Increased noise, fugitive dust, glare from nighttime construction lighting, and possible vibration from demolition of the existing Portage Bay Bridge and construction of work bridges and the new Portage Bay Bridge would diminish the Seattle Yacht Club's integrity of setting, feeling, and association.

Work bridges and barges used to demolish and construct the Portage Bay Bridge could occasionally interfere with the club's marine activities in Portage Bay; similarly, temporary supports and barges used to construct the new bascule bridge adjacent to the historic Montlake Bridge could occasionally interfere with the club's activities on the Montlake Cut. WSDOT has committed to not transport pontoons



through these areas during Opening Day events, including the week before and the week after the ceremonies.

Although access to the Seattle Yacht Club would be maintained at all times, there could be periods during construction when some limitations on access to the Seattle Yacht Club and Portage Bay could be necessary. Access to Seattle Yacht Club facilities, both by land and by water, is critical for the continued operation of this historic property. The ability to maintain the historic structure depends on the economic and operational viability of the Club; its operational and economic viability depends on the revenues generated by members and guests having unimpeded access to the facility. Access and usage limitations could impair the Seattle Yacht Club's ability to manage its historic structure and conduct its traditional activities.

For the reasons described above, construction of the Preferred Alternative would diminish the Seattle Yacht Club's integrity of setting, feeling and association and may affect the historic maritime activities there, which are a character-defining feature under Criterion A. If not mitigated, these effects on the setting, feeling and association could also result in economic effects on the facility if reduced patronage were to occur as a result of the proximity of construction activities. These economic effects could impair the ability of the club to fulfill its historic maritime role. Because the association with the social and maritime history of Seattle is the sole reason for the NRHP listing of the Seattle Yacht Club, these activities are the primary character-defining feature of the club, and diminution of the ability to perform these activities would affect the club's integrity of association.

Montlake Bridge (ID# 54)

Montlake Bridge is listed in the NRHP under Criterion C for its engineering and architectural design. The Preferred Alternative includes a new bascule bridge immediately east of the existing historic Montlake Bridge. Because of the close physical proximity, constructing a new bascule bridge immediately adjacent to the historic Montlake Bridge would diminish the historic bridge's integrity of setting and feeling.

Montlake Cut (ID# 53)

The Montlake Cut is a navigable waterway with an existing bascule bridge crossing. The new bascule bridge would span the official navigation channel in the Montlake Cut. The cut must be open to ship traffic year-round, and bridge construction would not be allowed to



interfere with marine navigation. The only exception would be a few short periods of time when the spans are being erected, requiring the Montlake Cut to be temporarily closed to marine traffic. This would involve brief closures (estimated at up to six total), ranging from several hours to 2 days. None of these closures would occur during traditional Opening Day ceremonies for boating season. As an active navigational channel listed in the NRHP for engineering significance, the integrity of the Montlake Cut would not be altered by building a new bascule bridge across it or by towing pontoons through it.

Canoe House (ID# 203)

The Canoe House is listed in the NRHP under Criterion C for its architectural significance. Its integrity of setting and feeling would be altered during construction.

Construction of the new bascule bridge, which is expected to last approximately 29 months, would introduce fugitive dust and possible vibration to the Canoe House.

It would also introduce increased noise and glare from nighttime construction. Construction of the Preferred Alternative would also have a visual effect on the Canoe House because construction of the new bascule bridge, the new floating bridge, and the west approach to the floating bridge would all be visible from the Canoe House for the duration of the construction period. Construction of the Preferred Alternative would not diminish the architectural features that make the Canoe House significant. However, the integrity of setting and feeling would be altered, particularly to the west, in the direction of the new bascule bridge, but overall, the integrity of association, materials, workmanship, location, and design would remain intact.

Lake Washington Boulevard (ID# 239)

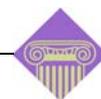
The segment of Lake Washington Boulevard within the APE is eligible for listing in the NRHP under Criterion A for its association with the citywide Olmsted Brothers' plan for parks and parkways in Seattle. The boulevard also is eligible for listing in the NRHP under Criterion C as a noted work of the master landscape architects John Charles Olmsted and Frederick Law Olmsted, Jr. Where it falls within the boundaries of the Montlake Historic District, it is a contributing element to that district. The Preferred Alternative would affect the integrity of setting and feeling of historic Lake Washington Boulevard.



Construction of the Preferred Alternative could include using portions of Lake Washington Boulevard from 26th Avenue East to Montlake Boulevard East as a potential haul route and detour route after the Lake Washington Boulevard and R. H. Thomson ramps are closed. The setting and feeling of the boulevard could be affected during times of higher traffic use for construction. Traffic increases from these project activities on Lake Washington Boulevard, however, would not alter the significance of this linear resource.

There would be a construction staging area located on the WSDOT right-of-way near the Arboretum, just south of the existing SR 520 (for more information about the staging area, see the *Washington Park Arboretum (ID# 200)* section below). This staging area would be adjacent to Lake Washington Boulevard and could alter the setting and feeling of the roadway for the duration of construction because of continuous use of the area by heavy construction vehicles and machinery. The viewshed in this area near the Arboretum would be affected by the presence of the staging area to the northeast of the boulevard, even though the current viewshed includes the SR 520 exit and entrance ramps. The setting and feeling of Lake Washington Boulevard would be altered during construction by the use of the adjacent staging area.

The Preferred Alternative makes physical changes to Lake Washington Boulevard. It requires the removal of all or part of one of the Montlake Boulevard medians between East Hamlin Street and SR 520. It also includes the addition of a new planted median and the widening of Lake Washington Boulevard in the section between Montlake Boulevard and where Lake Washington Boulevard curves to the south. This area would be south of the new Montlake lid and the northern edge of the boulevard would be extended to the north to accommodate the new median. The existing south curb of the eastbound lane would remain in place, and the westbound lane would move to the north side of the new planted median. At the intersection with East Montlake Boulevard, a right-turn lane would be added to the north of the westbound lane. Although construction activities would take place on the roadway to make these changes, the historic alignment of Lake Washington Boulevard would be maintained. The roadway materials, sidewalks, light standards, and other features have been replaced or upgraded as a part of regular maintenance, so the primary physical integrity of the property lies in the location and alignment of the roadway. Integrity of workmanship and materials has already been lost.



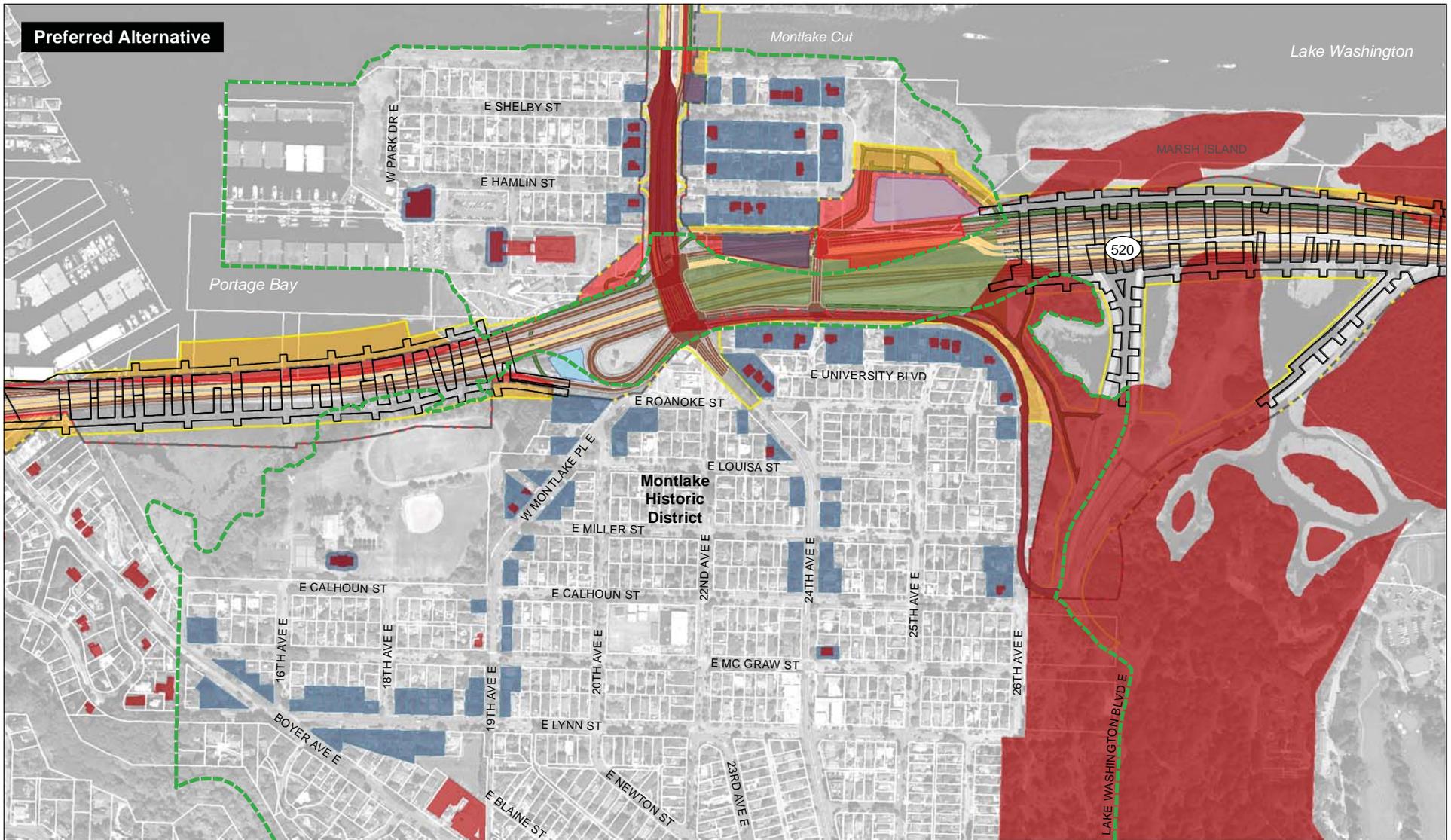
Construction of the Preferred Alternative would introduce periods of increased traffic from haul and detour routes, visual effects from the adjacent staging area and construction activities, and physical construction to make median and lane changes to the roadway. The setting and feeling of Lake Washington Boulevard would be altered by project construction. The historic alignment and transportation purpose of the road would remain intact, and its association with the Olmsted brothers and with Seattle's Olmsted legacy of parks and park boulevards would not be diminished. Because Lake Washington Boulevard is a transportation facility, its integrity of setting and feeling would be altered, but not diminished, during construction.

Montlake Historic District (ID# 238)

The Montlake Historic District is eligible for listing in the NRHP under Criterion C as a significant, cohesive collection of primarily residential architecture typical of the early twentieth century. It also contains the individually listed Seattle Yacht Club and several individually eligible properties as contributing elements. Construction of the Preferred Alternative would result in numerous effects on the Montlake Historic District (Exhibit 7-4), which are described below.

- Increased dust, possible vibration, increased noise, and visual effects from demolition of MOHAI, the Portage Bay Bridge, the west approach, the SR 520 overpasses, and the Lake Washington Boulevard and R. H. Thomson ramps.
- Construction on Lake Washington Boulevard to add a new planted median and a right-turn lane at East Montlake Boulevard.
- Increased dust and possible vibration from construction of the Portage Bay Bridge, west approach, and Montlake lid.
- Increased noise, visual effects, and possible glare from lighting for nighttime construction of the Portage Bay Bridge, west approach, and Montlake lid.
- Possible increased dust and noise, possible vibration, visual effects, and glare from lighting for nighttime construction at the staging areas, which could be used around the clock.
- Intermittent increases in noise, traffic, dust, and possible vibration from haul routes on East Lynn Street, 19th Avenue East, Montlake Place, East Roanoke Street, and 24th Avenue from East Roanoke Street to SR 520.





- Permanent Acquisition
- Construction Easement
- Montlake Historic District
- Proposed Right-of-way
- Existing Right-of-way
- Limits of Construction
- Contributing Resource
- Eligible or Listed Property
- General-Purpose Lane
- HOV, Direct Access, and/or Transit-Only Lane
- Work Bridge
- Stormwater Treatment Facility
- Lid
- Proposed Bicycle/ Pedestrian Path
- Pavement
- Parcel

Source: King County (2006) Aerial Photo, CH2M HILL (2008) GIS Data (Park and Trails). Horizontal datum for all layers is NAD83(91); vertical datum for layers is NAVD88.

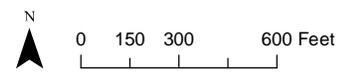


Exhibit 7-4. Project Elements of the Preferred Alternative in the Montlake Historic District
 SR 520, I-5 to Medina: Bridge Replacement and HOV Project

- Intermittent increases in noise, traffic, dust, and possible vibration from use of Lake Washington Boulevard as a potential secondary haul route and detour route.
- Temporary traffic detours, congestion, and intermittent restricted access to selected areas in the district.
- Visual effects from construction of the new bascule bridge parallel to the Montlake Bridge for properties on the north side of the district; the view of the historic bridge would be impeded during construction.
- Effects on Seattle Yacht Club resulting from the proximity of construction and related effects on boating or social activities.
- Removal of 2904 Montlake Boulevard NE, a contributing element to the district.
- Removal of 2908 Montlake Boulevard NE, a contributing element to the district.
- Permanent acquisition of 1.4 acres of McCurdy Park, 2.8 acres of East Montlake Park, and 1.2 acres of Montlake Playfield.
- Permanent acquisition of land in the southeast corner of the NOAA Northwest Fisheries Science Center parcel.
- Potential effects on ongoing research at the NOAA Northwest Fisheries Science Center as a result of the proximity of construction activities.
- Permanent acquisition of Canal Reserve Land for construction of the Montlake lid, resulting in the loss of mature trees.
- Removal of a portion of the planted median on Montlake Boulevard.
- Change to the district boundaries due to the various property acquisitions.

A constructed wetland for stormwater treatment would be built on most of the site currently occupied by MOHAI, necessitating removal of the MOHAI building and acquisition of McCurdy Park. This project element would also have permanent effects, to be discussed later in this analysis, but construction-related effects are discussed here. The demolition of MOHAI would bring additional noise, and possibly dust and vibration, to the properties along the east end of East Shelby and

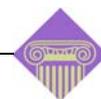


East Hamlin streets, and to some properties along Lake Washington Boulevard East. This area would also be used as a staging area, which would be active for the duration of the construction period. This staging area would be available for use 24 hours per day to support mobilization and demobilization of construction. It would house construction vehicles, equipment, materials, and related construction activities. These construction activities would generate dust, noise, and visual interruptions in the district for the duration of construction. The visual and audible impacts associated with the construction staging area would diminish the district's integrity of setting and feeling.

Properties that are contributing elements of the Montlake Historic District and are located near SR 520, including those along Lake Washington Boulevard East and 26th Avenue East, would experience increased noise, fugitive dust, possible vibration, visual effects, and possible glare from lighting for nighttime construction. Actions during which this could occur include, but are not limited to, demolition and construction of the new Portage Bay Bridge, demolition of the 24th Avenue East Bridge over SR 520, demolition of the Montlake Boulevard Bridge over SR 520, construction of the Montlake lid, demolition and removal of the Lake Washington Boulevard ramps and R. H. Thomson Expressway ramps, and demolition and reconstruction of the west approach to the floating bridge. Throughout the construction of the Montlake interchange and lid, lasting approximately 56 months, areas of the historic district would experience increased traffic congestion, along with detours and brief and intermittent restricted access to selected areas. These disruptions would alter the district's integrity of setting.

The Preferred Alternative would convert 6.3 acres of land within the historic district boundaries to transportation right-of-way. These acquisitions would expand the WSDOT right-of-way into the boundaries of the district and reduce the amount of property included in the district. The expanded right-of-way would alter the footprint of the historic district's boundaries. This change in the district boundaries would diminish the integrity of design, setting, and materials of the overall district.

The Preferred Alternative design requires the removal of all or part of one Montlake Boulevard median planting strip between East Hamlin Street and SR 520. Some portion of the median may be replaced with another median of context-sensitive design. Design is ongoing, so the precise actions at this location are not certain. Alteration of the



Montlake Boulevard median would contribute to the overall diminishment of the integrity of setting, feeling, and materials for the Montlake Historic District.

Detour and Haul Routes

Efforts were made to identify designated arterial streets for potential use as haul routes, although final haul routes will be determined by local jurisdictions for those actions and activities that require a street use or other jurisdictional permit. A potential secondary haul route from Delmar Drive would pass along East Lynn Street, north on 19th Avenue East to Montlake Place to East Roanoke Street, and along the northernmost portion of 24th Avenue from East Roanoke Street to SR 520 (Exhibit 6-37). Average haul truck volume along East Lynn Street could be 15 trips per day when used, while the peak number of haul trucks could range up to 120 trucks per day. These peak truck trips could occur over a total of approximately 60 nonconsecutive days, spread intermittently over the construction duration (70 months). Haul route traffic on East Roanoke Street at Montlake Place East could average up to 20 trucks per day for the duration of construction in the area (66 months). Construction activity would likely peak for 60 nonconsecutive days, and could result in peak haul route volumes as high as 290 trucks per day.

Lake Washington Boulevard from the SR 520 exit ramps north and west to the intersection with Montlake Boulevard East could be used as a potential haul route. Construction could also include using portions of Lake Washington Boulevard from 26th Avenue East to Montlake Boulevard East as a potential detour route after the Lake Washington Boulevard and R.H. Thomson ramps are closed.

As described earlier, the integrity of setting and feeling of historic properties along haul routes in the Montlake Historic District would be temporarily diminished during construction. Hauling could diminish the setting and feeling of the historic district by exposing the contributing elements of the district and individually eligible properties along Montlake Boulevard East, West Montlake Place East, East Roanoke Street, East Lynn Street, 19th Avenue East, Lake Washington Boulevard, and a small part of Boyer Avenue East to increased traffic, noise, and fugitive dust from the haul trucks. Construction effects would occur intermittently, and none would be permanent.



Conclusion

In summary, there would be effects on the Montlake Historic District from construction of the Preferred Alternative. The combined construction effects on the historic district as a whole would exert considerable pressure on the district. Construction staging would occur both within and immediately adjacent to the historic district. The district would experience effects from construction activities in Lake Washington, Union Bay, and Portage Bay for the duration of construction in these areas (lasting for 5 to 6 years). Despite WSDOT's efforts to avoid and minimize effects from construction, the overall construction effects of the Preferred Alternative on the Montlake Historic District would diminish the integrity of the characteristics that qualify the historic district for listing in the NRHP, including setting and feeling.

West Approach Segment

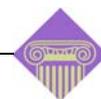
Washington Park Arboretum (ID# 200)

The Arboretum is eligible for listing in the NRHP as a historic designed landscape under Criterion A for its association with the Alaska-Yukon-Pacific Exposition, the UW, the WPA, and the Olmsted Brothers' parks and parkways system of Seattle, and under Criterion C for its design by the Olmsted Brothers as well as the many other talented designers and architects who have contributed to it.

In the Arboretum, the Preferred Alternative would cross Foster Island with a pier and span bridge that would require acquisition of 0.5 acre of land on Foster Island. Construction activities would include a work bridge located on the island that would be removed after the permanent structure is completed. There would also be 1.6 acres of construction easements on Foster and Marsh islands for the duration of construction. Construction in the west approach area in and adjacent to the Arboretum is planned to take approximately 5 years.

Potential impacts on the Arboretum include dust and vibration from demolition of the Lake Washington Boulevard and R.H. Thomson ramps and visual intrusion from the construction staging area to be located in the area after the ramps are removed.

Demolition of the Lake Washington Boulevard and R.H. Thomson ramps would occur entirely on WSDOT-owned property, but adjacent park areas could experience fugitive dust, noise, visual effects, and vibration. This construction activity would affect the setting and feeling of the northern portion of the Arboretum. Construction effects from the



demolition of the ramps would not diminish the significance for the historic property because the existing visual and audible intrusion of the existing ramps and elevated SR 520 bridge already affects the setting in this area.

The WSDOT right-of-way area south of SR 520 between the ramps and Lake Washington Boulevard was historically part of the Arboretum and is part of the historic property, but it lacks integrity due to intrusions since the construction of SR 520 in the 1960s. During construction, part of this area would be a construction staging area. The staging area would be active for the duration of the construction period in the Seattle study area. This would be the largest of the project staging areas and would be heavily used because of its proximity to all major project elements and because it is located on WSDOT right-of-way. This staging area would be available for use 24 hours per day to support mobilization and demobilization of construction. It would house construction vehicles, equipment, materials, and related construction activities. These construction activities would generate dust, noise, and visual interruptions near active park areas for the duration of construction. No staging would occur outside of the WSDOT right-of-way in this area, but the construction activity would be near some park activities in the northern part of the Arboretum. The construction staging area would cause a visual and audible effect on the setting and feeling of the park during construction, but it would not diminish these, or other, aspects of integrity.

During construction of the Preferred Alternative, the Lake Washington Boulevard ramps to and from SR 520 would be closed and traffic would use the Montlake interchange instead. When the ramps are closed, more traffic would travel through the Montlake/SR 520 interchange during periods of construction, instead of through the Arboretum.

Effects from construction may alter the Arboretum's integrity of setting and feeling during construction, but the Preferred Alternative would not diminish any aspect of this property's integrity. The features of this designed landscape were created to provide education and public beautification. The construction effects would not reduce the Arboretum's historic associations or the design features that make the Arboretum significant.

Edgewater Condominiums (ID# 226)

The Edgewater Condominiums in the West Approach segment of the Seattle study area are eligible for listing in the NRHP under Criterion C



as part of a multiple property nomination for Seattle apartment buildings. They are recognized as a distinctive architectural type and as the work of master architect John Graham, Jr. The property is located on the shoreline south of the existing floating bridge and east of the Arboretum, and has a clear view of the bridge (Exhibit 7-1g). The Edgewater Condominiums would experience increased noise from demolition and construction of the west approach to the Evergreen Point Bridge, as well as potential glare from nighttime construction activities. These construction impacts would occur during demolition and reconstruction of the west approach, as well as construction of the work bridges and the replacement floating bridge. Furthermore, WSDOT has determined that to most efficiently construct the replacement floating bridge, an additional barge or barges may be needed in this location for construction staging, and they may be anchored there temporarily during construction. The duration such a barge would be needed is unknown at this time.

These actions would alter the Edgewater Condominiums' integrity of setting and feeling during construction of the Preferred Alternative. Integrity of setting and feeling of the historic property would also be altered by increased noise and glare during construction, but these effects would not diminish the integrity of this historic property.

Lake Washington Study Area

Archaeological Resources and Traditional Cultural Properties

There are no known NRHP-eligible archaeological resources or TCPs in the Lake Washington study area.

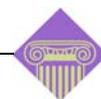
Historic Built Environment

The Preferred Alternative would remove the existing Evergreen Point Bridge (ID# 202) and construct a new floating bridge across Lake Washington. This would necessitate the demolition and removal of the current structure, which has been determined eligible for listing in the NRHP. The physical destruction of the Evergreen Point Bridge meets the criteria of adverse effect, defined in 36 CFR 800.5(a)2(i) as “[p]hysical destruction of or damage to all or part of the property.”

Eastside Transition Study Area

Archaeological Resources and Traditional Cultural Properties

No NRHP-eligible archaeological resources or TCPs were identified through research and subsurface archaeological testing in the Eastside transition study area.



Historic Built Environment

The NRHP-eligible Arntson (ID# 234) and Dixon (ID# 227) houses, and the WHR-eligible Pierce House (ID# 231) would experience moderately increased noise levels, fugitive dust, and possible vibration associated with demolishing the east approach of the Evergreen Point Bridge and construction of the new east approach structure (Exhibit 7-1g). Both the Arntson and Dixon houses could experience fugitive dust and noise increases associated with construction of the bridge operations facility and dock located under the approach area. Most of these effects would occur intermittently, and none would be permanent. These resources' integrity would not be altered during construction.

Pontoon Production Sites

Construction of the pontoons would not affect any known historic properties within the APE for this project. The types of activities required for pontoon production are similar to the current activities and uses of the buildings at the CTC facility. Because the four NRHP-eligible buildings at CTC function as part of an industrial zone, the activities required by this project would not alter or diminish any aspect of these historic properties' integrity. Additionally, the NRHP-listed Fire Station # 15, also part of this industrial zone, would not be used or directly impacted by this project, and no aspect of integrity would be altered or diminished.

The Port of Olympia is no longer being considered as a potential site for pontoon production, so the NRHP-eligible main office would not be affected by this project.

Section 6(f) Replacement Properties

Selected properties that are protected under Section 6(f) of the LWCF Act would be converted by the project from public outdoor recreation land to transportation right-of-way. This includes a portion of Foster Island; a portion of the Arboretum; and a portion of East Montlake Park and the Ship Canal Waterside Trail, which are within the Montlake Historic District. Four historic properties were identified on sites that were considered for replacement property to fulfill the requirements of Section 6(f): the Bryant Building site at 1139–1299 NE Boat Street in the Seattle study area, and 10034 Rainier Avenue, 10036 Rainier Avenue, and 10038 Rainier Avenue in the Lake Washington study area. This undertaking identified and evaluated those historic properties to help inform the decision by the Section 6(f) grantees—the UW and the City of Seattle—of which sites they would select to serve as replacement



properties for park and recreation lands converted to transportation use as part of the Preferred Alternative.

As of publication of this document, the Section 6(f) replacement site selected by the UW and the City of Seattle is the Bryant Building site, a multicomponent warehouse and commercial building with several docks. As discussed in Chapter 5 of this report, the Bryant Building is eligible for listing in the NRHP under Criteria A and C.

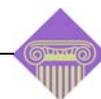
To comply with Section 6(f), the Bryant Building would need to be converted to recreational use, an action that would likely result in full or partial demolition of the property. If this were to occur, the removal of the building would result in an adverse effect on this historic property. However, if these or other future actions taken to develop the property result in an adverse effect, the U.S. National Park Service (NPS), as the responsible federal agency, would initiate Section 106 consultation for that undertaking and would resolve any adverse effects through the Section 106 process. FHWA and WSDOT are not responsible for the development of the property for recreational use; therefore, the Preferred Alternative would have no effect on this historic property.

Further, the conversion of portions of Foster Island, a portion of the Arboretum, and a portion of East Montlake Park and the Ship Canal Waterside Trail from public recreation land could result in an adverse effect. According to 36 CFR 800.5(a)(2)(vii), the transfer of property out of federal control, and the resulting removal of restrictions that serve to protect its historic significance, constitute an adverse effect. Therefore, the approval of conversion of this property to transportation right-of-way, removing it from NPS protection, could be an adverse effect. The NPS, as the federal agency that would be relinquishing the protection, would be responsible for determining this adverse effect in consultation with the SHPO.

For more information on the Section 6(f) process, see Chapter 10 of the Final EIS and the *SR 520, I-5 to Medina: Bridge Replacement and HOV Project Section 6(f) Environmental Evaluation* (Attachment 15 to the Final EIS).

Summary of Preferred Alternative Construction Effects

The prolonged construction period, as well as some effects during construction, would affect historic properties within the APE. As



described, construction of the Preferred Alternative would have an adverse effect on historic properties.

A Programmatic Agreement has been developed, in consultation with the SHPO, ACHP, and other Section 106 consulting parties, which identifies means to avoid, minimize, and mitigate this adverse effect from construction of the project. Measures included in the Programmatic Agreement are presented in Chapter 8 of this Cultural Resources Assessment Discipline Report. A copy of the Section 106 Programmatic Agreement is provided in Attachment 9 to the Final EIS.

Effects from Operation

No Build Alternative

Under the No Build Alternative, SR 520 would continue to operate as it does today, as a four-lane highway with nonstandard shoulders and without a bicycle/pedestrian path. Under this alternative, the beneficial effects of the Preferred Alternative that are described below would not be realized. The No Build Alternative provides the baseline for analyzing effects on historic properties.

Archaeological Resources and Traditional Cultural Properties

The No Build Alternative and the continued use of SR 520 and the existing Evergreen Point Bridge would not generate any additional effects on archaeological resources or TCPs in the APE.

Historic Built Environment

Under the No Build Alternative, current conditions would remain, most notably visual intrusion from I-5, SR 520, and the Portage Bay Bridge. Air pollution and noise from vehicles traveling on the freeways would continue to affect surrounding properties.

The Chung House is immediately adjacent to I-5 and experiences highway-related noise, air pollution, and visual intrusion. To a lesser degree, as they are somewhat buffered from I-5 by surrounding parcels, the following properties could experience the same effects:

- Talder House (ID# 20)
- East Miller Condominium (ID# 22)
- Sugamura House (ID# 23)
- Glover Homes Building (ID# 26)
- Wicklund-Jarr House (ID# 25)
- Keuss Building (ID# 27)



The following are all adjacent to I-5 and experience similar highway-related noise, vibration, air pollution, and visual intrusion on the historic setting and feeling of the properties:

- Seward School (ID#10)
- Gilmore House (ID# 15)
- Shelby Apartments (ID# 14)
- L'Amourita Apartments (ID# 16)
- Franklin Apartments (ID# 17, 18)

The existing I-5 and SR 520 are immediately adjacent to the Roanoke Park Historic District, which experiences highway-related noise and air pollution, as well as the visual intrusion of the freeways and, to a lesser degree, the Portage Bay Bridge. The physical presence of the freeways, and emissions and noise from vehicles traveling on them, affect the historic feeling and setting of the district. The William H. Parsons House is immediately adjacent to I-5 and experiences highway-related noise and air pollution, as well as the visual intrusion of the freeway.

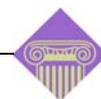
The following are adjacent to SR 520 and experience highway-related noise and air pollution, as well as the visual intrusion of the freeways and the Portage Bay Bridge:

- Fire Station #22 (ID# 36)
- Boyd House (ID# 39)
- Gunby House (ID# 45)
- Mason House (ID# 48)
- Kelley House (ID# 52)

The Mason, Gunby, and Kelley houses are close to the base of the Portage Bay Bridge, so the bridge is very visible, constituting a high degree of visual intrusion.

The existing SR 520 bisects the Montlake Historic District, so the district is exposed to highway-related noise, vibration, and air emissions, as well as the visual intrusion. The highway forms a physical barrier that isolates one side of the neighborhood from the other and interrupts the connection between the north and south portions of the neighborhood. The northern section of the Arboretum was also heavily affected by the initial construction of SR 520, and current effects would continue under the No Build Alternative. These effects include noise, air pollution, vibration, and visual intrusion, plus the physical presence of SR 520 and the R.H. Thomson Expressway ramps, and SR 520 dividing Foster Island.

Lake Washington Boulevard, the Edgewater Condominiums, and the 13 NRHP-eligible structures on the UW campus would not be affected



under the No Build Alternative. The Edgewater Condominiums experience visual intrusion and some noise from the Evergreen Point Bridge because the property is located on the shoreline, and many units have a view north to the lake and the Evergreen Point Bridge. Those effects would not change under the No Build Alternative. The No Build Alternative assumes that continued maintenance would allow the Evergreen Point Bridge and Lake Washington Boulevard to operate as they do currently. They would experience continued transportation use and routine maintenance, with no increased effects on historic properties.

On the Eastside, the No Build Alternative would not have any additional effects on historic properties. Conditions would remain as they are currently. The most notable current effects are visual intrusion from SR 520 and the bridge approach, and noise from vehicles traveling on them. The existing SR 520 is adjacent to the Arntson and Pierce houses. These properties experience highway noise, air pollution, and visual intrusion from the highway. The historic setting of the Pierce House, which is located at the base of the Evergreen Point Bridge, is strongly affected by the physical, visual, and audible presence of the bridge. The Dixon House is further removed from the existing bridge and approach, but is exposed to some visual intrusion from these structures.

Preferred Alternative

Seattle Study Area

Archaeological Resources and Traditional Cultural Properties

Foster Island

The Preferred Alternative would cross Foster Island with a pier and span bridge that would require acquisition of 0.5 acre of land on Foster Island and require expanding the right-of-way to the north of the existing alignment.

The visualization in Exhibit 7-5 shows the existing and proposed view looking south from the northern portion of Foster Island along the trail toward SR 520 during operation of the highway. Exhibit 7-6 shows the view looking northwest toward the south entrance of Foster Island. Operation of SR 520 would include maintenance activities on Foster Island, possibly including ground-disturbing work such as utilities trenching or sign installation. In consultation with interested and affected tribes, WSDOT has determined that operation of the Preferred Alternative would diminish the integrity of the Foster Island TCP.



Historic Built Environment

I-5/Roanoke and Portage Bay Segments

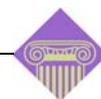
Operation of the Preferred Alternative could create effects on historic properties from changes in the noise levels. Just east of the Roanoke Park Historic District at the Gunby House, the current sound level is 64 dBA. Under the Preferred Alternative, the sound level would decrease here by 4 dBA, from 64 dBA to 60 dBA.

Noise modeling shows that current sound levels range from 65 to 73 dBA at the following locations (see the *SR 520, I-5 to Medina: Bridge Replacement and HOV Project Noise Discipline Report Addendum and Errata* in Attachment 7 to the Final EIS):

- Talder House (ID# 20)
- Sugamura House (ID# 23)
- Wicklund-Jarr House (ID# 25)
- East Miller Condominium (ID# 22)
- Glover Homes Building (ID# 26)
- Keuss Building (ID# 27)

Under the Preferred Alternative, noise levels at the above locations would continue to exceed the noise abatement criterion (NAC) of 66 dBA, although noise levels would generally decrease by 1 to 2 dBA, a change not perceptible to the human ear. In one location, noise models demonstrate that noise would increase by 2 dBA, but again, this change would be imperceptible.

To the north of SR 520, at the Boyd House, the current average sound level is 64 dBA. Under the Preferred Alternative, the level would drop by 3 dBA. In the vicinity of the Mason and Kelley houses, the current sound level is between 67 and 70 dBA, and the Preferred Alternative would potentially reduce noise in this area by 4 to 9 dBA. For more information on the projected noise levels, see the *SR 520, I-5 to Medina: Bridge Replacement and HOV Project Noise Discipline Report* and the *Noise Discipline Report Addendum and Errata* (both reports are provided in Attachment 7 to the Final EIS).



Existing View

- SR 520 screened by roadside trees and shrubs
- Mature woods



Preferred Alternative

- Roadside plantings still young; will screen part of the bridge when mature
- Improved connections between north and south Foster Island



Exhibit 7-5. Visualization Looking South from Foster Island along the Trail toward SR 520



Existing View

- Approach to pedestrian tunnel under west side of bridge
- Chain link fence marking right-of-way boundary



Preferred Alternative

- New west approach bridge
- Increased clearance and open space



Exhibit 7-6. Visualization Looking toward the Northwest at Foster Island



In summary, noise effects of the Preferred Alternative would not alter the integrity of the above-listed historic properties because overall noise in this segment would be reduced compared to existing conditions.

Operation of the Preferred Alternative could cause effects on historic properties from the HOV ramp and the 10th and Delmar lid. The proposed HOV ramp over I-5 would be roughly 30 feet wide and approximately the same height as the existing ramp on the east end. It would be approximately 15 feet higher than the existing ramp at the west end as it turns and heads south. The new HOV ramp could be visible from the following historic property locations and would have a minor permanent effect, altering the integrity of setting of these properties:

- Seward School (ID# 10)
- Talder House (ID# 20)
- Sugamura House (ID# 23)
- East Miller Condominiums (ID# 22)
- Fire Station #22 (ID# 36)

This new HOV ramp would be adjacent to the existing ramp and would be consistent with the visual quality of the existing interchange. Exhibit 7-7 shows the view looking northwest toward Lake Union, Queen Anne, and the Aurora Bridge under existing conditions and under the Preferred Alternative.

Under the Preferred Alternative, an enhanced bicycle and pedestrian path would be added to the south side of the existing East Roanoke Street Bridge over I-5, which would be visible from the properties with a view of the existing overpass. This would be a visual change for the historic properties in the area, but would be a positive effect in comparison to existing conditions.

The existing bridges at 10th Avenue East and Delmar Drive East would be replaced by a single lid that would accommodate both streets and would be landscaped to create a visual link with Roanoke Park. It would provide a pedestrian passageway between the North Capitol Hill and the Portage Bay/Roanoke Park neighborhoods currently separated by SR 520, increase landscaped green space in the area, and reduce noise levels for some properties. The lid would serve to visually shield many of the historic properties from the effects of the wider SR 520 roadway.



Existing View

- I-5 and existing ramp
- View toward Lake Union, Queen Anne and Aurora Bridge



Preferred Alternative

- New HOV ramp to SR 520
- View toward Lake Union, Queen Anne and Aurora Bridge



Exhibit 7-7. Visualization Showing the HOV Ramp over I-5, Facing West



To a lesser extent, because they are located farther from the lid, the following properties could experience some reduced noise and visual effects from the landscaped lid over SR 520:

- Wicklund-Jarr House (ID# 25)
- Glover Building (ID# 26)
- Keuss Building (ID# 27)

Operation of the new Portage Bay Bridge element of the Preferred Alternative could affect historic properties. The new Portage Bay Bridge profile would match the existing profile for the western half of the bridge with a 5 percent grade. To remove a low point on the eastern half of the existing bridge, the grade would be adjusted to 0.5 percent beginning at approximately the midpoint of the bridge and continuing to the east. As a result, the new bridge would be less than 15 feet higher than the existing bridge at the lowest existing point of the bridge. The new bridge would not block views from the properties on the east bank to other notable buildings or natural resources within the existing viewshed, including, but not limited to, Portage Bay, Montlake Cut, Seattle Yacht Club, NOAA Northwest Fisheries Science Center buildings, UW, or Queen City Yacht Club.

Compared to the existing bridge, the new Portage Bay Bridge would be approximately 40 to 60 feet wider, less than 15 feet higher at the lowest point of the existing bridge, and would have 60 fewer columns.

Although it would be wider, it would visually seem less dense because of the smaller number of columns. Speed limits on the bridge would be reduced from 60 to 45 mph, and a planted median would be added down the center to make it similar to a park boulevard. Typically a speed reduction of 10 mph can result in a reduction in traffic noise of up to 3 dBA; a change that is perceptible to the human ear.

Construction of the new Portage Bay Bridge would alter the integrity of setting of all historic properties with a view of the bridge.

Roanoke Park Historic District (ID# 37)

There would be no land acquisition or physical impacts on any part of the Roanoke Park Historic District, its sidewalks, or other street features outside the WSDOT right-of-way on East Roanoke Street. The 10th and Delmar lid has been redesigned to avoid the district. The lid would shift to the south, leaving room to reconfigure the 10th Avenue East and East Roanoke Street intersection without changing the sidewalks in the district.

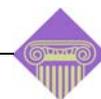


Operation of the Preferred Alternative would alter the Roanoke Park Historic District's integrity of setting because of the following project elements:

- Visual change to the setting from the new HOV ramp on I-5 for selected properties on the western edge of the district
- Visual change to the setting from the new Portage Bay Bridge and the possibility of noise walls on the bridge
- Decreased noise from lowering the speed limit to 45 mph on the Portage Bay Bridge, and from using 4-foot concrete traffic barriers with noise-absorptive coating
- New physical and visual connections to the adjacent neighborhoods as a result of the 10th and Delmar lid over SR 520
- Visual change to the setting from the new bascule bridge over the Montlake Cut from properties on the eastern edge of the district

Under the Preferred Alternative, an enhanced bicycle and pedestrian path would be added to the south side of the existing East Roanoke Street Bridge over I-5, which would be visible from some contributing properties near this intersection. Also, the existing bridges at 10th Avenue East and Delmar Drive East would be replaced by a single lid that would accommodate both streets and would be landscaped to create a visual link with Roanoke Park. The lid would provide a pedestrian passageway between the North Capitol Hill and the Portage Bay/Roanoke Park neighborhoods, which are currently separated by SR 520; would increase landscaped green space in the area; and would reduce noise levels for some properties. The lid would also serve to visually shield many of the historic properties from the effects of the wider SR 520 roadway.

The new Portage Bay Bridge would have a visual effect on portions of the Roanoke Park Historic District. The new bridge would be less than 15 feet taller than the existing bridge on the eastern end, but would have the same profile on the western end, closest to the district and would be approximately 40 to 60 feet wider than the existing bridge. Exhibit 7-8 shows the views of Portage Bay Bridge looking southeast from Edgar Street under existing conditions and under the Preferred Alternative. The visual effect from the new bridge would be most pronounced for houses on the east side of 10th Avenue East between



Existing View

- 4-lane Portage Bay Bridge
- Mature residential landscapes



Preferred Alternative

- 6-lane Portage Bay Bridge
- Design of aesthetic bridge treatment to be determined



Exhibit 7-8. Visualization Looking Southeast toward Portage Bay Bridge from Edgar Street near the Roanoke Park Historic District



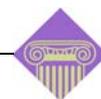
East Roanoke Street on the south and just north of East Shelby Street on the north. Those houses currently have direct views of the existing Portage Bay Bridge.

The bridge's wider profile and increased height on the western end would have a visual effect on the setting and feeling of the Roanoke Park Historic District and the contributing elements that have a view of the bridge. A wider west end of the bridge would affect views from the houses next to the bridge on the north side, which would make the bridge more dominant in eastward views. However, the new Portage Bay Bridge would not alter the integrity of design, materials, workmanship, location, or association of the district, which is listed in the NRHP for its association with the broad patterns of history and for its intact architectural features. The new bridge would alter the integrity of setting and feeling of the Roanoke Park Historic District. Approximately a third of the contributing properties in the district (roughly 30 to 35 properties, depending on the season) would have views of the replacement bridge.

The historic Montlake Bridge is also part of the distant viewshed of the Roanoke Park Historic District. The new bascule bridge on the east side of the historic bridge would be visible primarily from the rear of houses on 10th Avenue East between East Hamlin and East Shelby streets. The new bascule bridge would not obscure the view of the original Montlake Bridge from these houses, and would be only slightly visible beyond the historic bridge from this vantage point. The new bridge would not block views from the district of any other notable buildings or natural resources, including, but not limited to, the Montlake Cut, the Seattle Yacht Club, or the NOAA Northwest Fisheries Science Center buildings. Although it alters the setting and feeling of some contributing properties, the visual effect of the new bascule bridge would be minor because of the distance of the historic bridge from the district, and the location of the new bridge on the east side of the existing bridge.

The noise levels for the Preferred Alternative would be substantially the same in the Roanoke Park Historic District, as analyzed in the *SR 520, I-5 to Medina: Bridge Replacement and HOV Project Noise Discipline Report Addendum and Errata* (see Attachment 7 to the Final EIS). That report states:

With the Preferred Alternative fewer receivers [in the Portage Bay/Roanoke neighborhood] would exceed the NAC compared



to the No Build Alternative noise levels due to noise-reducing effects of the 10th Avenue East/Delmar Drive East lid, the 4-foot noise-absorptive traffic barriers, and the lower posted speed limit of 45 mph across the Portage Bay structure. Twenty-two residences would exceed the NAC under the Preferred Alternative compared to 24 residences with the No Build Alternative.

In summary, operation of the Preferred Alternative would alter the Roanoke Park Historic District's integrity of setting and feeling as a result of the new Portage Bay Bridge, Montlake Bridge, and the 10th and Delmar Drive lid, but would not diminish any of the defining characteristics of the district.

Montlake Segment

Montlake Community Center (ID# 126)

The new Portage Bay Bridge would be visible from the Montlake Community Center Tudor Building in the Montlake Playfield, but it would be a minor change from the view under existing conditions. The existing Portage Bay Bridge is partially screened from the historic Montlake Community Center by the adjacent gymnasium building and existing park vegetation. The lower speed limit on the new bridge and the addition of 4-foot concrete traffic barriers with noise-absorptive coating could reduce the noise levels at the Montlake Community Center Tudor Building.

The integrity of the historic Montlake Community Center would not be altered by operation of the Preferred Alternative.

NOAA Northwest Fisheries Science Center (ID# 56)

The existing Portage Bay Bridge is roughly 280 feet from the southwest corner of the NOAA Northwest Fisheries Science Center West Wing building, which is the corner closest to SR 520. The new bridge would be approximately 170 feet from the southwest corner of this building. Therefore, the new Portage Bay Bridge would be about 110 feet closer to the historic NOAA buildings than the current bridge. Also, the Bill Dawson bicycle and pedestrian trail would be relocated along part of the south and east perimeter of the NOAA property. These elements of the Preferred Alternative would alter the NOAA property's integrity of setting and feeling during operation.

The new Portage Bay Bridge would be less than 15 feet taller on the eastern end, but would have the same profile on the western end and would be approximately 40 to 60 feet wider than the existing bridge,

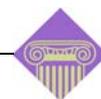


increasing the visual effect of the bridge from this viewpoint. Although there would be a visual effect on the setting and feeling of the historic NOAA buildings, it would not be a significant change from the existing condition. There would be no anticipated increase in vibration from operation of the new bridge; vibration levels would be substantially the same as the current levels from traffic on the existing bridge and this is not anticipated to interfere with scientific activities at the center. The current noise level at the NOAA property is between approximately 66 and 69 dBA. Under the Preferred Alternative, the noise level would decrease to between approximately 62 and 64 dBA (see the *Noise Discipline Report Addendum and Errata* provided in Attachment 7 to the Final EIS). The 1931 Fisheries Building, which is individually NRHP-eligible under Criteria A and C, and also is a contributing element to the Montlake Historic District, would maintain its view north to Portage Bay. The property would retain its shoreline on the bay, and all of the property immediately surrounding the historic building would be retained. The setting of the two buildings connected to the 1931 Fisheries Building, which were built in 1965 and 1966 and are also eligible for listing in the NRHP under Criteria A and C, would be affected by the view of the new Portage Bay Bridge.

The integrity of setting and feeling of the NOAA Northwest Fisheries Science Center would be altered by operation of the Preferred Alternative by the new Portage Bay Bridge and by the relocation of the bicycle and pedestrian path along part of the south and east perimeter of the NOAA property. It would retain integrity of location, association, design, workmanship, and materials. In summary, operation of the Preferred Alternative would not diminish the integrity of NOAA Northwest Fisheries Science Center.

Seattle Yacht Club (ID# 55)

As stated previously, the new Portage Bay Bridge would operate approximately 110 feet north of the current bridge, which makes the bridge closer to the Seattle Yacht Club. Although the setting of the Seattle Yacht Club would be affected by this closer location, the visual effect would not be significant. See Exhibit 7-9 for a visualization of the view of the bridge from the Seattle Yacht Club under the Preferred Alternative. The current noise level at the Seattle Yacht Club is approximately 66 dBA. Under the Preferred Alternative, noise levels would decrease by approximately 5 dBA (see the *Noise Discipline Report Addendum and Errata* provided in Attachment 7 to the Final EIS), a change that would be noticeable to the human ear.



Existing View

- 4-lane Portage Bay Bridge in distance
- Seattle Yacht Club marina (middle ground) and lawn



Preferred Alternative

- 6-lane bridge with westbound managed shoulder
- 4-foot concrete traffic barriers
- Bridge design and aesthetic treatments to be determined



Exhibit 7-9. Visualization of the View from the Seattle Yacht Club toward the Portage Bay Bridge



The Seattle Yacht Club's integrity of setting would be altered during operation of the Preferred Alternative by the larger, closer bridge, but the property would retain integrity of feeling, location, association, design, workmanship, and materials.

Montlake Bridge (ID# 54)

A new bascule bridge would be constructed parallel and to the east of the historic Montlake Bridge, diminishing the historic bridge's integrity of setting and feeling. Other aspects of integrity – location, design, materials, workmanship, and association – would not be altered or diminished. There currently is a clear view of the historic bridge from many vantage points east and west of the bridge on the north and south sides of the Montlake Cut, as well as from the cut itself and from Lake Washington.

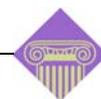
The bridge is primarily a part of the viewshed of the UW, the Canoe House, the Montlake Historic District, and the Montlake Cut, but is also visible as far away as the Roanoke Park Historic District. This is an iconic bridge that is a part of the community's viewscape. Views from the bridge for those crossing it would also be affected by an adjacent bridge. The Montlake Bridge is shown under existing conditions and under the Preferred Alternative in Exhibit 7-10, as seen from the northeast corner East Montlake Park looking west along the Montlake Cut.

Operation of the Preferred Alternative would diminish the integrity of setting and feeling of the historic Montlake Bridge due to the changes from the adjacent new bascule bridge.

Canoe House (ID# 203)

The new bascule bridge over the Montlake Cut would have a visual effect on the Canoe House, which is listed in the NRHP. The Canoe House currently has a clear, unobstructed view of the historic Montlake Bridge. The new bridge would be constructed on the east side of the historic bridge, so the view of the historic bridge from the Canoe House would be at least somewhat obstructed by the new bridge structure.

The Canoe House would also have an open view of the west approach to the floating bridge and the floating bridge itself. These structures would be up to 20 feet higher than they are currently. The current sound level near the Canoe House is approximately 55 dBA, and would increase to 58 dBA under the Preferred Alternative (see the *Noise Discipline Report Addendum and Errata* provided in Attachment 7 to the Final EIS).



Existing View

- Historic Montlake Bridge
- Mature vegetation on both sides of the channel



Preferred Alternative

- New bascule bridge in front of the Historic Montlake Bridge
- Design and aesthetic treatments to be determined



Exhibit 7-10. Visualization of the Montlake Bridge Looking West along the Montlake Cut from East Montlake Park



Operation of the Preferred Alternative would diminish the Canoe House's integrity of feeling and setting, but would not alter other aspects of integrity.

Montlake Cut (ID# 53)

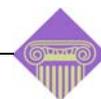
The Montlake Cut is a navigable waterway with an existing bascule bridge crossing, listed under Criterion C for its engineering significance. The cut would be permanently affected because the view of the historic Montlake Bridge from the east end of the cut would be partially blocked by the new bascule bridge, which would alter its integrity of setting and feeling. Also, a small portion of the shores of the Montlake Cut would be acquired for placement of the second bascule bridge.

Although the presence of an additional bascule bridge of similar size adjacent to the existing bridge would alter the integrity of setting and feeling of the Montlake Cut, it would continue to operate as a navigable waterway as designed, which would not be impeded in any way by operation of the SR 520, I-5 to Medina project. The integrity of design, materials, location, workmanship, and association would remain intact. Operation of the Preferred Alternative would not diminish the qualities that make the Montlake Cut significant.

Lake Washington Boulevard (ID# 239)

The segment of Lake Washington Boulevard surveyed for this project extends from Madison Street on the south to the edge of the UW campus at NE Pacific Avenue on the north. The Preferred Alternative makes permanent physical changes to Lake Washington Boulevard, but it would remain in the same alignment as when it was designed from 1904–1907. As described below, under the Preferred Alternative, Lake Washington Boulevard would be adjacent to the new landscaped lid instead of the current grade-separated SR 520, which would reduce noise overall and alter the setting. The design of the new lid is intended to be sympathetic to the original conditions of the park boulevard. The changes to Lake Washington Boulevard would alter its integrity of feeling, setting, and design, but would not alter the integrity of association or location of the linear property, which would continue its original purpose as a transportation facility. Integrity of workmanship and materials has already been diminished.

The Preferred Alternative also includes the addition of a new planted median on Lake Washington Boulevard in the section between



Montlake Boulevard and where Lake Washington Boulevard curves to the south. This area would be south of the new Montlake lid.

The existing south curb of the eastbound lane of Lake Washington Boulevard would remain in place, and the westbound lane would move to the north side of the new planted median. At the intersection with East Montlake Boulevard, there would be an added right-turn lane to the north of the westbound lane. The historic alignment of Lake Washington Boulevard would be maintained. The roadway materials, sidewalks, light standards, and other features have been previously replaced or upgraded as a part of regular maintenance, so the primary physical integrity lies in the location and alignment of the roadway.

The addition of a planted median on East Lake Washington Boulevard would provide an enhancement to the park boulevard that incorporates visual screening, in keeping with the Olmsted Brothers' philosophy of blending pragmatic and picturesque design, and of providing visually appealing parkway transportation corridors (Takami and Keith 2003; Levee 2000). Exhibit 7-11 shows existing conditions and a visualization of the Preferred Alternative with the planted median on Lake Washington Boulevard. To accommodate the median, the westbound lane would be extended to the north, toward the new landscaped lid.

Removal of the SR 520 Lake Washington Boulevard ramps and R.H. Thomson Expressway ramps would eliminate a large intersection that was not part of the original boulevard plan. As a result of the ramp removal and other design features, the average daily trip volume on Lake Washington Boulevard in the Arboretum would be reduced compared to existing conditions (see the *Transportation Discipline Report* in Attachment 7 to the Final EIS).

Under the Preferred Alternative, the boulevard would be adjacent to the new landscaped lid instead of the current grade-separated SR 520, which would enhance the setting, reduce noise, and be more in keeping with the original conditions of the park boulevard. As described above, all or part of a median in the Montlake Boulevard section would be removed; a new planted median would be added to a section of East Lake Washington Boulevard; and a turn lane would be added where East Lake Washington Boulevard intersects with Montlake Boulevard. These changes would alter the setting and feeling of this segment of historic Lake Washington Boulevard in the APE. Operation of the Preferred Alternative would not diminish the integrity of Lake



Existing View

- West terminus of Lake Washington Boulevard at Montlake Boulevard
- Established planter along the north side of the Park Boulevard



Preferred Alternative

- New plantings in medians
- Montlake lid in background



Exhibit 7-11. Visualization Showing the Lake Washington Boulevard Planted Median Looking Northeast



Washington Boulevard, which would continue its original purpose as a park boulevard and transportation facility.

Montlake Historic District (ID# 238)

Operation of the Preferred Alternative would alter the integrity of setting and feeling of the Montlake Historic District. The following is a listing of effects on the district from operation:

- Change to setting and feeling of the district caused by the wider and higher profile of the eastern section of the Portage Bay Bridge
- Change to setting and feeling of the district caused by the presence of the additional bascule bridge immediately adjacent to the historic Montlake Bridge
- Change to setting and feeling from adding a planted median on Lake Washington Boulevard south of the lid
- Change to setting and feeling of the district as a result of the new Montlake lid

After the two historic properties on Montlake Boulevard NE are removed for bascule bridge construction and the new bascule bridge is completed, this change in view and use of the land would alter the setting of the northern portion of the district, particularly for three adjacent contributing properties at 2111 East Shelby Street, 2112 East Shelby Street, and 2818 Montlake Boulevard NE. Because of the location of the new bascule bridge, there would no longer be an adjacent property to buffer 2112 East Shelby Street from Montlake Boulevard NE. The bridge approach would be adjacent to the west side of this property, and the new bridge would be approximately 70 feet from the northwest corner of the property. There is already a shared driveway/alley on the west side of this property, which would remain, as well as a side yard, which serves as a partial buffer. WSDOT would also install landscaping or a buffer between the contributing properties and the new bascule bridge. Unlike the houses being removed for bridge construction, the house at 2112 East Shelby Street would not face the bridge approach, but it would be exposed to traffic and the roadway, resulting in an alteration of setting and feeling.

Across the street, the property at 2111 East Shelby Street would still be partially buffered from Montlake Boulevard NE by the adjacent property at 2818 Montlake Boulevard NE. Both bascule bridges would be visible from the house once 2904 Montlake Boulevard NE, the

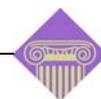


property on the corner, is removed. It, too, would be exposed to traffic and the roadway, resulting in an alteration of setting and feeling. The 2818 Montlake Boulevard NE property also would be more exposed than it is currently, becoming the last house on the east side of Montlake Boulevard NE before the bascule bridges. It would be open to the view toward both bridges from the front and north side of the property, leaving it more exposed to the roadway and immediately adjacent to the bridge approach. The combined changes to these contributing properties in the historic district would alter the Montlake Historic District's integrity of setting and feeling.

The Montlake lid would be built over the main line of SR 520, from Montlake Boulevard to the Union Bay shoreline. The lid would be landscaped, with pedestrian pathways and open green space. Adding the lid would reduce visual intrusion and noise from SR 520. In addition, the lid would partially reunite the north and south sides of the Montlake Historic District that are currently separated by SR 520 and thus would increase connectivity between these two sides of the district. Exhibit 7-12 shows existing and proposed aerial views of the Montlake lid and interchange over SR 520. The length of the lid would require the use of ventilation fans and specialized fire and safety equipment under the lid. At this stage of design, an above-grade ventilation station is not anticipated to be necessary.

All or part of a Montlake Boulevard median between East Hamlin Street and SR 520 would be removed. Removing the planted median would alter the integrity of setting and feeling of the boulevard, and the loss of vegetation would alter the viewshed of the properties on both sides of the street. The final design for Montlake Boulevard is not complete, so the exact portion of the median to be removed has not yet been defined.

The Preferred Alternative includes the removal of the SR 520 Lake Washington Boulevard and R.H. Thomson Expressway ramps, which would affect the viewshed from the Montlake Historic District. A new planted median on Lake Washington Boulevard in this area would add green space to the viewshed of the contributing properties south of the Montlake lid and the view from the boulevard itself.



Existing View

- View of MOHAI, and portions of East Montlake Park, Montlake Historic District and the Washington Park Arboretum
- SR 520 corridor and R. H. Thomson Ramps



Preferred Alternative

- New Montlake lid and interchange over SR 520
- Stormwater facility at MOHAI location



Exhibit 7-12. Aerial Visualization of the Montlake Lid in the Montlake Historic District



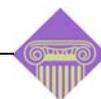
After construction, the Canal Reserve Land would no longer be a secluded green space with mature specimen trees, but would be part of the Montlake lid, including SR 520 ramps and a bicycle and pedestrian path. Buildings located on the south side of East Hamlin Street would lose the landscaped buffer provided by the Canal Reserve Land south of the alleyway behind them. Currently, the SR 520 ramp is 135 to 195 feet from the rear of the properties along East Hamlin Street. Under the Preferred Alternative, the ramp would be approximately 65 to 130 feet from the rear of these properties. The new bicycle and pedestrian path would be north of the ramp and below grade with retaining walls on each side. An approximate 45- to 100-foot buffer would remain between the rear yards of the houses and the north retaining wall of the new bicycle and pedestrian path. Although the Canal Reserve Land and the mature specimen trees would be lost, the land would become part of the landscaped lid, so open green space would remain in the area. The integrity of setting and feeling of this part of the district would be altered by the loss of this green space and the large-specimen trees.

With the Preferred Alternative, fewer residential equivalents in the Montlake Historic District would exceed the NAC compared to the No Build Alternative. To the north of SR 520, 28 residences would exceed the NAC under the Preferred Alternative compared to 42 residences under the No Build Alternative. To the south of SR 520, 39 residences would exceed the NAC under the Preferred Alternative compared to 67 residences under the No Build Alternative. The reduced noise levels are due to noise-reducing effects of the Montlake lid, shifts in the project roadway alignments, and the 4-foot noise-absorptive traffic barriers (see the *Noise Discipline Report Addendum and Errata* in Attachment 7 to the Final EIS).

In summary, operation of the Preferred Alternative would alter the Montlake Historic District's integrity of setting and feeling, but would not alter the district's integrity of design, materials, workmanship, location, or association. Operation of the Preferred Alternative would not diminish the integrity of the Montlake Historic District.

West Approach Segment Washington Park Arboretum (ID# 200)

In the Arboretum, the highway main line would be elevated, rising from its existing clearance of approximately 8 feet over the Arboretum Waterfront Trail on Foster Island to a clearance of approximately 16 to 20 feet at this location. Because the main line would be higher than the existing roadway, the highway would become a more dominant and



noticeable feature, causing a visual effect in the northern portion of the Arboretum. The new SR 520 structure would also allow the trail to pass between columns of an elevated structure, replacing the current low and narrow pedestrian underpass and improving the user experience by opening views at ground level. The columns would be spaced wider than the existing bridge to support the elevated structure.

Removing the Lake Washington Boulevard and R.H. Thomson Expressway ramps in the Arboretum would open views for park users and would enhance the recreational experience of the land and water in this area. Exhibit 7-13 shows the existing ramps and the proposed views of the landscape without the ramps, looking northeast and east across the WSDOT peninsula. The new west approach would originate from the shoreline near East Montlake Park and maintain a low profile through the Arboretum. The height of SR 520 at the west transition span would be similar to the existing west transition span. Because of the similarity to the existing condition, this visual change would not alter any aspect of the Arboretum's integrity.

The segment of Lake Washington Boulevard in the Arboretum would be affected by the closure and removal of the Lake Washington Boulevard and R.H. Thomson Expressway ramps. Traffic to and from SR 520 would no longer exit and enter directly to and from Lake Washington Boulevard. Removal of these ramps would reduce traffic on Lake Washington Boulevard in the Arboretum.

Current noise levels on Foster Island range from approximately 63 to 72 dBA. Under the Preferred Alternative, these sound levels would be reduced by as much as 11 dBA due to shifts in the project roadway alignment, elimination of the Lake Washington Boulevard ramps, and inclusion of the 4-foot concrete traffic barriers with noise-absorptive coating. There would be visual effects on the Arboretum from the new bridge and approach, which would alter the property's integrity of setting and feeling.

In summary, as a result of the project changes described above, operation of the Preferred Alternative would alter the Arboretum's integrity of setting and feeling.



Existing View

- R.H. Thomson Ramps
- Informal trail to shoreline



Preferred Alternative

- Ramps removed
- Mature trees protected



Exhibit 7-13. Visualization in the Washington Park Arboretum Looking Northeast toward the Former Ramps



Edgewater Condominiums (ID# 226)

The Edgewater Condominiums would experience an alteration of setting and feeling from the new west approach of the Preferred Alternative. The west high-rise would be shifted westward and the west approach would be higher, but it would also be approximately 70 feet farther north than the existing structures. The alignment shift would reveal more open water views in Union Bay from this residential property. At midspan, the height of the floating bridge would rise approximately 20 feet above the water surface, which is 10 to 12 feet higher than the existing bridge deck. This change to the viewshed would alter the integrity of setting and feeling of the property to some degree, but it would not be a significant change from existing conditions. The existing and proposed viewshed from the Edgewater Condominiums toward the northwest at the SR 520 west approach are shown in Exhibit 7-14.

The current sound level at this property ranges from approximately 63 to 69 dBA. Under the Preferred Alternative, the sound level would decrease to approximately 61 to 63 dBA. The setting and feeling of the Edgewater Condominiums would be altered by these changes, but the changes would be minor. The viewshed from this property currently includes a bridge approach and a floating bridge, so the changes would not be significant. This multi-unit residential complex would maintain integrity of design, materials, workmanship, association, and location.

Lake Washington Study Area

Archaeological Resources and Traditional Cultural Properties

There are no known NRHP-eligible archaeological sites in the Lake Washington study area. No TCPs were identified in the Lake Washington study area.

Historic Built Environment

The Preferred Alternative would require the demolition and removal of the Evergreen Point Bridge and construction of a new floating bridge across Lake Washington. There would be no effects on the historic Evergreen Point Bridge from operation of the Preferred Alternative due to the demolition.



Existing View

- 4-lane bridge
- Column spacing at 100 feet on center



Preferred Alternative

- Wider and higher 6-lane bridge
- Column spacing at 250 feet on center



Exhibit 7-14. Visualization Looking Northwest from the Edgewater Condominium toward the SR 520 West Approach Bridge



Eastside Transition Study Area

Archaeological Resources and Traditional Cultural Properties

There are no known NRHP-eligible archaeological properties in the Eastside transition study area. No TCPs were identified in the Eastside transition study area.

Historic Built Environment Properties

The Dixon House is located approximately 1,000 feet north of the existing east approach to the Evergreen Point Bridge. The new bridge and the approach would be about 160 feet closer to the Dixon House, but still far enough away that operation of SR 520 would not diminish the setting and feeling of this property (see Exhibit 7-1g for details on the location of the bridge and the maintenance facility). Once completed, the floating portion of the Evergreen Point Bridge would be located approximately 160 feet north of its present location at the east end, and the east approach structure would be approximately 80 feet to the north.

The intersection of SR 520 and Evergreen Point Road, near the Arntson House, would be several lanes wider than the existing intersection. This could raise the traffic noise level at this property, but the house would retain the vegetative buffer between it and the roadway. The new floating portion of the bridge would be slightly higher than the existing floating portion, but this additional height would be a minimal visual change to the setting of historic properties in the Eastside transition study area. The integrity of feeling and setting of the Dixon and Arntson houses would be altered slightly, but no other aspects of integrity would be compromised.

Operation of the Preferred Alternative would alter the integrity of setting and feeling of the Dixon and Arntson houses, but would not diminish the integrity of the historic properties.

Pontoon Production Sites

Production and transport of pontoons would only occur during construction of the Preferred Alternative. Historic properties at the potential pontoon construction sites would not be affected by operation of the Preferred Alternative.

Section 6(f) Replacement Properties

Operation of the Preferred Alternative would not affect the properties investigated as Section 6(f) replacement sites.



Cumulative Effects

Cumulative effects are not defined under 36 CFR 800, but NEPA provides guidance on assessing these incremental effects. Cumulative effects are defined under NEPA as “the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions” (40 CFR 1508.7). These effects are discussed more thoroughly in the *Indirect and Cumulative Effects Discipline Report* (see Attachment 7 to the Final EIS), which concluded that the Preferred Alternative would make a minor contribution to the cumulative effect on cultural resources of the central Puget Sound region. Some historic properties would be removed by the project or experience other physical impacts. Other historic properties would experience proximity impacts, such as alterations to the viewshed or other changes to the setting. The project would make a minor contribution to the cumulative effect on TCPs due to its impacts on Foster Island. The project is not expected to have a cumulative effect on archaeological resources. The analysis of cumulative effects concluded that combining these effects with those from other past or future projects does not result in a significant cumulative effect on cultural resources, and thus there is no adverse effect from cumulative impacts under Section 106.

Summary of Adverse Effect Determination

Pursuant to 36 CFR 800(5)(a), this chapter described how WSDOT, on behalf of FHWA, applied the criteria of adverse effect to historic properties located in the APE. As previously stated, several historic properties would see at least one aspect of integrity diminished as a result of the Preferred Alternative. These changes in integrity have resulted in FHWA’s and WSDOT’s determination that the Preferred Alternative would have an adverse effect on historic properties. The determination of adverse effect is based on both construction-related impacts and effects from operation that result in diminished integrity of setting and feeling. Exhibit 7-15 summarizes the properties whose integrity would be diminished as a result of the Preferred Alternative.

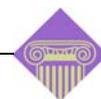


Exhibit 7-15. Historic Properties Whose Integrity Would Be Diminished by the Preferred Alternative

Property ID#	Historic Property	Description	Project Element responsible for the Diminished Integrity
Multiple	All historic properties in the APE along construction haul routes	The Preferred Alternative would temporarily diminish integrity of setting and feeling during construction of the project.	All construction haul routes
4, 10, 20, 23, 22, 25, 26, 27, 36, 39, 45, 48, 52	Chung House, Seward School, Talder House, Sugamura House, East Miller Condominium, Wicklund-Jarr House, Glover Homes Building, Keuss Building, Fire Station #22, Gunby House, Boyd House, Mason House, and Kelley House	The Preferred Alternative would diminish integrity of setting and feeling during construction of the project.	10th and Delmar lid
37	Roanoke Park Historic District	The Preferred Alternative would diminish integrity of setting and feeling during construction of the project.	10th and Delmar lid Portage Bay Bridge
56	NOAA Northwest Fisheries Science Center	The Preferred Alternative would diminish integrity of setting, feeling, and association during construction of the project.	Portage Bay Bridge Montlake interchange/ Montlake lid
55	Seattle Yacht Club	The Preferred Alternative would diminish integrity of setting, feeling, and association during construction of the project.	Portage Bay Bridge Second bascule bridge Montlake interchange/ Montlake lid
54	Montlake Bridge	The Preferred Alternative would diminish setting and feeling during construction of the project, and would diminish integrity of setting and feeling by placing a new bridge immediately adjacent to the existing bridge.	Second bascule bridge
238	Montlake Historic District (including 2904 and 2908 Montlake Blvd NE; Montlake Blvd Planting Strips; NOAA; Seattle Yacht Club; Canal Reserve Land)	The Preferred Alternative would diminish integrity of setting and feeling during construction of the project, and would diminish integrity of setting, feeling, and materials by removing two properties (2904 and 2908 Montlake Blvd); removal of Montlake Blvd planting strips; permanent acquisition of land in McCurdy and East Montlake parks, and Montlake Playfield; permanent acquisition of land on the NOAA property; permanent acquisition of the Canal Reserve Land.	Montlake interchange/ Montlake lid Second bascule bridge Portage Bay Bridge West approach



Exhibit 7-15. Historic Properties Whose Integrity Would Be Diminished by the Preferred Alternative

Property ID#	Historic Property	Description	Project Element responsible for the Diminished Integrity
202	Evergreen Point Bridge	The Preferred Alternative would diminish all aspects of integrity by removing and replacing the bridge.	New floating bridge and landings
203	Canoe House	The Preferred Alternative would diminish integrity of setting and feeling by introducing new visual intrusions in the immediate vicinity of the building.	New bascule bridge West approach/new floating bridge
200	Foster Island TCP	The Preferred Alternative would diminish the integrity of the Foster Island TCP during construction and operation, as activities associated with the project are inconsistent with traditional use of the island.	West approach

Source: Section 106 Programmatic Agreement (see Attachment 9 to the Final EIS).

Impacts from construction of the Preferred Alternative that would diminish one or more aspects of historic properties’ integrity include the following:

- Construction of a new bascule bridge over the Montlake Cut would permanently diminish the integrity of setting and feeling of the historic Montlake Bridge.
- Conversion of 6.3 acres of land within the Montlake Historic District’s boundaries to transportation right-of-way. The expanded right-of-way would alter the footprint of the historic property’s boundaries, which would diminish the integrity of design, setting, and materials of the overall district.
- Construction of a new bascule bridge within the viewshed of the Canoe House and other historic properties would permanently diminish their integrity of setting and feeling.
- Demolition and removal of the existing Evergreen Point Bridge in order to construct a new floating bridge across Lake Washington, which would diminish all aspects of its integrity.

During construction of the Preferred Alternative, some historic properties would see aspects of integrity diminished. Construction of the project would occur over a period of several years and would result in increased noise, dust, and traffic; visual effects; and disruptions in access to some areas near construction sites. Because of its extent and



duration, construction would have significant effects in the vicinity of active construction areas. Some of the specific effects of construction activities include, but are not limited to, the following:

- Increased noise and vibration from demolition, heavy equipment operation, material hauling, and pile-driving.
- Fugitive dust from areas where soils are exposed or stockpiled, and from demolition of concrete structures like the Lake Washington Boulevard ramps.
- Visual effects from vegetation removal, temporary structures, construction staging and equipment, glare from nighttime construction lighting, and active construction operations.
- Temporary disruptions in access to homes, businesses, and parks from lane closures and detours.

Because the project area encompasses many historic properties, the impacts described above would be experienced at one level or another by most historic properties in the APE. For some properties, the proximity of construction activities, the intensity and duration of construction in that area, and the nature of the property's historic characteristics would combine to result in an adverse effect under Section 106. Construction effects on other historic properties – even though they might not meet the definition of adverse effect under Section 106 – would still have the potential to create substantial disruptions in community activities and residents' quality of life.

One specific effect of the Preferred Alternative – increased traffic along detour and haul routes – would temporarily diminish integrity of setting and feeling of historic properties along the potential haul routes, if used. Construction haul routes would expose historic properties along the route to temporary increases in truck traffic volume, with accompanying potential for increases in fugitive dust, vehicle emissions, and noise. The Preferred Alternative would temporarily diminish integrity of feeling and setting of all historic properties, including both historic districts in the APE, along all construction haul routes.

Additional historic properties whose integrity would be diminished during construction include the following:

- Historic properties near the 10th and Delmar lid
- Roanoke Park Historic District



- Montlake Historic District
- NOAA Northwest Fisheries Science Center
- Seattle Yacht Club

The Foster Island TCP is eligible for listing in the NRHP. Construction and operation of the Preferred Alternative would have an effect on the TCP, which contributes to the projectwide adverse effect determination.

The net impact of considering all historic properties that would experience a diminishment in one or more areas of integrity results in the determination that the Preferred Alternative would have an adverse effect on historic properties. As a result, FWHA and WSDOT continued consultations with ACHP, SHPO, affected tribes, and other Section 106 consulting parties, which resulted in a Programmatic Agreement that records the stipulations agreed upon to resolve the adverse effect from the project. Chapter 8 provides an overview of the agreed-upon measures contained within the Section 106 Programmatic Agreement.



8. Avoidance, Minimization, and Mitigation Measures

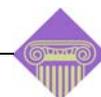
The implementing regulations of Section 106 of the NHPA stipulate that the agency official, in consultation with the SHPO and other consulting parties, must “develop and evaluate alternatives or modifications to the undertaking that could avoid, minimize, or mitigate adverse effects on historic properties (36 CFR 800.6(a)).” This chapter provides an overview of avoidance and minimization of effects on historic properties. Where adverse effects could not be avoided or minimized, they are resolved through mitigation measures in the Programmatic Agreement, pursuant to 36 CFR 800.14(b).

WSDOT and FHWA elected to use a Programmatic Agreement to resolve adverse effects because the specific effects on all historic properties in the corridor may not be fully known prior to project approval. The Programmatic Agreement guides the phased identification of cultural resources after project approval and binds FHWA with responsibility to mitigate known adverse effects on historic properties. It allows for completion of cultural resources investigations and provides a process to govern the actions to be taken if historic properties are discovered during the phased identification.

As provided for in 36 CFR 800.2(b), FHWA invited the ACHP to participate in the consultation process for this project on May 20, 2010. After receiving additional information regarding the project, the ACHP accepted the invitation to participate in developing the Programmatic Agreement on July 22, 2010.

Archaeological Resources

Research and investigations conducted in support of the SR 520, I-5 to Medina project indicate that there is the potential for the project to affect unknown and potentially significant archaeological resources within the limits of construction in the APE. Several specific areas within the limits of construction are sensitive for intact archaeological sites or were inaccessible during the initial investigations. In an effort to minimize the effects on potentially significant resources, additional investigations in specific areas are recommended. This chapter summarizes the regulatory framework within which additional



archaeological investigations will occur and recommendations for additional investigations within the limits of construction.

One of the stipulations of the Programmatic Agreement is the preparation and execution of an Archaeological Treatment Plan. The purpose of the treatment plan is to provide a detailed, yet flexible process by which the federal lead agency can comply with the stipulations set out in the Programmatic Agreement to continue to identify and resolve effects. This treatment plan will outline the identification and evaluation program for the portions of the APE within the limits of construction that have not been sufficiently investigated for the presence of intact archaeological resources.

Recommendations

Based on the results of the research and investigations conducted in support of the SR 520, I-5 to Medina project, a series of recommendations for additional archaeological research were provided to guide future work. These recommendations are grouped into three categories:

- No Additional Investigations Recommended
- Additional Archaeological Investigations Recommended
- Archaeological Monitoring Recommended

No Additional Investigations Recommended

No additional archaeological investigations are recommended on all Pleistocene-aged or older landforms where ground surface removal has been confirmed, either through archaeological investigations or visual inspection of the ground surface combined with as-built and LiDAR image analysis.

All Pleistocene-aged landforms within the limits of construction were formed as a result of the advance, and subsequent retreat, of glacial ice into the region. This is a period when there would have been no opportunity for human occupation of the land surface. Since human occupation of the land surface could only occur after the formation of these landforms, the physical remains of these activities would be located at or near the ground surface. Therefore, removal of this ground surface in the 1960s during construction of SR 520 would have also removed all precontact and historic period intact archaeological deposits that may have been present.



In addition to the clearly visible sediment removal associated with the SR 520 corridor, investigations of several BOAS-defined Probability Areas on Pleistocene-aged landforms revealed that the ground surface had been removed and filled over.

No further archaeological investigations are recommended in areas where planned construction activities do not exceed the known depth of fill or are limited to the ground surface of paved areas.

Additional Archaeological Investigations Recommended

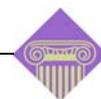
Additional archaeological investigations are recommended on Pleistocene-aged or older landforms where the extent of ground surface removal is unknown, either because of lack of previous investigations, obstructions at the ground surface (e.g., pavement, structures), or insufficient information collected from previous investigations.

Additional archaeological investigations should be designed to address whether the pre-development ground surface has been removed. This could be achieved through the excavation of deep archaeological TUs, mechanical trenches, and/or monitoring of pre-construction evaluative work such as geotechnical borings. If stratigraphic information from these studies reveals that the pre-development ground surface has been removed, then no additional investigations are recommended. If an intact pre-development ground surface is present, however, further archaeological investigations are recommended. Areas for additional investigations will be further refined within the Archaeological Treatment Plan.

Proposed field investigations potentially will include the excavation of mechanical trenches and boreholes, as well as hand-excavated units and auger holes if archaeological materials are identified. The purpose of these investigations will be to locate and identify intact surfaces that have the potential to contain intact archaeological resources and, therefore, potentially significant, archaeological resources. In those areas where intact surfaces are identified, trenches and/or hand-excavated units will be excavated to identify the presence of intact archaeological resources.

Archaeological Monitoring Recommended

Archaeological monitoring is recommended for all Holocene-aged landforms and sedimentary deposits, regardless of the results of previous archaeological investigations. Within the limits of construction, all Holocene-aged sediments were deposited in a shallow



nearshore lacustrine setting, or at the interface between Lake Washington and tributary streams, and were submerged during and after their deposition.

Additional archaeological deposits may be located at the interface between Holocene-aged lacustrine sediments and Pleistocene-aged sediments. During the Holocene epoch, water levels in Lake Washington slowly transgressed (raised), submerging areas that were previously exposed (see Chapter 4). This previously exposed ground surface has the potential to contain archaeological deposits related to upland resource procurement activities and/or habitation.

Inadvertent Discovery of an Intact Archaeological Site

If a potentially significant resource is identified within the limits of construction, procedures similar to the description below are expected to be included in the Archaeological Treatment Plan currently under development. If archaeological resources are identified in intact sedimentary context (not displaced from the original context), additional investigations will be conducted to delineate the resource and to evaluate the significance of the resource for the NRHP. If the site is recommended eligible for listing in the NRHP, all excavation activities (and project activities) at the location of the discovery will be halted until a determination of eligibility is made by WSDOT, on behalf of FHWA and in consultation with DAHP and the tribes. If the resource is determined eligible for listing in the NRHP, then the appropriate mitigation will be developed and implemented.

If the archaeological resource is determined to be in disturbed sedimentary context (located within fill, area was previously graded, etc.), and is therefore not eligible for listing in the NRHP, the resource will be documented or collected, photographed, and mapped. After the find is documented, a site record or isolate record will be prepared and a recommendation provided by WSDOT, on behalf of FHWA, regarding the resource's eligibility.

The treatment plan will also provide for newly discovered resources by presenting excavation and analysis procedures, tools for assessing resource significance and eligibility, and curation procedures if archaeological materials are collected.

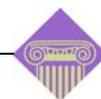


Historic Built Environment

Throughout the design and planning process, WSDOT and FHWA have taken care to avoid and minimize adverse effects on historic properties. General measures taken through planning and design to avoid and minimize adverse effects on historic properties of the built environment include the following:

- Reducing the footprint and/or shifting the alignment of SR 520 to avoid or minimize effects on historic properties, including the Montlake Historic District and the NOAA Northwest Fisheries Science Center.
- Reducing noise levels in the two historic districts, the Seattle Yacht Club, the NOAA Northwest Fisheries Science Center, Lake Washington Boulevard, the Arboretum, and the Foster Island TCP by incorporating noise reduction strategies including 4-foot concrete traffic barriers with noise-absorptive coating, lid portals with noise-absorptive materials, a reduced speed limit between I-5 and the Montlake lid, noise walls where recommended by the Final EIS noise analysis and approved by affected property owners, and quieter concrete pavement, which WSDOT is evaluating as a noise reduction strategy.
- Adjusting potential construction haul and detour routes to avoid or minimize construction effects on the Montlake Historic District and Roanoke Park Historic District as much as possible.
- Involving the affected communities in context-sensitive design of the new lids and bridges as part of SR 520 design development and under existing processes of the City of Seattle and the Seattle Design Commission, which will help preserve the setting and feeling of the Montlake Historic District and Roanoke Park Historic District, as well as contributing and individually NRHP-eligible properties within those districts.

As described in previous chapters, even with WSDOT and FHWA's ongoing efforts to avoid adverse effects to the greatest extent feasible, it will not be possible to avoid an adverse effect on historic properties from construction or operation of the Preferred Alternative.



Project Modifications That Would Avoid or Minimize Effects

As a result of consultation, WSDOT made alterations to the original project design. As a result of these design changes, the Preferred Alternative will avoid or minimize some effects on historic properties. These measures include the following changes:

- WSDOT has changed the project alignment to avoid direct physical effects on the Roanoke Park Historic District. These changes avoid direct effects on the sidewalk, street, and planted median within the district.
- WSDOT has changed the Portage Bay Bridge width and alignment to avoid demolition of buildings at the NOAA Northwest Fisheries Science Center. As described in the SDEIS (WSDOT 2010a; see Attachment 10 to the Final EIS), these demolitions could have resulted in permanent displacement of the property's historic use.
- WSDOT will post a 45-mph speed limit along the Portage Bay Bridge to help reduce noise levels at nearby properties, including the Roanoke Park Historic District, the Seattle Yacht Club, and the NOAA Northwest Fisheries Science Center.
- WSDOT will develop context-sensitive designs³ for the Portage Bay Bridge, the new bascule bridge, and the west approach bridge that will maintain or enhance the historic setting and feeling of the Roanoke Park and Montlake historic districts, the Seattle Yacht Club, the NOAA Northwest Fisheries Science Center, and the Arboretum.
- WSDOT has eliminated the construction easement located on the south island of the Foster Island TCP in an effort to reduce effects during construction of the west approach.
- The project will enhance the historic setting of the Arboretum by removing the existing ramps, incorporating noise reduction measures, and providing improved pedestrian and bicyclist connections under the highway.

³ "Context-sensitive solutions is a collaborative, interdisciplinary approach that involves all stakeholders to develop a transportation facility that fits its physical setting and preserves scenic, aesthetic, historic, and environmental resources, while maintaining safety and mobility. Context-sensitive solutions is an approach that considers the total context within which a transportation improvement project will exist" (FHWA and Context Sensitive Solutions 2010).



- WSDOT has included a number of noise reduction strategies into the design of the Preferred Alternative, which would result in overall lower corridor noise levels along the project alignment compared to the No Build Alternative.

Measures to Avoid and Minimize Construction Impacts

Construction of the Preferred Alternative would occur over a period of 6 to 7 years and would result in noise, dust, and visual effects on many historic properties in the APE. The proximity of construction activities, the intensity and duration of construction in that area, and the presence of a large number of significant cultural resources all contribute to the effect on historic properties.

A primary minimization element is the development of a CCMP. As a commitment in the Section 106 Programmatic Agreement (see Attachment 9 to the Final EIS), WSDOT will collaborate with DAHP, the Section 106 concurring parties, affected community groups, and the City of Seattle to develop the CCMP. The CCMP, which is incorporated into the Programmatic Agreement by reference, contains specific measures designed to protect historic properties in the APE. The CCMP also provides an ongoing opportunity for the concurring parties to the Programmatic Agreement and the public to provide input on construction management decisions that can help avoid or minimize the effects of construction activities on historic properties and the affected communities. The CCMP was designed as an adaptable plan, so that it can handle potential future changes, as well as unanticipated issues that may arise during construction. Through standard best management practices (BMPs), WSDOT will take precautions to protect historic properties from excessive noise, vibrations, excavations, and damage from heavy equipment. Applicable BMPs also include those for traffic control, glare, vibrations, noise, and fugitive dust management. Although the CCMP is in the early stages of development and is subject to change as the design process continues, the components of the CCMP are expected to include the following:

- A plan for access by emergency service providers to homes and businesses.
- A plan for maintenance of basic services (water, gas, electric, internet, etc.) and for timely response in case of accidental interruptions of service as a result of construction activities.



- A communications plan covering the following:
 - A process for making up-to-date construction information (schedules, schedule changes, potential delays, current work areas, street closures and detours, results of monitoring, etc.) available to the public; potential notification mechanisms could include a Web site, smart phone application, and/or automated traffic management signs;
 - Development and maintenance of an email list to be used to inform communities of upcoming construction information; email notification will include Community Council officers so that timely information can be distributed through community online forums;
 - A single-point communications center established for the duration of construction, which will include a 24/7 contact phone number and an email address to which problems, questions, and concerns can be sent; these communications will be directed to the appropriate jurisdiction or agency for resolution; and
 - Routine construction updates/outlooks to Section 106 consulting parties, as well as notifications of applicable permit conditions such as periods when noise variances will be in place.
- A vegetation management plan to include provisions for the following:
 - Surveying mature trees within and near the limits of construction along the entire corridor; the report of this survey will be made available to the concurring parties to the Programmatic Agreement when it is completed;
 - Protecting trees and other screening vegetation located outside the construction work area from construction effects;
 - Replacing removed trees following City of Seattle street tree standards;
 - Monitoring by WSDOT of contractor adherence to this plan; and
 - Developing and implementing treatment plans for significant or heritage trees, funded by WSDOT.



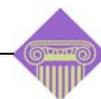
- A Temporary Erosion and Sediment Control Plan to be implemented throughout the construction period.
- A plan for traffic management during construction to keep traffic flowing, limit detour routes through residential areas, and ensure access for residents, etc.
- A haul route management plan including the following commitments:
 - WSDOT will ensure that, to the maximum feasible extent, the construction contractor uses the main line of I-5 and SR 520 for all material hauling during construction;
 - Construction traffic will be limited to city-designated arterials; and
 - If the haul routes change after execution of the Programmatic Agreement, WSDOT will consult with the SHPO and consulting parties regarding any additional potential effects on historic properties following the Section 106 framework.

In addition, WSDOT has engaged the services of a vibration expert to evaluate the project corridor, including any potential haul routes along city arterial streets, and to identify areas where vibration may be of concern. WSDOT will avoid or minimize vibration effects from construction on historic properties by implementing BMPs for vibration currently being developed by this expert.

Implementation of the CCMP, as determined in the Programmatic Agreement, will avoid and minimize adverse effects on historic properties.

Measures to Mitigate Effects on Historic Properties from the Preferred Alternative

Mitigation measures for adverse effects from the Preferred Alternative have been determined through the development of the Programmatic Agreement among WSDOT, FHWA, ACHP, the SHPO, affected tribes, and other consulting parties. Although properties have been presented throughout the report roughly geographically from west to east, the mitigation measures for specific properties or from specific project elements are listed here in the order they appear in the Programmatic Agreement and under the same headings as in the Programmatic Agreement.



As discussed, WSDOT and FHWA have coordinated with ACHP, SHPO, interested tribes, and other Section 106 consulting parties on mitigation measures to resolve the adverse effect from the Preferred Alternative. In addition, WSDOT and FHWA have included coordination with the City of Seattle Historic Preservation Officer on mitigation measures proposed for historic properties under their jurisdiction within Seattle. The Programmatic Agreement includes a commitment to develop a Foster Island Treatment Plan to resolve the effect on the Foster Island TCP.

Stipulations of the Programmatic Agreement are summarized below. For details and complete measures to resolve project effects stipulated in the Section 106 Programmatic Agreement, see Attachment 9 to the Final EIS:

- WSDOT will develop content for, create, and host an interpretive Web site on the history of the project area. Topics to be presented on the site might include information on the historic properties within the APE, the Olmsted plan, and the Alaska-Yukon-Pacific Exposition; summarized findings of archaeological investigations; a redacted, nonconfidential report on the ethnography of the project area and Lake Washington; and information about the historic districts and other historic properties in the project area.
- If the Final EIS for the SR 520, I-5 to Medina project determines that noise walls are warranted at any locations within the project area, WSDOT will consult with eligible property owners as defined by WSDOT and FHWA policy, the Seattle Landmarks Preservation Board where appropriate, DAHP, and the concurring parties to the Programmatic Agreement to determine the aesthetic treatment of the walls and ensure compatibility with the character of nearby historic properties. Consultations will follow WSDOT and FHWA policy and procedures.
- WSDOT will coordinate with the Seattle Department of Transportation (SDOT) to ensure that one of these agencies and/or another specifically identified party will be responsible for maintenance of landscaping installed as part of the project.
- WSDOT will ensure that permanent lighting and lighted signage throughout the corridor is designed to minimize glare into homes and parks and out over the water; and WSDOT will consult with the Seattle Design Commission and DAHP to ensure that lighting



planned for the lids is compatible with the historic setting and residential character of surrounding areas.

- In consultation with the concurring parties to the Programmatic Agreement and other stakeholders as appropriate, WSDOT will consider requests to install landscaping or landscaped buffers where practicable in areas where buffer zones are being removed or reduced. Such buffers will also be considered where new or relocated traffic lanes would intrude on the character of a historic district or the settings of individual historic properties. These decisions will be made before construction plans are finalized.

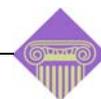
Evergreen Point Bridge Demolition

Mitigation for the loss of the Evergreen Point Bridge will be partially fulfilled through preparation of Level II Historic American Engineering Record (HAER) documentation of the bridge, including photographs, reproductions of selected as-built drawings, and a written history. WSDOT will provide this documentation to DAHP and to the NPS Historic American Buildings Survey/Historic American Engineering Record program. Copies of the documentation will be provided to local repositories and a selection of the photos will be included on the interpretive Web site.

West Approach Area

Mitigation for effects associated with the new west approach area includes the following measures:

- WSDOT will consult with the Arboretum and Botanical Garden Committee, affected tribes, DAHP, and other stakeholders, including homeowners in surrounding areas, Madison Park Community Council, Montlake Community Club, and Friends of Seattle's Olmsted Parks, to develop an aesthetic design of the west approach and surrounding area.
- WSDOT will consult with the Arboretum and Botanical Garden Committee, affected tribes, DAHP, and other stakeholders, including homeowners in surrounding areas and Friends of Seattle's Olmsted Parks, to develop a plan for landscape design, including grading and planting, within the WSDOT peninsula and current ramp locations. The design may include habitat and wetland restoration and enhancement projects, as appropriate, and will follow the Secretary of Interior's Standards for the Treatment of Historic Properties insofar as these apply to designed landscapes.



- WSDOT will facilitate coordination between the affected tribes and the Arboretum and Botanical Garden Committee and other stakeholders concerning landscape planning and management of Foster Island as needed.

Mitigation for effects associated with changes to the west approach area includes the following measures:

- WSDOT will use quieter concrete pavement on the west approach structure.
- WSDOT will place noise-absorptive material on the inside face of the currently planned 4-foot barriers along the west approach bridge.
- WSDOT will consult with affected property owners, DAHP, and the Arboretum and Botanical Garden Committee about design and location for plantings to create visual buffers between Lake Washington Boulevard East residences and the west approach structure beyond the eastern edge of the Montlake lid as part of planning for the WSDOT peninsula once the SR 520 ramps are removed.

Lake Washington Boulevard

Mitigation for effects associated with historic Lake Washington Boulevard includes the following measures:

- WSDOT will consult with DAHP and the concurring parties to the Programmatic Agreement, as well as affected property owners, about the final design for changes to Lake Washington Boulevard necessitated by the project.
- To the maximum extent practicable, WSDOT will ensure that changes to Lake Washington Boulevard are consistent with the City of Seattle Olmsted Park Furniture Standards and will follow the Secretary of Interior's Standards for the Treatment of Historic Properties insofar as these apply.
- WSDOT will ensure that the portion of the Montlake Boulevard median to be partially removed is re-established such that it reflects the Olmsted plan to the maximum extent practicable.
- Within the areas of Montlake Boulevard where WSDOT plans modifications to the medians, WSDOT will consult with the concurring parties to the Programmatic Agreement, DAHP, and



other stakeholders as appropriate on design, wording, and placement of a sign about the Alaska-Yukon-Pacific Exposition and the Olmsted design for this portion of Montlake Boulevard.

- WSDOT will prepare an NRHP Multiple Property Documentation Form for Seattle's Olmsted-designed parks and boulevards and prepare the associated nomination form for Lake Washington Boulevard. This work, which will be done in consultation with DAHP, Friends of Seattle's Olmsted Parks, King County, and the Washington Trust for Historic Preservation, will include the following:
 - WSDOT will ensure that materials developed as part of this nomination are prepared and submitted to DAHP and the City of Seattle in a format compatible with both the DAHP and City of Seattle historic property databases.
 - As part of developing this nomination, WSDOT will provide for digitization of historic plans, correspondence, and photographs of the Olmsted work on Lake Washington Boulevard, the Washington Park Arboretum, and the Olmsted Boulevard System at a cost not to exceed \$10,000. WSDOT will consult with Friends of Seattle's Olmsted Parks, King County, Washington Trust for Historic Preservation, and DAHP to determine which archival sources and which documents will be selected for this digitization project.
 - The selected documents will be digitized to an archival standard, and, subject to applicable rights restrictions, WSDOT will provide the scanned documents to the Friends of Seattle's Olmsted Parks, King County, DAHP, and the City of Seattle.
- WSDOT will consult with Seattle Parks and Recreation to determine whether they would be willing to have a sign or some other indicator of the significance of Lake Washington Boulevard as an Olmsted property placed on the small piece of Seattle Parks and Recreation property at the southeast corner of Montlake Boulevard and Lake Washington Boulevard. If Seattle Parks and Recreation is willing to accept this proposal, WSDOT will consult with Seattle Parks and Recreation, Friends of Seattle's Olmsted Parks, Montlake Community Club, and DAHP to design the sign or other marker and will have it fabricated and placed on the Seattle Parks and Recreation property.



Montlake Interchange

Mitigation for effects associated with the new Montlake lid and interchange include the following measures:

- To facilitate future historic preservation planning efforts within the Montlake community, WSDOT will complete an intensive-level survey of contributing and noncontributing properties within the Montlake Historic District and prepare an NRHP nomination for the district, consistent with DAHP and NRHP standards.
- Once construction of the lid is complete, WSDOT will re-establish a visual buffer on the remaining Canal Reserve Land south of the historic properties on East Hamlin Street. This buffer will be designed in consultation with the Seattle Design Commission and the affected property owners.
- WSDOT will consult with the concurring parties to the Programmatic Agreement to develop a sign plan for historic markers or signage for the Montlake Historic District. Once the sign plan is approved by WSDOT, in consultation with DAHP and the City of Seattle, WSDOT will fund fabrication and installation of up to five historic markers or signs within the district. The information from the markers/signage may become part of a projectwide educational Web site.
- The MOHAI clock tower, bell, and cannon are iconic features of the Montlake Historic District. If MOHAI chooses not to relocate these features elsewhere and is willing to donate them to the City of Seattle, WSDOT will consult with MOHAI, the appropriate offices within the City of Seattle (including Seattle Parks and Recreation), and the concurring parties to the Programmatic Agreement to determine whether these features can be preserved and reused in East Montlake Park or elsewhere within the Montlake Historic District. If the clock tower, bell, and cannon remain within the historic district, WSDOT will coordinate with the City of Seattle to identify maintenance and long-term preservation for these items and will provide DAHP with copies of any agreements covering these issues.

Mitigation for effects associated with the new Montlake lid and interchange include the following measures:

- In consultation with the Seattle Design Commission, Seattle Landmark Preservation Board, King County Metro Transit, DAHP,



and the concurring parties to the Programmatic Agreement, WSDOT will create a landscape design plan for the Montlake lid that is compatible with the historic character of the Montlake Historic District. This plan will include plantings and urban design elements, possibly including medians and a planter strip, interpretive signage, and bus shelter design.

- WSDOT will include interpretive exhibits and markers in the lid design if the design process identifies such exhibits or markers as being desirable. If markers or exhibits are placed on the lid, they may include information about the evolution of the Olmsted landscape and the effects of SR 520 on the landscape. Exhibits may note that the lid reconnects communities and recovers the landscape connections that were important historically.
- WSDOT will ensure that the design of the Montlake Boulevard planted areas across the lid reflect the historical connection between Montlake Boulevard and Lake Washington Boulevard; these planted areas should reflect the original design principles of Lake Washington Boulevard and other Olmsted-designed boulevards in Seattle to the maximum extent possible.
- WSDOT will provide for the use of underground wiring on the Montlake lid to the extent feasible.

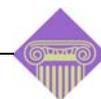
New Bascule Bridge

Mitigation for effects associated with construction of the new bascule bridge includes the following measures:

- Although WSDOT has not evaluated the feasibility or cost of relocating the houses, WSDOT will make available for purchase and relocation the two contributing houses in the Montlake Historic District (2904 and 2908 Montlake Boulevard) slated for removal to accommodate the new bascule bridge.
- Whether these properties are relocated or not, WSDOT will record them to DAHP Level II standards and submit the records to DAHP and to the Washington State Archives.

Mitigation for effects associated with the new bascule bridge includes the following measures:

- In consultation with DAHP, Seattle Design Commission, Seattle Landmarks Preservation Board, concurring parties to the Programmatic Agreement, and the public, WSDOT will develop a



design review process for the new bascule bridge that will ensure context-sensitive design and consistency with the Secretary of the Interior's Standards for the Treatment of Historic Properties.

- WSDOT will ensure that the design for the new bascule bridge is compatible with the existing Montlake Bridge, and neither competes with nor replicates that bridge.
- WSDOT will secure the services of an outside design expert with the appropriate experience in historic bridge design compatibility to serve as a consultant during the design process.
- WSDOT will consult with the nearby property owners, Montlake Community Council, City of Seattle, and DAHP on feasible ways to provide a visual buffer between Montlake Boulevard and the new bascule bridge and those historic properties that are adjacent to the boulevard and bridge. Any agreed-upon measures will be implemented as early as practicable in the construction process for the new bascule bridge.

Mitigation for effects associated with changes from constructing the second bascule bridge includes the following measures:

- In consultation with DAHP, Seattle Landmarks Board, and concurring parties to the Programmatic Agreement, WSDOT will ensure that safeguards are in place such that, to the maximum extent practicable, the historic Montlake Bridge is protected from physical damage during construction of the new bascule bridge.
- In consultation with DAHP, the UW, and any other concerned concurring parties to the Programmatic Agreement, WSDOT will ensure that safeguards are in place to the maximum extent practicable such that vibration, excavations, and heavy equipment do not affect the Canoe House or contributing properties within the Montlake Historic District during construction of the new bascule bridge. No construction staging or storage will occur south of the East Campus Bicycle Route in the immediate vicinity of the Canoe House.
- WSDOT will ensure that access to the Ship Canal Waterside Trail will be maintained throughout construction of the new bridge. Full access to the trail will be re-established once the new bascule bridge construction is completed; the nature of this access will be determined as part of the bridge design process.

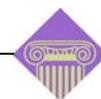


- During construction of the new bascule bridge, WSDOT will maintain access through the Montlake Cut for marine traffic except for a few short periods of time when the spans are being erected. During these periods (estimated at up to five total, ranging from several hours to two work days), the Montlake Cut will be closed to marine traffic. None of these closures will take place during the traditional Opening Day events.

Portage Bay Bridge

Mitigation for effects associated with the new Portage Bay Bridge includes the following measures:

- WSDOT is committed to a context-sensitive solutions approach for the replacement of the Portage Bay Bridge. In consultation with the Seattle Design Commission, DAHP, the concurring parties to the Programmatic Agreement, and the public, WSDOT will develop a design review process for the new Portage Bay Bridge that will address overall urban design. WSDOT will secure the services of an outside design expert with appropriate experience in designing new bridges within historically sensitive areas to serve as a consultant during the design process.
- WSDOT will use quieter concrete pavement on the new Portage Bay Bridge.
- WSDOT will place noise-absorptive material on the inside face of the currently planned 4-foot barriers along both sides of the structure.
- WSDOT will encapsulate the Portage Bay Bridge joints in an effort to reduce noise.
- WSDOT will make parking under the bridge available to NOAA Northwest Fisheries Science Center employees again after completion of construction, pending application for and approval of an airspace lease.
- WSDOT will assist the community in their future historic preservation planning efforts by recording the houseboats currently docked on the west shore of Portage Bay between University Bridge and the Queen City Yacht Club docks. WSDOT will also evaluate the NRHP eligibility of these properties, both individually and as a potential district. Survey materials will be compiled and submitted



in a format compatible with both the DAHP and City of Seattle historic property databases.

10th Avenue and Delmar Lid and I-5 Interchange

Mitigation for effects associated with changes to the 10th and Delmar lid includes the following measures:

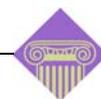
- WSDOT will adopt the design for the 10th Avenue/Roanoke Street intersection negotiated between SDOT and the adjacent neighborhoods, subject to continuing consultation with the neighborhoods and review by DAHP.
- In consultation with the Seattle Design Commission, Seattle Landmarks Preservation Board, DAHP, and the concurring parties to the Programmatic Agreement, and using the services of a landscape architect, WSDOT will create a landscape design plan for the 10th and Delmar lid. The design will be compatible with the historic character of the Roanoke Park Historic District and other adjacent historic properties and consistent with the Secretary of the Interior's Standards for the Treatment of Historic Properties insofar as these are applicable.
- This landscape design plan may include provisions for some or all of the following:
 - Design, fabrication, and installation of interpretive markers describing the evolution of the Olmsted landscape and the effects of SR 520 on the landscape. If adopted as part of the design plan, exhibits may note that the lid reconnects communities and recovers the landscape connections that were important historically within the landscape of Seattle.
 - Incorporating Olmsted characteristics, perhaps using the City of Seattle Olmsted Park Furniture Standards as guidelines for items such as benches or lighting, into the design of the lid and the Bagley viewpoint.
 - A context-sensitive design blending the lid into the hillslope to the south.
 - Retaining or replacing existing fences on the south side of the lid with context-sensitive barriers or fences to protect the security of surrounding homes.



- Tagging of any mature trees that will be removed and notification to the community before construction plans are finalized.
- An earlier collaborative effort between WSDOT and the Portage Bay/Roanoke Park and North Capitol Hill communities addressed lid design with the goal of retaining as many of the existing trees and as much of the existing hill contour as possible. Design elements from these earlier discussions will be carried forward for consideration in the final design, but details such as curbside bed design, retention or replacement of the current features of Bagley Viewpoint, and location of signage will be determined through the collaborative design process.
- WSDOT will retain as much mature vegetation as possible on all sides of the lid.
- WSDOT will provide for the use of underground wiring on the 10th and Delmar lid to the extent feasible
- WSDOT will consult with the Portage Bay/Roanoke Park Community Council on a sign plan for historic markers for the Roanoke Park Historic District. Once the sign plan is approved by WSDOT, in consultation with DAHP and the Seattle Design Commission, WSDOT will fund fabrication and installation of up to five historic markers or signs at the major entrances to the district. WSDOT will consult with City of Seattle and Portage Bay/Roanoke Park Community Council on a process for ensuring maintenance of the signs.

Mitigation for effects associated with changes to the I-5 interchange includes the following measures:

- WSDOT will use quieter concrete pavement on all parts of SR 520 mainline elements of the project west of the Portage Bay Bridge, including the new HOV ramp. WSDOT will maintain the highway surface for safety, and will monitor quieter concrete pavement for safety every 2 years. WSDOT will also monitor the quieter concrete for noise performance at least quarterly over a period of 4 years
- WSDOT will consult with appropriate concurring parties to the Programmatic Agreement during the design process for the I-5 interchange about the aesthetic treatment of the flyover HOV ramp



and other potential measures for protecting views of and from historic properties.

- Where right-of-way fence is required in the Portage Bay/Roanoke and North Capitol Hill communities, WSDOT will consult with those communities about the possibilities for visually compatible fencing.
- WSDOT will consult with the concurring parties to the Programmatic Agreement and Seattle Design Commission to develop the landscape design for the bicycle/pedestrian path on the I-5 overpass at East Roanoke Street.
- As mitigation for the multiyear visual and audible intrusions into the setting of the historic properties of the North Capitol Hill community, WSDOT will assist them in future historic preservation planning efforts by recording and evaluating the Billodue House at 2333 Broadway Avenue East for NRHP eligibility.

Portage Bay Bridge

Mitigation for effects associated with the new Portage Bay Bridge includes the following measures:

- WSDOT will develop a coordination plan with the Seattle Yacht Club to minimize disruption of historically significant activities at the Seattle Yacht Club Main Station and on Portage Bay, the Montlake Cut, and Union Bay during construction. This plan will, at a minimum, address the following issues:
 - Key periods during which the Seattle Yacht Club considers both water access and land access to its facilities particularly crucial.
 - Ongoing coordination relative to special events such as weddings or watercraft training or races being held at the Seattle Yacht Club or on the water.
 - Provisions for water, vehicular, and pedestrian access to the Seattle Yacht Club Main Station for members and guests throughout the construction period.
 - Mechanisms for WSDOT to communicate with Seattle Yacht Club about construction schedules on Portage Bay and closures of the Montlake Cut.



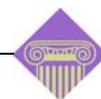
- Prohibition on the use of West Montlake Park for construction staging or other construction-related activities.
- Provisions for coordination between WSDOT and Seattle Yacht Club ensuring that construction activities in Portage Bay and the Montlake Cut will not interrupt or interfere with Opening Day Events (one week before the first Saturday of May and one week after).
- A moratorium on towing of pontoons through Portage Bay, the Montlake Cut, and Union Bay during the Opening Day events as well as a prohibition on anchoring or mooring pontoons in such a way that they would interfere with Opening Day events.
- A commitment from WSDOT that barge activity (transport, moorage, construction, etc.) will not interfere with Opening Day Events in Portage Bay.
- WSDOT and FHWA are in the process of negotiating an agreement with the NOAA to avoid damage to their historic structures and interruption of historic research functions at the Northwest Fisheries Science Center as a result of SR 520 construction.

Other Historic Properties

Mitigation measures for other effects on historic properties include the following measures.

Access to Historic Properties

- WSDOT will maintain access to all historic properties during construction. Except for emergency situations, WSDOT will provide 24 hours advance notice to affected property owners before any unavoidable interruptions of access. WSDOT will consult with affected property owners to address their needs, which may include the development of an alternative access strategy for short-term interruptions of access and longer-term detours.
- WSDOT will consult with St. Demetrios Church to develop a strategy for ensuring safe and convenient access to the Church grounds and facilities in the event that the East Lynn Street and/or 19th Avenue potential haul routes are chosen for use at any time during project construction. This strategy will include the following:



- A prohibition on any use of either or both of the above-referenced potential haul routes during the three calendar days of the annual Greek Festival.
 - Cessation of any construction-related activities that would limit the parking available in the neighborhood in the vicinity of the Church during the three calendar days of the annual Greek Festival.
 - A requirement that the contractor provide flaggers to assist in entering and exiting the St. Demetrios facilities through either the East Lynn Street parking lot or the Boyer Avenue entrance if either street is used as a construction haul route during regularly scheduled Sunday services. Flaggers will be made available beginning one-half hour before and extending until one-half hour after regularly scheduled Sunday services.
 - A process for ensuring safe and convenient access to the St. Demetrios parking lot for special events, such as the annual fundraising auction, that are scheduled during any period of use of either or both of the above-referenced potential haul routes.
- WSDOT will coordinate with SDOT, St. Demetrios Church, Montlake Community Club, and Concerned Citizens of Montlake - 520 to initiate the studies required to determine whether conditions at the intersection of 19th Avenue East and East Lynn Street warrant installation of stop signs or other traffic control measures.
 - WSDOT will consult with Seward School to ensure safe access during construction when school is in session.
 - Except for unavoidable brief periods for which advance notice will be provided, WSDOT will maintain pedestrian access to all historic properties, to St. Patrick's Church, and to local bus stops throughout the construction period.
 - WSDOT will ensure that access to the actively used portions of the Montlake Playfield is maintained during construction.

Projectwide Effects from Construction

- WSDOT will develop measures to protect traffic circles and planters from construction/hauling traffic and will restore islands and planters to their pre-construction condition when use of the haul



route has been completed, should any modifications be necessary or should any inadvertent damage occur as a result of construction hauling.

- WSDOT will ensure that any curbs damaged by construction or materials hauling are repaired when use of the route has completed.
- In consultation with the concurring parties to the Programmatic Agreement and others potentially affected by project construction, and prior to the beginning of construction, WSDOT will develop and implement a CCMP. WSDOT will consult with DAHP about the CCMP insofar as the provisions of the plan may pertain to effects on historic properties.
- WSDOT will provide an ongoing opportunity for the concurring parties to the Programmatic Agreement and other affected parties to have input into construction management practices that can help to avoid, minimize, or mitigate the effects of construction activities on historic properties.
- The CCMP will comprise the following parts:
 - WSDOT will address specific construction effects on historic properties within the APE that have been identified through the Section 106 process by implementing stipulations I through VII of the Programmatic Agreement (see Attachment 9 to the Final EIS).
 - Through standard BMPs and WSDOT standard specifications and special provisions, WSDOT will take general precautions to protect historic properties from excessive noise, vibration, excavation, emissions, fugitive dust, lighting, glare, and traffic impacts.
 - WSDOT will implement environmental commitments related to historic properties made in compliance with other regulatory processes (e.g., NEPA).
 - WSDOT will address general community impacts from construction activities, including:
 - Access by emergency service providers to homes and businesses.



- Maintenance of basic services (water, gas, electric, internet, etc.) and timely response in case of accidental interruptions of service as a result of construction activities.
- Vegetation management including provisions for the following:
 - Protecting trees and other screening vegetation adjacent to construction work areas from construction impacts.
 - Replacing removed trees following City of Seattle street tree standards.
 - WSDOT monitoring of contractor adherence.
- Temporary erosion and sediment control measures to be implemented throughout the construction period.
- Traffic management measures during construction to keep traffic flowing, limit detour routes through residential areas, and ensure access for residents, etc.

Summary

The avoidance, minimization, and mitigation measures stipulated in the Programmatic Agreement resolve the adverse effect on historic properties from construction and operation of the Preferred Alternative of the SR 520, I-5 to Medina project.



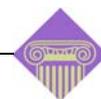
9. Conclusions

Since the initiation of the environmental review process for the SR 520, I-5 to Medina project, extensive research, surveys, and archaeological investigations have occurred within the APE. In response to redesign and alteration of project alternatives and the limits of construction boundary, additional studies have been conducted in support of the Section 106 process. This discipline report synthesizes the results of the numerous investigations conducted within the APE, describes survey and identification efforts, analyzes project effects, and presents conclusions and recommendations.

No NRHP-eligible archaeological resources were identified within the APE during field investigations for this project. However, research indicates that there is the potential for the project to encounter as yet unidentified or evaluated archaeological resources within the limits of construction in the APE. Therefore, additional investigations are recommended to further identify cultural resources as appropriate.

Foster Island was determined eligible for the NRHP as a TCP. The project has impacts on the TCP, as determined through tribal consultation, that contribute to the overall projectwide adverse effect. To address the effects on the TCP, a commitment to develop a Foster Island Treatment Plan was included in the Programmatic Agreement (Attachment 9 to the Final EIS).

Based on the collected research, the field investigations and the analysis of effects, WSDOT, on behalf of FHWA, and in consultation with the SHPO, has determined that the project would have an adverse effect on historic properties within the APE. A Programmatic Agreement was developed, in consultation with SHPO, ACHP, affected tribes, and other Section 106 consulting parties, to address the adverse effect on historic properties. A stipulation of the agreement is the development and implementation of an Archaeological Treatment Plan, which will outline the identification and evaluation program in order to complete the Section 106 process. The Programmatic Agreement stipulates means to avoid, minimize, and mitigate the adverse effect on historic properties from the Preferred Alternative of the SR 520, I-5 to Medina project.



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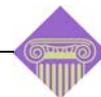
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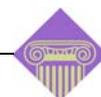
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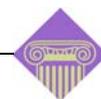
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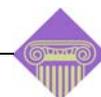
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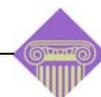
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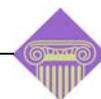
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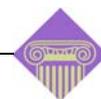
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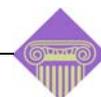
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