

effect of the project on historic properties. The stipulations contained within the Programmatic Agreement avoid, minimize, and mitigate project effects on historic properties in the APE. As noted above, Section 4(f) allows mitigation required by other laws to satisfy all possible planning to minimize harm. The stipulations of the Programmatic Agreement apply towards minimizing harm to historic properties under Section 4(f). (The Section 106 Programmatic Agreement is provided in Attachment 9 to this Final EIS.)

- WSDOT and FHWA continued coordination with the consulting parties and other affected communities to develop a Community Construction Management Plan (CCMP) under the National Environmental Policy Act (NEPA). This plan contains additional measures to protect historic properties within the APE, and is specific to minimizing effects on properties in the construction area during the construction period. The CCMP is included in the Section 106 Programmatic Agreement by reference (Attachment 9).
- WSDOT and NOAA began meeting in fall 2010 to identify and possibly quantify project effects on the NOAA Northwest Fisheries Science Center. Meetings will continue through April 2011, culminating in a final recommendations report. WSDOT and NOAA aim to develop a package of mitigation measures that would be mutually agreed upon at a staff level by May 2011. Approval of a final mitigation package is anticipated by early summer 2011 after issuance of the ROD.
- WSDOT has also worked with interested tribes to minimize the project effects on Foster Island, a TCP determined eligible for listing in the NRHP. WSDOT and FHWA will develop and implement a treatment plan to resolve adverse effects of the project on the Foster Island Traditional Cultural Property in consultation with USACE, DAHP, and the affected tribes. The specific resolution measures in the Foster Island Treatment Plan will be determined through consultation. Agreed-upon measures may be carried forward through one or more government-to-government agreements negotiated and executed prior to initiation of project construction on Foster Island.
- For more information on the Section 106 process and specific consulting parties, see the Final Cultural Resources Assessment and Discipline Report (Attachment 7).

## 9.4 Potential Effects of the Project

This section discusses the specific effects on each Section 4(f) property from the Preferred Alternative and the SDEIS options, and makes determinations on whether the effects result in a “use” of the property under Section 4(f). Where a suboption of the SDEIS options uses Section 4(f) properties differently than the primary option, those differences are discussed. In all other cases, suboptions are not depicted separately

because they would not create additional effects on Section 4(f) properties than the SDEIS options with which they are associated. This section also includes summary tables for the Preferred Alternative and each of the SDEIS options that compare the quantitative impacts of each on Section 4(f) properties.

The determinations of Section 4(f) uses were made in accordance with the applicable Section 4(f) regulations (23 CFR Part 774), and FHWA's Section 4(f) Policy Paper guidance (FHWA 2005b). If there is a permanent use of a Section 4(f) property, then the temporary occupancy exception does not apply to other project impacts on the same property. Under the Preferred Alternative, there would be no temporary occupancy exceptions.

Properties that have identical impacts under the Preferred Alternative and the three SDEIS options are discussed in detail in the Preferred Alternative section. These properties are included on all summary tables and the least harm analysis, but to avoid repetition and aid in ease of reading, the detailed information in the text is only presented once.

How would the Preferred Alternative use Section 4(f) properties?

Seattle Study Area

Park and Recreation Resources

***Bagley Viewpoint***

The Preferred Alternative would require the permanent acquisition of the entire 0.1-acre viewpoint to accommodate the widened SR 520 roadway (Exhibit 9-6). Therefore, the Preferred Alternative would result in a Section 4(f) use of Bagley Viewpoint. The impact on the Bagley Viewpoint would be the same for the three SDEIS options.

***Interlaken Park***

The Preferred Alternative would not require permanent acquisition of land from Interlaken Park, nor would it require any temporary construction or other easements. There would be no Section 4(f) use of Interlaken Park under the Preferred Alternative.

***Montlake Playfield***

Under the Preferred Alternative, the alignment of SR 520 would shift to the south, toward the Montlake Playfield and away from the NOAA Northwest Fisheries Science Center on the north side of the corridor. This shift would entail a permanent incorporation of Montlake Playfield property, some of which is submerged land (Exhibit 9-7). A total of 1.2 acres of land would be acquired, 1.0 acres of which would be submerged land on the north side of SR 520. The remaining 0.2 acre of acquisition is a sliver of land adjacent to SR 520 right-of-way in the northeast corner of the property. There would also be 3.2 acres of land used for construction easements for the duration

Exhibit 9-6. Effects on the Bagley Viewpoint under the Preferred Alternative and Options A, K, and L



- Permanent use
- Proposed right-of-way
- Lid or landscape feature
- Park or recreation feature
- Existing right-of-way
- Travel lane
- Pavement
- Limits of construction

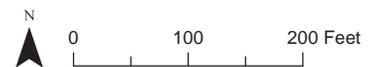
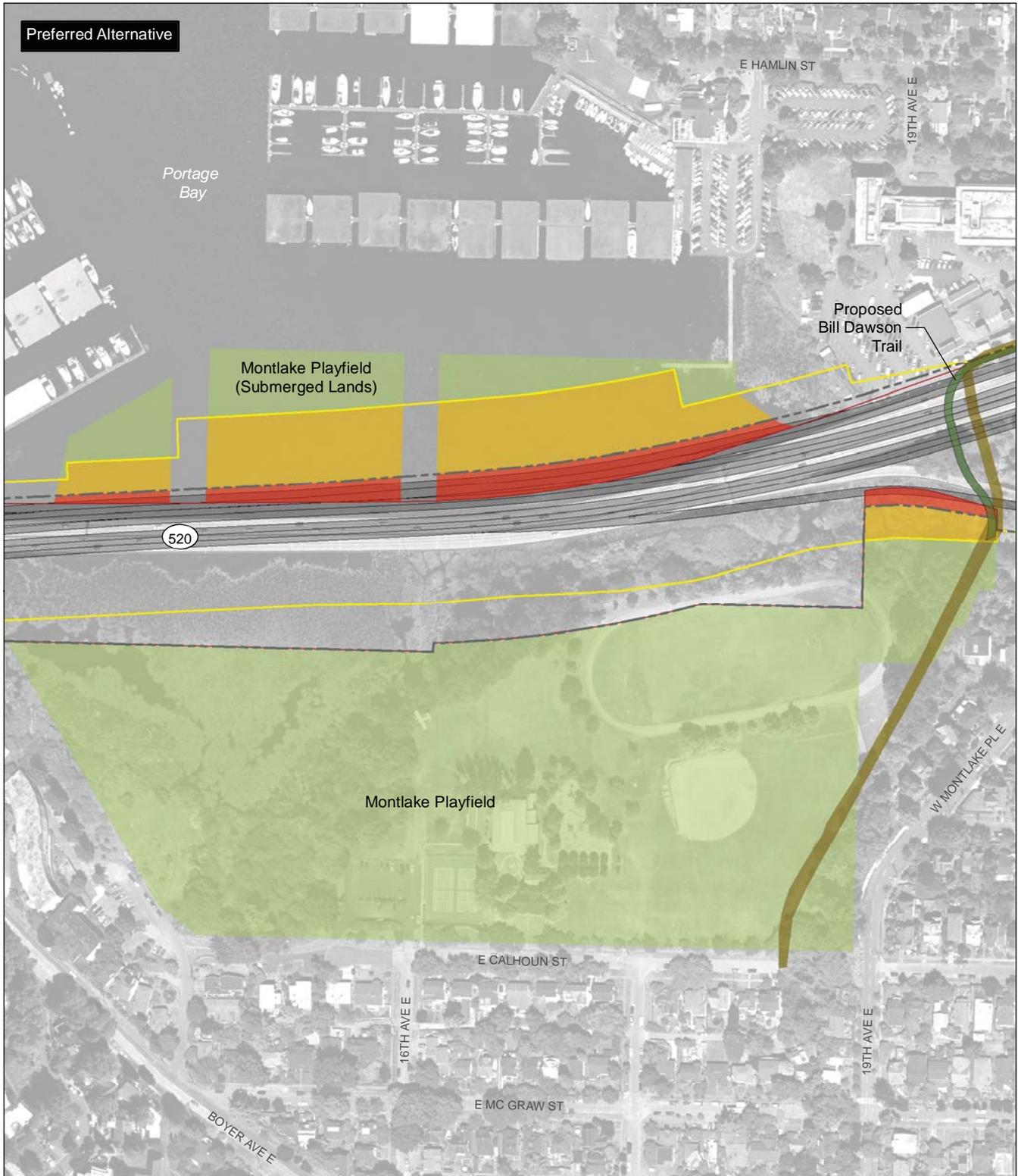
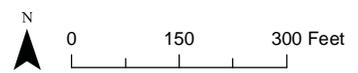


Exhibit 9-7. Effects on the Montlake Playfield under the Preferred Alternative



- |  |  |  |
|--|--|--|
| <span style="display:inline-block; width:15px; height:15px; background-color:red; border:1px solid black;"></span> Permanent use                     | <span style="display:inline-block; width:15px; height:15px; border:1px dashed black;"></span> Proposed right-of-way  | <span style="display:inline-block; width:15px; height:15px; border-bottom:1px solid green;"></span> Proposed bicycle/pedestrian path |
| <span style="display:inline-block; width:15px; height:15px; background-color:orange; border:1px solid black;"></span> Construction easement          | <span style="display:inline-block; width:15px; height:15px; border:1px solid red;"></span> Existing right-of-way     | <span style="display:inline-block; width:15px; height:15px; border-bottom:1px solid brown;"></span> Existing trail/bicycle path      |
| <span style="display:inline-block; width:15px; height:15px; background-color:lightgreen; border:1px solid black;"></span> Park or recreation feature | <span style="display:inline-block; width:15px; height:15px; border:1px solid yellow;"></span> Limits of construction | <span style="display:inline-block; width:15px; height:15px; border:1px solid black;"></span> Travel lane                             |
| <span style="display:inline-block; width:15px; height:15px; background-color:gray; border:1px solid black;"></span> Pavement                         |  |  |



of the project, 2.9 acres of which would be submerged land. As described earlier, WSDOT's right-of-way easement is partly within the limits of construction. The terms of WSDOT's easement are still under study. Depending on the findings, WSDOT may identify the need for an additional construction easement on City of Seattle property between SR 520 and the limits of construction in this area. After consultation with the City of Seattle, WSDOT may adjust the right-of-way line along the northern boundary of the Montlake Playfield. Regardless of the property ownership determination, the only possible additional Section 4(f) use of the Montlake Playfield would be a temporary one resulting from construction impacts within the limits of construction identified on Exhibit 9-7.

The submerged land that would be acquired is on the north side of the existing SR 520 and was never used as a part of the playfield. While it is technically within the boundaries of the park, it has always been submerged and was never developed as a park. The Montlake Playfield does not have a dedicated aquatic element as part of the park function. People do use the water in the northern part of the park, but it has no facilities dedicated to water craft and water activities.

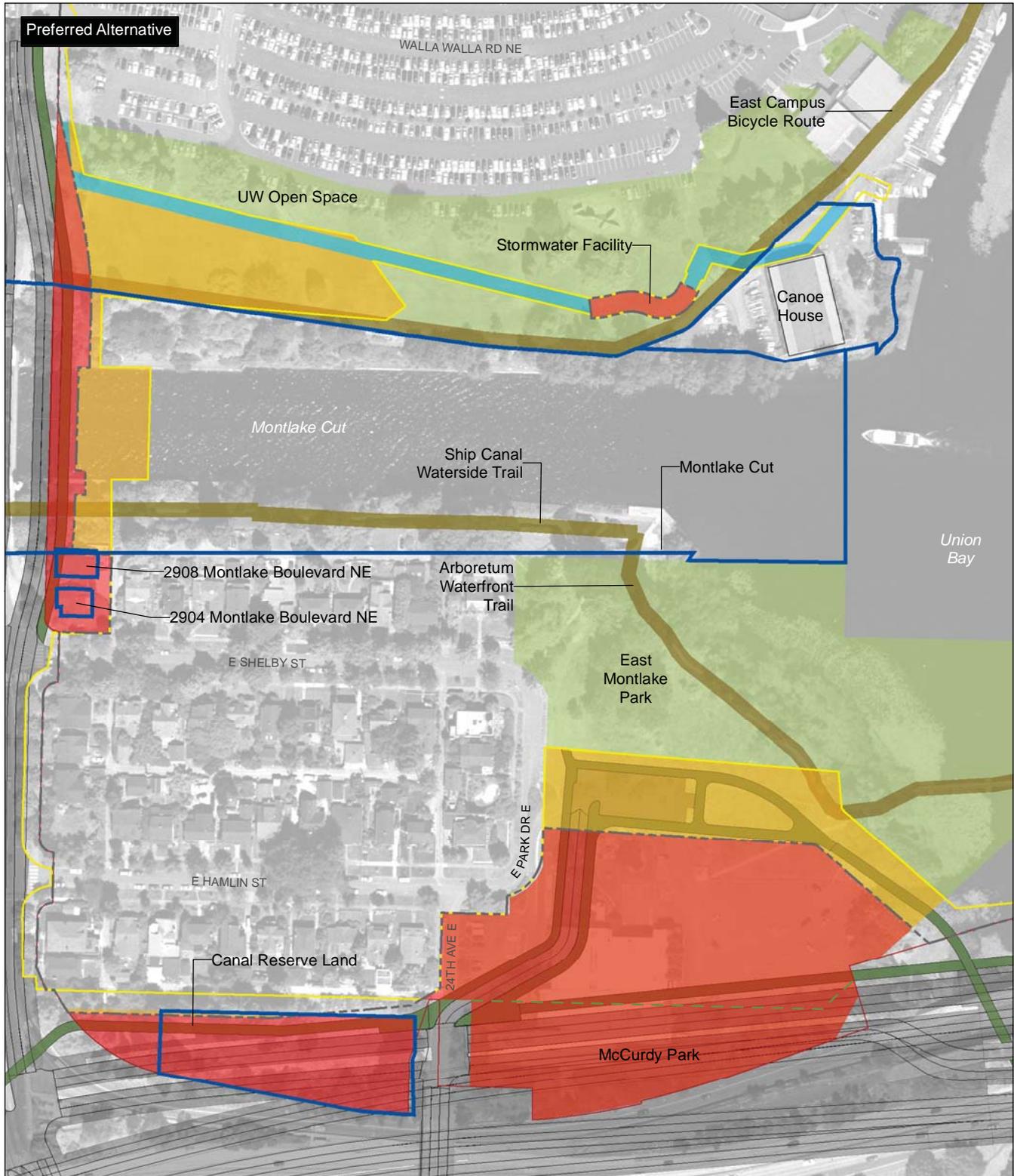
The 0.2-acre acquisition of land in the northeast corner is not in an area of the park that sees significant recreational use. It is on the periphery of the park, adjacent to the WSDOT right-of-way, and is not an integral part of the recreational facilities at the park. However, because land within the boundaries of the park is being permanently acquired, there would be a Section 4(f) use of the Montlake Playfield as a result of the Preferred Alternative.

### ***East Montlake Park***

The Preferred Alternative would result in a permanent acquisition of 2.8 acres of land at East Montlake Park (which represents roughly 32 percent of the park) (Exhibit 9-8). Widening of SR 520, installation of the floating bridge trail connection ramps, installation of the Montlake lid, and development of associated stormwater facilities would necessitate the incorporation of land from East Montlake Park. The vehicular access to the park from the current 24th Avenue East would be relocated to the new 24th Avenue East alignment. The 150-space parking lot would be removed. Some parking spaces would be provided during construction, and permanent parking facilities would be constructed adjacent to the stormwater facility at the end of construction. The Preferred Alternative would also require temporary use of 1.2 acres for a construction easement in East Montlake Park for approximately 3 years.

Based on the above discussion, there would be a Section 4(f) use of East Montlake Park as a result of the Preferred Alternative.

Exhibit 9-8. Properties with a Section 4(f) Use under the Preferred Alternative in the Montlake Area



### ***McCurdy Park***

The Preferred Alternative would result in a permanent acquisition of 1.4 acres of land at McCurdy Park, which constitutes the entirety of the park (see Exhibit 9-8). Widening of SR 520, installation of the floating bridge trail connection ramps, installation of the Montlake lid, and development of associated stormwater facilities would necessitate the incorporation of the entire McCurdy Park. The MOHAI building would be removed.

There would be a Section 4(f) use of McCurdy Park as a result of the Preferred Alternative. The impacts from the Preferred Alternative and the three SDEIS options are identical.

### ***Ship Canal Waterside Trail***

The Preferred Alternative would result in a permanent incorporation of less than 0.1 acre of land from the Ship Canal Waterside Trail for placement of a new bascule bridge across the Montlake Cut (see Exhibit 9-8). This incorporation would represent roughly 3 percent (40 feet) of the approximately 1,200-foot trail length. In addition, less than 0.1 acre of land from the trail would be needed for a construction easement.

The existing pedestrian access to the trail from Montlake Boulevard East would be relocated approximately 40 feet to the east of its existing location after completion of the project. During construction, the trail would be closed to access from Montlake Boulevard East. Portions of the trail outside the construction limits would be accessible from either West Montlake Park or East Montlake Park. However, pedestrians would not be able to pass through the construction area at Montlake Boulevard East, which would disrupt the connectivity of the trail during construction. Potential detours for the trail have been examined, but none would be possible due to the construction on Montlake Boulevard East.

Based on the above discussion, there would be a Section 4(f) use of the Ship Canal Waterside Trail as a result of the Preferred Alternative.

### ***University of Washington Open Space***

Approximately 0.2 acre at the western end of the UW Open Space would be acquired for the new bascule bridge over the Montlake Cut. An additional 0.4 acre would be acquired for a subterranean easement for the proposed stormwater facility, which would be located north and west of the Canoe House (see Exhibit 9-8). This stormwater facility would be sited in this location to take advantage of an existing outfall serving the roadways in the area, and would minimize further impacts on the shoreline and area wetlands. With the land and subterranean acquisitions, a total of 0.7 acre would be acquired from the UW Open Space for the Preferred Alternative. Therefore, the UW Open Space would experience a Section 4(f) use as a result of the Preferred Alternative.

In addition, 1.2 acres of construction easement would be required at the southwestern end of the UW Open Space for approximately 2.5 years to construct the new bascule bridge. The easement would be required in order to use construction equipment such as cranes, concrete trucks, and excavation equipment for construction of the bascule piers. These activities must take place from land in order to avoid navigation disruption of the Montlake Cut, and to minimize effects on fish resources. During construction, recreation activities at the remaining open space area, the Waterfront Activities Center, and the Canoe House would not be affected. After construction, the easement would be restored to its current recreation use.

### ***East Campus Bicycle Route***

The Preferred Alternative would require the acquisition of less than 0.1 acre at the western terminus of the East Campus Bicycle Route for the new bascule bridge over the Montlake Cut. A total of 50 feet (approximately 1 percent) of the bicycle route would be acquired for the new bascule bridge. In addition, there would be a less than 0.1 acre subterranean easement where the stormwater facility passes under the trail northwest of the Canoe House. The total acquisition of land from the bicycle route would be less than 0.1 acre.

An additional easement of 0.1 acre near the western end of the route would also be required during construction of the bascule bridge. The easement would include approximately 420 feet of the trail. Exhibit 9-8 shows the locations of the permanent acquisition, the construction easement, and the underground easement for the stormwater facility.

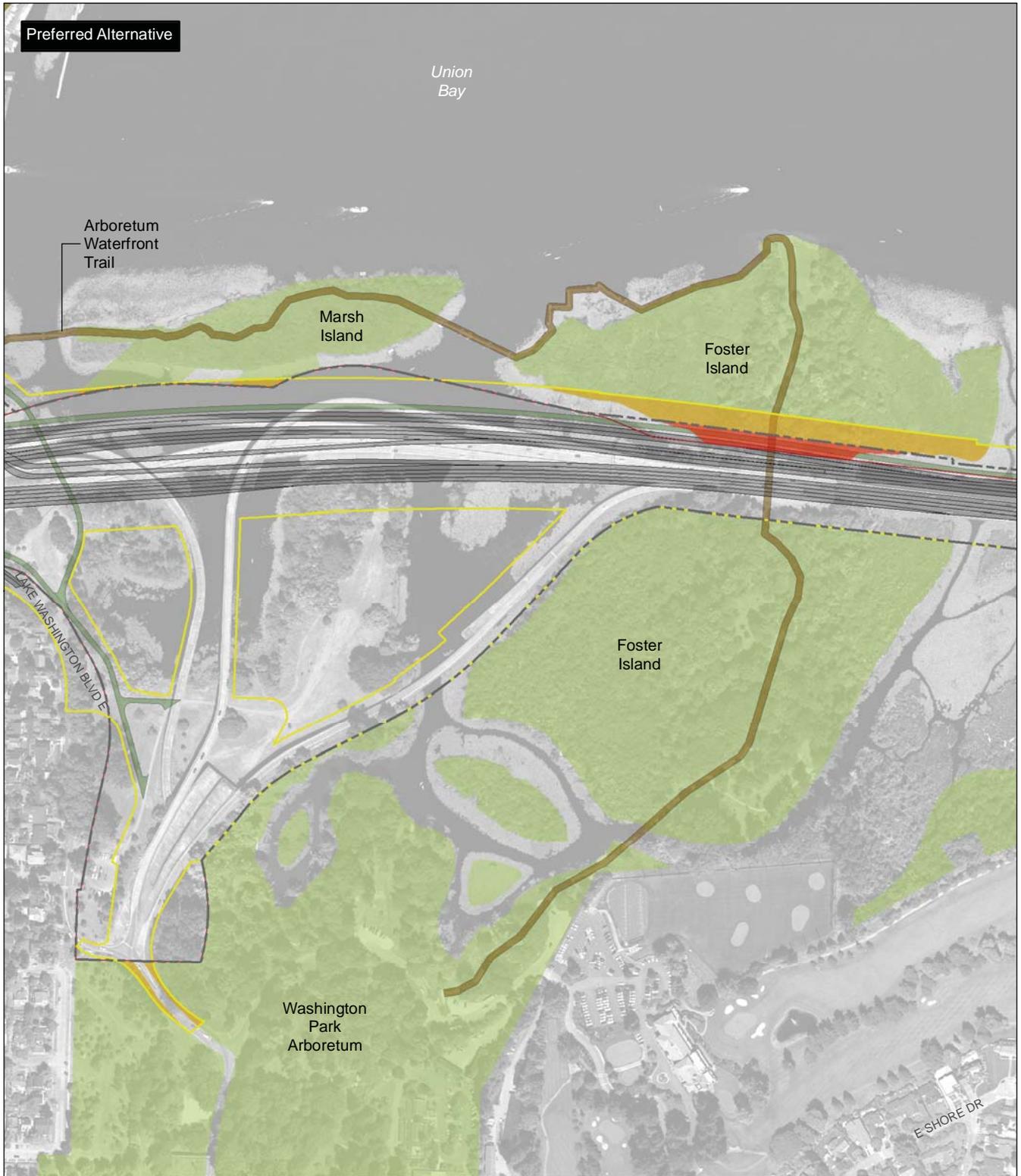
During construction, a detour around the construction and staging area would be provided to retain the connection between the bicycle route and Montlake Boulevard. WSDOT will prepare this detour plan in coordination with UW. After construction, the western terminus of the bicycle route would be reconnected to the northeast side of the new bascule bridge.

Based on the above discussion, there would be a Section 4(f) use of the East Campus Bicycle Route as a result of the Preferred Alternative.

### ***Washington Park Arboretum***

The Preferred Alternative would require a permanent incorporation of 0.5 acre of land within the Washington Park Arboretum (0.002 percent of the total Arboretum property), which would all be on Foster Island (Exhibit 9-9). The acquisition would be 0.5 acre of land and less than 0.1 acre of submerged land. The Preferred Alternative would cross Foster Island with a pier-and-span bridge that would require expanding the right-of-way to the north of the existing alignment. In addition, the Preferred Alternative would require an additional 1.8 acres of construction easement on Foster and Marsh islands for approximately 6 years. Of the 1.8 acres,

Exhibit 9-9. Effects on the Washington Park Arboretum under the Preferred Alternative



0.1 acre would be from temporary use of submerged land located on the southern shore of Marsh Island (see Exhibit 9-9); 1.5 acres would be on Foster Island (1.4 acres on land and 0.1 acre submerged); and 0.2 acre would be in the Lake Washington Boulevard ramp area. Construction would include access work bridges on and adjacent to Foster and Marsh islands. These bridges would be located parallel to SR 520 in the approach area. During the construction and demolition of the construction work bridges, there would also be closures to the Arboretum Waterfront Trail, which runs under SR 520. The work bridges would be removed after completion of the permanent structure. The construction easement would be returned to park use after construction was completed. Based on the above discussion, there would be a Section 4(f) use of the Washington Park Arboretum as a result of the Preferred Alternative.

### ***Arboretum Waterfront Trail***

Construction would require periodic closures of the Arboretum Waterfront Trail at the access point in East Montlake Park. There would be additional temporary closures of the trail where it crosses beneath SR 520 on Foster Island are anticipated during construction, primarily during construction of the work bridges (see Exhibit 9-9). Construction would temporarily disrupt connectivity between the ends of the trail because a trail detour on Foster Island could not be provided during construction of the work bridges.

Each closure of the trail would be for less than 6 months and access to the trail would continue to be available from either East Montlake Park or the Washington Park Arboretum at all times, as discussed in the Section 6(f) Environmental Evaluation (Attachment 15). The trail segment between East Montlake Park and the northern portion of Foster Island could be accessed from the East Montlake Park trailhead. Access to this trailhead would be maintained throughout the construction period. Construction would be coordinated to avoid simultaneous closures at the two locations of the trail to maintain access to the trail from at least one direction.

For the Preferred Alternative, a trail detour around the SR 520 construction on Foster Island and in East Montlake Park during intermittent closures would not be possible and this would temporarily disrupt the connectivity of the trail. Therefore, there would be a Section 4(f) use of the Arboretum Waterfront Trail as a result of the Preferred Alternative.

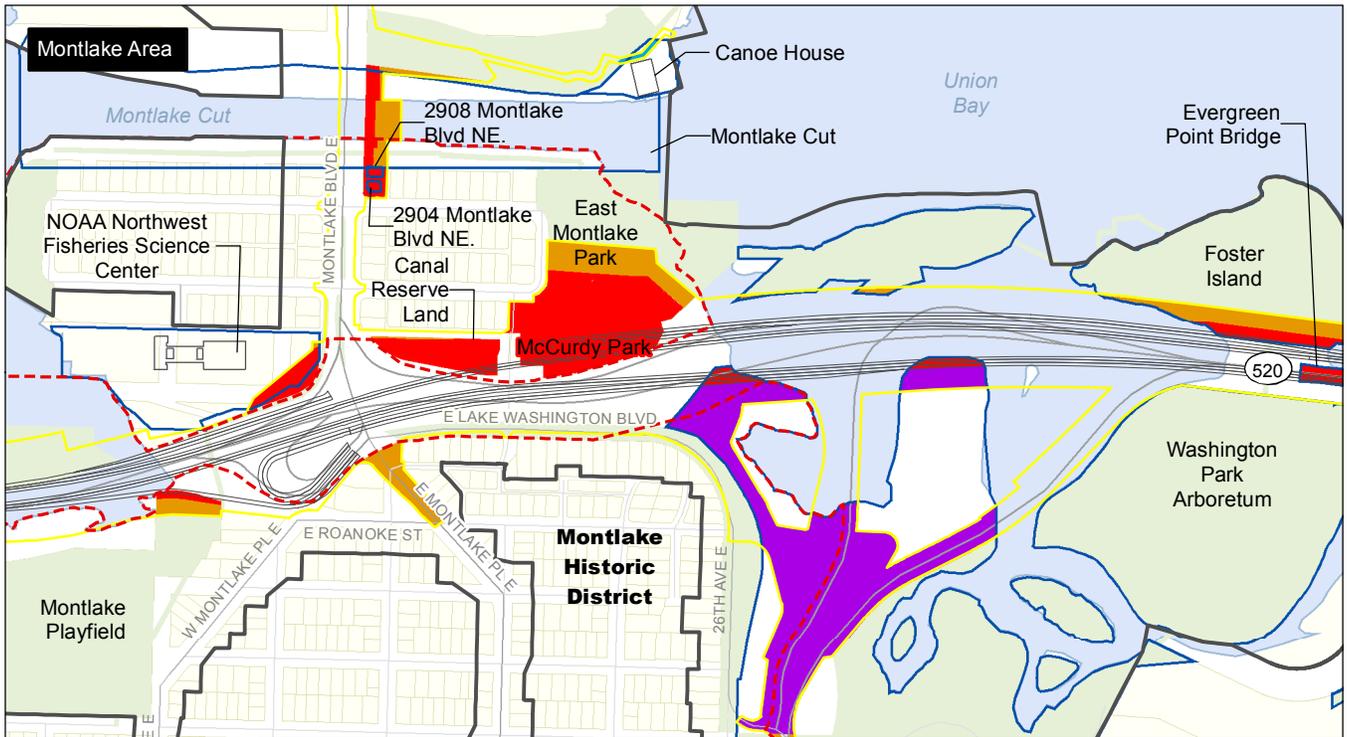
### **Historic Properties**

An overview of the impacts on historic properties under the Preferred Alternative is depicted on Exhibit 9-10. See the Final Cultural Resources Assessment and Discipline Report (Attachment 7 to this Final EIS) for more information on effects on each historic property.

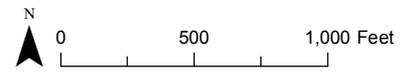
### ***Fire Station #22***

The Preferred Alternative and the three SDEIS options would result in the same permanent incorporation of land from the Fire Station #22 parcel

Exhibit 9-10. Historic Properties with a Section 4(f) Use under the Preferred Alternative



- Permanent use
- Construction easement
- Underground easement
- Construction use in WSDOT Peninsula
- Area of potential effects
- Montlake Historic District
- Historic property
- Limits of construction
- Travel lane
- Parcel
- Park



(Exhibit 9-11). The improved intersection at East Roanoke Street and 10th Avenue East would use less than 0.1 acre of this parcel. The land acquired would be along the north edge of the parcel along East Roanoke Street and would not include the historic building. In addition, the historic and current function of the building as a fire station would be maintained and would not be affected by the project.

There would be a Section 4(f) use of the Fire Station #22 as a result of the Preferred Alternative.

### ***NOAA Northwest Fisheries Science Center***

To minimize potential effects disclosed in the SDEIS, WSDOT has shifted the alignment of the Portage Bay Bridge 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, none of which contains any structures (Exhibit 9-12). After construction, most of this property would be used for part of the Bill Dawson Trail. The small portion of land at the northeast corner of the NOAA property identified as construction easement would be used during construction only to integrate the existing NOAA driveway pavement into improvements made to Montlake Boulevard. This section of land totaling less than 0.1 acre would be used for less than one week of the construction period and would be returned to NOAA when construction there is complete.

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 would no longer be used as parking for NOAA, using this portion of the parking area would not be an acquisition of NOAA property. The driveway that encircles the North Campus on three sides would remain intact, so access within the property would not be altered.

There would be a Section 4(f) use of the NOAA Northwest Fisheries Science Center as a result of the Preferred Alternative.

### ***Montlake Historic District***

The Preferred Alternative would result in numerous impacts on the Montlake Historic District, including the demolition of two residential properties that contribute to the district—2904 and 2908 Montlake Boulevard NE (see Exhibit 9-10). These houses would be demolished to accommodate the footprint of the new bascule bridge over the Montlake Cut. A portion of the NOAA parcel would be used during construction, and most of that portion would be permanently acquired for the project. In addition, WSDOT would acquire the Canal Reserve Land for construction of the Montlake lid, and part of the Montlake Boulevard median would be converted to roadway. McCurdy Park, part of East Montlake Park, and part

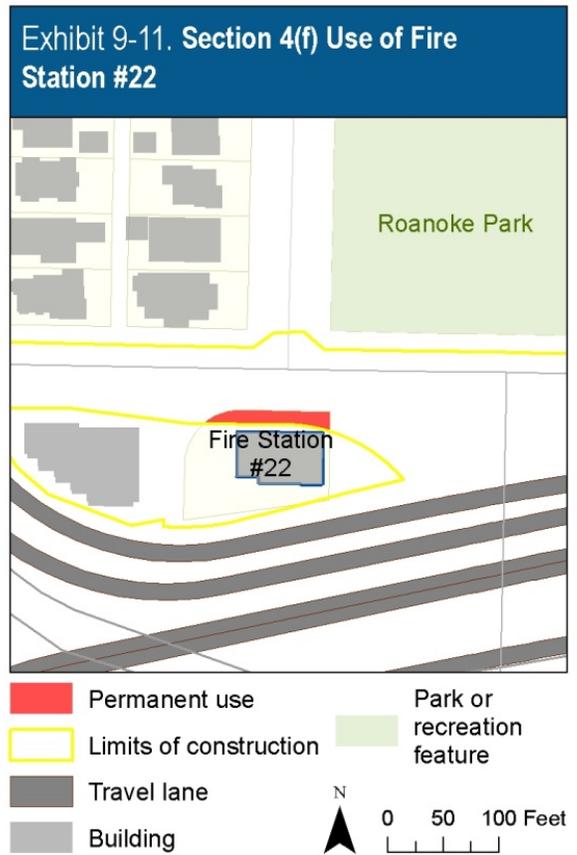
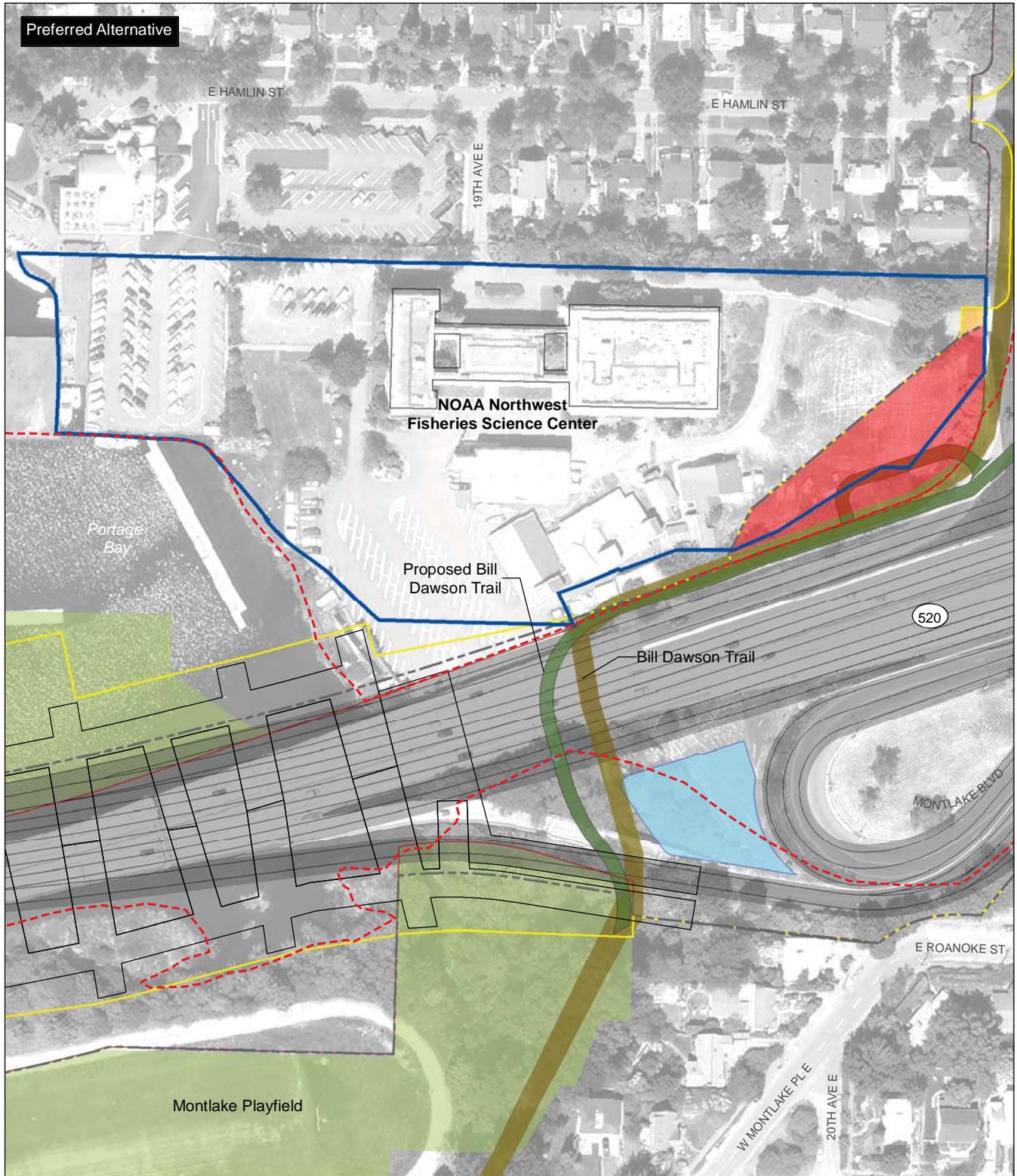


Exhibit 9-12. Effects on NOAA Northwest Fisheries Science Center under the Preferred Alternative



of Montlake Playfield would be permanently acquired. A stormwater facility would be built on most of the site currently occupied by MOHAI, necessitating removal of the building and acquisition of the land. The southern shore of the Montlake Cut is also within the boundaries of the district and the Ship Canal Waterside Trail, discussed earlier, is along the same southern shore of the cut.

The Preferred Alternative would convert a total of 6.3 acres of land to transportation right-of-way within the historic district boundaries from parks, the NOAA facility, residential properties, and the Canal Reserve Land (Table 9-1). These acquisitions would expand the WSDOT right-of-way into the boundaries of the district, reduce the amount of property included in the district and alter the footprint of the historic district.

**Table 9-1. Section 4(f) Uses in the Montlake Historic District under the Preferred Alternative**

<b>Property</b>	<b>Use (in acres)</b>	<b>Additional Construction Easement</b>
Montlake Playfield	0.2	0.3 <sup>a</sup>
NOAA Northwest Fisheries Science Center	0.5	<0.1
Canal Reserve Land	1.0	<0.1
East Montlake Park	2.8	1.2
McCurdy Park	1.4	0
2904 Montlake Boulevard NE	0.1	0
2908 Montlake Boulevard NE	0.1	0
Ship Canal Waterside Trail	<0.1	<0.1
Montlake Cut	0.1	0.1
<b>Totals<sup>b</sup></b>	<b>6.3</b>	<b>1.7</b>

<sup>a</sup> Further construction easement may be identified based on easement clarification and right-of-way discussions with the City of Seattle.

<sup>b</sup> The totals are calculated using 1/100th of an acre, but the numbers are presented rounded to the nearest 1/10th of an acre.

The Preferred Alternative would reduce the acreage included in the Montlake Historic District and would result in a Section 4(f) use.

### ***2220 East Louisa Street***

The residential building at 2220 East Louisa Street would not experience a Section 4(f) use under the Preferred Alternative.

### ***Montlake Cut***

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 interfere with marine navigation. The only exception would be a few short periods of time when the spans are being erected, requiring temporary closures to marine traffic. WSDOT would close the Montlake Cut to all boat traffic periodically over a 3- to 4-week period for a total of approximately 6 full (24-hour), non-consecutive days. None of these closures would occur during traditional Opening Day ceremonies for boating season.

The Preferred Alternative would acquire 0.1 acre on the south shore of the cut (within the Montlake Historic District) and 0.3 acre on the north shore of the cut for the new bascule bridge, for a total of 0.4 acre permanent acquisition. There would also be a 0.5 acre (construction easement (0.1 acre in the district and 0.4 acre on the north shore), which would be returned after construction was completed.

The land acquisition on the north and south banks of the Montlake Cut for the new bascule bridge would be a Section 4(f) use of the historic property.

### ***Canoe House***

The Preferred Alternative would require a permanent subterranean easement of 0.1 acre beneath a section of the Canoe House property to the north of the building to accommodate elements of the stormwater facility. It would have no physical impact on the Canoe House property. The Canoe House would remain accessible and recreation activities, which focus on the south (waterside) of the building, would not be impacted. The underground easement would have no discernible effect on the characteristics that qualify the Canoe House for listing in the NRHP. However, the permanent easement for land that is part of the historic property is a Section 4(f) use of the property.

### ***Pavilion Pedestrian Bridge***

The Pavilion Pedestrian Bridge would not experience a Section 4(f) use under the Preferred Alternative.

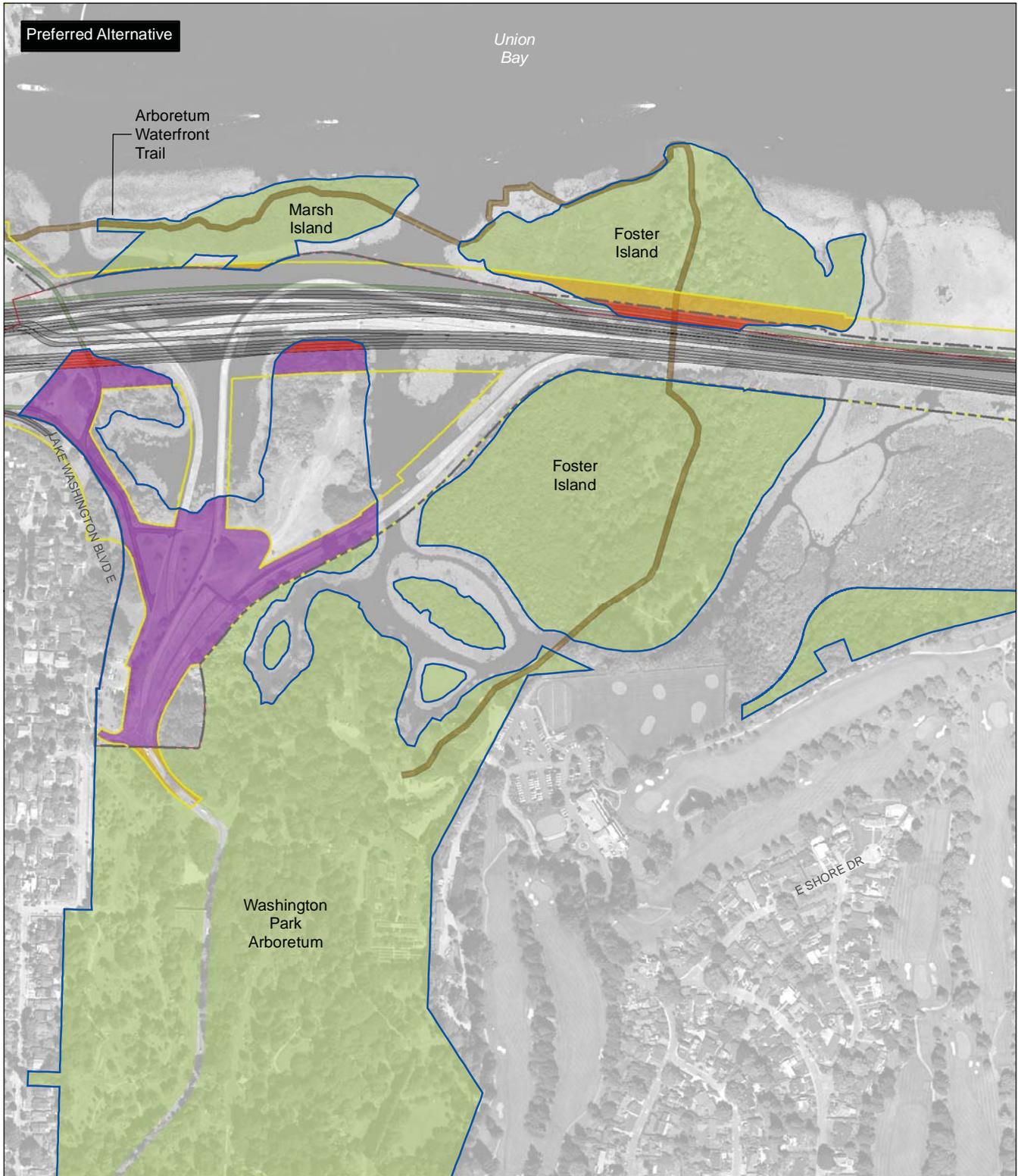
### ***North and South Pedestrian Bridges***

The North and South Pedestrian Bridges would not experience a Section 4(f) use under the Preferred Alternative.

### ***Washington Park Arboretum***

The Preferred Alternative would use 10 acres of land within the historic boundaries of Washington Park Arboretum (Exhibit 9-13), which includes 9.5 acres of land on the WSDOT peninsula. Of the 9.5 acres on the peninsula, 0.4 acre would be permanently incorporated into the project and 9.1 acres would be used for construction. The ramps on the peninsula would be removed and a portion of the peninsula would be used as a staging area for the duration of the project.

Exhibit 9-13. Effects on the Washington Park Arboretum Historic Property under the Preferred Alternative



Since WSDOT right-of-way on the peninsula would be utilized for the duration of construction for the Seattle area project elements, this 9.1 acres of construction on the WSDOT peninsula would constitute a Section 4(f) use under the Preferred Alternative. Please note that the boundaries of the historic Arboretum are larger than those of the current park property. This use does not affect the recreational use of the Arboretum because it is not within the boundaries of the park, and is only recognized as a Section 4(f) use of the Arboretum as a historic property.

The remaining 0.5 acre of acquisition would be on Foster Island, including less than 0.1 acre of submerged land on the island. The Preferred Alternative would cross Foster Island with a pier-and-span bridge that would require expanding the right-of-way to the north of the existing alignment. This is the same land acquisition discussed above in the *Parks and Recreation Resources* section for the Washington Park Arboretum.

In addition to the construction area on the WSDOT peninsula, the Preferred Alternative would require an additional 1.8 acres of construction easement in the Arboretum. Of the 1.8 acres, 0.1 acre would be from temporary use of submerged land located on the southern shore of Marsh Island (see Exhibit 9-13); 1.5 acres would be on Foster Island (1.4 acres on land and 0.1 acre submerged land); and 0.2 acre would be in the Lake Washington Boulevard area. Construction would include access work bridges on and adjacent to Foster and Marsh islands. These bridges would be located parallel to SR 520 in the approach area.

During construction and demolition of the construction work bridges, there would also be closures to the Arboretum Waterfront Trail, which runs under SR 520. The work bridges would be removed after completion of the permanent structure.

There would be a Section 4(f) use of the Washington Park Arboretum historic property due to the land acquisition on Foster Island and the construction in the WSDOT peninsula area.

### ***Foster Island***

The Preferred Alternative would cross the Foster Island TCP 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. The 0.5 acre acquisition is made up of 0.5 acre of land and less than 0.1 acre of submerged land between the north and south section of the island (see Exhibit 9-13). This 0.5 acre total is the same as discussed above in the Washington Park Arboretum section under Parks and Recreation Resources and Historic Properties.

There would be an additional 1.5 acres of construction easements on Foster Island—1.4 acres of land north of the current SR 520 and 0.1 acre of submerged land. Construction effects would include a construction work

bridge located on the island, which would be removed after the permanent structure was completed. During construction, access to the north part of the island would be restricted. Once construction is completed, construction easements on Foster Island would be returned to park use.

The permanent acquisition and the construction easement would be on the north side of the existing right-of-way. No construction staging would occur on the island outside of the construction easement. Operation of SR 520 would include maintenance activities on Foster Island, possibly including ground-disturbing work such as utilities trenching or sign installation.

There would be a Section 4(f) use of Foster Island due to the incorporation of land for the Preferred Alternative. This is a separate and distinct finding from the Washington Park Arboretum because Foster Island is an NRHP-eligible TCP regardless of its location within the park and the historic arboretum.

### Lake Washington Study Area

As part of the SR 520, I-5 to Medina project, the historic Evergreen Point Bridge would be demolished and replaced with a new bridge. The removal of the Evergreen Point Bridge would be a Section 4(f) use under the Preferred Alternative.

### Eastside Transition Study Area

No Section 4(f) properties would experience a use from the Eastside improvements. The completed project would connect the Points Loop Trail with the bike lane on the new Evergreen Point Bridge, thereby providing a non-motorized connection between the Eastside and Seattle. No construction work would occur in any of the parks in the study area and none of these properties would be directly affected by the project. Therefore, there would be no Section 4(f) use of parks and recreation resources under the Preferred Alternative in the Eastside Transition study area.

The Arntson and Dixon houses would not experience a direct impact or a loss of historic integrity from the project. Therefore, there would be no Section 4(f) use of historic properties under the Preferred Alternative in the Eastside Transition study area.

### Pontoon Construction and Transport

There are no Section 4(f) properties that would be affected by the transport of pontoons to the project site, except for the Montlake Cut, which would experience no diminished historic integrity from the towing of pontoons. Pontoon towing would occur in the cut several times over the course of 2 to 3 years. The Montlake Cut is an active navigational channel and the towing of pontoons through this body of water would be in keeping with

its nature and normal function. Although the Montlake Cut would be used for other aspects of the project, the towing of pontoons would have no effect on the qualities that qualify the Montlake Cut for the NRHP and would not be considered a Section 4(f) use.

### Preferred Alternative Summary

The Preferred Alternative would use a total of 18.5 acres of land from 9 park and recreation facilities and 8 historic properties. Of that, 7.4 acres are land acquisitions, 1.1 acres are submerged lands in the Arboretum and Montlake Playfield, and 9.5 acres are on the WSDOT peninsula in the Washington Park Arboretum historic property. Construction in the WSDOT right-of-way on the WSDOT peninsula would be utilized for the duration of project construction, in support of the Seattle area project elements, so it is included in the Section 4(f) use total. An additional 0.5 acre would be incorporated for permanent subterranean stormwater access easements.

In addition, a total of 8.1 acres of land would be temporarily occupied for construction easements throughout the project area. Of that, 5.0 acres are on land, and 3.1 acres are submerged land in Washington Park Arboretum and Montlake Playfield. This land (including the submerged land) would be returned to prior use when construction was completed. Table 9-2 lists the Section 4(f) uses under the Preferred Alternative.

Table 9-2. Summary of Section 4(f) Uses under the Preferred Alternative

Section 4(f) Property	Section 4(f) Use?	Section 4(f) Land Used (in acres)	Area/Functions Affected
Park and Recreation Resources			
Bagley Viewpoint	Yes	0.1	Permanent acquisition of entire viewpoint.
Interlaken Park	No	0	No permanent acquisition. No construction easement.
Montlake Playfield	Yes	1.2	Permanent acquisition of 1.2 acres (of which 1.0 acre is submerged land). Additional construction easement of 3.2 acres (of which 2.9 acres is submerged land). <sup>a</sup>
East Montlake Park	Yes	2.8	Permanent acquisition of 2.8 acres of park property. Additional construction easement of 1.2 acres.
McCurdy Park	Yes	1.4	Permanent acquisition of entire park property.
Ship Canal Waterside Trail	Yes	<0.1	Permanent acquisition of less than 0.1 acre of the trail. Additional construction easement of less than 0.1 acre. Trail closure in the construction area would disrupt trail connectivity.
UW Open Space	Yes	0.7	Permanent acquisition of 0.2 acre; 0.4 acre permanent underground easement for a total of 0.7 acre permanent acquisition. Additional construction easement of 1.2 acres.

Table 9-2. Summary of Section 4(f) Uses under the Preferred Alternative

Section 4(f) Property	Section 4(f) Use?	Section 4(f) Land Used (in acres)	Area/Functions Affected
East Campus Bicycle Route	Yes	0.1	Permanent acquisition of less than 0.1 acre of trail. Permanent subterranean easement of less than 0.1 acre for a total of 0.1 acre. Additional construction easement of 0.1 acre.
Washington Park Arboretum	Yes	0.5	Permanent acquisition of 0.5 acre of park property, of which less than 0.1 acre is submerged land. Additional construction easement of 1.8 acres.
Arboretum Waterfront Trail	Yes	0	Temporary closure of the trail during construction. No detour would be provided during certain phases of construction.
Historic Properties			
Fire Station #22	Yes	<0.1	Permanent acquisition of less than 0.1 acre of the parcel.
NOAA Northwest Fisheries Science Center	Yes	0.5	Permanent acquisition of 0.5 acre. Additional construction easement of less than 0.1 acre.
2220 East Louisa Street	No	0	No Section 4(f) use.
Montlake Historic District	Yes	6.3	Permanent acquisition of 6.3 acres of historic district, including removal of two contributing buildings, Canal Reserve Land, and land from parks, trails, and NOAA. Additional construction easement of 1.7 acres.
Montlake Cut	Yes	0.3	Permanent acquisition of 0.3 acre; 0.1 acre on the south shore within the Montlake Historic District and 0.3 acre on the north shore. Additional construction easement of 0.5 acre.
Canoe House	Yes	0.1	Permanent 0.1 acre underground easement for stormwater facility.
Washington Park Arboretum <sup>b</sup>	Yes	10	Permanent acquisition of 0.5 acre of park property on Foster Island; 9.5 acres on WSDOT peninsula, which has lost integrity
Foster Island TCP	Yes	0.5	Permanent acquisition of 0.5 acre, of which, less than 0.1 acre is submerged land.
Evergreen Point Bridge	Yes	NA	Removal of bridge.

<sup>a</sup> Further construction easement may be identified based on easement clarification and right-of-way discussions with the City of Seattle.

<sup>b</sup> The boundaries of the historic Arboretum are larger than the current park property. This use does not affect the recreational use of the Arboretum, and is only recognized as a Section 4(f) use of the Arboretum as a historic property.

Note: Historic properties within the boundaries of the Montlake Historic District (Montlake Cut, NOAA, Washington Park Arboretum) are counted only once in the total use from the Preferred Alternative. See Table 9-1.

Note: The totals are calculated using 1/100th of an acre, but the numbers are presented rounded to the nearest 1/10th of an acre.

NA = Not Applicable

How would Option A use the Section 4(f) properties?

Seattle Study Area

Park and Recreation Resources

***Bagley Viewpoint***

Option A would result in a Section 4(f) use of Bagley Viewpoint. See the details on the Bagley Viewpoint in the Parks and Recreation portion of the Preferred Alternative section above.

***Interlaken Park***

Option A would not require permanent acquisition of land from Interlaken Park, nor would it require any temporary construction or other easements. There would be no Section 4(f) use of Interlaken Park under Option A.

***Montlake Playfield***

Under Option A, SR 520 would be widened to the north into the NOAA Northwest Fisheries Science Center property and away from Montlake Playfield. However, Option A would still entail permanent incorporation of 2.0 acres of submerged Montlake Playfield property.

Within the park boundary, 2.0 acres of submerged land north of the existing SR 520 would be permanently acquired. There would be an additional construction easement of 1.8 acres (1.5 acres of submerged land), but this would not affect any of the park facilities (Exhibit 9-14). A temporary support structure would be built along the northeast edge of the park. While this temporary structure would be a work bridge used to remove and replace the SR 520 off-ramp to Montlake Boulevard, this section of the work bridge would only provide access to the south side of the Portage Bay Bridge to facilitate construction there. The temporary structure would be located at the far edge of the park property, near the existing bridge and ramps, in an area that would not impact any of the park activities or features. After construction, the easement property at the northeast edge of the park would be fully restored and returned to park use.

Based on the above discussion, there would be a Section 4(f) use of Montlake Playfield under Option A because of the permanent acquisition of 2.0 acres of submerged land.

***East Montlake Park***

Option A would result in a permanent incorporation of land at East Montlake Park (Exhibit 9-15). Widening of SR 520, installation of floating bridge trail connection ramps, installation of the Montlake lid, and development of associated stormwater facilities would necessitate the incorporation of approximately 2.8 acres of land from East Montlake Park. The existing vehicular access to the park from 24th Avenue East would be relocated. New access would be provided from the Montlake lid.

Exhibit 9-14. Effects on the Montlake Playfield under Options A, K, and L

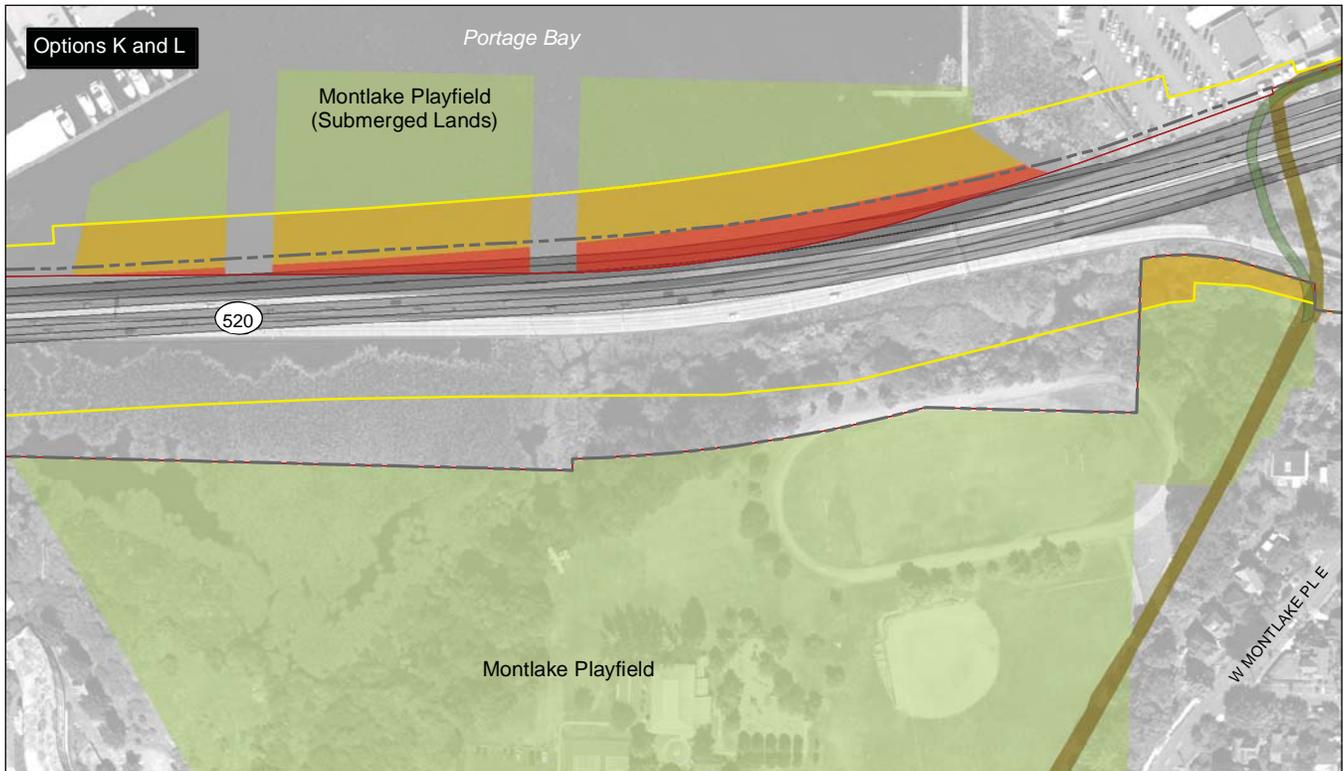
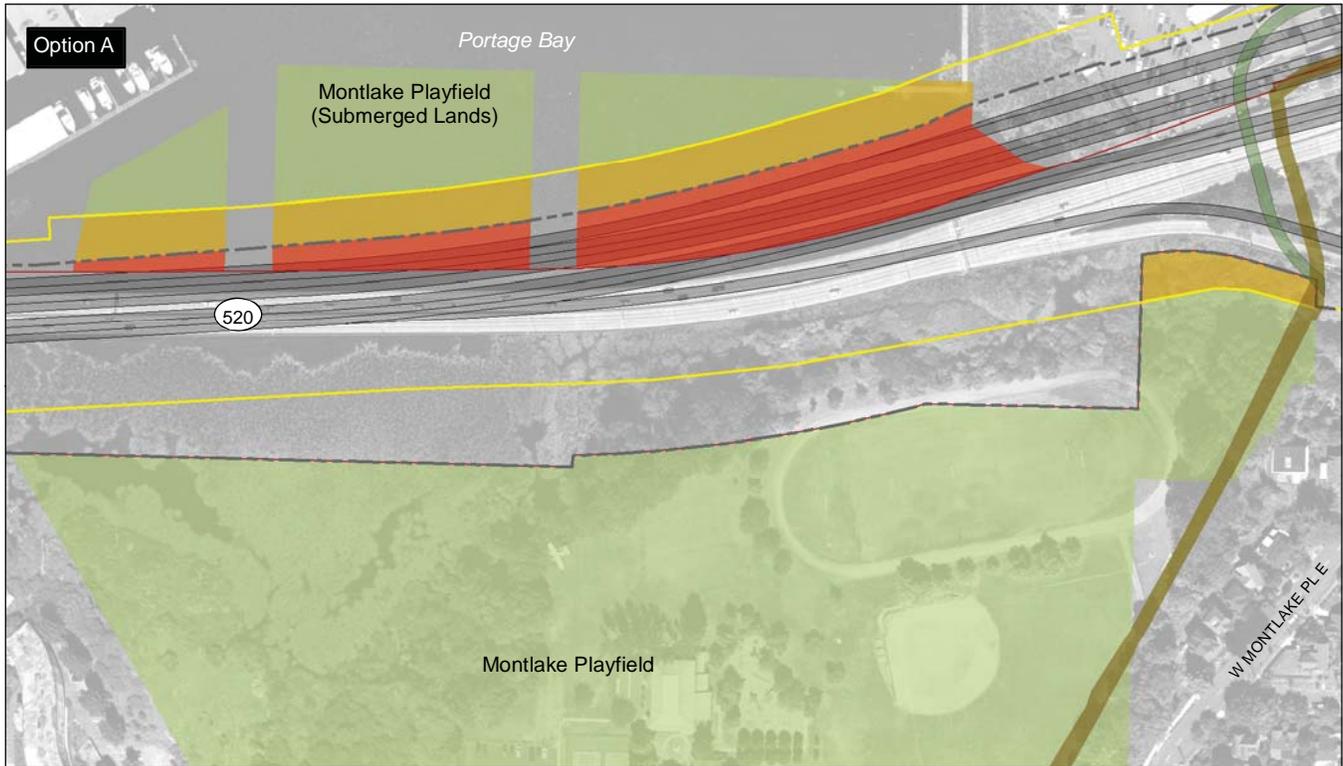
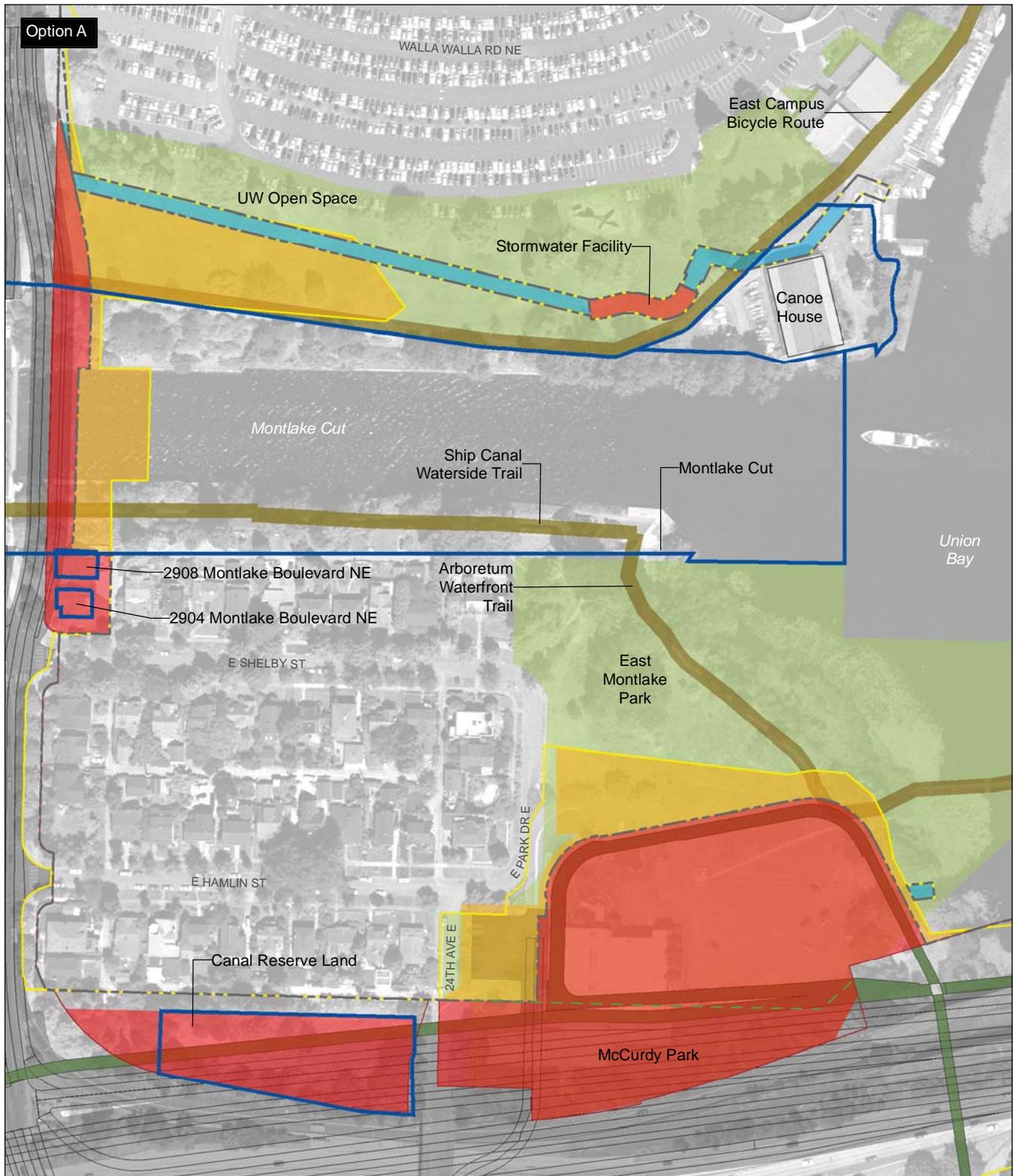


Exhibit 9-15. Properties with a Section 4(f) Use under Option A in the Montlake Area



In addition, Option A would require 1.1 acres of construction easement in East Montlake Park for 4 to 5 years. The suboption for Option A that adds ramps to and from Lake Washington Boulevard would require an additional less than 0.1 acre of construction easement in the park. After construction, the easement would be returned to park use. Based on the above discussion, there would be a Section 4(f) use of East Montlake Park as a result of Option A.

### ***McCurdy Park***

Option A would result in a Section 4(f) use of McCurdy Park (see Exhibit 9-15). See the details on McCurdy Park in the *Parks and Recreation* portion of the *How would the Preferred Alternative use Section 4(f) properties?* section.

### ***Ship Canal Waterside Trail***

Option A would result in a permanent incorporation of less than 0.1 acre of land from the Ship Canal Waterside Trail (see Exhibit 9-15) for placement of a new bascule bridge on Montlake Boulevard NE. This incorporation would represent approximately 3 percent (40 feet) of the approximately 1,200-foot trail length. In addition, less than 0.1 acre of land from the trail would be needed for a construction easement.

The existing pedestrian access to the trail from Montlake Boulevard would be relocated approximately 40 feet to the east of its existing location. During construction, the trail would be closed to access from Montlake Boulevard East. Portions of the trail outside the construction limits would be accessible from either West Montlake Park or East Montlake Park. However, pedestrians would not be able to pass through the construction area, disrupting the connectivity of the trail.

Based on the above discussion, there would be a Section 4(f) use of the Ship Canal Waterside Trail as a result of Option A.

### ***University of Washington Open Space***

A total of 0.7 acre of land would be acquired from the UW Open Space under Option A, of which approximately 0.2 acre at the western end of the UW Open Space would be acquired for the new bascule bridge across the Montlake Cut. An additional underground easement of 0.5 acre for a stormwater facility would also be acquired (see Exhibit 9-15). The total acquisition of the UW Open Space would be 0.7 acre of land, including the permanent subterranean easement. Therefore, the UW Open Space would experience a Section 4(f) use as a result of Option A.

In addition, 1.2 acres of construction easement would be required at the southwestern end of the UW Open Space for approximately 2.5 years to construct the new bascule bridge. During construction, recreation activities at the Waterfront Activities Center and the Canoe House would not be

affected. After construction, the easement would be restored to its current recreation use.

### ***Washington Park Arboretum and Arboretum Waterfront Trail***

Option A would require a permanent incorporation of 0.4 acre of land within the Washington Park Arboretum (Exhibit 9-16). Of that, 0.4 acre would be on Foster Island and less than 0.1 acre would be submerged land on Foster Island. Option A would cross Foster Island with a pier-and-span bridge that would require expanding the right-of-way to the north of the alignment.

In addition, Option A would require 1.8 acres of construction easement on Foster and Marsh islands. Construction would include access work bridges on and adjacent to Foster and Marsh islands. These bridges would be located parallel to SR 520 in the approach areas. The work bridges would be removed after completion of the permanent structure. The construction easement would be returned to park use after construction was completed.

Closures of the Arboretum Waterfront Trail where it crosses beneath SR 520 on Foster Island are anticipated during construction. Under Option A, a trail detour around the SR 520 construction on Foster Island could not be provided, and this would disrupt the connectivity of the trail. The trail segment between East Montlake Park and the northern portion of Foster Island could be accessed from the East Montlake Park trailhead. Access to this trailhead would be maintained throughout the construction period.

Based on the above discussion, there would be a Section 4(f) use of the Washington Park Arboretum and the Arboretum Waterfront Trail as a result of Option A.

### **Historic Properties**

Exhibit 9-17 shows the historic properties with a Section 4(f) use under Option A.

#### ***Fire Station #22***

There would be a Section 4(f) use of Fire Station #22 as a result of Option A. See the details on the fire station in the Historic Properties portion of the *How would the Preferred Alternative use Section 4(f) properties?* section.

#### ***NOAA Northwest Fisheries Science Center***

Option A would result in a permanent incorporation of 1.2 acres of land from the NOAA Northwest Fisheries Science Center. The new Portage Bay Bridge would use property along the south side of the site and would cause the removal of the hatchery and other buildings in the complex. Option A would disrupt the vital relationship of the site activities with the historical function of the West Wing Administration building. NOAA could choose

Exhibit 9-16. Effects on the Washington Park Arboretum under Option A

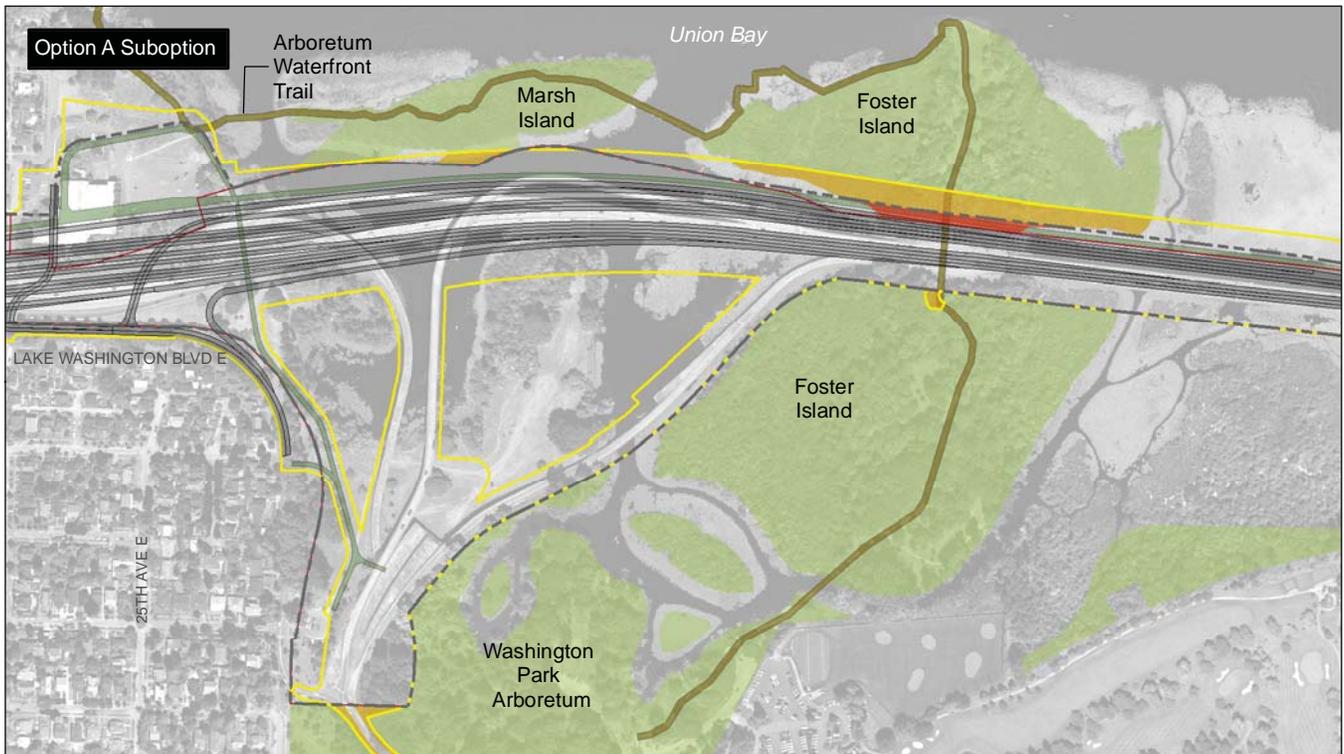
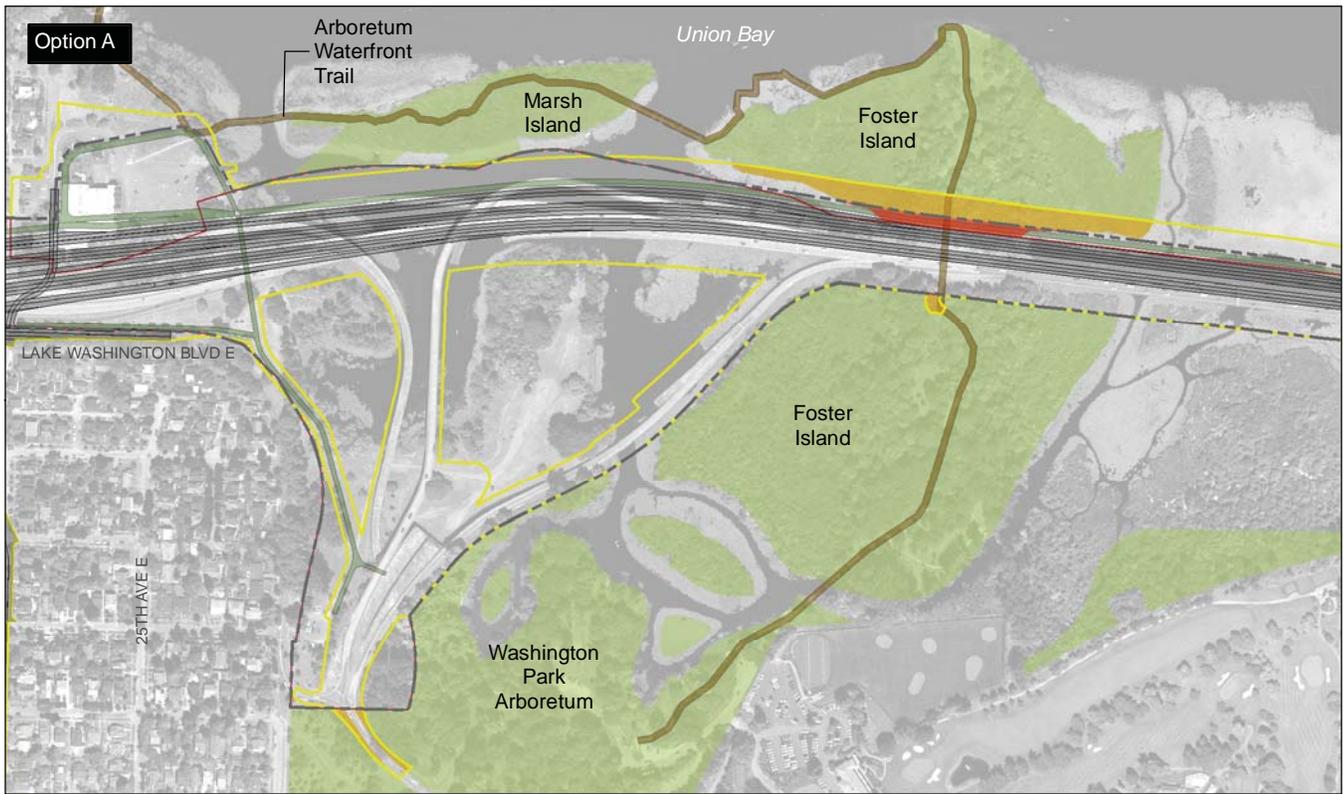
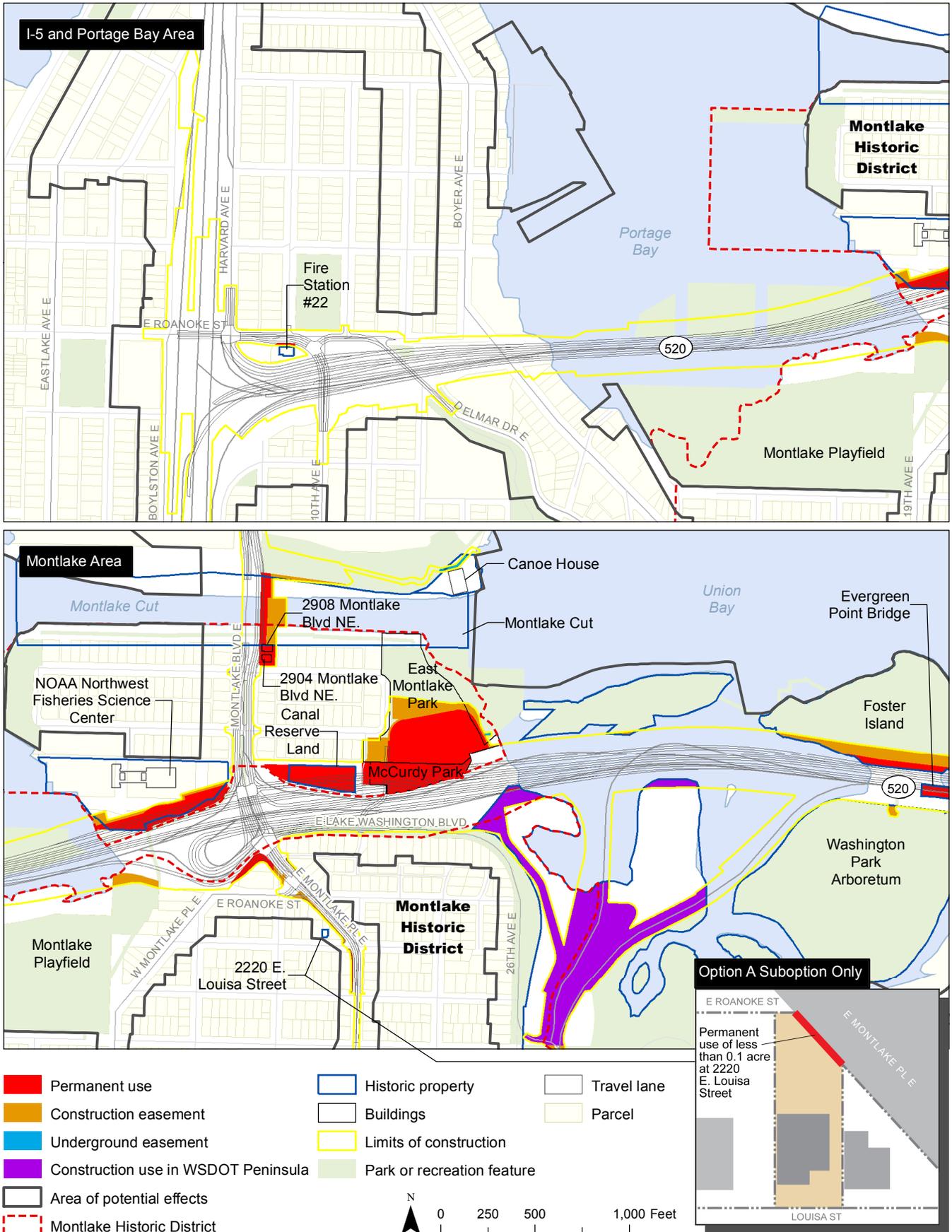


Exhibit 9-17. Historic Properties with a Section 4(f) Use under Option A



to relocate the entire campus, effectively abandoning the historic property because of the project impacts.

In addition, a sliver of land located to the north of the area converted to right of way (0.3 acre) would be used for construction staging and access during Montlake lid and Portage Bay Bridge construction. This easement would be used for the duration of the construction period and would be included in the total Section 4(f) use. The property would be restored to its current condition after construction. There would be a total of 1.5 acres of use at the NOAA Northwest Fisheries Science Center.

Based on the above discussion, there would be a Section 4(f) use of the NOAA Northwest Fisheries Science Center as a result of Option A.

### ***Montlake Historic District***

Option A would result in a permanent incorporation of 7.5 acres of land from the Montlake Historic District (see Exhibit 9-17). Approximately 0.1 acre of property from seven private properties on the west side of Montlake Place East and 24th Avenue East would be acquired to accommodate added capacity along those streets for widening the roadway to the west. This action would move the road and the sidewalk closer to the residences. No structures would be directly affected, but the properties could lose a small portion (less than 0.1 acre) of front yard along the roadway, and some trees could be removed. Four of these properties are residences that are contributing elements to the Montlake Historic District, including 2220 East Louisa Street, which is also individually eligible for the NRHP. The other three are non-contributing properties.

A constructed wetland for stormwater treatment would be built on most of the current site occupied by MOHAI, necessitating the removal of the building and acquisition of the McCurdy Park property (1.4 acres) within the historic district. In addition, 2.8 acres of East Montlake Park within the district would also be acquired. Option A would build a new bascule bridge immediately to the east of the existing historic Montlake Bridge. To accommodate the footprint of the new bridge, two residential properties that contribute to the Montlake Historic District, 2904 and 2908 Montlake Boulevard NE, would be acquired and removed.

To accommodate construction of westbound SR 520 and the new bicycle and pedestrian path, the remaining piece of the Canal Reserve Land property that sits between the SR 520 off-ramp and the alleyway along the south side of the properties on East Hamlin Street would be acquired. As the NOAA Northwest Fisheries Science Center contains a contributing element to, and is within the boundaries of, the Montlake Historic District, the use of 1.5 acres of that property, removal of the NRHP-eligible hatchery and other buildings in the complex and the construction easement, discussed above, would also affect the historic district.

Option A would remove 7.5 acres, including the demolition of two contributing properties, removal of the Canal Reserve Land, loss of acreage in several parks in the district, and impacts on the contributing NOAA Northwest Fisheries Science Center building. There would be an additional 1.9 acres of construction easements within the district boundaries.

Based on the above discussion, there would be a Section 4(f) use of the Montlake Historic District, including eight properties that contribute to the district as a result of Option A.

### ***2220 East Louisa Street***

The residence at 2220 East Louisa Street is individually eligible for the NRHP and is a contributing element to the Montlake Historic District. Under Option A, less than 0.1 acre (approximately 136 square feet) would be acquired from the rear of the property (see Exhibit 9-17). The rear of the parcel abuts East Montlake Place East, and it is here that a small portion would be required to accommodate increased capacity of the roadway. The building would not be impacted, and Option A would have no discernible effect on the characteristics that make the residence at 2220 East Louisa Street eligible for the NRHP.

As a historic property with a permanent acquisition, there would be a Section 4(f) use of the property at 2220 East Louisa Street.

### ***Montlake Cut***

Option A would place a new bascule bridge just east of the existing bascule bridge. This would result in a permanent incorporation of land on both shores of the Montlake Cut. Option A would incorporate 0.3 acre of the Montlake Cut and convert it to transportation right-of-way. Of the 0.3 acres, less than 0.1 is on the south shore in the Montlake Historic District and 0.3 acre is on the north shore of the cut.

The new bridge would span the official navigation channel in the Montlake Cut. Temporary construction supports and barges might be placed in the Montlake Cut for in-water activities associated with construction of the new bascule bridge. Because the Montlake Cut must be open to ship traffic year-round, bridge construction in the Montlake Cut would not be allowed to interfere with marine navigation. The only exception to this would be a few short periods of time when the spans were being erected that would require closure of the cut to marine traffic. WSDOT would close the Montlake Cut to all boat traffic periodically over a 3- to 4-week period for a total of approximately 6 full (24-hour), non-consecutive days. In addition, Option A would require 0.4 acre of land for a construction easement along the cut (less than 0.1 acre on the south shore in the Montlake Historic District and 0.4 acre on the north shore). When construction is completed, the easement along the sides of the cut would be restored. Option A would have minimal effect on the characteristics that make the Montlake Cut eligible for the

NRHP. However, there would be a Section 4(f) use due to the acquisition of land on both sides of the Montlake Cut.

### ***Canoe House***

Option A would require an underground easement of 0.1 acre beneath a section of the Canoe House property to the north of the building. This easement is to accommodate a stormwater facility. It would have no physical impact on the Canoe House property. The Canoe House would remain accessible and recreation activities, which focus on the south (waterside) of the building, would not be impacted. The underground easement would have no discernible effect on the characteristics that qualify the Canoe House for listing in the NRHP. However, there would be a Section 4(f) use due to the permanent subterranean easement. The impacts would be the same as for the Preferred Alternative.

As a historic property with a permanent underground easement, there would be a Section 4(f) use of the Canoe House under Option A.

### ***Washington Park Arboretum***

As discussed above under *Park and Recreation Resources*, Washington Park Arboretum would experience a Section 4(f) use on Foster Island under Option A.

The historic boundaries of the Arboretum are larger than the boundaries of the park, so there is an additional use from construction on the WSDOT peninsula within the historic boundaries (Exhibit 9-18). There would be a total of 8.1 acres used within the boundaries of the historic property: 0.4 acre on Foster Island; less than 0.1 acre on the WSDOT peninsula that would be permanent; and 7.6 acres for construction on the WSDOT peninsula. Since WSDOT right-of-way on the peninsula would be utilized for the duration of construction for the Seattle area project elements, this 7.6 acres of construction on the WSDOT peninsula would constitute a Section 4(f) use under Option A.

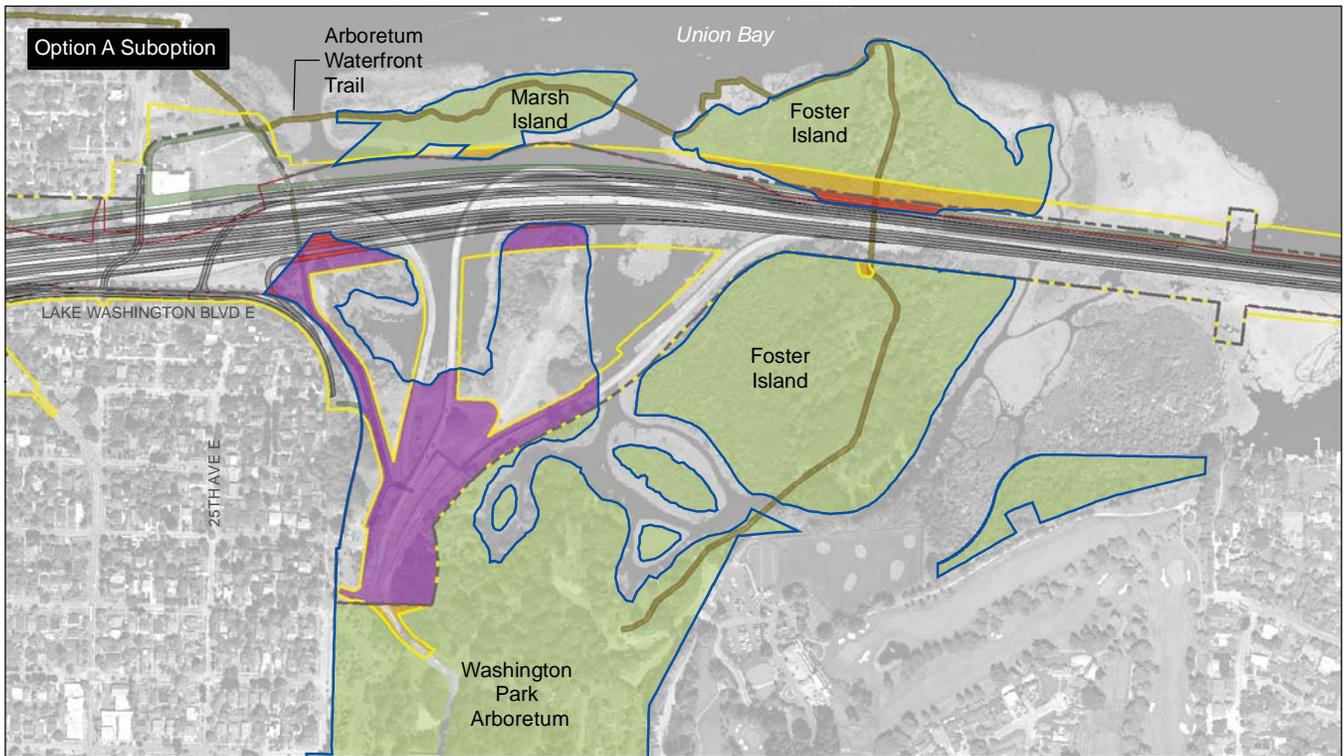
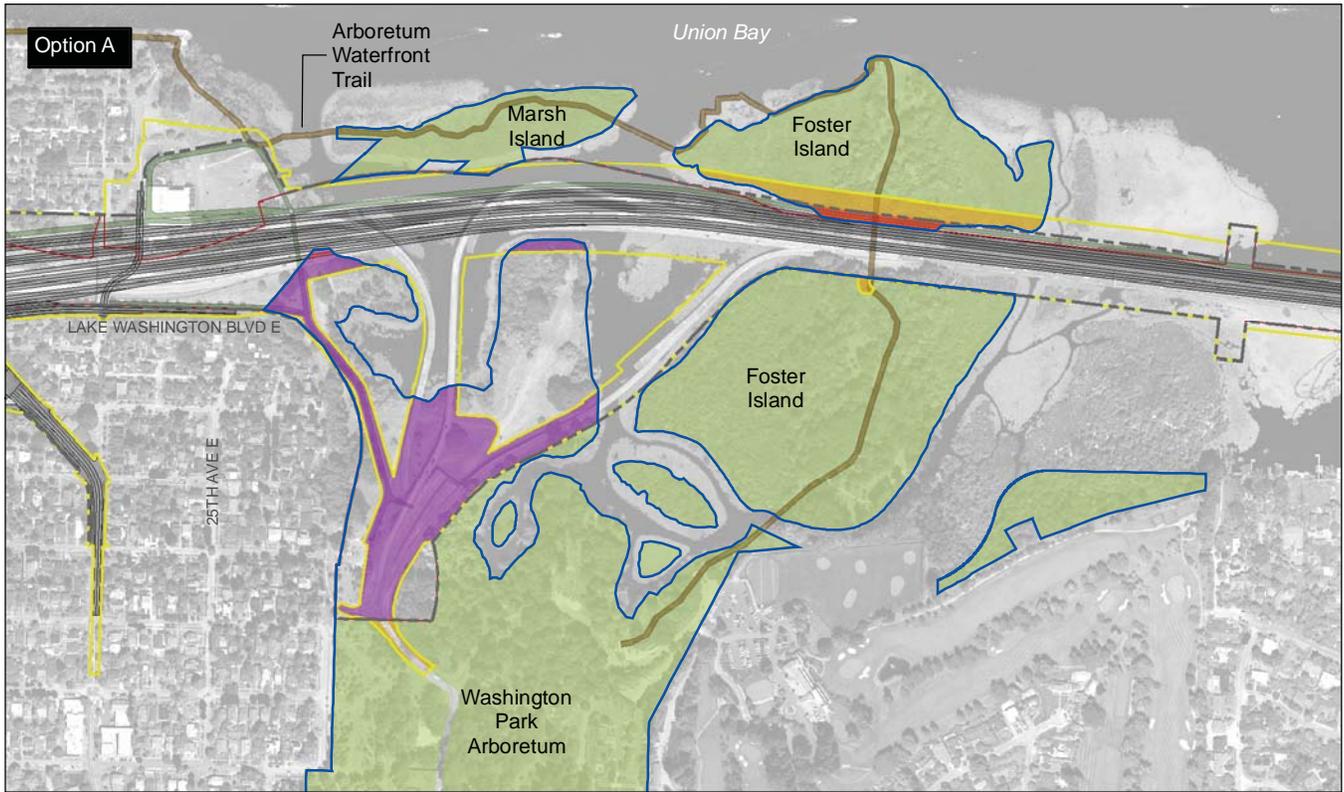
### ***Foster Island***

Option A would require a permanent conversion to right-of-way of 0.4 acre of land on Foster Island, which is significant as a TCP (see Exhibit 9-18).

Option A would cross Foster Island with a pier-and-span bridge that would require expanding the right-of-way approximately 36 feet to the north of the existing alignment. The bridge superstructure would be about 17 feet above the ground surface at this point, and three piers of five columns each, with each column 6 feet in diameter, would be placed on the island to support the bridge.

In addition, Option A would require 1.6 acres of construction easement on Foster Island. Construction would include access work bridges on and adjacent to Foster Island. These bridges would be located parallel to SR 520

Exhibit 9-18. Effects on the Washington Park Arboretum Historic Property under Option A



in the approach areas. The work bridges would be removed after completion of the permanent structure.

The permanent acquisition would occur on the north section of the island, and the majority of the construction easement would also be on the north side of the existing right-of-way. Access to the northern part of the island would be restricted throughout construction. No construction staging would occur on the island outside of the construction easement.

Option A would have an effect on the Foster Island TCP and it would experience a Section 4(f) use. This is a separate and distinct finding from the Washington Park Arboretum because Foster Island is an NRHP-eligible TCP independent of its location within the park and the historic arboretum.

### **Option A Suboptions**

#### ***Option A with Added Eastbound On-ramp and Westbound Off-ramp between SR 520 and Lake Washington Boulevard***

Adding a Lake Washington Boulevard eastbound on-ramp and westbound off-ramp to Option A would result in slightly less acreage being removed from the Montlake Historic District than under Option A. With the new on- and off-ramps, additional capacity would not be added to East Montlake Place East and 24th Avenue East. Therefore, acquisitions of properties along East Montlake Place East and 24th Avenue East associated with adding capacity there would not occur—no acreage would be acquired from the four contributing Montlake Historic District properties in that area, including 2220 East Louisa Street. This suboption for Option A would permanently acquire land, constituting a Section 4(f) use, but with 0.1 acre less than Option A without the suboption.

In the Arboretum, the suboption with added Lake Washington Boulevard ramps would require an additional construction use of 0.3 acre on the WSDOT peninsula within the WSDOT right of way. No additional permanent acquisition would be necessary.

#### ***Option A with Eastbound HOV Direct Access Ramp from Montlake Boulevard***

Adding an eastbound HOV direct-access on-ramp from Montlake Boulevard would not use any additional Section 4(f) properties.

#### ***Option A with the Constant Slope Profile of Option L***

Changing the profile of Option A to a constant-slope in the western approach would result in no additional use to Section 4(f) properties.

### **Lake Washington Study Area**

The historic Evergreen Point Bridge would be removed under all options. As part of the SR 520, I-5 to Medina project, the bridge would be replaced with a new bridge. The removal of the bridge would result in a Section 4(f) use of the Evergreen Point Bridge under Option A.

## Eastside Transition Study Area

No Section 4(f) properties would experience a use from the Eastside improvements. The completed project would connect the Points Loop Trail with the bike lane on the new Evergreen Point Bridge, thereby providing a non-motorized connection between the Eastside and Seattle. No construction work would occur in any of the parks in the study area and none of these properties would be directly affected by the project. Therefore, there would be no Section 4(f) use of parks and recreation resources in the Eastside Transition study area as a result of Option A.

The Arntson and Dixon houses would not experience a direct impact or a loss of historic integrity from the project. Therefore, there would be no Section 4(f) use of historic properties under Option A in the Eastside Transition study area.

## Pontoon Construction and Transport

There are no Section 4(f) properties that would be affected by the transport of pontoons to the project site, except for the Montlake Cut, which would experience no diminished historic integrity from the towing of pontoons. Pontoon towing would occur in the cut several times over the course of 2 to 3 years. The Montlake Cut is an active navigational channel and the towing of pontoons through this body of water would be in keeping with its nature and normal function. Although the Montlake Cut is used for other aspects of the project, the towing of pontoons would have no effect on the qualities that qualify the Montlake Cut for the NRHP and would not be considered a Section 4(f) use.

## Option A Summary

Option A would acquire a total of 18.8 acres of land for conversion to a transportation purpose from 9 park and recreation facilities and 9 historic properties. Of that, 9.1 acres are land acquisitions, 2.0 acres are submerged land in the Arboretum and Montlake Playfield, and 7.7 acres are on the WSDOT peninsula. Construction in the WSDOT right-of-way on the WSDOT peninsula would be utilized for the duration of project construction, in support of the Seattle area project elements and so is included in the Section 4(f) use total.

Under the Option A suboption, 9 park and recreation facilities and 8 historic properties would be impacted for a total of 20.4 acres. Submerged land that would be acquired was not included in the SDEIS calculation, so the acreage totals are higher than were presented in that document.

In addition, there would be a total of 7.0 acres of construction easements under Option A. Of that, 5.3 acres are on land, and 1.6 acres are submerged land in Washington Park Arboretum and Montlake Playfield. This land (including the submerged land) would be returned to prior use when

construction was completed. Table 9-3 lists the Section 4(f) uses under Option A.

**Table 9-3. Summary of Section 4(f) Uses under Option A**

<b>Section 4(f) Property</b>	<b>Section 4(f) Use</b>	<b>Section 4(f) Land Used (in acres)</b>	<b>Area/Functions Affected</b>
<b>Park and Recreation Resources</b>			
Bagley Viewpoint	Yes	0.1	Permanent acquisition of entire viewpoint.
Interlaken Park	No	0	No permanent acquisition. No construction easement.
Montlake Playfield	Yes	2.0	Permanent acquisition of 2.0 acres of submerged land. Additional construction easement of 1.8 acres (including 1.5 acres of submerged land). <sup>a</sup>
East Montlake Park	Yes	2.8	Permanent acquisition of 2.8 acres of park property. Additional construction easement of 1.1 acres.
McCurdy Park	Yes	1.4	Permanent acquisition of the entire park property.
Ship Canal Waterside Trail	Yes	<0.1	Permanent acquisition of less than 0.1 acre. Additional construction easement of less than 0.1 acre. Trail closure during construction would disrupt trail connectivity.
UW Open Space	Yes	0.7	Permanent acquisition of 0.1 acre and 0.6 acre of underground easement for a stormwater facility. Additional construction easement of 1.2 acres.
East Campus Bicycle Route	Yes	<0.1	Acquisition of less than 0.1 acre of bicycle path. Additional construction easement of 0.1 acre.
Washington Park Arboretum	Yes	0.4	Permanent acquisition of 0.4 acre of park property, including less than 0.1 acre of submerged land. Additional construction easement of 1.8 acres.
Arboretum Waterfront Trail	Yes	0	Temporary closure of Arboretum Waterfront Trail during construction. No detour would be provided to maintain trail connectivity during some periods of construction.
<b>Historic Properties</b>			
Fire Station #22	Yes	<0.1	Permanent acquisition of less than 0.1 acre of the parcel.
NOAA Northwest Fisheries Science Center	Yes	1.5	Permanent acquisition of 1.2 acres. Use of 0.3 acre for construction staging and access for duration of construction period.
2220 East Louisa Street	Yes	<0.1	Permanent acquisition of property along edge of parcel. Historic building not impacted.
Option A with Suboption	No	0	No Section 4(f) use.
Montlake Historic District	Yes	7.5	Permanent acquisition of 7.5 acres of historic district, including removal of two contributing buildings. Additional construction easements of 1.9 acres.

Table 9-3. Summary of Section 4(f) Uses under Option A

Section 4(f) Property	Section 4(f) Use	Section 4(f) Land Used (in acres)	Area/Functions Affected
Option A with Suboption	Yes	7.4	No acquisitions from the properties along East Montlake Place East and 24th Avenue East. Permanent acquisition of 7.4 acres from historic district.
Montlake Cut	Yes	0.3	Permanent acquisition of 0.3 acre for new bascule bridge. Additional construction easement of 0.4 acre.
Canoe House	Yes	0.1	Underground easement of less than 0.1 acre for stormwater facility.
Washington Park Arboretum <sup>b</sup>	Yes	8.1	Permanent acquisition of 8.1 acres of park property, including less than 0.1 acre of submerged land on Foster Island. Additional 7.7 acres of construction use on WSDOT peninsula and 1.8 acres in the rest of the property.
Foster Island	Yes	0.4	Permanent acquisition of 0.4 acre, including less than 0.1 acre of submerged land. Additional construction easement of 1.6 acres.
Evergreen Point Bridge	Yes	NA	Removal of bridge.

<sup>a</sup> Further construction easement may be identified based on easement clarification and right-of-way discussions with the City of Seattle.

<sup>b</sup> The boundaries of the historic Arboretum are larger than the current park property. This use does not affect the recreational use of the Arboretum, and is only recognized as a Section 4(f) use of the Arboretum as a historic property.

Note: Project impact details have changed since the SDEIS through design refinements or error correction.

Note: Historic properties within the boundaries of the Montlake Historic District (Montlake Cut, NOAA, Washington Park Arboretum) are counted only once in the total use from the Preferred Alternative. See Table 9-1.

Note: The totals are calculated using 1/100th of an acre, but the numbers are presented rounded to the nearest 1/10th of an acre. NA = Not Applicable

How would the Option K use the Section 4(f) properties?

Seattle Study Area

Park and Recreation Resources

Exhibits 9-19 and 9-20 show the park and recreation resources with a Section 4(f) use under Option K.

### ***Bagley Viewpoint***

Option K would result in a Section 4(f) use of Bagley Viewpoint. See the details on the Bagley Viewpoint in the *Parks and Recreation* portion of the *How would the Preferred Alternative use Section 4(f) properties?* section.

Exhibit 9-19. Properties with a Section 4(f) Use under Option K in the Montlake Area

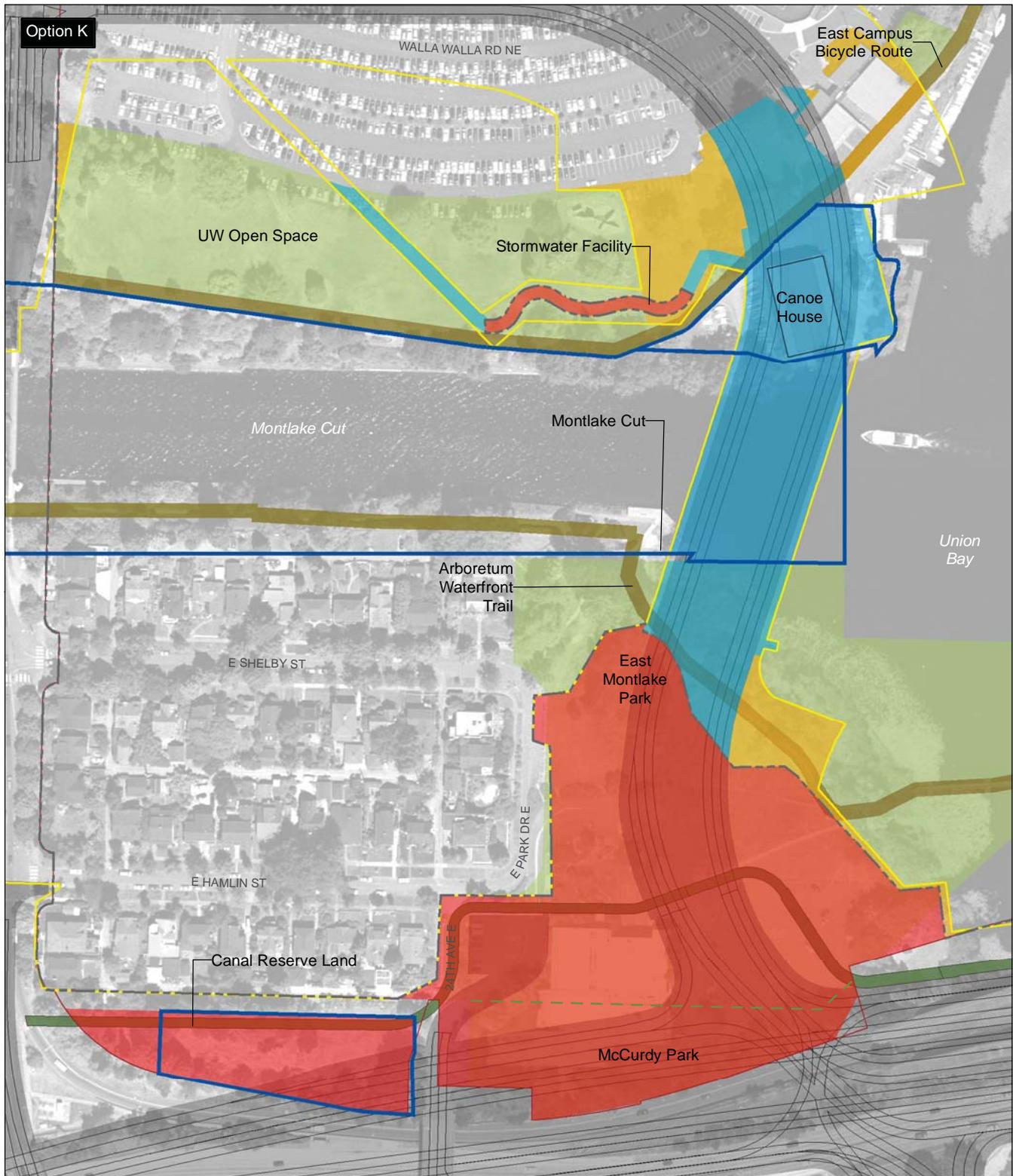
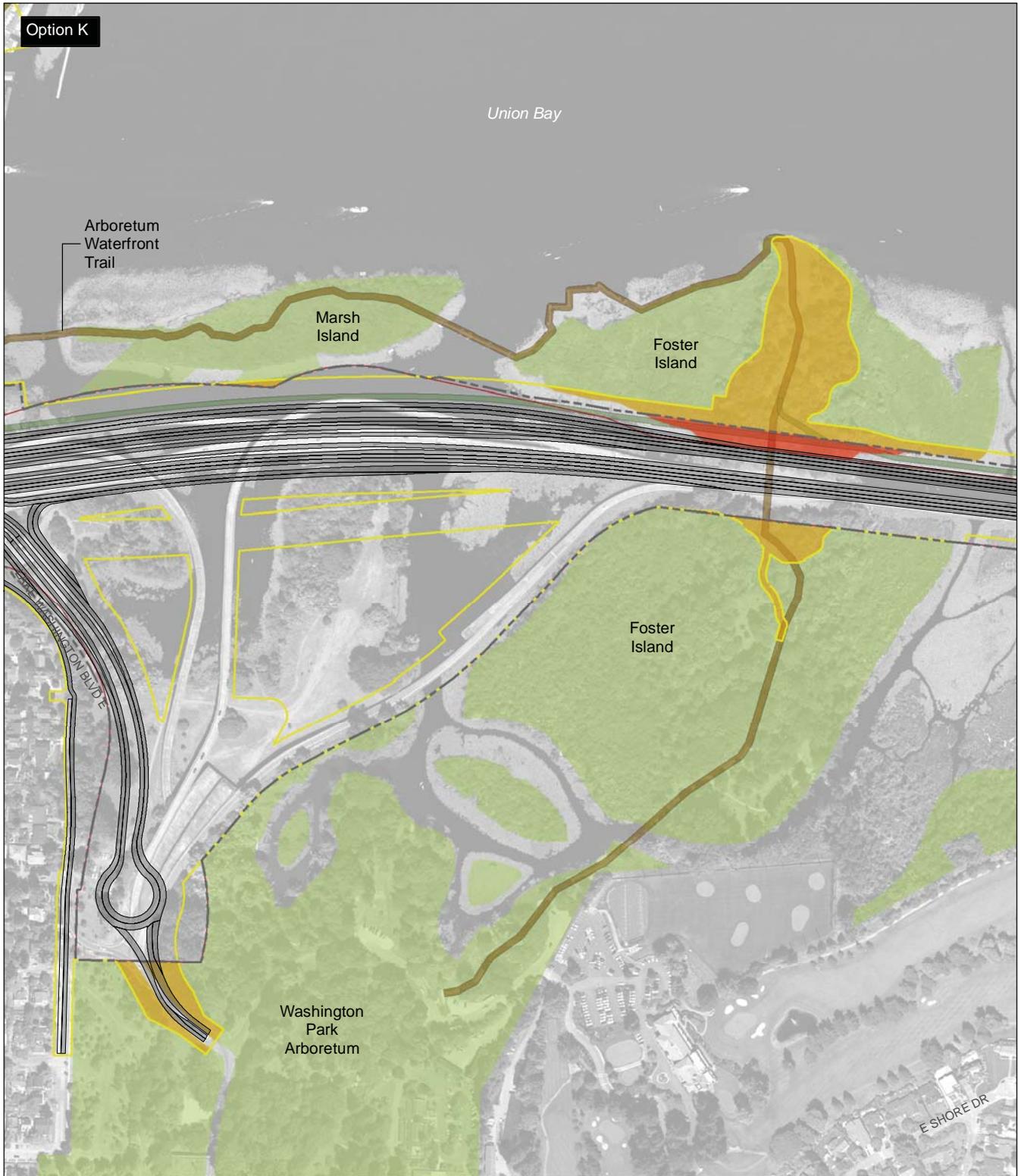


Exhibit 9-20. Effects on the Washington Park Arboretum under Option K



***Interlaken Park***

Option K would not require permanent acquisition of land from Interlaken Park, nor would it require any temporary construction or other easements. There would be no Section 4(f) use of Interlaken Park under Option K.

***Montlake Playfield***

Option K would entail a permanent incorporation of 1.0 acre of submerged land of Montlake Playfield property north of the existing SR 520.

Approximately 2.2 acre of construction easement, 2.0 acres submerged and 0.2 acres upland, would be needed, but would not affect any of the park facilities (see Exhibit 9-19).

Similar to Option A, a temporary support structure would be built along the northeast edge of the park. While this temporary structure would be a work bridge used to remove and replace the SR 520 off-ramp to Montlake Boulevard, this section of the work bridge would only provide access to the south side of the Portage Bay Bridge to facilitate construction there. The temporary structure would be located at the far edge of the park property, near the existing bridge and ramps, in an area that would not impact any of the park activities or features. After construction, the easement property at the northeast edge of the park would be fully restored and returned to park use.

Based on the above discussion, there would be a Section 4(f) use of Montlake Playfield as a result of Option K due to the acquisition of submerged park land on the north side of SR 520.

***East Montlake Park***

Option K would result in a permanent incorporation of land at East Montlake Park (Exhibit 9-19). Widening of SR 520, installation of floating bridge trail connection ramps, tunnel construction, installation of the Montlake lid, and development of associated stormwater facilities would necessitate the incorporation of 4.5 acres of land from East Montlake Park. The existing vehicular access to the park from 24th Avenue East would be relocated. New access would be provided from the Montlake lid. Option K would also require an underground easement for the tunnel of 0.7 acre in the remaining land of East Montlake Park.

In addition, Option K would require 0.4 acre of construction easement in East Montlake Park to construct the stormwater facility and the tunnel beneath the Montlake Cut. Construction activities within the park are expected to last 4 to 5 years. The construction easement property would be restored and returned to park use when the project was completed.

Based on the above discussion, there would be a Section 4(f) use of East Montlake Park as a result of Option K.

***McCurdy Park***

Option K would result in a Section 4(f) use of McCurdy Park. See the details on McCurdy Park in the *Parks and Recreation* portion of the *How would the Preferred Alternative use Section 4(f) properties?* section.

***Ship Canal Waterside Trail***

There would be no permanent acquisition of land from the Ship Canal Waterside Trail resulting from Option K (see Exhibit 9-19).

No construction easement would be needed along the trail. Construction of the tunnel option within East Montlake Park would close access to the trail from East Montlake Park for between 6 and 7 years. However, the entire trail would remain open during the construction period, including the viewing platform within East Montlake Park, and the trail would remain accessible from West Montlake Park and Montlake Boulevard. No construction work would occur on the trail itself. No adverse physical impacts or interference with the protected activities, features, or attributes of the trail are anticipated, as the trail would remain open and accessible throughout the construction period. Therefore, there would be no use or temporary occupancy of the trail during construction.

Based on the above discussion, there would be no Section 4(f) use of the Ship Canal Waterside Trail as a result of Option K.

***University of Washington Open Space***

Option K would result in a permanent incorporation of 0.8 acre of land in the UW Open Space (see Exhibit 9-19). Option K would tunnel beneath the Montlake Cut, passing under the UW Open Space to its connection with Montlake Boulevard. An underground easement of 0.6 acre would be needed under the UW Open Space for the tunnel. The underground easement would be a permanent acquisition and would be classified as a use under Section 4(f). The total Section 4(f) land acquired would be 0.8 acre.

In addition, 0.8 acre of construction easement would be required at the UW Open Space. After construction, the area would be returned to recreational use. Tunnel construction would require removal of the southern building of the Waterfront Activities Center. An alternate, temporary location for boat rentals would be provided during construction. After construction, a new Waterfront Activities Center would be built at either its current location or a new location. Access to the Canoe House would be limited to water access and pedestrian access from the south from the East Campus Bicycle Route along the Montlake Cut. Access from the north would be restricted or eliminated during construction, and no parking for the Canoe House would be available during construction of the tunnel. The Canoe House would not be closed during project construction and no physical construction would occur on the Canoe House site.

Based on the above discussion, there would be a Section 4(f) use of the UW Open Space as a result of Option K.

### ***Washington Park Arboretum and Arboretum Waterfront Trail***

Option K would require a permanent incorporation of 0.7 acre of land on Foster Island, of which less than 0.1 acre is submerged land (Exhibit 9-20). In Option K, SR 520 would cross Foster Island beneath a “land bridge.” The roadway would be at or slightly below the existing grade, but would be lidded by a large berm. The Arboretum Waterfront Trail that currently passes beneath SR 520 would be reconstructed on the berm to provide pedestrian access over the highway. The land bridge would have the beneficial purpose of facilitating park-user access across Foster Island from north to south, over SR 520. The intention is that the new crossing and associated fill would be enhancements to the park. Even though more land would be acquired, users could potentially maintain more of a park experience walking over a lidded highway than walking beneath an elevated one. Although the land bridge itself would be within the WSDOT right-of-way, it would be available for park use after construction.

In addition, Option K would require 4.5 acres of construction easement on Foster and Marsh islands for work bridges, trail reconstruction, and fill. The work bridges would be removed and the construction easement property would be returned to park use after construction was completed. There would be an additional 0.7 acre easement in the Lake Washington Boulevard area, which would be returned to park use after construction was completed. The total construction easement in Washington Park Arboretum would be 5.2 acres.

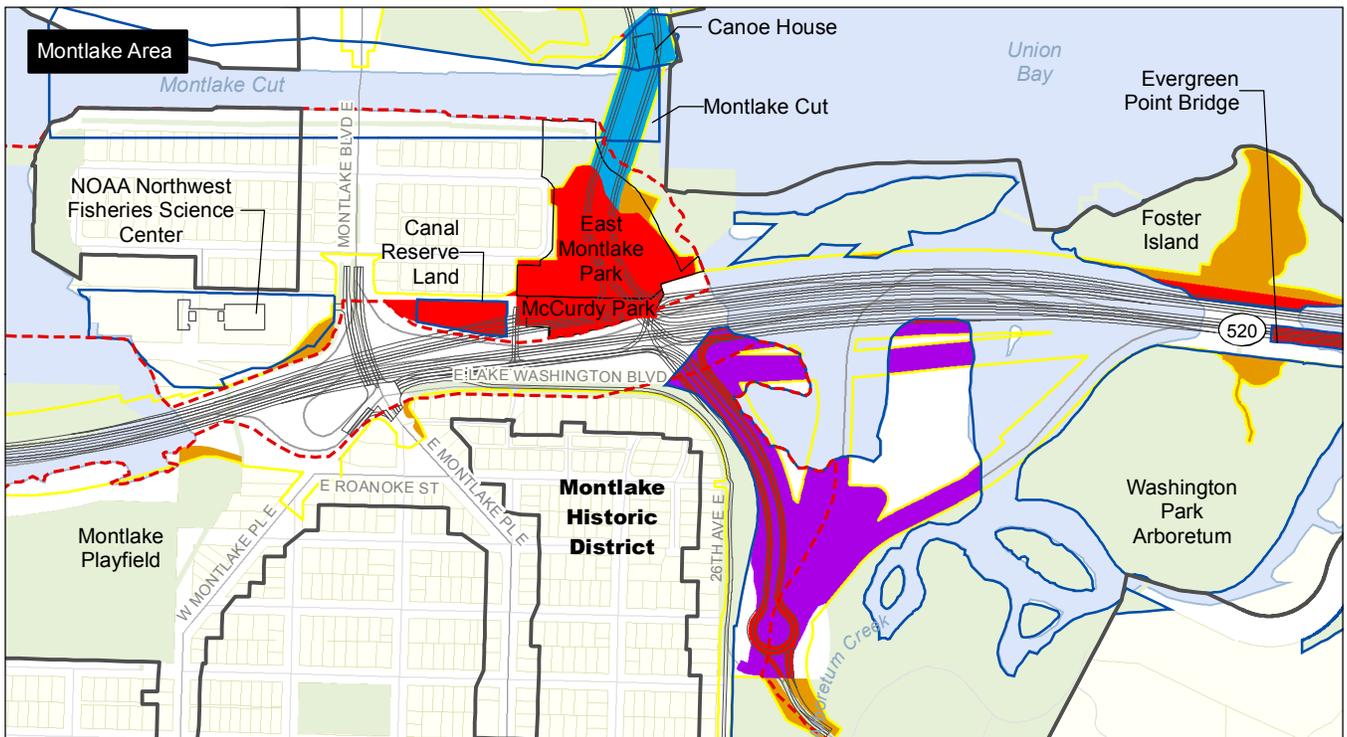
Option K would also permanently acquire an underground easement of 0.1 acre under the western section of the Arboretum Waterfront Trail. This easement would not physically affect the trail nor would it have any impact on recreational use of the trail. The section of the Arboretum Waterfront Trail within the construction limits on Foster Island would be closed during construction. Option K would not provide a detour around the SR 520 construction on Foster Island, so continuity of the trail would be disrupted. The trail segment between East Montlake Park and the northern portion of Foster Island could be accessed from the trailhead in East Montlake Park.

Based on the above discussion, there would be a Section 4(f) use of the Washington Park Arboretum and the Arboretum Waterfront Trail as a result of Option K.

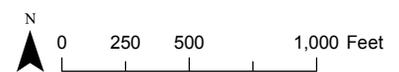
### **Historic Properties**

Exhibit 9-21 shows the historic properties with a Section 4(f) use under Option K.

Exhibit 9-21. Historic Properties with a Section 4(f) Use under Option K



- |                                     |                            |
|-------------------------------------|----------------------------|
| Permanent use                       | Historic property          |
| Construction easement               | Limits of construction     |
| Underground easement                | Travel lane                |
| Construction use in WSDOT Peninsula | Parcel                     |
| Area of potential effects           | Park or recreation feature |
| Montlake Historic District          |                            |



***Fire Station #22***

There would be a Section 4(f) use of the Fire Station #22 as a result of Option K. See the details on the fire station in the *Historic Properties* portion of the *How would the Preferred Alternative use Section 4(f) properties?* section.

***NOAA Northwest Fisheries Science Center***

Option K would use an undeveloped portion of land at the east end of the NOAA property (0.4 acre) as a construction easement for construction staging and access during Montlake lid and Portage Bay Bridge construction. The easement would be used for the duration of the construction period. Although this property would be restored to its current condition after construction, and would not impact the integrity of the historic buildings on the parcel, the length of time needed for the use of the property would constitute a use under Section 4(f).

***Montlake Historic District***

Option K would result in a permanent incorporation of 9.6 acres of land from the Montlake Historic District. A constructed wetland for stormwater treatment would be built on most of the current site occupied by MOHAI, necessitating the removal of the MOHAI building and acquisition of McCurdy Park within the Montlake Historic District. To accommodate construction of westbound SR 520 and the new bicycle and pedestrian path, the remaining piece of the Canal Reserve Land would be acquired.

Option K would acquire land from the Montlake Historic District, but it would not remove any contributing elements or diminish the integrity of any individually eligible properties within the district. It would not diminish the setting and feeling of the northeast part of the district or of individually eligible properties in the district. Since the NOAA Northwest Fisheries Science Center contains a contributing element to the Montlake Historic District, the construction easement there, discussed above, would affect the historic district.

With Option K, a large amount of dewatering is likely to occur, and such dewatering might cause settlement of adjacent loose sands. The settlement could affect nearby structures. However, typical design and construction mitigation measures identified for the SR 520, I-5 to Medina project would reduce the chance of structure settlement. These measures include using cofferdams, slurry cutoff walls, and secant pile walls in the large excavations to minimize the amount of water flowing into the construction area.

Therefore, no settlement of properties in the Montlake Historic District is expected to occur.

Based on the above discussion, there would be a Section 4(f) use of the Montlake Historic District as a result of Option K.

### ***Montlake Cut***

Under Option K, a permanent underground easement of 1.4 acres would be necessary under the Montlake Cut to accommodate the tunnel. This easement would have no physical or operational impacts on the cut. It would have no effect on the qualities that qualify the cut for the NRHP. There would be no additional construction easements of the cut.

Based on the above discussion, there would be a Section 4(f) use of the Montlake Cut as a result of Option K due to the permanent easement.

### ***Canoe House***

Under Option K, a permanent underground easement of 0.8 acre would be necessary under the Canoe House to accommodate the tunnel (see Exhibit 9-21). Tunnel design and construction techniques would be used to account for the Canoe House loading so that construction of the tunnel under the Canoe House would not cause vibration or soil settlement that could impair the structural integrity of the building.

With Option K, a large amount of dewatering would likely occur and might cause settlement of adjacent loose sands. The settlement could affect nearby structures such as the Canoe House. Typical design and construction mitigation measures would reduce the chance of settlement. These measures include using cofferdams, slurry cutoff walls, and secant pile walls in the large excavations to minimize the amount of water flowing into the construction area. Therefore, no settlement of the Canoe House is expected to occur. Access to the Canoe House would be limited to water access or pedestrian access from the south from the trail along the Montlake Cut. Access from the north would be restricted or eliminated during construction, and no parking for the Canoe House would be available during construction of the tunnel. The Canoe House would not be closed during project construction and no physical construction would occur on the Canoe House site. This underground easement would have no effect on the qualities that qualify the Canoe House for the NRHP.

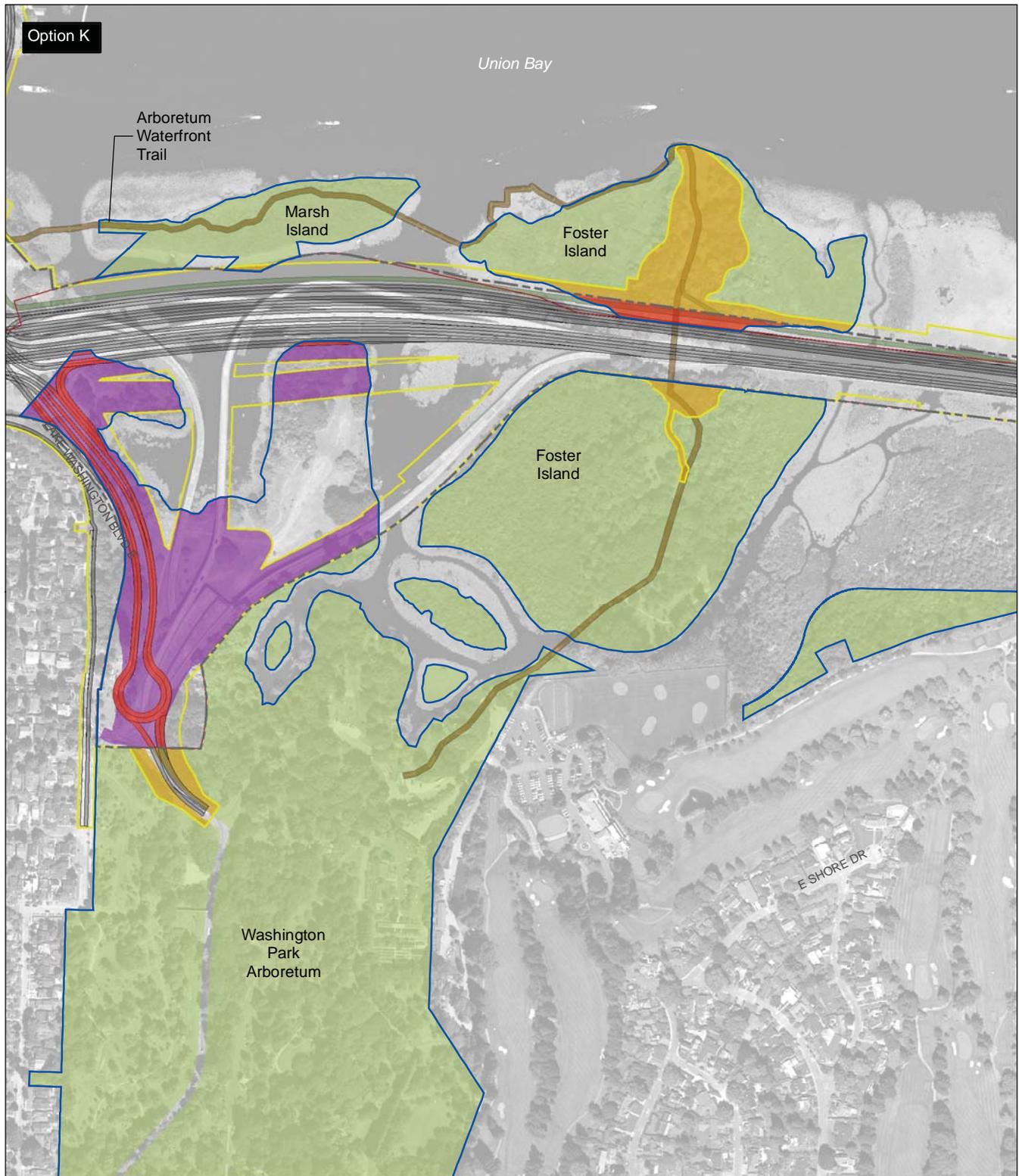
Due to the permanent underground easement, there would be a Section 4(f) use of the Canoe House as a result of Option K.

### ***Washington Park Arboretum***

As discussed above under *Park and Recreation Resources*, Washington Park Arboretum would experience a Section 4(f) use under Option K.

The historic boundaries of the Arboretum are larger than the boundaries of the park, so there is an additional use from construction in the WSDOT right-of-way within the historic boundaries (Exhibit 9-22). There would be a total of 12.2 acres used within the boundaries of the historic property: 0.7 acre on Foster Island; less than 2.0 acres on the WSDOT peninsula that would be permanent; and 9.5 acres for construction on the WSDOT peninsula. Since construction in the WSDOT right-of-way under Option K

Exhibit 9-22. Effects on the Washington Park Arboretum Historic Property under Option K



would be utilized for the duration of project construction, supporting the Seattle area project elements, this 11.5 acres on the WSDOT peninsula would be a Section 4(f) use.

There would be an additional construction easement of 5.2 acres of the historic property: 4.5 acres on Foster Island, 0.1 acre of submerged land on Marsh Island, and 0.7 acre in the Lake Washington Boulevard ramp area.

Based on the above, there would be a Section 4(f) use of the Washington Park Arboretum historic property as a result of Option K.

### ***Foster Island***

Option K would require a permanent conversion to right-of-way of 0.7 acre of land on Foster Island (see Exhibit 9-22). Under Option K, SR 520 would cross Foster Island beneath an approximately 250-foot-wide land bridge with the right-of-way expanded approximately 25 feet north of the existing alignment. The roadway would be at or slightly below the existing grade and would be lidded by a large concrete berm that would be partially covered with vegetation.

In addition, Option K would require 4.5 acres of construction easement on Foster Island for work bridges, trail reconstruction, and fill. The work bridges would be removed after construction was completed. Due to the invasive nature of the construction activities, the construction easement on Foster Island under Option K would be considered a Section 4(f) use.

The permanent acquisition would occur on the north section of the island, and most of the construction easement also would be on the north side of the island. Six-tenths of an acre (0.6 acre) of the construction easement would be located on the south part of the island. Access to the northern part of the island would be restricted throughout construction. No construction staging would occur on the island outside of the construction easement.

Construction for the land bridge would involve excavation to a depth of about 4 feet across Foster Island, resulting in disturbance of approximately 1.4 acres, including the area currently within WSDOT right-of-way. Approximately 4.5 acres of Foster Island would be subject to a substantial amount of fill, subsequent regrading, and the loss of all vegetation within the construction area. Although the area would be revegetated after construction, the island would undergo a significant change, and the user experience would be very different from existing conditions. The land bridge over SR 520 would appear as a large landscaped hill with some concrete edges, and would be a less natural landscape than what is there currently. The roadway would be concealed beneath the land bridge, as opposed to the visible piers or the uncovered roadway making landfall on the island today. While Option K may provide a more park-like recreational experience, it requires much more invasive construction. This degree of

construction disturbance and extreme change to the setting of the historic island would diminish the historic integrity of the TCP.

Based on the above discussion, there would be a Section 4(f) use of the Foster Island TCP as a result of Option K.

### Option K Suboptions

#### ***Option K with added eastbound off-ramp to Montlake Boulevard***

Adding an eastbound Montlake Boulevard off-ramp to Option K would result in no additional use of Section 4(f) properties because the added ramp would be located within the existing right-of-way of the current Montlake Boulevard ramp and construction duration would be similar.

### Lake Washington Study Area

The historic Evergreen Point Bridge would be removed under all options. As part of the SR 520, I-5 to Medina project, the bridge would be replaced with a new bridge. The removal of the bridge would result in a Section 4(f) use of the Evergreen Point Bridge under Option K.

### Eastside Transition Study Area

No Section 4(f) properties would experience a use from the Eastside improvements. The completed project would connect the Points Loop Trail with the bike lane on the new Evergreen Point Bridge, thereby providing a non-motorized connection between the Eastside and Seattle. No construction work would occur in any of the parks in the study area and none of these properties would be directly affected by the project. Therefore, there would be no Section 4(f) use of parks and recreation resources in the Eastside Transition study area as a result of Option K.

The Arntson and Dixon houses would not experience a direct impact or a loss of historic integrity from the project. Therefore, there would be no Section 4(f) use of historic properties under Option K in the Eastside Transition study area.

### Pontoon Construction and Transport

There are no Section 4(f) properties that would be affected by the transport of pontoons to the project site, except for the Montlake Cut, which would experience no diminished historic integrity from the towing of pontoons. Pontoon towing would occur in the cut several times over the course of 2 to 3 years. The Montlake Cut is an active navigational channel and the towing of pontoons through this body of water would be in keeping with its nature and normal function. Although the Montlake Cut is used for other aspects of the project, the towing of pontoons would have no effect on the qualities that qualify the Montlake Cut for the NRHP and would not be considered a Section 4(f) use.

## Option K Summary

Option K would acquire a total of 25.9 acres of land from 8 park and recreation facilities and 8 historic properties. Of that, 13.4 acres are land acquisitions, 1.0 acre is submerged land in the Arboretum and Montlake Playfield, and 11.5 acres are on the WSDOT peninsula. Construction on the WSDOT peninsula would be utilized for the duration of project construction in support of the Seattle area project elements, so it is included in the Section 4(f) use total.

In addition, there would be a total of 9.5 acres of construction easements under Option K. Of that, 7.0 acres are on land, and 2.5 acres are submerged land in Washington Park Arboretum and Montlake Playfield. This land (including the submerged land) would be returned to prior use when construction was completed. Table 9-4 lists the Section 4(f) uses under Option K.

Table 9-4. Summary of Section 4(f) Uses under Option K

Section 4(f) Property	Section 4(f) Use?	Section 4(f) Land Used (in acres)	Area/Functions Affected
Park and Recreation Resources			
Bagley Viewpoint	Yes	0.1	Permanent acquisition of entire viewpoint.
Interlaken Park	No	0	No permanent acquisition. No construction easement.
Montlake Playfield	Yes	1.0	Permanent acquisition of 1.0 acre of submerged land. Additional construction easement of 2.6 acres (of which 2.4 acres are submerged). <sup>a</sup>
East Montlake Park	Yes	5.2	Permanent acquisition of 4.5 acres of park property, and permanent underground easement of 0.70 acre. Additional construction easement of 0.4 acre.
McCurdy Park	Yes	1.4	Permanent acquisition of entire park property.
Ship Canal Waterside Trail	No	0	No permanent acquisition or construction easement. Temporary closure of trail access from East Montlake Park during construction. Entire trail accessible from West Montlake Park and Montlake Boulevard.
UW Open Space	Yes	0.8	Permanent acquisition of 0.1 acre of Open Space and permanent acquisition of 0.6 acre for underground easement for tunnel. Relocation of the Waterfront Activities Center. Additional construction easement of 0.8 acre.
East Campus Bicycle Route	Yes	0.1	Permanent subterranean easement of 0.1 acre of trail. Additional construction easement of 0.1 acre.
Washington Park Arboretum	Yes	0.7	Permanent acquisition of 0.7 acres of land and less than 0.1 acre of submerged park property on Foster Island. Additional 5.2 acres of construction easement.

Table 9-4. Summary of Section 4(f) Uses under Option K

Section 4(f) Property	Section 4(f) Use?	Section 4(f) Land Used (in acres)	Area/Functions Affected
Arboretum Waterfront Trail	Yes	0.1	Permanent underground easement of 0.1 acre. Periodic temporary closure of the trail during construction. No detour route would be provided to maintain trail connectivity in this area during temporary closures.
Historic Properties			
Fire Station #22	Yes	<0.1	Permanent acquisition of less than 0.1 acre of the parcel.
NOAA Northwest Fisheries Science Center	Yes	0.4	Construction easement of 0.4 acre of land for construction staging and access for the duration of the construction period.
Montlake Historic District	Yes	9.6	Permanent acquisition of 9.6 acres of historic district. Additional 1.0 acre of construction easement.
Montlake Cut	Yes	1.4	Permanent underground easement of 1.4 acres for tunnel.
Canoe House	Yes	0.8	Permanent underground easement of 0.8 acre for tunnel.
Washington Park Arboretum <sup>b</sup>	Yes	12.2	Permanent acquisition of 12.2 acres, including 0.7 acre on Foster Island and 11.5 acres on the WSDOT peninsula. Additional construction easement of 5.2 acres.
Foster Island TCP	Yes	5.3	Permanent acquisition of 0.7 acre of property. Construction easement with extensive fill and regrading of 4.6 acres.
Evergreen Point Bridge	Yes	NA	Removal of bridge.

<sup>a</sup> Further construction easement may be identified based on easement clarification and right-of-way discussions with the City of Seattle.

<sup>b</sup> The boundaries of the historic Arboretum are larger than the current park property. This use does not affect the recreational use of the Arboretum, and is only recognized as a Section 4(f) use of the Arboretum as a historic property.

Note: Project impact details have changed since the SDEIS through design refinements or error correction.

Note: Historic properties within the boundaries of the Montlake Historic District (Montlake Cut, NOAA, Washington Park Arboretum) are counted only once in the total use from the Preferred Alternative. See Table 9-1.

Note: The totals are calculated using 1/100th of an acre, but the numbers are presented rounded to the nearest 1/10th of an acre.

NA = Not Applicable

How would the Option L use the Section 4(f) properties?

Seattle Study Area

Park and Recreation Resources

***Bagley Viewpoint***

Option L would result in a Section 4(f) use of Bagley Viewpoint. See the details on the Bagley Viewpoint in the *Parks and Recreation* portion of the *How would the Preferred Alternative use Section 4(f) properties?* section.

***Interlaken Park***

Option L would not require permanent acquisition of land from Interlaken Park, nor would it require any temporary construction or other easements. There would be no Section 4(f) use of Interlaken Park under Option L.

***Montlake Playfield***

Option L would entail a permanent incorporation of 0.8 acre of Montlake Playfield property, all of which is submerged land on the north side of SR 520. An additional 2.1 acres of submerged land would be required for temporary construction easements for the Portage Bay Bridge construction. Approximately 0.2 acre of construction easement would be required that would extend approximately 30 feet west of the existing Bill Dawson Trail, within the park boundary, but would not affect any of the park facilities (see Exhibit 9-14). A total of 2.1 acres of Montlake Playfield would be needed for construction easements. A temporary support structure would be built along the northeast edge of the park. While this temporary structure would be a work bridge used to remove and replace the SR 520 off-ramp to Montlake Boulevard, this section of the work bridge would only provide access to the south side of the Portage Bay Bridge to facilitate construction there. The temporary structure would be located at the far edge of the park property, near the existing bridge and ramps, in an area that would not impact any of the park activities or features.

After construction, the easement property would be fully restored and returned to preconstruction use.

Based on the above discussion, there would be a Section 4(f) use of Montlake Playfield as a result of Option L due to the permanent acquisition of submerged land.

***East Montlake Park***

Option L would result in a permanent incorporation of land at East Montlake Park (Exhibit 9-23). Widening of SR 520, installation of floating bridge trail connection ramps, new bascule bridge construction, installation of the Montlake lid, and development of associated stormwater facilities would necessitate the incorporation 4.3 acres of land from East Montlake

Exhibit 9-23. Properties with a Section 4(f) Use under Option L in the Montlake Area



Park. The existing vehicular access to the park from 24th Avenue East would be relocated. New access would be provided from the Montlake lid.

In addition Option L would require 1.1 acres of construction easement in East Montlake Park for 2 to 3 years. After construction, the easement would be returned to park use.

Based on the above discussion, there would be a Section 4(f) use of East Montlake Park as a result of Option L.

### ***McCurdy Park***

Option L would result in a Section 4(f) use of McCurdy Park. See the details on McCurdy Park in the *Parks and Recreation* portion of the *How would the Preferred Alternative use Section 4(f) properties?* section.

### ***Ship Canal Waterside Trail***

Option L would result in a permanent incorporation of less than 0.1 acre of land from the Ship Canal Waterside Trail (see Exhibit 9-23) for the new bascule bridge. This incorporation would represent approximately 80 feet of the roughly 1,200-foot trail length. During construction, the trail would not be accessible from East Montlake Park, and the 160 feet of the trail within the construction area, including the viewing platform, would be closed. Once completed, the trail would pass beneath the new bascule bridge.

Based on the above discussion, there would be a Section 4(f) use of the Ship Canal Waterside Trail as a result of Option L.

### ***University of Washington Open Space***

Option L would use 0.5 acre of land from the UW Open Space for construction of a new bascule bridge (see Exhibit 9-23). An additional 0.1 acre would be required for a permanent underground easement to accommodate a stormwater facility, for a total permanent acquisition of 0.6 acre. Once construction was completed, the area beneath the bridge would link the passive recreation use area to the west with the remainder of the open space, including the Waterfront Activities Center and the Canoe House.

The bridge construction would relocate the climbing wall for the duration of construction. Construction of the bridge span and support columns would require the periodic closure of the Waterfront Activities Center. Although these effects would be temporary, they would interfere with the recreation activities at the UW Open Space. In addition, approximately 1.4 acres of construction easement would be required in the center of the UW Open Space for approximately 2.5 years. After construction, this area would be returned to recreational use.

Based on the above discussion, there would be a Section 4(f) use of the UW Open Space as a result of Option L.

### ***Washington Park Arboretum and Arboretum Waterfront Trail***

Option L would require permanent acquisition of 0.3 acre of land on Foster Island and less than 0.1 acre of submerged land, for a total of 0.3 acre of acquisition (Exhibit 9-24). Under Option L, SR 520 would cross over Foster Island with a pier-and-span bridge that would be widened to the north of the alignment. The highway mainline would provide approximately 7 to 10 feet of clearance above the crossing of the Arboretum Waterfront Trail on Foster Island.

In addition, Option L would require 2.3 acres of construction easement. Similar to Option A, construction would require access work bridges on and adjacent to Foster and Marsh islands. The work bridges would be removed after completion of the permanent structure, and the construction easement would be returned to park use after construction was completed.

The construction easement includes 1.6 acres on Foster Island (including 0.1 acre of submerged land), approximately 0.5 acre on Marsh Island (0.5 acre of submerged land and less than 0.1 acre on land), and 0.2 acre in the Lake Washington Boulevard area.

Closures of the Arboretum Waterfront Trail where it crosses beneath SR 520 on Foster Island are anticipated during construction. Under Option L, a trail detour around the SR 520 construction on Foster Island could not be provided, which would disrupt the connectivity of the trail. The trail segment between East Montlake Park and the northern portion of Foster Island could be accessed from the East Montlake Park trailhead.

Access to this trailhead and to the connection with the Ship Canal Waterside Trail would be maintained throughout the construction period with detours through East Montlake Park. After construction, the trail would cross underneath the new bridge.

Based on the above discussion, there would be a Section 4(f) use of the Washington Park Arboretum and the Arboretum Waterfront Trail as a result of Option L.

### **Historic Properties**

Exhibit 9-25 shows the historic properties with a Section 4(f) use under Option L.

### ***Fire Station #22***

There would be a Section 4(f) use of the Fire Station #22 as a result of Option L. See the details on the fire station in the *Historic Properties* portion of the *How would the Preferred Alternative use Section 4(f) properties?* section.

### ***NOAA Northwest Fisheries Science Center***

Option L would use a portion of the NOAA property (0.4 acre) as a construction easement for construction staging and access during Montlake lid and Portage Bay Bridge construction. The easement would be used for

Exhibit 9-24. Effects on the Washington Park Arboretum under Option L

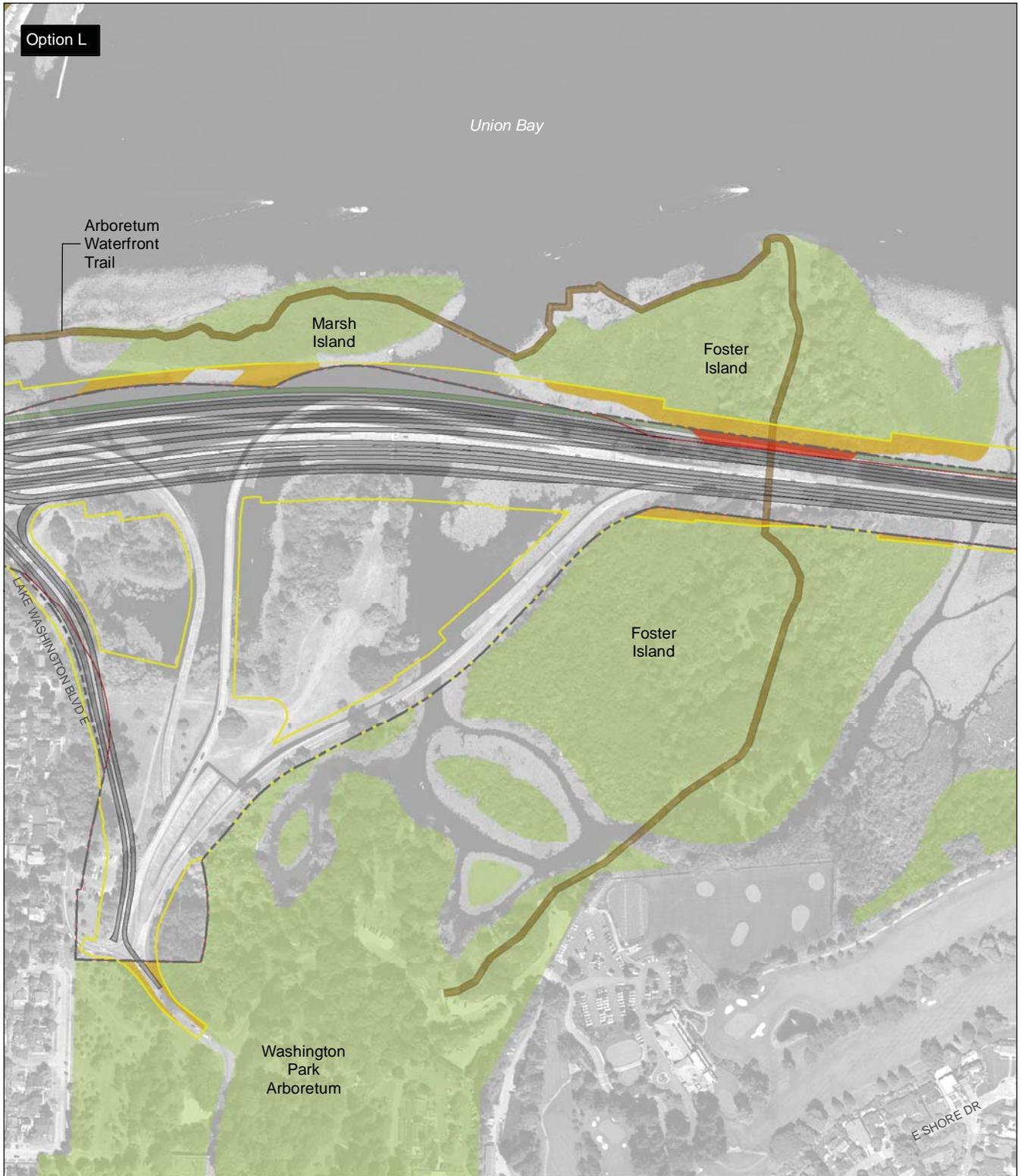
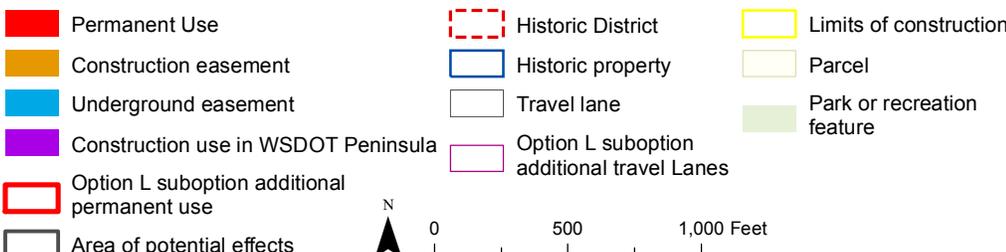
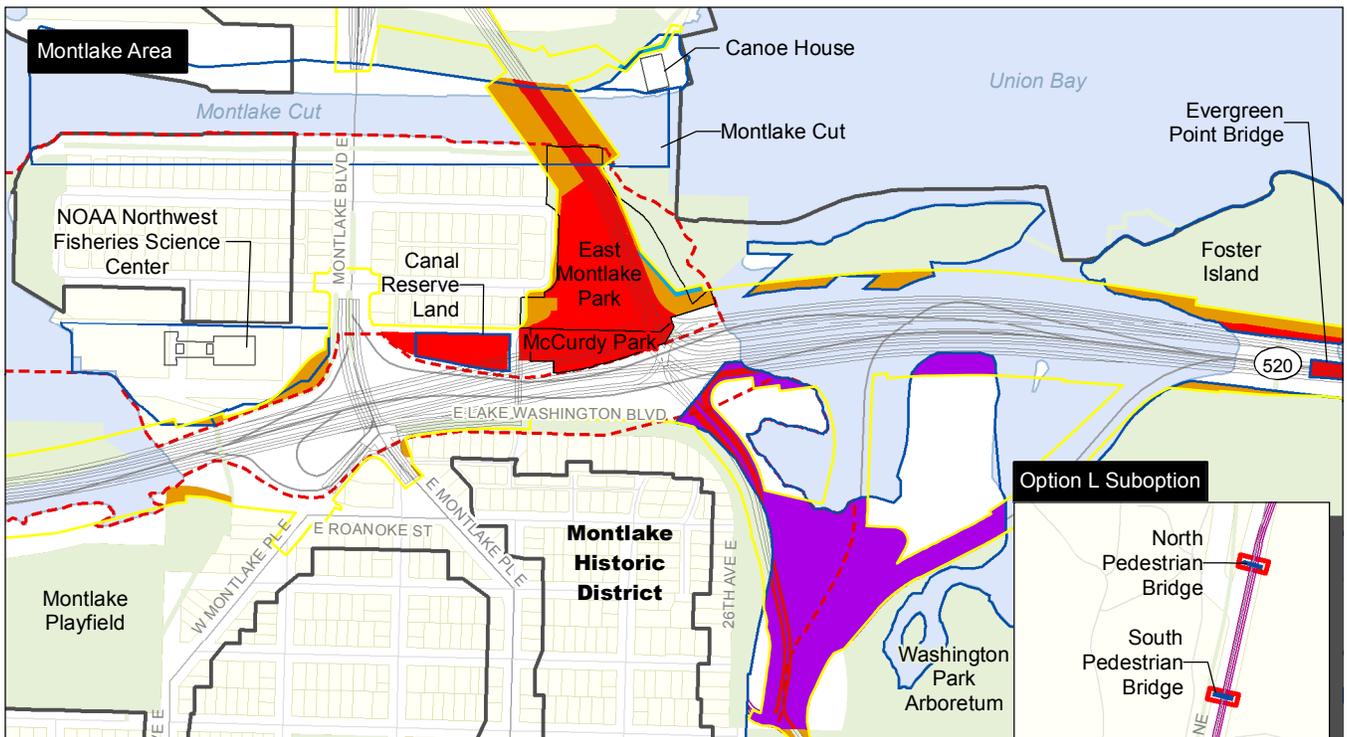


Exhibit 9-25. Historic Properties with a Section 4(f) Use under Option L



the duration of the project construction period. Although this property would be restored to its current condition after construction and the historic integrity of the historic buildings on the parcel would not be diminished, the length of time needed for the use of the property would constitute a use under Section 4(f).

### ***Montlake Historic District***

Option L would result in a permanent incorporation of 8.0 acre of land from the Montlake Historic District. A constructed wetland for stormwater treatment would be built on most of the current site occupied by MOHAI, necessitating the removal of the MOHAI building and acquisition of McCurdy Park within the historic district. To accommodate construction of westbound SR 520 and the new bicycle and pedestrian path, the remaining piece of the Canal Reserve Land, a contributing element to the district, would be acquired. Due to the permanent property acquisition of 8.0 acres, there would be a Section 4(f) use of the Montlake Historic District as a result of Option L.

There would be an additional construction easements of 2.0 acres within the district boundaries.

Based on the above discussion, there would be a Section 4(f) use of the Montlake Historic District as a result of Option L.

### ***Montlake Cut***

Option L would place a new bascule bridge near the east end of the Montlake Cut. This would result in a permanent incorporation of land on both shores of the Montlake Cut. Option L would incorporate 0.5 acre of the Montlake Cut and convert it to transportation right-of-way (0.4 acre on the north shore and 0.1 on the south shore, which is within the boundaries of the Montlake Historic District). The new bridge would span the official navigation channel in the Montlake Cut.

Temporary construction supports and barges might be placed in the Montlake Cut for in-water activities associated with construction of the new bascule bridge. The Montlake Cut must be open to ship traffic year-round, so the bridge construction in the Montlake Cut would not be allowed to interfere with marine navigation. The only exception to this would be a few short periods of time when the spans were being erected that would require closure of the Montlake Cut to marine traffic. However, these closures (up to six non-consecutive days total) would be of short duration, ranging from several hours to two days.

In addition, Option L would require 1.6 acres of land for construction easement. Once construction is completed, the easement along the sides of the Montlake Cut would be restored to the previous condition.

Based on the above discussion, there would be a Section 4(f) use of the Montlake Cut as a result of Option L.

### ***Canoe House***

Option L would require an underground easement of 0.1 acre beneath a section of the Canoe House property to the north of the building. This easement is to accommodate a stormwater facility. It would have no physical impact on the Canoe House property. The Canoe House would remain accessible and recreation activities, which focus on the south (waterside) of the building, would not be impacted.

The underground easement would have no discernible effect on the characteristics that qualify the Canoe House for listing in the NRHP.

Based on the above discussion, there would be a Section 4(f) use of the Canoe House as a result of Option L.

### ***Washington Park Arboretum***

As discussed above under *Park and Recreation Resources*, Washington Park Arboretum would experience a use under Section 4(f) with Option L due to the acquisition of 0.3 acre of land, of which less than 0.1 acre would be submerged land.

The historic boundaries of the Arboretum are larger than the boundaries of the park, so there is an additional use from construction in WSDOT right-of-way within the historic boundaries (Exhibit 9-26). There would be a total of 9.9 acres used within the boundaries of the historic property: 0.3 acre on Foster Island; 0.9 acre on the WSDOT peninsula that would be permanent; and 8.7 acres for construction on the WSDOT peninsula. Since construction in the WSDOT right-of-way under Option L would be utilized for the duration of project construction, supporting the Seattle area project elements, this 8.7 acres of construction on the WSDOT peninsula is a Section 4(f) use.

An additional 2.3 acres of construction easement would be required in the historic property: 1.6 acres on Foster Island, 0.5 acre on Marsh Island, and 0.2 acre in the Lake Washington Boulevard ramp area.

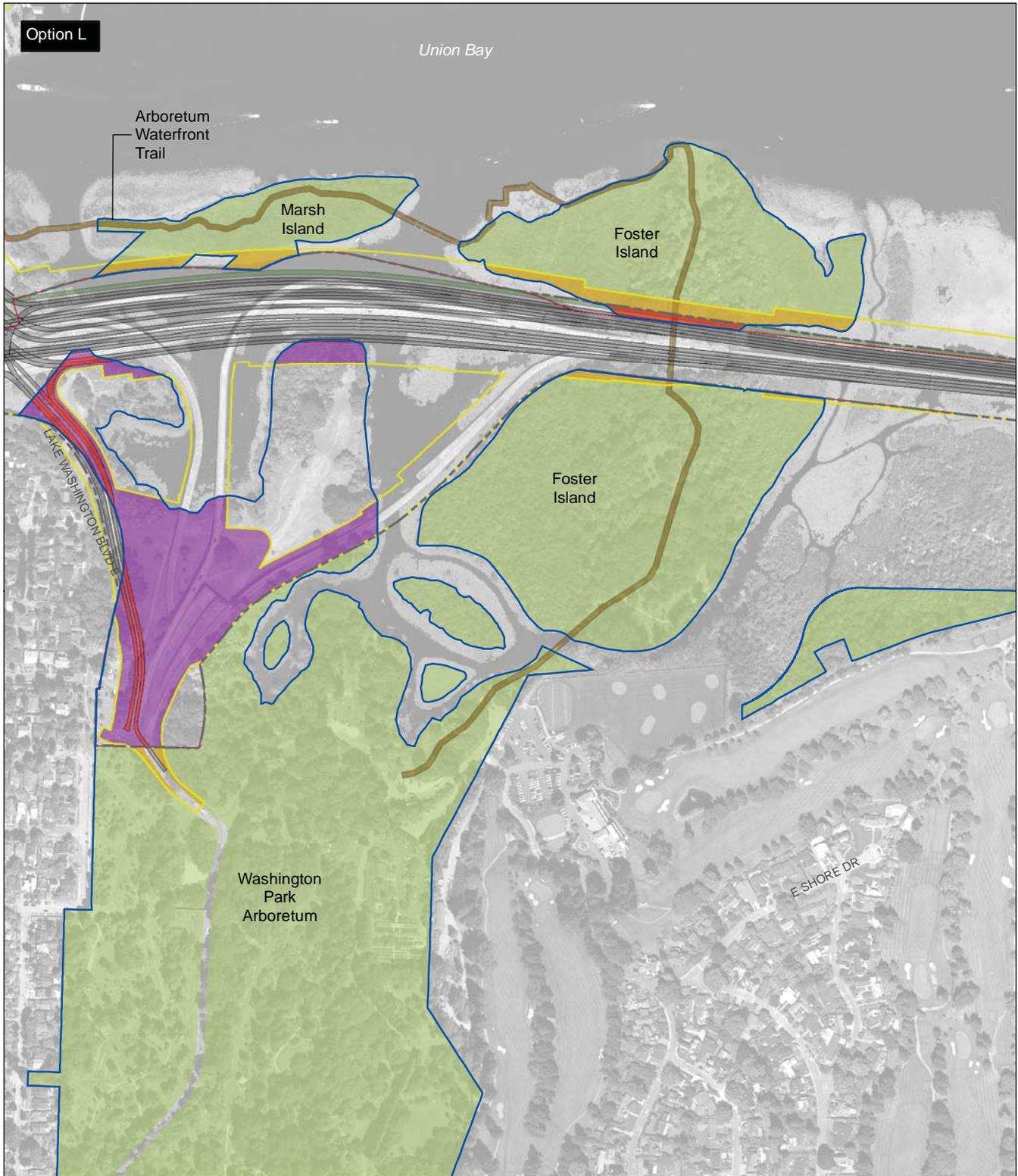
There would be a Section 4(f) use of the Washington Park Arboretum historic property under Option L due to permanent land acquisitions.

### ***Foster Island***

As noted above, Option L would require a permanent incorporation of 0.3 acre of land on Foster Island, which is significant as a TCP (see Exhibit 9-26). Option L would cross Foster Island with a pier-and-span bridge that would require expanding the right-of-way 40 feet to the north of the alignment. The bridge superstructure would be about 7 feet above the ground surface at this point, and 18 columns each 7 feet in diameter would be placed on the island to support the bridge.

In addition, Option L would require 1.6 acres of construction easement on Foster Island. Construction would include access work bridges on and

Exhibit 9-26. Effects on the Washington Park Arboretum Historic Property under Option L



adjacent to Foster Island. These bridges would be located parallel to SR 520 in the approach areas. The work bridges would be removed after completion of the permanent structure.

The permanent acquisition occurs on the north section of the island, and most of the construction easement is also on the north side of the existing right-of-way. The only construction easement on the south part of the island would be immediately adjacent to the existing bridge. Access to the northern part of the island would be restricted throughout construction. No construction staging would occur on the island outside of the construction easement.

Due to the acquisition of land on Foster Island, Option L would result in a Section 4(f) use of the Foster Island TCP.

### Option L Suboptions

#### ***Option L with one northbound lane on Montlake Boulevard from Pacific Street to 25th Avenue NE***

Adding one northbound lane for additional capacity on Montlake Boulevard NE north of Pacific Street would result in construction along Montlake Boulevard and in removal and reconstruction of three existing pedestrian crossings.

#### ***Pavilion Pedestrian Bridge***

The Pavilion Pedestrian Bridge would not experience a use under Option L. However, under the suboption for Option L that would add capacity to Montlake Boulevard NE, the bridge would be removed to accommodate widening of Montlake Boulevard NE for increased traffic capacity. Under this suboption, 0.6 acre of land would be permanently acquired. This would result in a use under Section 4(f).

#### ***North and South Pedestrian Bridges***

The North and South Pedestrian Bridges would not experience a use under Option L. However, under the suboption for Option L that would add capacity to Montlake Boulevard NE, both bridges would be removed to accommodate widening of Montlake Boulevard NE for increased traffic capacity. Under this suboption, 0.5 acre of land would be permanently acquired. This would result in a use under Section 4(f).

#### ***Option L with addition of left-turn access from Lake Washington Boulevard to the SPUI south ramp***

Adding left-turn access from Lake Washington Boulevard onto the SPUI south ramp would result in no additional use of Section 4(f) properties because it would require no additional construction.

## Lake Washington Study Area

The historic Evergreen Point Bridge, would be removed and replaced under all options. The removal of the bridge would result in a Section 4(f) use of the Evergreen Point Bridge under Option L.

## Eastside Transition Study Area

No Section 4(f) properties would experience a use from the Eastside improvements. The completed project would connect the Points Loop Trail with the bike lane on the new Evergreen Point Bridge, thereby providing a non-motorized connection between the Eastside and Seattle. No construction work would occur in any of the parks in the study area and none of these properties would be directly affected by the project. Therefore, there would be no Section 4(f) use of parks and recreation resources under Option L in the Eastside Transition study area.

The Arntson and Dixon houses would not experience a direct impact or a loss of historic integrity from the project. Therefore, there would be no Section 4(f) use of historic properties in the Eastside Transition study area as a result of Option L.

## Pontoon Construction and Transport

There are no Section 4(f) properties that would be affected by the transport of pontoons to the project site, except for the Montlake Cut, which would experience no diminished historic integrity from the towing of pontoons. Pontoon towing would occur in the cut several times over the course of 2 to 3 years. The Montlake Cut is an active navigational channel and the towing of pontoons through this body of water would be in keeping with its nature and normal function. Although the Montlake Cut is used for other aspects of the project, the towing of pontoons would have no effect on the qualities that qualify the Montlake Cut for the NRHP and would not be considered a Section 4(f) use.

## Option L Summary

Option L would acquire a total of 20.0 acres of land from 9 park and recreation facilities and 8 historic properties. Of that, 9.7 acres would be land acquisitions, 0.8 acre would be submerged land in the Arboretum and Montlake Playfield, and 9.5 acres would be on the WSDOT peninsula in the Washington Park Arboretum historic property. Construction in the WSDOT right-of-way on the WSDOT peninsula would be utilized for the duration of project construction in support of the Seattle area project elements, so it is included in the Section 4(f) use total.

Under the Option L suboption, 11 historic properties would be impacted for a total of 21.0 acres.

In addition, there would be a total of 9.0 acres of construction easements under Option L. Of that, 6.5 acres are on land, and 2.5 acres are submerged land in Washington Park Arboretum and Montlake Playfield. This land (including the submerged land) would be returned to prior use when construction was completed. Table 9-5 lists the Section 4(f) uses under Option L.

Table 9-5. Summary of Section 4(f) Uses under Option L

Section 4(f) Property	Section 4(f) Use?	Section 4(f) Land Used (in acres)	Area/Functions Affected
<b>Park and Recreation Resources</b>			
Bagley Viewpoint	Yes	0.1	Permanent acquisition of entire viewpoint.
Interlaken Park	No	0	No permanent acquisition. No construction easement.
Montlake Playfield	Yes	0.8	Permanent acquisition of 0.8 acre of submerged land. Additional construction easement of 2.1 acres (of which 1.9 acres are submerged) for temporary work bridge structure. <sup>a</sup>
East Montlake Park	Yes	4.3	Permanent acquisition of 4.3 acres of park land. Additional construction easement of 1.1 acre.
McCurdy Park	Yes	1.4	Permanent acquisition of entire park.
Ship Canal Waterside Trail	Yes	<0.1	Permanent acquisition of less than 0.1 acre at the eastern end of the trail. Additional construction easement of 0.1 acre.
UW Open Space	Yes	0.6	Permanent acquisition of 0.5 acre and 0.1 acre for permanent underground easement. Temporary closure of the Waterfront Activities Center and relocation of the climbing wall during construction.
East Campus Bicycle Route	Yes	0.1	Permanent acquisition of less than 0.1 acre of trail. Additional construction easement of 0.1 acre.
Washington Park Arboretum	Yes	0.3	Permanent acquisition of 0.3 acre of park property. Additional construction easement of 2.3 acres.
Arboretum Waterfront Trail	Yes	0	Temporary closure of the Arboretum Waterfront Trail periodically during construction. No detour route would be provided to maintain trail connectivity during construction.
<b>Historic Properties</b>			
Fire Station #22	Yes	<0.1	Permanent acquisition of less than 0.1 acre of the parcel.
NOAA Northwest Fisheries Science Center	Yes	0.4	Construction easement of 0.4 acre for construction staging and access for the duration of construction.
Montlake Historic District	Yes	8.0	Permanent acquisition of 8.0 acres. Additional construction easement of 2.0 acres.
Montlake Cut	Yes	0.5	Permanent acquisition of 0.5 acre for new bascule bridge. Additional construction easement of 1.6 acres.

Table 9-5. Summary of Section 4(f) Uses under Option L

Section 4(f) Property	Section 4(f) Use?	Section 4(f) Land Used (in acres)	Area/Functions Affected
Canoe House	Yes	0.1	Permanent underground easement of 0.1 acre for stormwater facility.
Washington Park Arboretum <sup>b</sup>	Yes	9.9	Permanent acquisition of 9.9 acres; 0.3 acre on Foster Island, 9.5 acres on WSDOT peninsula. Additional construction easement of 2.3 acres.
Foster Island TCP	Yes	0.3	Permanent acquisition of 0.3 acre of property, plus less than 0.1 acre of submerged land.
Pavilion Pedestrian Bridge	Yes (suboption only)	0.6	Removal of the bridge under the suboption for Option L. Permanent acquisition of 0.6 acre of land.
North Pedestrian Bridge	Yes (suboption only)	<0.1	Removal of the bridge under the suboption for Option L. Permanent acquisition of less than 0.1 acre of land.
South Pedestrian Bridge	Yes (suboption only)	<0.1	Removal of the bridge under the suboption for Option L. Permanent acquisition of less than 0.1 acre of land.
Evergreen Point Bridge	Yes	NA	Removal of bridge.

<sup>a</sup> Further construction easement may be identified based on easement clarification and right-of-way discussions with the City of Seattle.

<sup>b</sup> The boundaries of the historic Arboretum are larger than the current park property. This use does not affect the recreational use of the Arboretum, and is only recognized as a Section 4(f) use of the Arboretum as a historic property.

Note: Project impact details have changed since the SDEIS through design refinements or error correction.

Note: Historic properties within the boundaries of the Montlake Historic District (Montlake Cut, NOAA, Washington Park Arboretum) are counted only once in the total use from the Preferred Alternative. See Table 9-1.

Note: The totals are calculated using 1/100th of an acre, but the numbers are presented rounded to the nearest 1/10th of an acre.

NA = Not Applicable

## Summary of Section 4(f) Uses

Table 9-6 compares the Section 4(f) uses per property among the Preferred Alternative and the three SDEIS options. The specific amounts of Section 4(f) use are listed for each property under each alternative and design option. Construction easements are not included in this table unless they constitute a Section 4(f) use as noted in the text and previous tables.

Table 9-6. Summary of Uses of Section 4(f) Properties under the Preferred Alternative and SDEIS Options

Section 4(f) Property	Alternative/SDEIS Option	Section 4(f) Use?	Specific Section 4(f) Property Use <sup>a</sup>
Park and Recreation Resources			
Bagley Viewpoint	Preferred Alternative	Yes	Permanent acquisition of entire Bagley Viewpoint (0.1 acre).
	Option A	Yes	Permanent acquisition of entire Bagley Viewpoint (0.1 acre).
	Option K	Yes	Permanent acquisition of entire Bagley Viewpoint (0.1 acre).
	Option L	Yes	Permanent acquisition of entire Bagley Viewpoint (0.1 acre).
Interlaken Park	Preferred Alternative	No	No permanent acquisition or construction easement.
	Option A	No	No permanent acquisition or construction easement.
	Option K	No	No permanent acquisition or construction easement.
	Option L	No	No permanent acquisition or construction easement.
Montlake Playfield	Preferred Alternative	Yes	Permanent acquisition of 1.2 acres.
	Option A	Yes	Permanent acquisition of 2.0 acres.
	Option K	Yes	Permanent acquisition of 1.0 acre.
	Option L	Yes	Permanent acquisition of 0.8 acre.
East Montlake Park	Preferred Alternative	Yes	Permanent acquisition of 2.8 acres.
	Option A	Yes	Permanent acquisition of 2.8 acres.
	Option K	Yes	Permanent acquisition of 5.2 acres.
	Option L	Yes	Permanent acquisition of 4.3 acres.
McCurdy Park	Preferred Alternative	Yes	Permanent acquisition of entire park (1.4 acres).
	Option A	Yes	Permanent acquisition of entire park (1.4 acres).
	Option K	Yes	Permanent acquisition of entire park (1.4 acres).
	Option L	Yes	Permanent acquisition of entire park (1.4 acres).
Ship Canal Waterside Trail	Preferred Alternative	Yes	Permanent acquisition of less than 0.01 acre of the trail. Trail closure in construction area would disrupt trail connectivity.
	Option A	Yes	Permanent acquisition of less than 0.1 acre of the trail. Trail closure in construction area would disrupt trail connectivity.

Table 9-6. Summary of Uses of Section 4(f) Properties under the Preferred Alternative and SDEIS Options

Section 4(f) Property	Alternative/SDEIS Option	Section 4(f) Use?	Specific Section 4(f) Property Use <sup>a</sup>
UW Open Space	Option K	No	No permanent acquisition or construction easement. Temporary closure of trail access from East Montlake Park during construction; trail accessible from West Montlake Park and Montlake Boulevard.
	Option L	Yes	Permanent acquisition of less than 0.1 acre of the trail.
	Preferred Alternative	Yes	Permanent acquisition of 0.7 acre, including underground easement.
	Option A	Yes	Permanent acquisition of 0.7 acre, including underground easement.
	Option K	Yes	Permanent acquisition of 0.8 acre, including underground easement for tunnel; relocation of the Waterfront Activities Center.
East Campus Bicycle Route	Option L	Yes	Permanent acquisition of 0.6 acre, including underground easement. Temporary closure of the Waterfront Activities Center and relocation of the climbing wall during construction.
	Preferred Alternative	Yes	Permanent acquisition of 0.1 acre of trail, including underground easement.
	Option A	Yes	Permanent acquisition of less than 0.1 acre of trail, including underground easement.
	Option K	Yes	Permanent acquisition of 0.1 acre for underground easement.
Washington Park Arboretum <sup>b</sup>	Option L	Yes	Permanent acquisition of 0.1 acre of trail.
	Preferred Alternative	Yes	Permanent acquisition of 0.5 acre of park property.
	Option A	Yes	Permanent acquisition of 0.4 acre of park property.
	Option K	Yes	Permanent acquisition of 0.7 acre of park property.
Arboretum Waterfront Trail <sup>b</sup>	Option L	Yes	Permanent acquisition of 0.3 acre of park property.
	Preferred Alternative	Yes	Intermittent trail closure in construction areas on Foster Island and East Montlake Park. No detour route would be provided during temporary closures. To maintain some connectivity, the Foster Island and East McCurdy Park closures would not be simultaneous.
	Option A	Yes	Intermittent trail closure in the construction areas on Foster Island and East Montlake Park. No detour route would be provided during temporary closures. To maintain some connectivity, the Foster Island and East McCurdy Park closures would not be simultaneous.
	Option K	Yes	Permanent underground easement of 0.1 acre. Intermittent closure of the trail in the construction area on Foster Island. No detour route would be provided to maintain trail connectivity in this area during all of construction period.

Table 9-6. Summary of Uses of Section 4(f) Properties under the Preferred Alternative and SDEIS Options

Section 4(f) Property	Alternative/SDEIS Option	Section 4(f) Use?	Specific Section 4(f) Property Use <sup>a</sup>
	Option L	Yes	Closure of the trail in the construction area on Foster Island. No detour route would be provided to maintain trail connectivity in this area during construction. Detour routes provided for the western section of the trail.
Historic Properties			
Fire Station #22	Preferred Alternative	Yes	Permanent acquisition of less than 0.1 acre of the parcel to accommodate intersection reconfiguration.
	Option A	Yes	Permanent acquisition of less than 0.1 acre of the parcel to accommodate intersection reconfiguration.
	Option K	Yes	Permanent acquisition of less than 0.1 acre of the parcel to accommodate intersection reconfiguration.
	Option L	Yes	Permanent acquisition of less than 0.1 acre of the parcel to accommodate intersection reconfiguration.
NOAA Northwest Fisheries Science Center	Preferred Alternative	Yes	Permanent acquisition of 0.5 acre of the parcel. No structures impacted.
	Option A	Yes	Permanent acquisition and construction easements of 1.5 acres and demolition of some structures.
	Option K	Yes	Use of 0.4 acre for construction easement. Does not meet criteria for temporary occupancy exception.
	Option L	Yes	Use of 0.4 acre for construction easement. Does not meet criteria for temporary occupancy exception.
Montlake Historic District	Preferred Alternative	Yes	Permanent acquisition of 6.3 acres of land in the district.
	Option A	Yes	Permanent acquisition of 7.5 acres of land in the district.
	Option A Suboption	Yes	Permanent acquisition of 7.4 acres of land in the district.
	Option K	Yes	Permanent acquisition of 6.6 acres of land in the district.
	Option L	Yes	Permanent acquisition of 8.0 acres of land in the district.
2220 East Louisa Street	Preferred Alternative	No	No Section 4(f) use.
	Option A	Yes	Permanent acquisition of approximately 136 square feet from rear of property.
	Option A Suboption	No	No Section 4(f) use.
	Option K	No	No Section 4(f) use.
	Option L	No	No Section 4(f) use.

Table 9-6. Summary of Uses of Section 4(f) Properties under the Preferred Alternative and SDEIS Options

Section 4(f) Property	Alternative/SDEIS Option	Section 4(f) Use?	Specific Section 4(f) Property Use <sup>a</sup>
Montlake Cut	Preferred Alternative	Yes	Permanent acquisition of 0.3 acre for new bascule bridge.
	Option A	Yes	Permanent acquisition of 0.3 acre for new bascule bridge.
	Option K	Yes	Permanent underground easement of 1.4 acres for tunnel.
	Option L	Yes	Permanent acquisition of 0.5 acre for new bascule bridge.
Canoe House	Preferred Alternative	Yes	Permanent underground easement of 0.1 acre for stormwater facility.
	Option A	Yes	Permanent underground easement of 0.1 acre for stormwater facility.
	Option K	Yes	Permanent underground easement of 0.8 acre for tunnel.
	Option L	Yes	Permanent underground easement of 0.1 acre for stormwater facility.
Washington Park Arboretum <sup>b</sup>	Preferred Alternative	Yes	Use of 10 acres of historic property, including 9.5 acres on WSDOT peninsula.
	Option A	Yes	Use of 8.1 acres of historic property, including 7.7 acres on WSDOT peninsula.
	Option A Suboption	Yes	Use of 8.1 acres of historic property, including 9.3 acres on WSDOT peninsula.
	Option K	Yes	Use of 12.2 acres of historic property, including 11.5 acres on WSDOT peninsula.
	Option L	Yes	Use of 9.9 acre of historic property, including 9.5 acres on WSDOT peninsula.
Foster Island TCP <sup>c</sup>	Preferred Alternative	Yes	Permanent acquisition of 0.5 acre of property.
	Option A	Yes	Permanent acquisition of 0.4 acre of property.
	Option K	Yes	Permanent acquisition of 0.7 acres of property.
	Option L	Yes	Permanent acquisition of 0.3 acre of property.
Pavilion Pedestrian Bridge	Preferred Alternative	No	No Section 4(f) use.
	Option A	No	No Section 4(f) use.
	Option K	No	No Section 4(f) use.
	Option L	No	No Section 4(f) use.
	Option L with Suboption	Yes	Removal of bridge. Permanent acquisition of 0.6 acre of land.

Table 9-6. Summary of Uses of Section 4(f) Properties under the Preferred Alternative and SDEIS Options

Section 4(f) Property	Alternative/SDEIS Option	Section 4(f) Use?	Specific Section 4(f) Property Use <sup>a</sup>
North and South Pedestrian Bridges	Preferred Alternative	No	No Section 4(f) use.
	Option A	No	No Section 4(f) use.
	Option K	No	No Section 4(f) use.
	Option L	No	No Section 4(f) use.
	Option L with Suboption	Yes	Removal of bridges. Permanent acquisition of less than 0.1 acre of land for each bridge.
Evergreen Point Bridge	Preferred Alternative	Yes	Removal of bridge.
	Option A	Yes	Removal of bridge.
	Option K	Yes	Removal of bridge.
	Option L	Yes	Removal of bridge.

<sup>a</sup> Because all build alternatives use Section 4(f) properties, there are no prudent and feasible avoidance alternatives; only the alternative that cause the least overall harm in light of the statute's preservation purpose may be approved.

<sup>b</sup> The boundaries of the historic Arboretum are larger than the current park property. This use does not affect the recreational use of the Arboretum, and is only recognized as a Section 4(f) use of the Arboretum as a historic property.

<sup>c</sup> The Foster Island totals are included in the Arboretum totals.

Notes:

Project impact details have changed since the SDEIS through design refinements or error correction.

The totals are calculated using 1/100th of an acre, but the numbers are presented rounded to the nearest 1/10th of an acre.

## 9.5 Avoidance, Minimization of Harm, and Mitigation

This section discusses the concepts that were evaluated to avoid the use of all Section 4(f) properties. General measures to minimize harm on Section 4(f) properties are also explained in this section. Finally, mitigation measures are listed and discussed for Section 4(f) properties where it is not possible to avoid a use.

Are there feasible and prudent alternatives that would avoid the Section 4(f) properties?

This section discusses the concepts that were evaluated to avoid the use of all Section 4(f) properties, and explains the rationale for the dismissal of each concept.

The following avoidance concepts were examined:

- No Build Alternative
- New corridors

- Operational changes
- New travel modes
- Design-specific avoidance measures

For more detail about the alternatives investigated for the SR 520, I-5 to Medina project, please see the 2009 Range of Alternatives and Options Evaluated (Attachment 7), as well as Chapter 2 of this Final EIS. There is no feasible and prudent alternative that would avoid the use of all Section 4(f) properties.

### No Build Alternative

The No Build Alternative would avoid use of all Section 4(f) properties, but is deemed not prudent according to 23 CFR 774.17 because it neither addresses nor corrects the transportation need cited as the NEPA purpose and need, which prompted the proposed project (see *What is the project purpose and need?* in Chapter 1 of this Final EIS).

Most importantly, a do-nothing alternative would leave in place a bridge that is deteriorating rapidly, and that has been classified as functionally obsolete. The bridge is in danger of structural failure during a severe windstorm or seismic event. The floating bridge has reached the limit for retrofits and must be replaced in order to provide a structure capable of withstanding the 100-year storm event without damage (WSDOT 2007a).

The No Build Alternative would fail to address the project need for improving mobility in the SR 520 corridor. It would only maintain the four existing general-purpose lanes, without adding HOV lanes to meet regional and local planning goals. It would preserve the highway's existing non-standard geometry, which results in increased congestion when disabled vehicles cannot pull out of traffic. As the bridge continues to age, closures for wind protection or repairs would become increasingly frequent, with resulting negative effects on regional mobility.

### New Corridors

New corridors were evaluated, such as a new bridge from Sand Point to Kirkland, an HCT crossing between SR 520 and I-90, and a new submerged tunnel underneath SR 520. The possible new corridors that were preliminarily evaluated prior to the SDEIS were determined to not meet the purpose and need as they would result in low transportation effectiveness, or would cause substantial adverse environmental effects.

### Operational Changes

Operational changes were evaluated, such as closing the SR 520 on- and off-ramps between I-5 and I-405, modifying HOV operations, and increasing investment in transportation demand measures. Transportation effectiveness resulting from operational changes would be low, and

changing the operation of SR 520 would not meet the project's purpose and need of improving mobility for people and goods across SR 520. Increasing the investment in transportation demand measures was determined to be beneficial in combination with a design option, and was carried forward as part of the SDEIS 6-Lane Alternative options.

### New Travel Modes

New trans-lake travel modes were evaluated, such as passenger ferries and new HCT corridors between Madison Park and Kirkland. The transportation effectiveness of new travel modes would be low, and changing the operation of SR 520 would not meet the project's purpose and need of improving mobility for people and goods across SR 520.

### Design-Specific Avoidance Measures

In addition to broader options reviewed, a number of design options were considered that had the potential to avoid use of specific protected properties. These design options are described below, and the three avoidance concepts are illustrated in the following two exhibits.

Under the Preferred Alternative and the three SDEIS options, the existing curves in the alignment of SR 520 were retained in the Montlake area. The more efficient, straight-line alternative was not selected in order to avoid existing structures and minimize property acquisition and displacements.

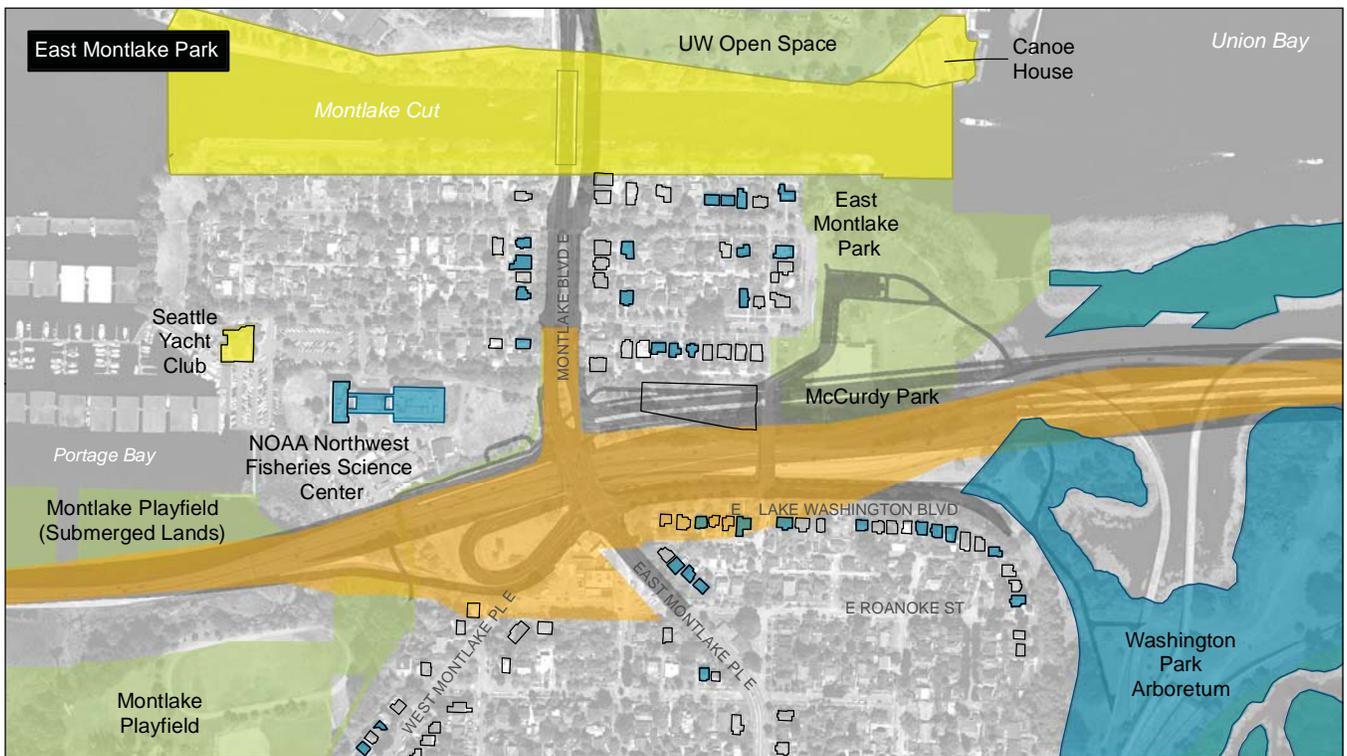
### Park and Recreation Resources

#### ***Bagley Viewpoint***

To avoid the Bagley Viewpoint, the proposed highway footprint would need to be shifted south 45 to 65 feet (Exhibit 9-27). Holding the existing southern edge of the WSDOT right-of-way and extending northward was viewed from an engineering perspective as the best means of improving the highway geometrics (specifically the Portage Bay Bridge alignment) and heightening driver safety.

Shifting the alignment south would require acquisition and demolition of the 24-unit Portage Bayshore Condominiums, which is on the waterfront and has 30 moorages, and would entail the relocation of the residents. It would also require acquisition of part of the Seattle Preparatory School playfield acreage, a property that is not affected under the current options. It would permanently acquire a small section of Interlaken Park, a protected Section 4(f) resource, which is not acquired under the proposed options. It would also move the SR 520 roadway closer to historic properties on East Miller Street, Broadway Avenue East, 10th Avenue East, and Federal Avenue East, because the roadway would intersect with I-5 further south than under the Preferred Alternative or the existing condition. This would result in greater proximity effects on at least seven historic properties. In addition, this alignment would move the roadway 45 to 65 feet closer to the historic Alden Mason House and would relocate the bridge immediately

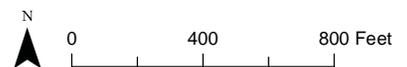
Exhibit 9-27. Section 4(f) Avoidance, Bagley Viewpoint and East Montlake Park



**NRHP Eligibility of Surveyed Resources**

- Contributing
- Listed
- Eligible

- Avoidance route
- Proposed edge of pavement
- Park or recreation feature



adjacent to the historic Kelley House, which would cause a change in setting and feeling to these two properties located on Boyer Avenue East. These changes would be a more severe environmental impact under Section 106 by introducing greater project effects on historic properties. Additional mitigation would be needed to resolve those effects, resulting in greater cost.

In summary, this southerly shift in alignment to avoid the Bagley Viewpoint would remove an additional residential building and cause the displacement of 24 additional residential units. It would entail a greater acquisition cost for the waterfront property with a dock and moorages, as well as the cost of relocating 24 additional residential units. It would require additional cost to acquire land from a school playfield and a park that are not currently affected by the project. Finally, this avoidance option would cause greater effects on historic houses and would require permanent acquisition of a piece of Interlaken Park, impacting ten properties protected under Section 4(f). In addition, the experience of Bagley Viewpoint can potentially be recreated and replaced in the new green space on the new 10th Avenue/Delmar Drive lid. While this is also true for re-creation of land acquired from Interlaken Park in the avoidance scenario, the effects on the nine historic properties by the avoidance of Bagley Viewpoint would be permanent. Although these effects could be mitigated, once the setting and feeling of the historic properties are altered, they could not be recaptured. Therefore, the effects on these historic Section 4(f) properties after mitigation would be more severe than the effects on either Interlaken Park or Bagley Viewpoint.

Based on the discussion above, avoiding Bagley Viewpoint would be more harmful due to the combination of higher cost from a greater number of property acquisitions, relocations, and Section 106 mitigation; greater community disruption from 24 additional residential relocations and acquisition of land from a school playfield; more severe environmental impacts under Section 106 through increased effects on historic properties; and greater impact on ten protected Section 4(f) properties.

***East Montlake Park, McCurdy Park, and Arboretum Waterfront Trail***

Shifting the highway alignment farther south would avoid effects on these parks and the Arboretum Waterfront Trail (see Exhibit 9-27). However, a more southerly alignment would have more extensive effects on the Montlake Historic District, resulting in severe disruption of an established community and severe environmental impacts under Section 106. The Montlake Historic District is a mostly residential district with a very high degree of physical integrity. The Preferred Alternative and all three SDEIS options would remove three contributing elements to the district and decrease the integrity of individually listed or eligible properties in the district. The avoidance caused by a shift to the south would result in the acquisition and removal of nine properties in the Montlake Historic

District, of which eight are contributing to the district, and of those eight, three are also individually eligible. In addition, two of the contributing properties removed under the Preferred Alternative and the SDEIS options would still be removed with this avoidance alignment, for a total of nine contributing properties lost. This is a far greater impact than the proposed alternative and options, and would result in diminished historic integrity of the district and of the three individually eligible properties.

In addition, the avoidance shift would remove a section of Lake Washington Boulevard's historic alignment in the historic district. The proposed realignment that would need to occur would have a substantial effect on this historic property and diminish its integrity by removing a section of the road from the landscape context that contributes to its significance. Realignment of a section of the boulevard to a new location and a new landscape context and setting would dilute the overall historic character and significance of the linear resource. Moving SR 520 to the south would not only remove additional land and eight additional contributing properties from the Montlake Historic District, it would also change the setting of many other adjacent contributing properties in that area of the district, causing further potential loss of integrity.

The avoidance shift would entail the greater cost of acquisition of nine additional properties, and the cost of relocation of eight additional residences and one commercial business. These are historic houses of exceptional quality and condition, most with large lots and views of Lake Washington in a very desirable neighborhood. Finally, this avoidance option would cause more harm to the historic district, including eight contributing properties of which three are also individually eligible, and would thus impact a greater number of properties protected under Section 4(f) than the proposed alternative and options.

McCurdy Park and part of East Montlake Park are being acquired for a stormwater facility under the Preferred Alternative and the three SDEIS options. Even if the alignment were shifted south to avoid the parks, they would still be needed for the stormwater facility. The stormwater treatment wetland is proposed to be located at the low point topographically within the parks. The highly urbanized and developed condition of the Montlake area leaves few options for adequate treatment of pollutant-generating impervious surface and severely limits where these facilities can be sited. The McCurdy/East Montlake Park location contains the most acreage of uninhabited land for such treatment without requiring displacement of residences. Further, it is one of the few less developed topographic low points where it is feasible to engineer a treatment system. Therefore, even if the highway alignment were shifted farther south, this stormwater treatment facility would still need to be located where it is currently proposed, so MOHAI would be demolished and the impacts on the parks would remain.

McCurdy Park includes the MOHAI building, with some green space and plantings adjacent to the SR 520 roadway. Its relative value as a park and recreation resource is low compared to other parks in the immediate area, including West Montlake Park, Montlake Playfield, Interlaken Park, and the Washington Park Arboretum. East Montlake Park has also lost green space to the parking lot, and its greatest asset is the waterfront acreage and trail with canoe/kayak launch point. Other parks in the immediate area provide similar amenities with more green space.

The Montlake Historic District has greater relative value as a Section 4(f) property than do McCurdy and East Montlake parks. East Montlake Park would retain its waterfront views and trail after project construction, so the effects of the Preferred Alternative and the SDEIS options on this Section 4(f) property would be much less severe than those from the avoidance option on the Montlake Historic District and the three individually eligible houses along Lake Washington Boulevard. The demolitions of the eight historic houses and the effects on the historic properties by the avoidance of the parks would be permanent. Although these effects could be mitigated, once the properties are removed and the setting and feeling of the historic district are altered, they could not be recaptured. Therefore, the effects on these historic Section 4(f) properties after mitigation would be more severe than the effects on McCurdy Park and East Montlake Park. Under Section 6(f) regulations, park property used in East Montlake Park will be mitigated with replacement property at a new park/recreation facility at the Bryant Building site. See Chapter 10 in this Final EIS for more information.

Based on the discussion above, avoiding these parks and the trail would be more harmful due to the combination of a greater number of property acquisitions, relocations, and Section 106 mitigation; greater community disruption from eight additional residential relocations and one additional business relocation; more severe environmental impacts under Section 106 through increased integrity loss, the removal of eight additional historic houses, and the loss of a section of historic alignment for Lake Washington Boulevard; and thus impacts on nine more protected Section 4(f) properties and greater impacts on the Montlake Historic District, a more significant Section 4(f) property.

### ***University of Washington Open Space***

There are no avoidance alternatives for the UW Open Space that would not cause greater harm to critical resources, namely the University of Washington Medical Center, or other Section 4(f) properties. Locating the new bascule bridge on the west side of the existing bascule bridge would require acquisition of land from the University of Washington Medical Center and could include demolition and relocation of selected hospital facilities and disruption of hospital functions. If the new bascule bridge were constructed on the west side of the existing bascule bridge, it would

not meet minimum standards for roadway curves and geometry. In order to meet minimum standards, at least part of the University of Washington Medical Center would have to be relocated. By acquiring a piece of the Open Space that is adjacent to the roadway, the project is able to meet engineering standards for roadway geometry and minimize substantial disruptions to essential medical facilities.

Purchasing and relocating even a portion of the Medical Center would result in additional construction costs of an extraordinary magnitude compared to purchasing a portion of the Open Space. Avoiding the UW Open Space but impacting the University of Washington Medical Center would cause severe problems of a magnitude that substantially outweighs the importance of protecting the Section 4(f) recreation property. These problems would cause severe disruption to the community as well as social and economic impacts associated with the use and function of the hospital, its research, and its services.

The construction easement in the UW Open Space is required for construction equipment to build the bascule piers. As noted earlier, this must take place from land in order to avoid navigation disruptions in the Montlake Cut and minimize effects on fish resources. Although some construction staging and equipment would also be located on the south side of the Montlake Cut, construction staging is needed for both sides of the cut in order to construct both the north and south ends of the bridge. Expanding the construction area on the south side of the cut would require additional residential demolitions and the removal of additional historic properties that are contributing elements to the Montlake Historic District. This impact would result in a greater use of Section 4(f) property as well as severe impacts under Section 106. Thus, there is no prudent avoidance for the use of the construction easement on the UW Open Space property.

The Preferred Alternative and design options all locate the new bascule bridge or tunnel on the east side of the existing bridge, and thus all impact the Open Space. The Preferred Alternative and Option A would acquire a small amount of open space, but would not impact the Waterfront Activities Center or the Canoe House. Under Option L, the new bascule bridge structure would be located to avoid the Waterfront Activities Center and the Canoe House. Under Option K, there was no alignment possible to avoid the Waterfront Activities Center, but the Canoe House would remain open during construction.

### ***Washington Park Arboretum and Foster Island***

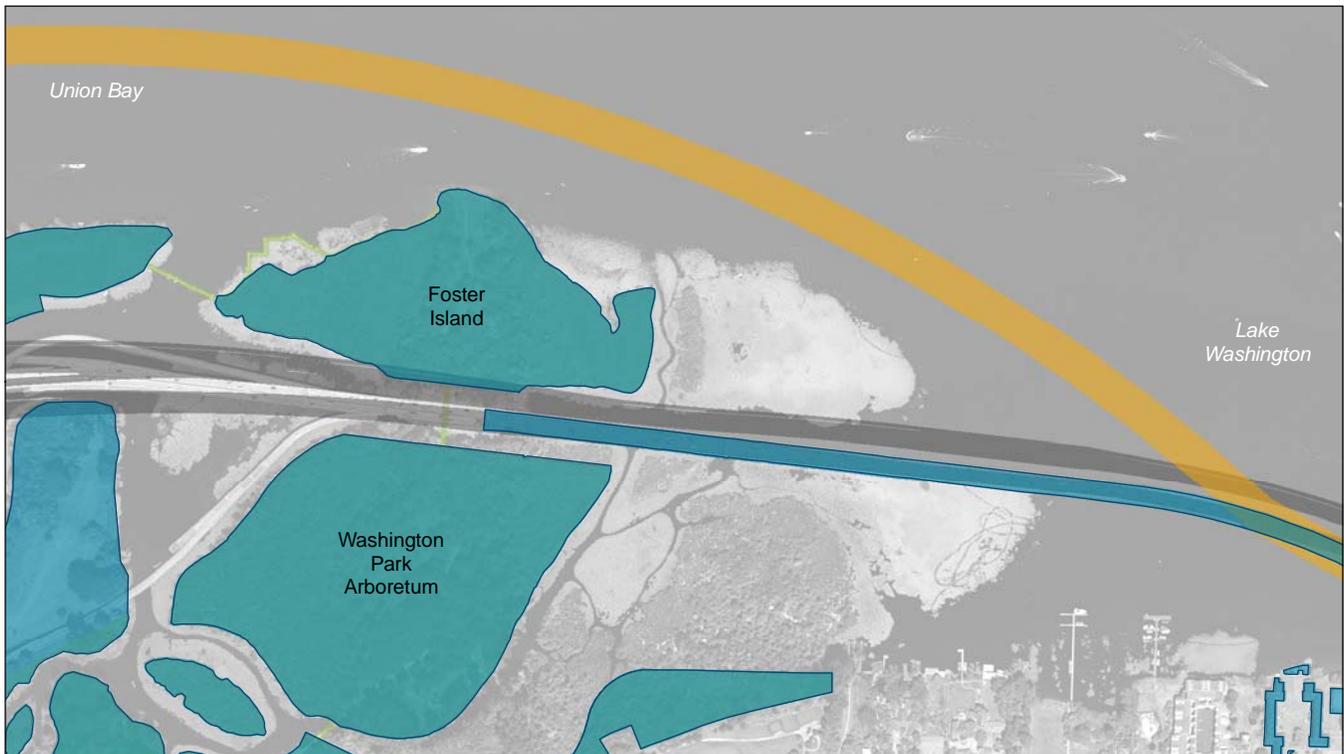
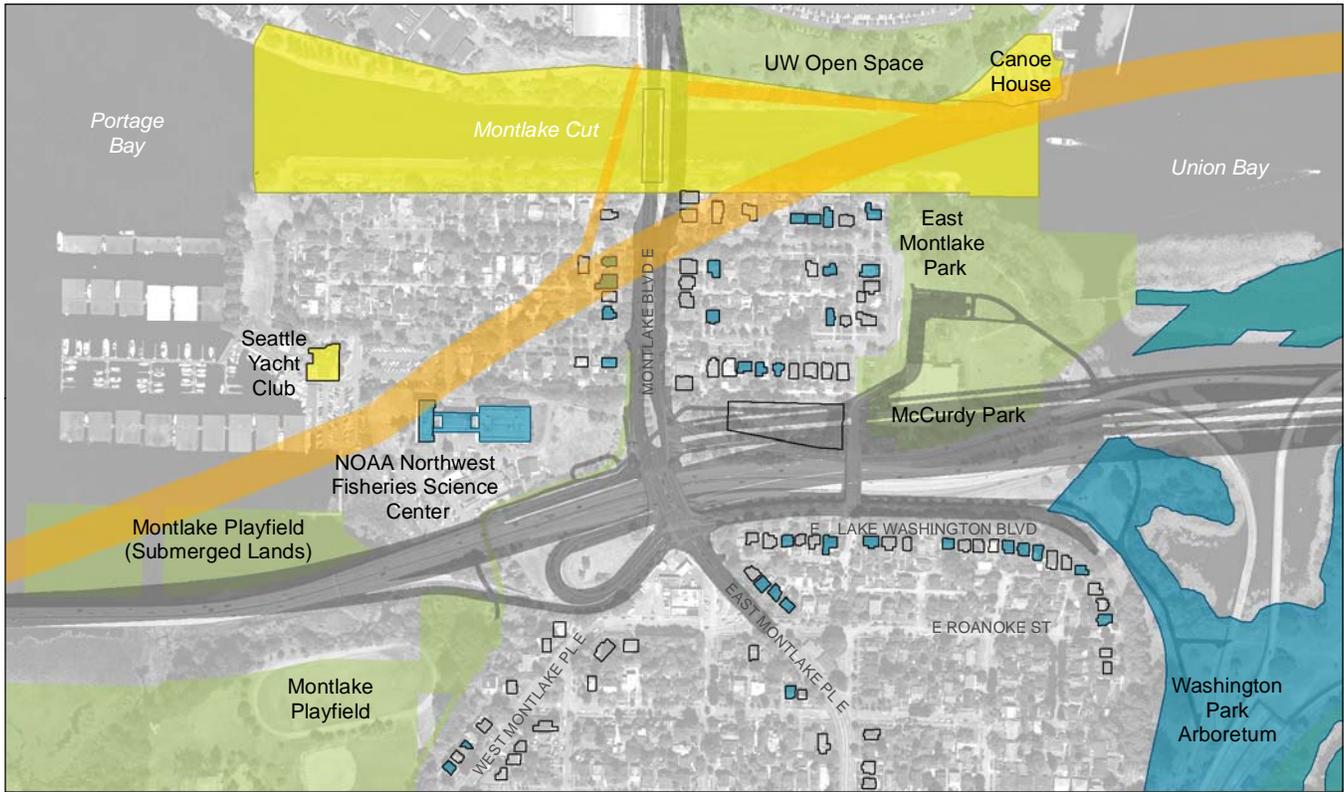
There are no avoidance alternatives for the Washington Park Arboretum and Foster Island that would not cause equal or greater harm to other Section 4(f) properties and cause other environmental impacts. Shifting the alignment north of the park (through the northern portion of the Montlake Historic District, along the Ship Canal, and over Portage Bay) would avoid the Arboretum, East Montlake Park and McCurdy Park, including the

Arboretum Waterfront Trail (Exhibit 9-28). However, this shift would cause severe disruption to the established Montlake community, additional construction costs of an extraordinary magnitude, and severe environmental impacts under Section 106.

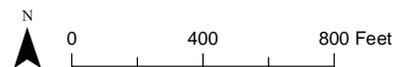
Shifting the alignment north of the park would require the acquisition and removal of approximately 44 residences in the Montlake Historic District, and the relocation of those residents. Although the entire district has not yet been surveyed, WSDOT did survey all properties on or adjacent to Montlake Boulevard between SR 520 and the Montlake Cut, as well as all properties on East Shelby and East Hamlin Streets on the east side of Montlake Boulevard. Of these 58 residential properties surveyed and evaluated, only 8 were found to be non-contributing properties to the historic district. Given the high level of physical integrity of the district, it is likely that most of the 44 properties that would be removed are contributing elements to the Montlake Historic District. This would cause a much greater use of historic properties and a more severe effect on the Montlake Historic District under Section 106, as well as additional project effects on the individually eligible properties. It would essentially demolish a wide diagonal section of the Shelby-Hamlin area of the district and could result in the removal of so many buildings and such disruption to the setting of the remaining buildings that the section of the district currently north of SR 520 would no longer be considered eligible for listing in the NRHP.

A shift north would also remove the historic West Wing building of the NOAA facility, which is individually eligible as well as a contributing element to the historic district. The removal of this important building is a more severe effect than proposed under the Preferred Alternative and the SDEIS options. The avoidance shift would also remove the Seattle Yacht Club building, some of their parking and several docks. This would be another impact on historic properties, as the Seattle Yacht Club is listed in the NRHP for its cultural importance to the boating and maritime culture of the region. The shift in the SR 520 alignment could avoid East and West Montlake parks and McCurdy Park, but would significantly impact the Ship Canal Waterside Trail, either removing or changing portions of the trail significantly by placing portions of it under a major elevated roadway. It would also affect the setting of the historic Montlake Bridge. It would acquire property from the UW Open Space, and would remove the NRHP-listed Canoe House.

Exhibit 9-28. Section 4(f) Avoidance, Washington Park Arboretum



- NRHP Eligibility of Surveyed Resources**
- Contributing
  - Listed
  - Eligible
  - Avoidance Route
  - Proposed Edge of Pavement
  - Park or recreation feature



The avoidance shift north would entail a greater cost of acquisition of 44 additional residential properties, the Seattle Yacht Club, the NOAA West Wing building, the Canoe House, and a portion of the UW Open Space. The cost of relocating those 44 additional households, the NOAA administrative facilities, the yacht club with extensive docks and moorages, and the Canoe House facility would also add to the cost of the shift. This avoidance option would cause more harm to the historic district and the individually eligible historic houses there, to the historic Seattle Yacht Club and NOAA, to the Montlake Cut and Montlake Bridge, to the Canoe House, to the UW Open Space, and to the Ship Canal Waterside Trail. It would impact a greater number of properties protected under Section 4(f) than the proposed alternative and options.

While the Arboretum and Foster Island are very important resources, the impacts from the Preferred Alternative and the SDEIS options are contained to the portion of the park immediately adjacent to the area already disturbed by SR 520, and the proposed uses would not remove the properties or make them no longer functional. The impacts associated with the avoidance shift would cause multiple properties to be demolished or relocated. It would degrade the integrity of the northern portion of the Montlake Historic District so much that it would likely lose its NRHP eligibility. It would cause the Ship Canal Waterside Trail to either be partially removed or greatly reduced in recreational value. The Seattle Yacht Club and NOAA might be able to continue to function, but at greatly reduced capacity. The Canoe House would no longer exist. The avoidance shift would cause more severe impacts to a much greater number of protected Section 4(f) properties. The demolition of multiple historic properties and the effects of avoiding the Arboretum and Foster Island would be permanent. Although these effects could be mitigated, once the properties are removed, the setting and feeling of the historic district would be altered and could not be recaptured. Therefore, the effects on the historic Section 4(f) properties noted above, after mitigation, would be more severe than the effects on either the Arboretum or Foster Island.

Avoiding the Arboretum and Foster Island would be more harmful due to the combination of greater community disruption from 44 additional residential relocations, the loss of the yacht club, and the changes to the Ship Canal Waterside Trail; more severe environmental impacts through use of the Ship Canal Waterside Trail, relocation of the Portage Bay Bridge, and, under Section 106 through increased effects on historic properties, more significant impacts on a greater number of protected Section 4(f) properties; and the higher cost from a greater number of property acquisitions, residential relocations, Section 106 mitigation, yacht club relocation, NOAA administrative building relocation, and the Canoe House function relocation. As a result, a northern shift would not avoid Section 4(f) and other environmental properties.

## Historic Properties

### ***Montlake Historic District***

There are no avoidance alternatives for the Montlake Historic District that would not cause equal or greater harm to other Section 4(f) properties and cause other environmental impacts. Holding the existing southern edge of the WSDOT right-of-way and extending northward was viewed from an engineering perspective as the best means to improve highway geometrics (specifically the Portage Bay Bridge alignment) and driver safety. From an environmental perspective, extending northward was also preferred because expanding the Portage Bay Bridge over open water would avoid wetlands and shoreline.

Shifting the alignment to the south could avoid taking property NOAA under Option A, but that would require taking additional land from the Montlake Playfield. Under the Preferred Alternative, a slighter shift southward would avoid impacts on NRHP-eligible NOAA structures, but would not avoid the property entirely. The slight shift south under the Preferred Alternative would also use only a small amount of the Montlake Playfield, but in an area that is already adjacent to SR 520 and not an integral part of the park. Shifting the Portage Bay Bridge farther to the south would require more land from Montlake Playfield (which would also affect the Montlake Historic District) and would affect the historic Mason and Kelley houses on the west shore of the Portage Bay.

Holding the southern right-of-way between Montlake Boulevard and the Washington Park Arboretum would use no further resources to the south and would involve no residential displacements, whereas shifting to the south could involve nine acquisitions and relocations along Lake Washington Boulevard, as described above, causing severe community disruption and much more significant project effects on the Montlake Historic District and three individually eligible properties. Whether the alignment shifts to the north or to the south, it would still impact the Montlake Historic District and would permanently acquire land from the district because the existing SR 520 corridor bisects the district. The Preferred Alternative would impact less of the district and fewer individually eligible properties than either of the avoidance shifts.

### ***NOAA Northwest Fisheries Science Center***

The NOAA Northwest Fisheries Science Center property would be used under the Preferred Alternative and the three SDEIS options. The Preferred Alternative avoids impact on the historic structures and would acquire less land than Option A. Option A would use the most property and is the only option that would require the removal of some of the buildings on the site. Options K and L would use a portion of the property during the entire construction period, but would restore the property after project completion.

Shifting the alignment to the south to avoid taking property at the NOAA facility under Option A would require taking additional land from the Montlake Playfield. Shifting the bridge to the south would have an increased effect on the historic Mason and Kelley houses on the west shore of Portage Bay. Under the Preferred Alternative, the alignment has shifted slightly to the south to avoid the structures at the NOAA facility, but land on the NOAA property would still be permanently acquired. Due to the shift, a greater amount of land would be acquired from the Montlake Playfield, but the effects on the historic Mason and Kelley houses would be the same under the Preferred Alternative and Option A.

### ***Pavilion Pedestrian Bridge***

If the suboption to Option L that adds capacity to Montlake Boulevard NE is not implemented, then the project would avoid a use of the Pavilion Pedestrian Bridge.

### ***North and South Pedestrian Bridges***

If the suboption to Option L that adds capacity to Montlake Boulevard NE is not implemented, then the project would avoid a use of the North and South Pedestrian Bridges.

### ***Evergreen Point Bridge***

The floating portion of the Evergreen Point Bridge, which is vulnerable to windstorms, is the highest priority for replacement in the SR 520 corridor because of the frequency of severe storms and the high associated risk with catastrophic failure, as discussed in the *Purpose and Need* section in this Chapter 9. There are no feasible and prudent avoidance alternatives for the Evergreen Point Bridge, as the purpose and need of the project calls for the removal and replacement of the bridge.

## What measures have been included in the project to minimize harm to the Section 4(f) properties?

Measures to minimize harm include those developed during project planning to reduce proposed impacts on Section 4(f) properties, and mitigation efforts proposed to offset the impacts on Section 4(f) properties from the Preferred Alternative. Such mitigation includes replacing land or facilities either with elements that are comparable in value and function or with monetary compensation that can be used to enhance the remaining Section 4(f) resource land, as well as other mitigation options.

Section 4(f) requires coordination with officials with jurisdiction to identify all reasonable measures to minimize harm or mitigate for properties that have been identified as having a Section 4(f) use. The following direction is provided under 23 CFR 774.3(c):

“The alternative selected must include all possible planning, as defined in Part 774.17, to minimize harm to Section 4(f) property. The 23 CFR 774.17 definition of all possible planning is as follows:

All possible planning means that all reasonable measures identified in the Section 4(f) evaluation to minimize harm or mitigate for adverse impacts and effects must be included in the project.

- (1) With regard to public parks, recreation areas, and wildlife and waterfowl refuges, the measures may include (but are not limited to): design modifications or design goals; replacement of land or facilities of comparable value and function; or monetary compensation to enhance the remaining property or to mitigate the adverse impacts of the project in other ways.
- (2) With regard to historic sites, the measures normally serve to preserve the historic activities, features, or attributes of the site as agreed by the Administration and the official(s) with jurisdiction over the Section 4(f) resource in accordance with the consultation process under 36 CFR Part 800.
- (3) In evaluating the reasonableness of measures to minimize harm under §774.3(a)(2), the Administration will consider the preservation purpose of the statute and:
  - (i) The views of the official(s) with jurisdiction over the Section 4(f) property;
  - (ii) Whether the cost of the measures is a reasonable public expenditure in light of the adverse impacts of the project on the Section 4(f) property and the benefits of the measure to the property, in accordance with §771.105(d) of this chapter; and
  - (iii) Any impacts or benefits of the measures to communities or environmental resources outside of the Section 4(f) property.
- (4) All possible planning does not require analysis of feasible and prudent avoidance alternatives, since such analysis will have already occurred in the context of searching for feasible and prudent alternatives that avoid Section 4(f) properties altogether under §774.3(a)(1), or is not necessary in the case of a de minimis impact determination under §774.3(b).”

Reasonable measures carried forward for consideration to minimize harm or mitigate for adverse impacts in compliance with 23 CFR 774.17 are discussed below. This section discusses measures to minimize harm for all Section 4(f) properties where it has been determined that a use would occur.

### General Measures to Minimize Harm

The high concentration of parks and historic properties in the project area makes it infeasible to achieve the project purpose of improving mobility without use of Section 4(f) properties. Because of the density of

development and the proximity of other sensitive features within the study area, effects on Section 4(f) properties could not be avoided.

In addition to alignment changes, WSDOT has made efforts wherever feasible to change the corridor design in ways that reduce effects on Section 4(f) properties. Through the development of minimization and mitigation measures, WSDOT has committed to developing a construction management planning process in part to minimize impacts on historic properties during construction. As part of the Programmatic Agreement, WSDOT has collaborated with the Section 106 consulting parties, affected community groups, and the City of Seattle to develop a CCMP. The CCMP, which is incorporated into the Programmatic Agreement by reference, contains specific measures designed to protect properties, including historic properties, and is designed as an adaptable plan to cover unanticipated events that may arise during construction. The CCMP, which is currently in draft form, is being developed through coordination between WSDOT and the stakeholders and will continue to be developed through final design. (Attachment 9 to this Final EIS contains an outline of the draft CCMP.)

Effects have been minimized by incorporating the following measures and features into the design of the project:

- The project would include quieter concrete pavement throughout the corridor and a number of other noise reduction strategies, including 4-foot concrete traffic barriers with noise-absorptive coating and noise-absorptive materials around lid portals.
- Speed limits reduced to 45 mph between I-5 and the Montlake Lid, which is expected to have a noise-reducing effect.
- In areas where noise walls would satisfy FHWA and WSDOT guidelines for reasonableness and feasibility, WSDOT would work with the appropriate parties to the Programmatic Agreement on design elements of the walls, including height, materials, and surface treatment.
- Removing the Montlake freeway transit stop would reduce the width of the SR 520 footprint and minimize property acquisition in the Montlake Historic District.
- New lids were designed to cover SR 520 at various locations. These lids would be landscaped and would have pedestrian crossings, providing a new green space in each area and reuniting the communities on either side of the roadway. The landscaped lids would also help minimize the visual and audible effects of SR 520.
- Under the Preferred Alternative, a narrower footprint with 4-foot inside shoulders and 11-foot general-purpose lanes has been used in an effort to limit the footprint of the project.

- Compared to Option A, the footprint across the Portage Bay Bridge has been reduced under the Preferred Alternative by using a managed shoulder rather than an auxiliary lane and by reducing shoulder widths.
- Efforts that could minimize effects on specific Section 4(f) properties, both park and recreation resources and historic properties, are discussed below.

## Park and Recreation Resources

### ***Bagley Viewpoint***

WSDOT would reconstruct the experience of Bagley Viewpoint on the 10th Avenue East/Delmar Drive East lid. This would provide users the views of Portage Bay that once existed. The viewpoint would now benefit from long-term protection because the viewpoint location on the lid over SR 520 would not be subject to slope erosion or invasive growth that could block the view. As part of the urban design process for the 10th Avenue East/Delmar Drive East lid, WSDOT will consult with the City of Seattle on possible inclusion of the marker rock and memorial bench currently located at Bagley Viewpoint in the lid design.

### ***Montlake Playfield***

To minimize harm, WSDOT would implement the following measure:

- Assist Seattle Parks and Recreation in developing a planting plan for revegetating the Portage Bay shoreline with appropriate species on land required for construction after the project is completed.

### ***Bill Dawson Trail***

To minimize harm, WSDOT would implement the following measures:

- WSDOT, in coordination with Seattle Parks and Recreation, has prepared a detour plan to address the manner in which the Bill Dawson Trail would be rerouted during times of trail closure during construction.
- Provide a plan for trail closure, including the following elements, as necessary:
  - Surfacing
  - Signage
  - Pavement markings
- Reconstruct the Bill Dawson Trail along a modified alignment within WSDOT right-of-way.

### ***East Montlake Park and Ship Canal Waterside Trail***

To minimize harm, WSDOT would implement the following measures:

- Assist the City of Seattle in developing a planting plan and revegetating the Union Bay shoreline with appropriate species after construction.
- Design the new stormwater facility in East Montlake Park to be compatible with the remaining park and the adjacent shoreline. It

would only be bound by fencing where public safety concerns occur, and, where possible, no fencing would be included. The fence would be landscape-friendly to fit in with the landscaping and topography.

- Prepare a detour plan (if available) in coordination with Seattle Parks and Recreation to address the manner in which on-street bicycle traffic and the Ship Canal Waterside Trail would be rerouted during times of trail closure.
- WSDOT would ensure that access to the Ship Canal Waterside Trail would be maintained throughout construction of the new bascule bridge to the greatest extent possible. Full access to the trail would be re-established once bascule bridge construction is completed; the nature of this access would be determined as part of the bascule bridge design process.
- Replace parking spaces in the park upon completion of construction.

#### ***University of Washington Open Space and the East Campus Bicycle Route***

To minimize harm, WSDOT would implement the following measures:

- Assist the UW in developing a planting plan and revegetating the open space along the Montlake Cut shoreline with appropriate species after construction.
- Coordinate with the UW to provide a detour during construction for the East Campus Bicycle Route to retain connectivity with Montlake Boulevard; the bike route would be reconnected to Montlake Boulevard after construction.

#### ***Washington Park Arboretum, Foster Island, and Arboretum Waterfront Trail***

Effects on the Washington Park Arboretum, Foster Island, and Arboretum Waterfront Trail have been minimized by incorporating the following measures and features into the design of the project:

- Under the Preferred Alternative, the new Lake Washington Boulevard west-to-south off-ramp and north-to-east on-ramp were located close together within the existing WSDOT right-of-way to minimize visual effects on the Washington Park Arboretum.
- The structures near the Washington Park Arboretum, while elevated, were designed to minimize visual effects by reducing their visual bulk.

To further minimize harm, WSDOT would implement the following measures:

- Prepare a plan for trail closures in coordination with the UW and the City of Seattle to address the manner in which Arboretum Waterfront Trail users and users of Foster Island would be rerouted during times of trail closure, when possible.

- Reconstruct portions of the Arboretum Waterfront Trail disturbed during project construction.

## Historic Properties

### *NOAA Northwest Fisheries Science Center*

Under the Preferred Alternative, the project would avoid impacts on all of the structures at the NOAA facility. Under Option A, the project would remove only those buildings on the property that have been determined not eligible for the NRHP. The historic buildings, their access, and the land immediately surrounding them would not be removed. Options K and L would not permanently acquire any property from this site, but would need construction easements on the property. Under the Preferred Alternative and Options A, K, and L, the portion of the property that would be used for construction easements would be restored once construction is completed. In order to minimize harm to the site, WSDOT would work with NOAA to assist them in adapting the facility so that they could continue using it to fulfill their mission. As stipulated in the Section 106 Programmatic Agreement, WSDOT and FHWA are in the process of negotiating an agreement with NOAA to avoid damage to the historic structures or interruption of the historic research functions at the Northwest Fisheries Science Center as a result of impacts from SR 520 construction, including effects from noise and vibration. For more information about construction effects, refer to Section 6.6. In consultation with DAHP, WSDOT, FHWA, and NOAA intend to develop a package of measures to minimize and mitigate these effects that is mutually agreed upon at a staff level, and then elevate these recommendations to policy-level managers at WSDOT and NOAA for approval. The timing for approval by both agencies of the final package of measures cannot be identified with certainty, but is expected to occur by the end of 2011.

### *Montlake Historic District*

As noted, there are no feasible and prudent avoidance alternatives for the Montlake Historic District because SR 520 currently bisects the district. To minimize harm to the district, the Preferred Alternative and all options include a new landscaped lid to cover SR 520 in portions of the district. The Preferred Alternative lid reaches from Montlake Boulevard to the Union Bay shoreline, which is the longest of the Montlake lids in the district. Option A includes a partial lid closer to 24th Avenue East; under Options K and L; the lid extends from Montlake Boulevard to just past 24th Avenue East.

Under the Preferred Alternative, a portion of Lake Washington Boulevard would be widened with the addition of a landscaped median, and would adjoin the lid over SR 520. Under Option K, landscape features that resemble lids would go over the proposed turnaround ramp at Lake Washington Boulevard East. All of these lids would be landscaped and have pedestrian crossings, providing a new open space in each area.

Under the Preferred Alternative and all options the lids would visually shield the area of the district and those individually eligible properties that are adjacent to SR 520 from the roadway, and would help to decrease noise. In addition, the lid over SR 520, as a green space with pedestrian crossings, would serve to partially reunite the north and south sections of the Montlake community currently separated by SR 520.

### ***Washington Park Arboretum and Foster Island***

The Preferred Alternative minimizes the impact on the Foster Island TCP. As a result of coordination with the interested tribes, WSDOT limited the additional width required for project design refinements, and also committed to using low-impact construction techniques by utilizing work bridges to reduce ground disturbance. In addition, WSDOT eliminated construction easements on the south island to further reduce impacts from construction.

### ***Pavilion Pedestrian Bridge***

The Pavilion Pedestrian Bridge would be removed under the suboption to Option L to accommodate widening of the roadway for increased traffic capacity. Because of the location of the bridge, it cannot be avoided if this suboption were to be selected, and no minimization measures would be possible. Mitigation would be provided as determined appropriate through the Section 106 consultation process.

### ***North and South Pedestrian Bridges***

The North and South Pedestrian bridges would be removed under the suboption to Option L to accommodate widening of the roadway for increased traffic capacity. Because of the location of the bridges, they cannot be avoided if this suboption were to be selected, and no minimization measures would be possible. Mitigation would be provided as determined appropriate through the Section 106 consultation process.

### ***Evergreen Point Bridge***

The Evergreen Point Bridge would be removed under the Preferred Alternative and all of the SDEIS options. No minimization efforts are recommended because removal of the bridge is an element of the purpose and need of the project.

### **Archaeological Treatment Plan**

Stipulations for an archaeological treatment plan have been incorporated into the Programmatic Agreement (Attachment 9) for areas that have not yet been surveyed due to access restrictions or other impediments to ground surveys, as well as areas not yet identified. The measures listed in the archaeological treatment plan will be used to guide additional archaeological subsurface preconstruction investigations for the purpose of identifying historic properties within the APE pursuant to 36 CFR 800.4(b)(2); to resolve effects on such resources under 36 CFR 800.6; and to provide a plan for managing any discovery of

previously unknown historic properties during the implementation of the project in accordance with 36 CFR 800.13(a)(2).

The treatment plan for historic properties not identified to date will be developed in consultation with SHPO, USACE, interested tribes, and relevant local governments. The treatment plan will be implemented prior to commencement of major construction activities with potential to affect unidentified historic properties.

WSDOT has an active Unanticipated Discovery Protocol for the project that will be in force for all construction activities related to the SR 520, I 5 to Medina project. WSDOT's Unanticipated Discovery Protocol will be incorporated into the project treatment plan and amended in consultation with the SHPO, as necessary.

### What measures are proposed to mitigate for unavoidable use of Section 4(f) properties?

Throughout the design process for the proposed project, care has been taken to avoid and minimize effects on park and recreation resources and on historic properties, where possible. Because of the density of development in the project vicinity, the narrow existing highway right-of-way, and the fact that the original highway bisected several parklands and the Montlake Historic District, effects on park and recreation resources and on historic properties could not be avoided. The Preferred Alternative and all of the SDEIS options consider measures to reduce noise levels at sensitive receptors adjacent to the highway, including at most park and recreation properties and at many historic properties. (See Section 5.7 of the FEIS for further discussion of noise mitigation.)

Although they are not considered mitigation measures because they are project elements, the lids included in all project options would have beneficial effects in connecting existing parks and historic neighborhoods. In addition, they would provide passive open space for community use and would help visually screen the highway from historic properties.

### Parks and Recreation

#### Bagley Viewpoint

- Although the 10th Avenue East/Delmar Drive East lid is not a mitigation measure, it should be noted that the viewpoint will essentially be replaced with a new viewpoint that will be designed and constructed on the lid to recreate the original intended panoramic views of Portage Bay and the Cascade Mountains.

#### Montlake Playfield

- Montlake Playfield will be improved after construction with the development and implementation of a shoreline planting plan.

- Under the Preferred Alternative, WSDOT is proposing to use a portion of the WSDOT peninsula as part of a wetland mitigation project and is exploring the feasibility of using the remainder of the WSDOT-owned land in the peninsula area for mitigation for effects on parks in the project area.

#### East Montlake Park and McCurdy Park

- WSDOT will coordinate with the City of Seattle and the UW to investigate opportunities to restore and enhance the shoreline wetlands and/or protect the wetland buffer area.
- WSDOT will coordinate with the City of Seattle to relocate the hand-carried boat launch to the north, so that it will be closer to the new parking area after project construction (See Chapter 10 for a conceptual drawing).
- Through the LWCF Section 6(f) process, in coordination with the City of Seattle Parks and Recreation and the UW, WSDOT has determined the property value of the affected Section 6(f) area within the park and identified appropriate replacement property for a portion of East Montlake Park. See Chapter 10 of this Final EIS for more information.
- WSDOT is proposing to use a portion of the WSDOT peninsula as part of a wetland mitigation project and is exploring the feasibility of using the remainder of the WSDOT-owned land in the peninsula area for mitigation for effects on parks in the project area.

#### Ship Canal Waterside Trail

- Through the LWCF Section 6(f) process, in coordination with the City of Seattle Parks and Recreation, WSDOT has determined the property value and identified appropriate replacement property for the use of the Ship Canal Waterside Trail. See Chapter 10 of this Final EIS for more information.
- Through the design of the Preferred Alternative, the link between the Bill Dawson Trail and the Ship Canal Waterside Trail will be re-established via the Arboretum Waterfront Trail, thus adding connectivity to the larger trail system.

#### University of Washington Open Space

- WSDOT is proposing to use a portion of the WSDOT peninsula as part of a wetland mitigation project and is exploring the feasibility of using the remainder of the WSDOT-owned land in the peninsula area for mitigation for effects on parks in the project area.

#### Washington Park Arboretum

- Through the LWCF Section 6(f) process, in coordination with the City of Seattle Parks and Recreation and the UW, WSDOT has determined the value of the affected property in the Arboretum and identified

appropriate replacement property for part of the land used in the Arboretum. See Chapter 10 of this Final EIS for more information.

- In keeping with WSDOT policy, affected park property used for construction easements will be restored to preconstruction conditions or better, and will be available for park use when construction was completed. WSDOT is working in partnership with interested tribes and the ABGC to develop an appropriate revegetation plan for the area of temporary acquisition on Foster Island.
- WSDOT will take all due care during construction to keep clearing to a minimum and to protect areas adjacent to construction from disturbance. Any collection specimens damaged or removed during construction will be replanted or replaced in coordination with the UW Curation Committee.
- Through the Parks TWG and the ESSB 6392 workgroup processes, WSDOT has coordinated with the City of Seattle and the UW to identify appropriate replacement land for permanently acquired park property. WSDOT is evaluating the possibility of transferring property from the WSDOT peninsula to the Arboretum after the R.H. Thomson Expressway ramps and SR 520 ramps are removed and the area is restored to its natural condition.
- WSDOT has committed to funding aesthetic enhancements and general improvements on Foster Island (pending tribal coordination) to mitigate for the increased footprint and bulk of the new west approach structure.
- Wetland restoration on the WSDOT peninsula, in the Arboretum Creek, and in the Azalea Way Pond will mitigate for wetland impacts located elsewhere in the Arboretum.
- Potential improvements to a multi-use trail and implementation of the Arboretum’s “Interpretive and Wayfinding Plan.”
- WSDOT may also improve the north entry to the Arboretum to mitigate for the effects from ramp removal and changes to Lake Washington Boulevard.

#### Arboretum Waterfront Trail

- Through the LWCF Section 6(f) process, in coordination with the City of Seattle Parks and Recreation and the UW, WSDOT has determined the value of the property and identified appropriate replacement property for the effects on the land surrounding the Arboretum Waterfront Trail.
- Through the design of the Preferred Alternative, the link between the Bill Dawson Trail and the Ship Canal Waterside Trail will be re-established via the Arboretum Waterfront Trail, thus adding connectivity to the larger trail system.

## Section 6(f) Properties

Through the project's mandated Section 6(f) process (discussed in Chapter 10 of this Final EIS), WSDOT has committed to mitigation for use of the affected Section 6(f) property, which is a recreational trail complex located in project area. The recreational trail complex includes the Ship Canal Waterside Trail and the Arboretum Waterfront Trail, as well as the two parks where the trails are located (East Montlake Park and Washington Park Arboretum). WSDOT's coordination with the officials with jurisdiction over these resources (the UW and the City of Seattle) resulted in the identification of an appropriate replacement site. The Bryant Building site was selected following WSDOT's coordination with the UW and the City of Seattle, and through the collaboration at the Parks TWG. The site would provide 3.9 acres of recreational space, and is located on Portage Bay off of Northeast Boat Street. As stipulated in the Section 6(f) Memorandum of Understanding, WSDOT has committed to funding the purchase and possible development of the Bryant Building site to mitigate for the project's use of a portion of the recreational trail complex. This Section 6(f) mitigation, in the form of replacement property, would result in a net gain of 1.3 acres of recreational space once SR 520 construction is completed and the areas closed for construction easements are again open for public use.

## Historic Properties

According to 23 CFR 774.17(2), when considering all reasonable measures to minimize harm or mitigate for impacts and effects, historic properties must be addressed in compliance with 36 CFR Part 800. With regard to historic sites, the measures normally serve to preserve the historic activities, features, or attributes of the site as agreed by the FHWA and the official(s) with jurisdiction over the Section 4(f) resource in accordance with the consultation process.

WSDOT and FHWA have coordinated with the SHPO, interested tribes, and other interested consulting parties on the mitigation measures for historic properties. In addition, WSDOT and FHWA have included coordination with the City of Seattle Historic Preservation Officer on mitigation measures proposed for historic properties within Seattle. Specific measures to resolve project effects involve FHWA, WSDOT, SHPO, ACHP, and interested consulting parties and are stipulated in the Programmatic Agreement (provided in Attachment 9 to this Final EIS). The Programmatic Agreement is anticipated to be fully executed by all required signatories in June 2011.

The Section 106 mitigation measures stipulated in the Programmatic Agreement serve as Section 4(f) mitigation and no additional mitigation measures for Section 4(f) uses of historic properties will be developed. According to the FHWA Policy Paper (FHWA 2005b): "project mitigation required by other substantive laws can help FHWA satisfy the requirement

that a project include all possible planning to minimize harm to a 4(f) resource if it is used.” The Section 106 mitigation measures stipulated in the Programmatic Agreement serve as the Section 4(f) mitigation measures for historic properties. The mitigation measures for historic properties that are listed below are summarized from the Programmatic Agreement (see Attachment 9 for a copy of the Programmatic Agreement to view all stipulations and specific details).

Measures to resolve adverse effects on the Foster Island TCP are described in the Foster Island Treatment Plan, included in the Section 106 Programmatic Agreement by reference.

### General Measures

- 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 the affected property owners to address their needs, which may include the development of an alternate access strategy for short-term interruptions of access and longer-term detours.
- 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.
- In consultation with the concurring parties to the Programmatic Agreement and other parties potentially affected by project construction, and prior to the beginning of construction, WSDOT will develop and implement a CCMP.
- Within Seattle, only streets designated as arterials by the City are identified as routes for moving materials into and out of construction staging areas, with the exception of the 24th Avenue East bridge.
- WSDOT will develop measures to protect traffic circles and planters from construction/hauling traffic, and if any modifications are necessary or any inadvertent damage occurs as a result of construction hauling, WSDOT will restore islands and planters to their pre-construction condition when use of the haul route is completed.
- WSDOT will ensure that the roadway surfaces of the selected haul routes within the APE are repaired prior to the start of construction to remove potholes, cracks, and other surface damage. WSDOT will ensure that the roadway surfaces are maintained throughout the duration of the construction contract in a similar good condition. Should a concurring party identify a concern during construction about a repair or maintenance needed on one of the selected haul routes, WSDOT will coordinate the repair through the CCMP to ensure that

the repair or maintenance concern is addressed within 72 hours of notification.

- WSDOT will ensure that any curbs damaged during construction or materials hauling are repaired when use of the route has been completed.
- As part of construction management planning, WSDOT will consult with the adjacent property owners to evaluate and install possible sound-buffering mechanisms between adjacent historic properties and project construction staging areas.
- WSDOT will consult with adjacent property owners and concurring parties to the Programmatic Agreement as part of the urban design process in order to restore staging areas, as appropriate, once construction is finished.
- As part of the CCMP, 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
- The CCMP 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 protecting trees and other screening vegetation adjacent to construction work areas from construction impacts; replacing removed trees following City of Seattle street tree standards; and monitoring of contractor adherence to the CCMP vegetation management plan.
  - 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.
- The CCMP will be supported by specified communication activities.
- 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 impacts on historic properties within the APE may occur as a result of vibration. WSDOT will avoid or minimize vibration impacts from construction and construction hauling on historic properties by implementing BMPs for vibration currently being developed by this expert.

- WSDOT will comply with WSDOT standard specifications to mark limits of allowed disturbance in order to protect trees (including their root systems out to the drip line to the maximum extent practicable) and other screening vegetation identified as being retained and protected in place either inside or bordering on the construction area.
- To the maximum extent practicable, WSDOT will avoid placement of temporary work bridges and other short-term construction features where they would require permanent removal of or would damage mature trees.
- WSDOT will comply with local noise regulations for construction and equipment operation.
- To the maximum extent practicable, WSDOT will locate construction sheds, barricades, and material storage away from historic properties and avoid obscuring views of or from historic properties.
- To the maximum extent practicable, WSDOT will install temporary construction screens/barriers (fencing, plantings, etc.) around construction areas so that visual impacts of construction activities on historic properties are minimized. Location and type of screens/barriers will be determined in coordination with the concurring parties and adjacent property owners.
- WSDOT will limit use of construction lighting as much as possible and keep necessary lighting shielded, directed downward, and pointed away from residences and other sensitive areas to the maximum extent practicable.
- 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. WSDOT will consult with the Seattle Design Commission and DAHP to ensure that lighting is compatible with the historic setting and residential character of surrounding areas.
- WSDOT will use quieter concrete pavement on all SR 520 mainline elements of the project west of the Portage Bay Bridge (including the new HOV ramp), on the Portage Bay Bridge, and on the west approach structure. 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 use noise-absorptive material along the 4-foot barriers where planned within the corridor, and through the design process will evaluate and implement feasible options for noise-absorptive materials at the portals to lids and along bridge expansion joints.
- If 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 develop content for, create, and host an interpretive website 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 A-Y-P Exposition; summarized findings of the archaeological investigations; a redacted, non-confidential report on the ethnography of the project area and Lake Washington; and information about the historic districts and other historic properties of the project area.
- WSDOT will coordinate with SDOT to ensure that WSDOT, SDOT, and/or another specifically identified party is responsible for maintenance of landscaping installed as part of the project.
- 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.

#### Roanoke Park Historic District and North Capitol Hill Properties

- 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 addresses 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. In consultation with the concurring parties to the Programmatic Agreement, WSDOT will include improved open space as part of the Portage Bay Bridge design, making the space under the bridge usable, while incorporating the mechanisms of crime prevention through environmental design to the maximum extent practicable.
- 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 potential measures for protecting views of and from historic properties.

- WSDOT will preserve in place the trees along the north and south sides of SR 520 between I-5 and the Portage Bay Bridge to the maximum extent practicable. Trees that must be removed during construction will be replaced after construction, where practicable, per City of Seattle requirements. There will be public involvement with both the Portage Bay/Roanoke Park and North Capitol Hill communities in developing the vegetation management activities for this area.
- WSDOT will revegetate the SR 520 roadside areas from I-5 to the Delmar Drive/10th Avenue lid according to WSDOT standards, but will consult with the Portage Bay/Roanoke Park and North Capitol Hill communities to identify and select plantings compatible with the historic character of the area to the maximum extent practicable.
- Where new right-of-way fence is required in the Portage Bay/Roanoke Park and North Capitol Hill communities, WSDOT will consult with those communities about the possibilities for visually compatible fencing.
- To assist the North Capitol Hill community in future historic preservation planning efforts, WSDOT will record and evaluate the Billodue House at 2333 Broadway Avenue East for NRHP eligibility. Survey materials will be compiled and submitted to DAHP and the City of Seattle in formats compatible with both the DAHP and City of Seattle historic property databases.
- To assist the Portage Bay/Roanoke Park community in future historic preservation planning efforts, WSDOT will record and evaluate for NRHP eligibility, both individually and as a potential district, the houseboats currently docked on the west shore of Portage Bay between the University Bridge and the Queen City Yacht Club docks. Survey materials will be compiled and submitted in a format compatible with both the DAHP and City of Seattle historic property databases.
- WSDOT will consult with Saint Patrick's Church to ensure access to the church grounds and facilities during construction.
- WSDOT will consult with Seward School to ensure safe access during construction when school is in session.
- WSDOT will adapt the information in the Roanoke Park Historic District National Register nomination into a digital format suitable for submission to the City of Seattle historic property database.
- 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 Delmar/10th Avenue lid, 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 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 slope to the south;
  - Retaining or replacing existing fences on the south side of the lid with context-sensitive fences or barriers 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; and/or
  - Incorporating mechanisms of crime prevention through environmental design to the maximum extent practicable.
- 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 planting 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 consult with the City of Seattle on possible inclusion of the marker rock and memorial bench currently located at Bagley Viewpoint in the lid design, as the City owns these items.
  - 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. WSDOT will develop any plans for the addition of medians or other traffic-calming devices to this design in consultation with SDOT, DAHP, and the adjacent neighborhoods. The design agreement with the communities shall be in place prior to final design of the Delmar Drive/10th Avenue lid.
  - 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 Delmar Drive/10th Avenue lid to the maximum extent practicable.

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 the City of Seattle and Portage Bay/Roanoke Park Community Council on a process for ensuring maintenance of the signs.

#### NOAA Northwest Fisheries Science Center

WSDOT and NOAA began meeting in the fall of 2010 in a series of workshops to identify and, to the extent possible, quantify project effects on the Northwest Fisheries Science Center. Workshops focused on various topics, emphasizing key concerns about noise, air quality, and vibration. Workshops continued through spring 2011. In consultation with DAHP, WSDOT, FHWA, and NOAA intend to develop a package of measures to resolve adverse effects that is mutually agreed upon at a staff level, and then elevate these recommendations to policy-level managers at WSDOT and NOAA for approval. The timing for approval by both agencies of a final set of measures to resolve adverse effects cannot be identified with certainty, but is anticipated to occur by the end of 2011.

- Through the workshop process, WSDOT and FHWA are negotiating an agreement with NOAA to avoid damage to the historic structures or interruption of the historic research functions at the Northwest Fisheries Science Center as a result of SR 520 construction.
- WSDOT will make parking adjacent to and under the Portage Bay Bridge available to NOAA employees again after completion of construction, pending approval of an airspace lease.

#### Seattle Yacht Club

- 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 period, including the week before Opening Day and the week after.
- 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. At a minimum, the plan will address the following issues:

- Key periods during which 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 the Opening Day events in Portage Bay

### Montlake Bridge

- In consultation with DAHP, the Seattle Landmarks Preservation Board, and the 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, Seattle Design Commission, the Seattle Landmarks Preservation Board, the 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 (National Park Service 2001).
- 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 ensure that access to the Ship Canal Waterside Trail will be maintained throughout construction of the new bascule 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 bascule bridge design process.

#### Canoe House

- In consultation with DAHP, the University of Washington, and any other concerned concurring parties, 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.

#### Montlake Historic District

- WSDOT will consult with Saint 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/19th Avenue and/or Boyer 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 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 Saint Demetrios Church 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 Saint Demetrios parking lot for special events, such as the annual fundraising auction, that are scheduled during any period of use of either 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 ensure that access to the actively used portions of the Montlake Playfield is maintained during construction.
- 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.
  - WSDOT will consult with DAHP and the Montlake Community Club to identify appropriate opportunities for club members to participate in this effort as volunteers.
  - Survey materials will be compiled and submitted in a format compatible with both the DAHP and City of Seattle historic property databases.
- Once construction of the lid is completed, WSDOT will re-establish a visual buffer on or adjacent to the remaining Canal Reserve Lands south of 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 the project-wide educational website.
- 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 coordinate 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 consult with the City of Seattle to identify maintenance and long-term responsibilities for these items.
- Although WSDOT has not evaluated the feasibility or cost of relocating the two contributing houses in the Montlake Historic District (2904 and 2908 Montlake Boulevard) slated for removal to accommodate the new bascule bridge, WSDOT will make these houses available for purchase and relocation.

- WSDOT will consult with concurring parties to the Programmatic Agreement to make the availability of these properties known through appropriate venues, and will keep the concurring parties apprised of any expressions of interest. Whether these properties are relocated or not, WSDOT will record them to DAHP Level II standards (DAHP 2010) and submit the records to DAHP and to the Washington State Archives.
- If no party that is willing and able to acquire and relocate these structures is identified within 6 months of WSDOT's initial advertising of availability, WSDOT will deconstruct the structures and will ensure that architectural elements such as doors, windows, moldings, etc., are made available for reuse, and will make the availability of these elements known through appropriate venues.
- If the structures at 2904 and 2908 Montlake Boulevard NE are deconstructed (rather than relocated), WSDOT will undertake planning for and disposal of any resultant hazardous materials.

In consultation with the Seattle Design Commission, the Seattle Landmarks 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 character of the Montlake Historic District. This plan will include plantings and urban design elements, possibly including medians and planter strips, 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 that 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 practicable.
- WSDOT will provide for the use of underground wiring on the Montlake lid to the maximum extent practicable.
- WSDOT will consult with nearby property owners, the Montlake Community Club, the 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.

- Through the design of the Preferred Alternative, WSDOT will connect the Bill Dawson Trail and the Ship Canal Waterside Trail via the Arboretum Waterfront Trail. In partnership with Seattle Parks and Recreation, WSDOT will install appropriate retaining wall treatments and lighting along the Bill Dawson Trail to enhance the user experience and promote safety in areas directly affected by project construction.

#### Lake Washington Boulevard

- WSDOT will consult with DAHP and the concurring parties to the Programmatic Agreement, as well as adjacent local homeowners, 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 (Seattle Parks and Recreation n.d.) and will follow the Secretary of the Interior's Standards for the Treatment of Historic Properties (National Park Service 2001) 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 retains the Olmsted plan to the maximum extent practicable.
- Within the area of Montlake Boulevard where WSDOT plans modifications to medians, WSDOT will consult with DAHP, the concurring parties to the Programmatic Agreement, and other stakeholders, as appropriate, on design, wording, and placement of a sign about the A-Y-P 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 will be done in consultation with DAHP, Friends of Seattle's Olmsted Parks, King County, and the Washington Trust for Historic Preservation.
  - 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 photos 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, the 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 the department 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, the Friends of Seattle’s Olmsted Parks, the 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.
- WSDOT will ensure that the design of the Montlake Boulevard planted areas across the lid reflects the historical connection between Montlake Boulevard and Lake Washington Boulevard; these planted areas will reflect the original design principles of Lake Washington Boulevard and other Olmsted-designed boulevards in Seattle to the maximum extent practicable.

#### Washington Park Arboretum and Foster Island

- WSDOT and FHWA will develop and implement a treatment plan to resolve adverse effects of the project on the Foster Island Traditional Cultural Property in consultation with USACE, DAHP, and the affected tribes. The specific resolution measures in the Foster Island Treatment Plan will be determined through consultation. Agreed-upon measures may be carried forward through one or more government-to-government agreements negotiated and executed prior to initiation of project construction on Foster Island.
- WSDOT will consult with the ABGC, 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 for the west approach and surrounding area. The design will incorporate mechanisms of crime prevention through environmental design.
- WSDOT will consult with the ABGC, affected tribes, DAHP, and other stakeholders, including homeowners in surrounding areas and Friends of Seattle’s Olmsted Parks, to develop a 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 the Interior's Standards for the Treatment of Historic Properties insofar as these apply to designed landscapes.

- WSDOT will facilitate consultation between the affected tribes and ABGC and other stakeholders concerning landscape planning and management of Foster Island as needed.
- WSDOT will consult with affected property owners, DAHP, and the ABGC 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.

### Evergreen Point Bridge

- WSDOT will prepare Level II Historic American Engineering Record (HAER) documentation of the Evergreen Point Bridge, including photographs, reproductions of selected as-built drawings, and a written history.
- WSDOT will provide this documentation to DAHP and to the National Park Service Historic American Buildings Survey/Historic American Engineering Record (HABS/HAER) program, with copies being provided to MOHAI, the Seattle Yacht Club, and the Eastside Heritage Center.

WSDOT will include a summary of the documentation collected and a selection of the photos on the project-wide interpretive website.

### Which alternative or design option would cause the least overall harm to Section 4(f) properties?

Table 9-7 summarizes the affected Section 4(f) property acreage for the Preferred Alternative and each SDEIS option.

The 9 park and recreation resources with a Section 4(f) use under the Preferred Alternative or any SDEIS option are Bagley Viewpoint, Montlake Playfield, East Montlake Park, McCurdy Park, Ship Canal Waterside Trail, UW Open Space, East Campus Bicycle Route, Washington Park Arboretum, and the Arboretum Waterfront Trail.

The 12 historic properties with a Section 4(f) use under the Preferred Alternative or any SDEIS option are Fire Station #22, NOAA Northwest Fisheries Science Center, Montlake Historic District, 2220 East Louisa Street, Montlake Cut, Canoe House, Pavilion Pedestrian Bridge, North and South Pedestrian Bridges, Washington Park Arboretum, Foster Island TCP, and Evergreen Point Bridge.

According to 23 CFR 774.3(c), because there is no feasible and prudent avoidance alternative, FHWA may approve only the alternative that causes

Table 9-7. Summary of Section 4(f) Property Used by Alternative and Design Option

Alternative / SDEIS Option	Number of Section 4(f) Properties Used		Total Section 4(f) Land Used (acres)	Total Section 4(f) Land Used Excluding WSDOT Peninsula <sup>a</sup> (acres)
	Recreation	Historic		
Preferred Alternative	9	8	18.5	9.4
Option A	9	9	18.8	11.1
Option A with suboption	9	8	20.4	11.5
Option K	8	8	25.9	16.4
Option L	9	8	20.0	11.3
Option L with suboption	9	11	21.0	12.4

<sup>a</sup> This column represents the total acres used under the Preferred Alternative and each SDEIS option excluding the construction in WSDOT right-of-way on the WSDOT peninsula.

Note: Submerged lands and the WSDOT peninsula were not included in the SDEIS analysis; the total acres for all the SDEIS options have been updated to reflect the additional submerged lands for pertinent properties and the WSDOT peninsula in the Washington Park Arboretum historic property.

Note: The totals are calculated using 1/100th of an acre, but the numbers are presented rounded to the nearest 1/10th of an acre.

the least overall harm based on an assessment of the seven factors listed in 23 CFR 774.3(c)(1):

1. The ability of the alternative to mitigate adverse impacts on each Section 4(f) property (including any measures that result in benefits to the property)
2. The relative severity of the remaining harm, after mitigation, to the protected activities, attributes, or features that qualify each Section 4(f) property for protection
3. The relative significance of each Section 4(f) property
4. The views of the official(s) with jurisdiction over each Section 4(f) property
5. The degree to which each alternative meets the purpose and need for the project
6. After reasonable mitigation, the magnitude of any adverse impacts on resources not protected by Section 4(f)
7. Substantial differences in costs among the alternatives

Exhibits 9-29 and 9-30 show a graphic comparison of Section 4(f) uses under the Preferred Alternative and each of the SDEIS options. Table 9-8 summarizes the least harm analysis by Section 4(f) property. The alternative

Exhibit 9-29. Section 4(f) Uses under the Preferred Alternative and Option A

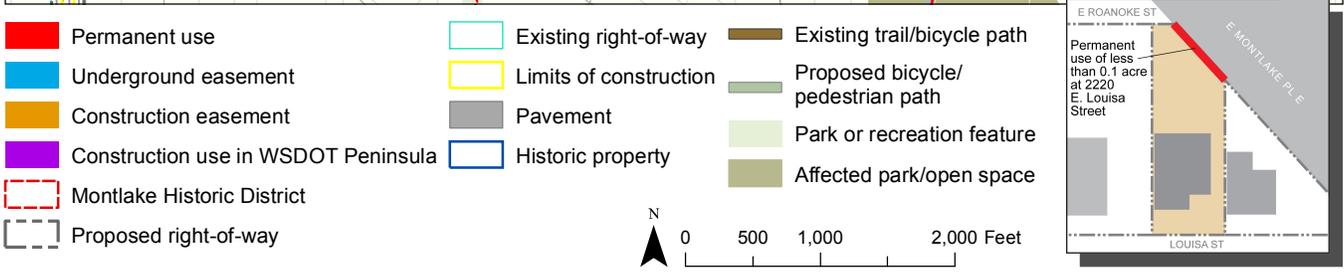
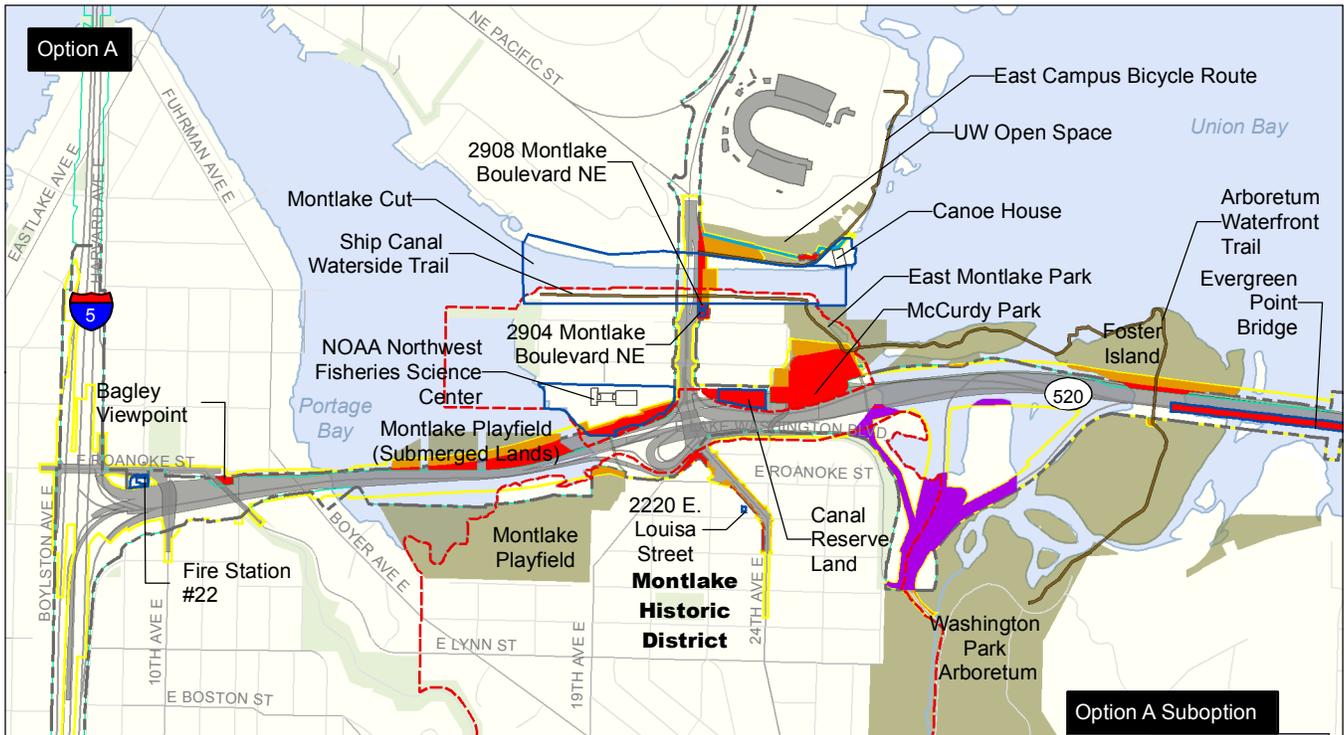
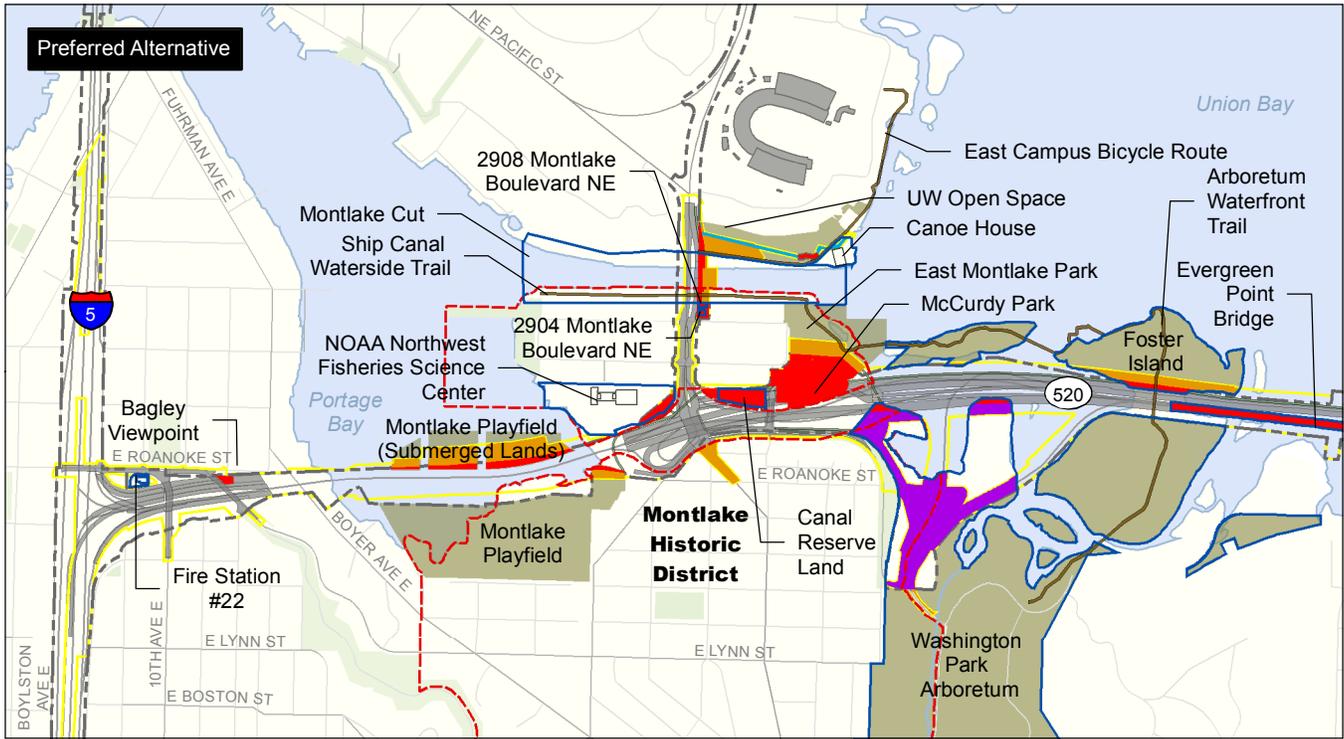
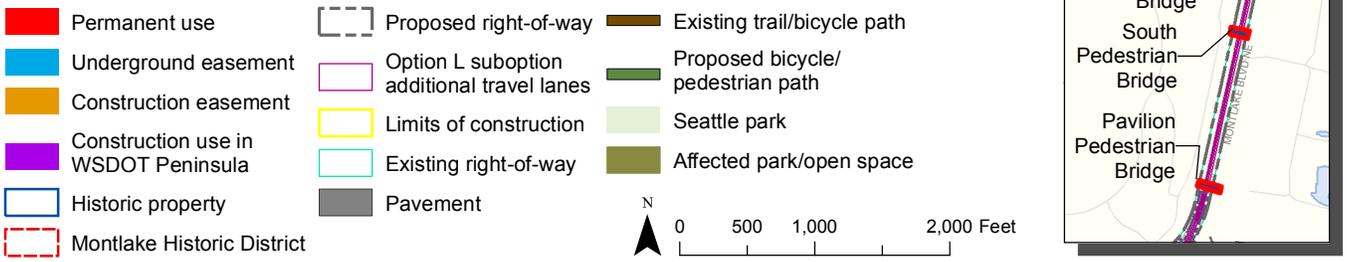
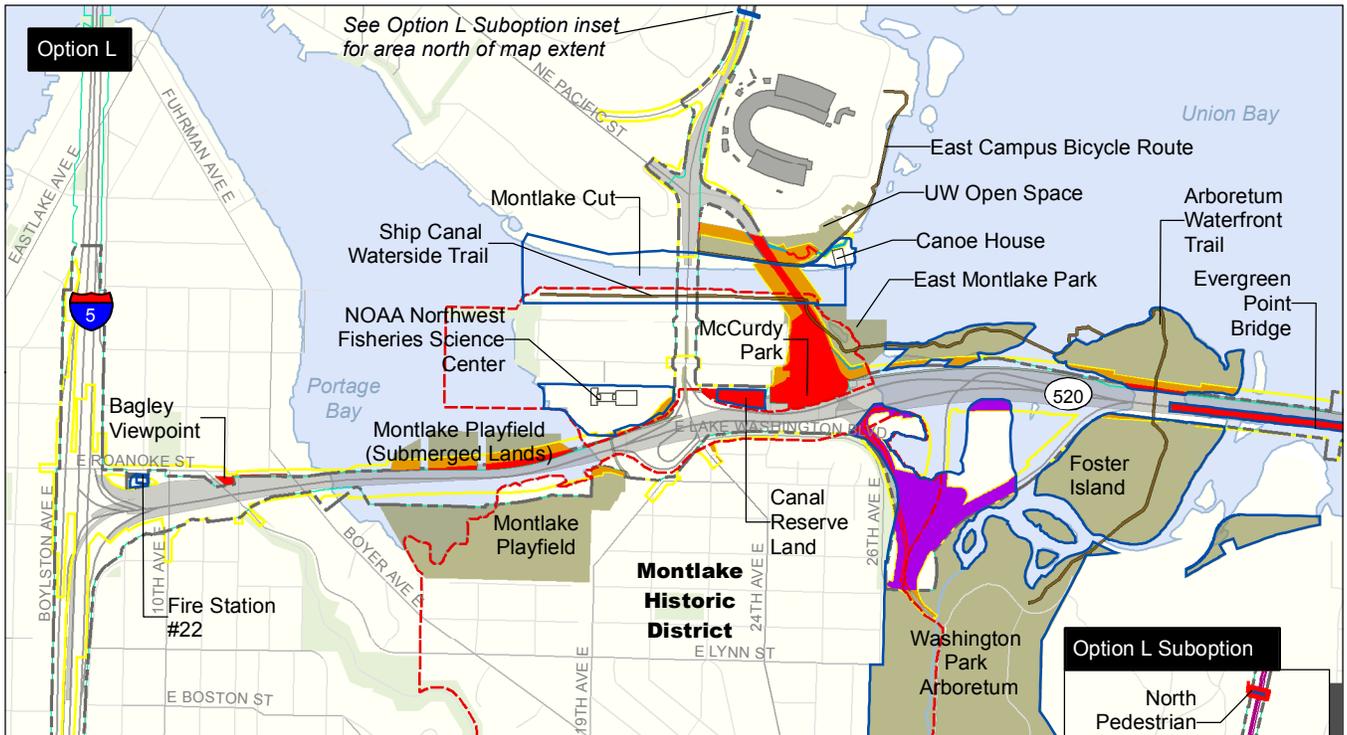
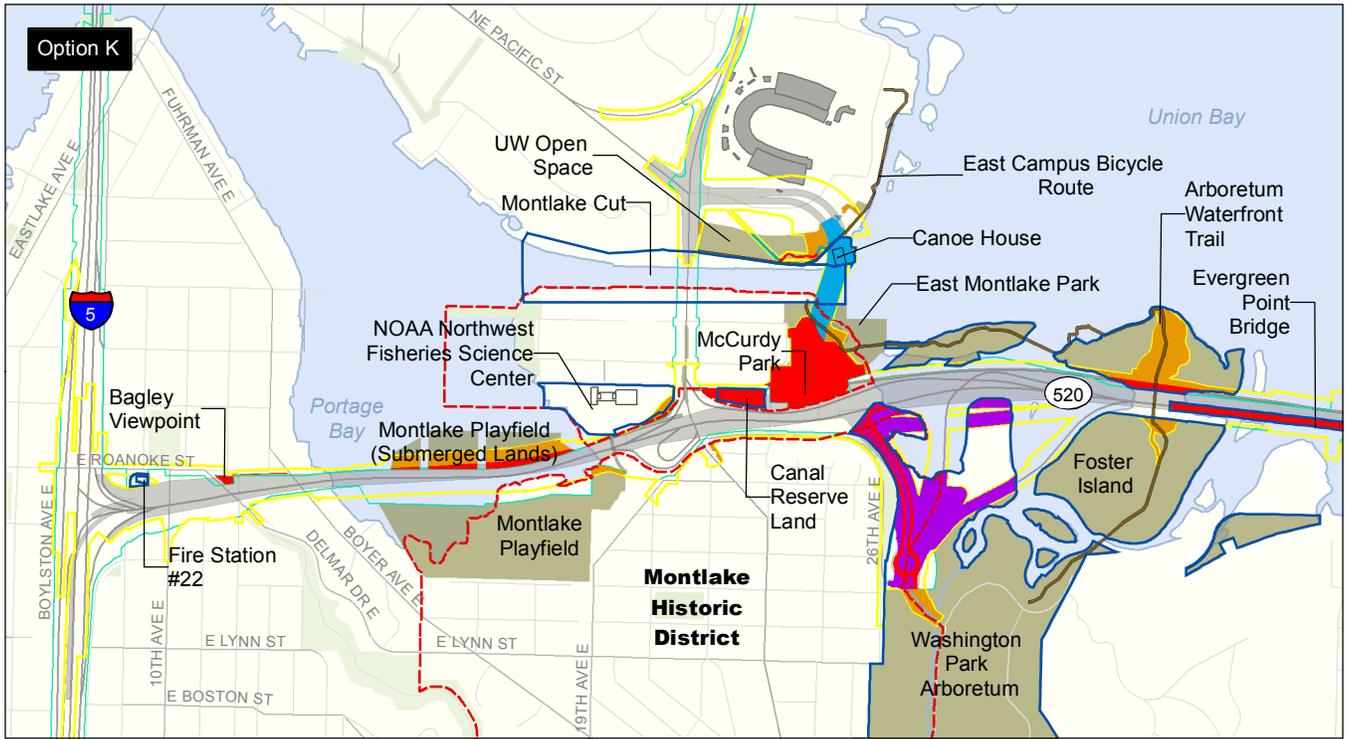


Exhibit 9-30. Section 4(f) Uses under Options K and L



or design option that causes the least harm for each property is highlighted in grey. The blue font indicates that the property is not a factor in the analysis of least harm because the impacts from all the alternatives and options are equal. Based on the analysis of the Preferred Alternative and the SDEIS options, the Preferred Alternative results in the least net harm to Section 4(f) properties overall.

Table 9-8. Least Harm Analysis by Section 4(f) Property

Section 4(f) Property	Alternative/SDEIS Option	Section 4(f) Use	Relative Net Harm to Section 4(f) Property after Measures to Minimize Harm <sup>a</sup>
Park and Recreation Resources			
Bagley Viewpoint	Preferred Alternative	Yes	All options are equal
	Option A	Yes	All options are equal
	Option K	Yes	All options are equal
	Option L	Yes	All options are equal
Interlaken Park	Preferred Alternative	No	All options are equal
	Option A	No	All options are equal
	Option K	No	All options are equal
	Option L	No	All options are equal
Montlake Playfield	Preferred Alternative	Yes	Less than all other options
	Option A	Yes	Greater than all other options
	Option K	Yes	Greater than Preferred Alternative and Option L; less than Option A
	Option L	Yes	Greater than Preferred Alternative; less Options A and K
East Montlake Park	Preferred Alternative	Yes	Equal to Option A; less than Options K and L
	Option A	Yes	Equal to Preferred Alternative; less than Options K and L
	Option K	Yes	Greater than all other options
	Option L	Yes	Greater than Preferred Alternative and Option A; less than Option K
McCurdy Park	Preferred Alternative	Yes	All options are equal
	Option A	Yes	All options are equal
	Option K	Yes	All options are equal
	Option L	Yes	All options are equal
Ship Canal Waterside Trail	Preferred Alternative	Yes	Equal to Option A; greater than Option K; less than Option L
	Option A	Yes	Equal to Preferred Alternative; greater than Option K; less than Option L

Table 9-8. Least Harm Analysis by Section 4(f) Property

Section 4(f) Property	Alternative/SDEIS Option	Section 4(f) Use	Relative Net Harm to Section 4(f) Property after Measures to Minimize Harm <sup>a</sup>
	Option K	No	Less than all other options
	Option L	Yes	Greater than all other options
UW Open Space	Preferred Alternative	Yes	Equal to Option A; less than Options K and L
	Option A	Yes	Equal to Preferred Alternative; less than Options K and L
	Option K	Yes	Greater than Preferred Alternative and Option A; less than Option L
	Option L	Yes	Greater than all other options
East Campus Bicycle Route	Preferred Alternative	Yes	Equal to Options A and K; less than Option L
	Option A	Yes	Equal to Preferred Alternative and Option K; less than Option L
	Option K	Yes	Equal to the Preferred Alternative and Option A; less than Option L
	Option L	Yes	Greater than all other options
Washington Park Arboretum	Preferred Alternative	Yes	Equal to Options A and L; less than Option K
	Option A	Yes	Equal to Preferred Alternative and Option L; less than Option K
	Option A with Suboption	Yes	Greater than Preferred Alternative and Option A and L; less than Option K
	Option K	Yes	Greater than all other options
	Option L	Yes	Equal to Preferred Alternative and Option A; less than Option K
Arboretum Waterfront Trail	Preferred Alternative	Yes	Equal to Option A; less than Options K and L
	Option A	Yes	Equal to Preferred Alternative; less than Options K and L
	Option K	Yes	Equal to Option L
	Option L	Yes	Equal to Option K
Historic Properties			
Fire Station #22	Preferred Alternative	Yes	All options are equal
	Option A	Yes	All options are equal
	Option K	Yes	All options are equal
	Option L	Yes	All options are equal
NOAA Northwest Fisheries Science Center	Preferred Alternative	Yes	Greater than Options K and L; less than Option A
	Option A	Yes	Greater than all other options
	Option K	Yes	Equal to Option L; less than Preferred Alternative and Option A
	Option L	Yes	Equal to Option K; less than Preferred Alternative and Option A

Table 9-8. Least Harm Analysis by Section 4(f) Property

Section 4(f) Property	Alternative/SDEIS Option	Section 4(f) Use	Relative Net Harm to Section 4(f) Property after Measures to Minimize Harm <sup>a</sup>
Montlake Historic District	Preferred Alternative	Yes	Greater than Option K; less than Options A and L
	Option A	Yes	Greater than all other options
	Option A with Suboption	Yes	Greater than Preferred Alternative and Options K and L; less than Option A
	Option K	Yes	Less than all other options
	Option L	Yes	Greater than Preferred Alternative and Option K; less than Option A
2220 E. Louisa Street residence	Preferred Alternative	No	Less than Option A; equal to Options K and L
	Option A	Yes	Greater than all other options
	Option A with Suboption	No	Less than Option A; equal to Preferred Alternative and Options K and L
	Option K	No	Less than Option A; equal to Preferred Alternative, Suboption A and Option L
	Option L	No	Less than Option A; equal to Preferred Alternative, Suboption A and Option K
Montlake Cut	Preferred Alternative	Yes	Equal to Option A; greater than Option K; less than Option L
	Option A	Yes	Equal to Preferred Alternative; greater than Option K; less than Option L
	Option K	Yes	Less than all other options
	Option L	Yes	Greater than all other options
Canoe House	Preferred Alternative	Yes	Equal to Option A; greater than Option K; less than Option L
	Option A	Yes	Equal to Preferred Alternative; greater than Option K; less than Option L
	Option K	Yes	Less than all other options
	Option L	Yes	Greater than all other options
Pavilion Pedestrian Bridge	Preferred Alternative	No	Equal to Options A, K and L; less than Option L with suboption
	Option A	No	Equal to Preferred Alternative and Options K and L; less than Option L with suboption
	Option K	No	Equal to Preferred Alternative and Options A and L; less than Option L with suboption
	Option L	No	Equal to Preferred Alternative and Options A and K; less than Option L with suboption
	Option L with Suboption	Yes	Greater than all other options

Table 9-8. Least Harm Analysis by Section 4(f) Property

Section 4(f) Property	Alternative/SDEIS Option	Section 4(f) Use	Relative Net Harm to Section 4(f) Property after Measures to Minimize Harm <sup>a</sup>
North and South Pedestrian Bridges	Preferred Alternative	No	Equal to Options A, K and L; less than Option L with suboption
	Option A	No	Equal to Preferred Alternative and Options K and L; less than Option L with suboption
	Option K	No	Equal to Preferred Alternative and Options A and L; less than Option L with suboption
	Option L	No	Equal to Preferred Alternative and Options A and K; less than Option L with suboption
	Option L with Suboption	Yes	Greater than all other options
Washington Park Arboretum	Preferred Alternative	Yes	Equal to Options A and L; less than Option K
	Option A	Yes	Equal to Preferred Alternative and Option L; less than Option K
	Option A with Suboption	Yes	Greater than Preferred Alternative and Options A and L; less than Option K
	Option K	Yes	Greater than all other options
	Option L	Yes	Equal to Preferred Alternative and Option A; less than Option K
Foster Island	Preferred Alternative	Yes	Less than all other options
	Option A	Yes	Equal to Option L; greater than Preferred Alternative; less than Option K
	Option K	Yes	Greater than all other options
	Option L	Yes	Equal to Option A; greater than Preferred Alternative; less than Option K
Evergreen Point Bridge	Preferred Alternative	Yes	All options are equal
	Option A	Yes	All options are equal
	Option K	Yes	All options are equal
	Option L	Yes	All options are equal

<sup>a</sup> Because all alternatives use Section 4(f) properties, there are no prudent and feasible avoidance alternatives; only the option that causes the least overall harm in light of the statute's preservation purpose may be approved.

Note: The alternative that caused the least harm for each property is highlighted in grey. The properties shown in blue font indicate the property is not a factor in the analysis of least harm because the impacts from all the alternatives are equal.

### Least Harm Analysis by 23 CFR 774.3(c)(1) Factors

This Final Section 4(f) evaluation demonstrates that the Preferred Alternative is a feasible and prudent alternative, with the least harm to the Section 4(f) resources after considering mitigation. The degree of harm considers not only the amount of land used, but also the following:

- Location of the portion used
- Severity of the portion used

- Function of the portion used

The following sections provide the least harm analysis by the seven factors listed in 23 CFR 774.3(c)(1). Factors 1 through 4 have been grouped together to reduce redundancy.

- Factor 1: “The ability to mitigate adverse impacts to each Section 4(f) property (including any measures that result in benefits to the property)”
- Factor 2: “The relative severity of the remaining harm, after mitigation, to the protected activities, attributes, or features that qualify each Section 4(f) property for protection”
- Factor 3: “The relative significance of each Section 4(f) property”
- Factor 4: “The views of the official(s) with jurisdiction over each Section 4(f) property”<sup>1</sup>

### ***Factors 1 through 4 Discussion***

Least harm considerations are not always a function of minimizing acreage used. Other important factors such as location, severity, and function of the portion used also may play a role in the decision-making process.

Mitigation under Section 106 and mitigation for park and recreation resources would not vary greatly per property across the build alternatives. In all cases, the mitigation measures would have to be coordinated with officials with jurisdiction, with consulting parties, and with interested tribes.

Therefore, in most cases, the relative severity of the harm to Section 4(f) properties is tied more to acquisition and to level of impact than to mitigation.

For some resources, there is no differentiation among the Preferred Alternative and the SDEIS options because the impacts and mitigation are identical. The properties listed below would have the same use and same mitigation under each build alternative. Therefore, the following properties do not factor into the least harm analysis.

- Fire Station #22
- Bagley Viewpoint
- Interlaken Park
- McCurdy Park
- Evergreen Point Bridge

<sup>1</sup> The views of officials stated in this section are based on discussions with agency officials while conducting coordination activities over the course of the SR 520, I-5 to Medina project, not on explicit responses made by agency officials related to Factors 3 and 4.

### ***Montlake Playfield***

Option A would acquire a greater amount of land from the Montlake Playfield than the Preferred Alternative or the other SDEIS options. However, the Preferred Alternative is the only alternative that permanently acquires upland from the resource in addition to submerged land. The SDEIS options only acquire submerged lands that are adjacent to the Portage Bay Bridge. In addition, every alternative would need a construction easement on the Montlake Playfield property.

Under Option A, the project would use 1.5 acres of property from NOAA, which is a significant historic property, and would require the demolition of buildings on the site. This impact would diminish the historic integrity of the property. Impacting the character-defining setting and research at NOAA is more significant than impacting an area of Montlake Playfield, which is adjacent to SR 520 and does not possess important recreational characteristics. Therefore, in order to avoid impacting the structures at NOAA, the footprint of the project was narrowed and shifted slightly south for the Preferred Alternative, leading to the impact in the northeast corner of the park. This 0.2 acre acquisition of land is adjacent to the WSDOT right-of-way and is not an area of the park that sees significant recreational use. It is on the periphery of the park and is not an integral part of the recreational facilities there. While the Preferred Alternative would have a greater land acquisition than Options K and L, and is the only alternative that acquires land from the park that is not submerged, the acquisition is less than one percent of the overall park property (26 acres) and is in an area that is not an integral part of the recreation area of the park. As discussed above, the park will be improved after construction with the development and implementation of a shoreline planting plan. Under the Preferred Alternative, WSDOT is exploring the feasibility of using a portion of the WSDOT-owned land in the peninsula area for mitigation for effects on parks in the project area. Because the Preferred Alternative is the only alternative that would acquire land from the Montlake Playfield, it is the only alternative that would mitigate for that land. The relative severity of the impact on the Montlake Playfield is small because of the location of the acquisition in an area of the park that is not a crucial feature or attribute of the park, and the small acreage of acquisition compared to the size of the park.

Every build alternative would impact the Montlake Playfield, particularly during construction. Because of this, the City of Seattle concurs that the Preferred Alternative would provide the greater benefit after mitigation for Montlake Playfield. Due to the location, severity, and function of the land used, and the enhancements to the recreation property after mitigation, the Preferred Alternative is the build alternative that would result in the least harm to the Montlake Playfield.

### ***East Montlake Park***

The Preferred Alternative and all of the SDEIS options alternative would use land from East Montlake Park, both for construction and for conversion to transportation use. The Preferred Alternative and Option A would have similar impacts compared to Options K and L, but Option K and L impacts would be more severe due to the larger acquisition of park land and longer construction period. Option K would acquire the greatest amount of acreage (5.2 acres), while the Preferred Alternative and Option A would each acquire the least at 2.8 acres. During construction, the park would be closed 2 to 3 years longer under Options K and L than under the Preferred Alternative and Option A.

The Preferred Alternative and all of the SDEIS options would provide the same project benefits of a lid structure connected to the park and connectivity to the regional bicycle pathways from the park. Mitigation for the Preferred Alternative and all of the SDEIS options would be essentially equal—replacement of land lost through property transfer from the WSDOT peninsula area,<sup>2</sup> an enhanced stormwater facility, a relocated parking area, and a relocated hand-carry boat launch. After mitigation, the relative severity of the remaining harm to the significant features of the park would be least from the Preferred Alternative and Option A.

Relative significance is not an issue for East Montlake Park because the impacts on the park are unavoidable. Due to the unique physical location of the park, the requirements for the stormwater facility cannot be met elsewhere in the vicinity. Since this land must be acquired for the stormwater facility, it is the obvious choice for construction staging. Placing construction staging elsewhere in the area would cause a greater use of the historic district and have more severe impacts on historic properties.

All build alternatives would impact East Montlake Park, particularly during construction. For this reason, the City of Seattle concurs that the Preferred Alternative or Option A would acquire the least amount of land and have the shorter construction impact period on East Montlake Park.

### ***Ship Canal Waterside Trail***

At the Ship Canal Waterside Trail, Option K would cause the least overall harm because it would have no use of the trail. There would be no trail acquisition under Option K. The only impact would occur during construction when the connection to the Arboretum Waterfront Trail would be closed, requiring trail users to turn around at East Montlake Park or exit to East Shelby Street. The Preferred Alternative and Option A would close the trail near Montlake Boulevard NE during construction of the second bascule bridge, and detours would likely not be available during

<sup>2</sup> WSDOT is proposing to use a portion of the WSDOT peninsula area as part of a wetland mitigation project and is exploring the feasibility of using the remainder of WSDOT-owned land in the peninsula area for mitigation for effects on parks.

construction at this intersection, so trail users heading west from East Montlake Park would have to turn around when they neared Montlake Boulevard NE. Option L would close the trailhead at East Montlake Park during construction. Under Option L, the eastern trailhead would be closed during construction, including the waterfront viewing platform. The Preferred Alternative, Option A, and Option L would each require permanent acquisition of less than 0.1 acre from the total 0.9 acre of trail. After construction, the Preferred Alternative and Option A would result in a slightly shorter trail (approximately 80 feet) due to the footprint of the new bascule bridge. Option L would not make the trail shorter, but would place the eastern end of the trail (approximately 100 feet) within WSDOT right-of-way under the new bascule bridge, significantly changing the experience for trail users. Therefore, after mitigation, the relative severity of the harm to the remaining resource would be greater under Option L.

Under the Preferred Alternative and Options A and L, mitigation would replace the acquired recreational space with new recreational space at another location as agreed to under Section 6(f). However, Option K would be still be the least harm alternative for the trail because it has no use of the trail and would not harm the protected activities of the trail.

### ***University of Washington Open Space***

At the UW Open Space, the Preferred Alternative and Option A would have the least overall harm with respect to construction duration, impact on recreational features of the open space, and attributes that qualify the area for protection. The Preferred Alternative and Option A would each permanently acquire 0.2 acre of land and require a 0.4 acre permanent subterranean easement for a total of 0.7 acre (difference in total due to rounding). The permanent acquisition of property is primarily at the west end of the open space adjacent to Montlake Boulevard (this area is in passive use), but also includes a stormwater facility farther east. Option K would acquire the most property from the UW Open Space at 0.8 acre, including a subterranean easement. Option L would acquire the least at 0.6 acre, including a subterranean easement. Option K would have less impact on park activities after construction is completed, but the duration of construction would be longer than the Preferred Alternative and Options A and L. For the 4-year tunnel construction period under Option K, the climbing wall would be relocated, access to the Canoe House would be restricted, and the Waterfront Activities Center would be demolished and relocated. The Waterfront Activities Center functions would be mitigated for by providing similar waterfront recreation services in another location. After construction, the Waterfront Activities Center would be rebuilt. For the 3-year bridge construction period under Option L, the climbing wall would be relocated, and the Canoe House and Waterfront Activities Center would experience intermittent closures. After construction, the approach for the new bascule bridge would be located within the UW Open Space, and the passive uses on the west side of the

open space would be connected to the more active uses on the east side via the area underneath the new bridge. This would cause a significant change to the user experience in the UW Open Space. The construction period for the Preferred Alternative and Option A, approximately 2.5 years, would be less than the other options, and the functions of the climbing wall, Canoe House, and Waterfront Activities Center would not be impacted during or after construction.

Mitigation to replace the lost acreage in the UW Open Space would be accomplished through a land transfer from the WSDOT peninsula area for the Preferred Alternative and all SDEIS options. After mitigation, the relative harm to the remaining resource would be greatest under Option L. Although acreage would be replaced elsewhere, the result would still be a roadway for bridge access near the center of the UW Open Space, effectively cutting the space into two halves that would be joined via an area under the new bridge.

The Preferred Alternative and Option A would cause the least harm to the UW Open Space due to the shorter construction period and the lack of impacts on the protected features and attributes of the recreation resource, during and after construction.

Since every build alternative would impact the UW Open Space, the University of Washington, as the official with jurisdiction, concurs that the Preferred Alternative or Option A would have the shorter construction impact period and the least impacts on the resource for the UW Open Space.

### ***East Campus Bicycle Route***

The Preferred Alternative would require the acquisition of 0.1 acre of the East Campus Bicycle Route, including acquisition for a subterranean easement, which is essentially the same as all SDEIS options. Under the Preferred Alternative and Option A, a detour around the construction area would be provided to maintain connectivity to Montlake Boulevard. No further mitigation is anticipated. After construction, the bike path would be connected to the new bascule bridge, just as it is currently connected to the existing bascule bridge. Under Options K and L, portions of the East Campus Bicycle Route would be closed during construction, and WSDOT would work with the UW to establish detours where feasible. After construction, Option K would return the bike route to its preconstruction location and condition, with a permanent subterranean easement under a portion of it. Under Option L, a portion of the bike route would run underneath the new bascule bridge in the WSDOT right-of-way. Because the bike route would be re-established after construction under each build alternative, no mitigation beyond construction detours is anticipated.

The relative harm to the East Campus Bicycle Route is greatest under Option L because that option would close part of the trail during

construction and place part of the bike route under the new bridge, changing the user experience. Under the Preferred Alternative and Option A, the route would be approximately 50 feet shorter at the western end to accommodate the footprint of the new bascule bridge, but would essentially be the same. Under Option K, the trail would be essentially the same as existing conditions. Therefore, the Preferred Alternative and Options A and K would have the least harm to the resource.

Every build alternative would impact the East Campus Bicycle Route. The University of Washington concurs that the Preferred Alternative, Option A, or Option K would have the least construction impact on the East Campus Bicycle Route and would return it to essentially the same condition as existing after construction.

### ***Washington Park Arboretum***

At the Washington Park Arboretum, the Preferred Alternative, Option A, and Option L would have similar overall harm because they would require less construction time to complete than Option K, and they would acquire similar acreage. Option L would use the least amount of land. The Preferred Alternative and Options A and L would widen SR 520 to the north on a pier-and-span bridge across Foster Island. Due to a slight shift northward in the design, the Preferred Alternative is the only one that would not impact the southern portion of Foster Island outside the existing right-of-way. The measures to minimize harm would be similar for the Preferred Alternative and Options A and L. Option K, with the land bridge design, would change the character of Foster Island from a natural state to a manicured park setting and would be a more severe impact than the other build alternatives. Option K would also use the most acreage from the park and would have the longest construction period.

With the mitigation measures for the Arboretum discussed in the previous section, the severity of the harm to the features and attributes of the park would be the least under the Preferred Alternative, Option A, and Option L. Through the ESSB 6392 workgroup process, the UW and the City of Seattle, as members of the ABGC, have agreed that they concur that the Preferred Alternative appears to have the least harm on the Arboretum after mitigation, and the least impact on Foster Island.

Under relative significance, the Arboretum is the most significant of the park and recreation properties in the study area due to its international reputation, the large number of people served, and its educational role in the local and academic community. It is significant as both a park and an individually eligible historic property.

### ***Arboretum Waterfront Trail***

The Preferred Alternative and all SDEIS options would impact the Arboretum Waterfront Trail through intermittent closures during construction. The Preferred Alternative and Option A would have the least

overall harm because they would require less construction time to complete and would require the least amount of trail closure time. There would be intermittent closures of the trail on Foster Island where it crosses under SR 520, but the trail through East Montlake Park would generally remain open. Options K and L would require 2 to 4 years of construction time within East Montlake Park, which would close access to the Arboretum Waterfront Trail and the park, while the Preferred Alternative and Option A would not. Under Option K, the Arboretum Waterfront Trail would be relocated from underneath the SR 520 bridge to over SR 520 on a land bridge, and this option would change the experience of the trail user by replacing wetlands and forested vegetation with a landscaped berm. Construction for this element is estimated at 7 years. Under the Preferred Alternative and Options A and L, the trail on Foster Island would only be closed intermittently during construction and would be returned to recreation use upon completion of the project. The project would improve the trail crossing underneath the bridge for the Preferred Alternative and Options A and L because it would provide a more open crossing between piers with a higher clearance.

Mitigation would be the same under the Preferred Alternative and all SDEIS Options, and would involve replacement property as mandated under Section 6(f). The relative severity of the remaining harm would be greatest under Options K and L. Under Option K, the trail through East Montlake Park would be returned to its preconstruction condition, with a permanent subterranean easement beneath a portion of it, but in the Arboretum, the trail would be placed over SR 520 on a landscaped berm. Under Option L, the northern end of the trail in East Montlake Park would be in the WSDOT right-of-way underneath the bridge approach of the new bascule bridge, causing a substantial change to the trail user experience.

Every build alternative would impact the Arboretum Waterfront Trail. The UW and the City of Seattle concur that the Preferred Alternative or Option A would have the least construction impact on the Arboretum Waterfront Trail and would return it to essentially the same condition as existing after construction, with an improved trail user experience for the SR 520 bridge undercrossing. For these reasons, the Preferred Alternative and Option A would have the least harm to the resource.

### ***NOAA Northwest Fisheries Science Center***

For the NOAA Northwest Fisheries Science Center, Options K and L would have the least harm because they would not permanently acquire any property from the resource. They would each use a small amount of property for construction staging and, upon completion of construction, this land would be restored to preconstruction conditions. The Preferred Alternative would permanently acquire 0.5 acre, most of which would be used for construction and then would be converted to recreation use for the Bill Dawson Trail after construction. Option A would permanently

acquire 1.2 acres of property and would require the demolition of buildings on the site, which would diminish the historic integrity of the property. Option A would use an additional 0.3 acre of property for construction staging.

As noted above, mitigation measures for this historic property are under negotiation. However, even after agreed-upon mitigation is implemented, Option A would still cause the most severe harm because it is the only option that removes buildings on the site and would require the most land from the historic property parcel.

As discussed earlier in this section under Montlake Playfield, NOAA Northwest Fisheries Science Center has greater relative significance than the Montlake Playfield. Montlake Playfield is one of five parks that are in or immediately adjacent to the Montlake Historic District. NOAA Northwest Fisheries Science Center has three buildings that are eligible for listing in the NRHP for their architectural significance and for their direct association with important research that is significant locally, regionally, and nationally. Compared to converting a small portion (just more than an acre) of the 26-acre Montlake Playfield, in an area of the park that is adjacent to the highway and does not contain significant recreational components, greater harm would be caused by the removal of over an acre from the parcel of a historic property that is approximately 4 acres total, and includes removal multiple buildings on the site that support the historic function that is a character-defining element of the property.

### ***Montlake Historic District***

Option K would have the least harm to the Montlake Historic District, even though it would permanently acquire the largest amount of property from the district (9.6 acres). The new bascule bridge under Option L would affect the setting and feeling of the northeast part of the historic district, as well as of individually eligible properties at the east end of East Shelby Street. Option K would have little effect on the setting or feeling of the district or any individually eligible properties because it would be largely below ground. Some ventilation structures would be necessary to vent the tunnel, but while these would be visible from much of the surrounding district, they would not diminish the setting and feeling of the historic properties. The Preferred Alternative would permanently acquire the least amount of land in the historic district (6.3 acres) and would have impacts on the setting and feeling of fewer historic properties than Option L.

The construction duration of Options K and L would be longer than the Preferred or Option A, resulting in greater construction impacts for a longer time.

Considering the relative quality and significance of the property acquired, taking a greater piece of the park, as under Options K and L, would be preferable to taking contributing properties, as under the Preferred

Alternative and Option A. Under the Preferred Alternative, impacts on the NOAA facility would decrease compared to Option A, as would impacts on 2220 East Louisa Street.

The Preferred Alternative and Options A and L would have similar effects on the historic district and each would diminish its integrity. Mitigation for the Preferred Alternative and Option A would be similar, and it is likely that mitigation under Option L would also contain many of the same measures. Option K would not diminish the integrity of the historic district and thus would require no mitigation.

The relative severity of the remaining harm to the historic district after mitigation would be greater under Option A than the Preferred Alternative. Option A would still result in the removal of buildings and acreage from NOAA, possibly causing the relocation of the facility outside of the historic district. Both the Preferred Alternative and Option A would still result in the removal of the two contributing houses on Montlake Boulevard. Option L would result in a substantial change in setting and feeling of numerous contributing elements in the historic district and the loss of much of East Montlake Park. As stated above, Option K would require no mitigation and, after construction, would result in few visual changes to the district.

### ***2220 East Louisa Street***

Option A is the only option that uses any portion of the property at 2220 East Louisa Street. Option A with the Lake Washington ramps suboption would not acquire the section along East Montlake Place East and 24th Avenue East, and thus would not use the property at 2220 East Louisa Street. The Preferred Alternative and Options K and L would not use the historic property at 2220 East Louisa Street. Therefore, Option A would have the greatest harm to 2220 East Louisa Street.

### ***Montlake Cut***

The Preferred Alternative and Options A and L would have the greatest physical impact on the Montlake Cut and would permanently acquire land from the both shores of the cut; Option K would only require an underground easement. The Preferred Alternative would acquire land on both sides of the cut for a total of 0.3 acre. Option A would also acquire 0.3 acre. The impacts from the Preferred Alternative and Option A would be substantially the same. Impacts from Option L would be slightly greater — it would acquire land on both sides of the cut for a total of 0.5 acre. Option K would require a permanent subterranean easement of 1.4 acres. Although this acreage is greater, it would be underneath the cut to accommodate the tunnel and so would have no impact on the Montlake Cut. Under the Preferred Alternative and all of the SDEIS options, the effects from the project would not diminish the integrity of the qualities that make the cut significant as a historic property; therefore, no mitigation

is planned for this property. The relative severity of harm to the Montlake Cut would be least under Option K.

### ***Canoe House***

The Preferred Alternative and all three SDEIS options would require an underground easement below the Canoe House property. The Preferred Alternative and Options A and L would have no direct impact on the Canoe House structure, but would require a permanent subterranean easement of less than 0.1 acre for a stormwater facility. Option K would require a subterranean easement of 0.8 acre for the tunnel, which would be located directly beneath the building. Option K would result in restricted access to the Canoe House during the 4-year construction period, and Option L would result in intermittent closures of the Canoe House during the 3-year construction period. The Preferred Alternative and Option A would not affect the Canoe House or its functions during construction. After construction, the setting and feeling of the Canoe House would be affected by the new bascule bridge under the Preferred Alternative and Option A, as well as Option L. However, Option L would have a greater effect because the new bridge would be much closer to the Canoe House. Under Option K, the effect on the setting and feeling of the Canoe House would be minimal because the tunnel would be below ground, underneath the building.

Mitigation for the Canoe House entails context-sensitive design for the new bascule bridge to lessen the effect on the setting and feeling, and measures to protect the Canoe House from adjacent construction activities. After mitigation, the relative severity of the remaining harm would be least under Option K because there would be no effect on the setting and feeling of the historic property. The relative severity would be greatest under Option L.

### ***Pavilion Pedestrian Bridge and the North and South Pedestrian Bridges***

For the Pavilion Pedestrian Bridge and the North and South Pedestrian Bridges, there would be no use under the Preferred Alternative or any of the SDEIS options, except under Option L with suboptions. Because the historic bridges must be removed to accommodate the road widening under this suboption, no minimization efforts are possible. Mitigation measures would be determined through the Section 106 consultation process. Even after mitigation, the relative harm would be greatest under Option L because the bridges would be demolished only under that option.

### ***Washington Park Arboretum***

Viewing the Washington Park Arboretum as a historic property, the Preferred Alternative and the SDEIS options would not diminish the integrity of the Arboretum under Section 106. Option K would require the greatest amount of property from the Arboretum, including land within the WSDOT peninsula (12.2 acres). Option A would use the least amount of property (8.1 acres). The Preferred Alternative and Option L would use

essentially the same amount of acreage (approximately 10 acres). As noted above, Option K would have the longest construction duration, while the Preferred Alternative and Option A would have the shortest construction duration.

Mitigation measures for the park as a recreation property are described above. After mitigation, the relative severity of the remaining harm would be the least under the Preferred Alternative, Option A, and Option L.

Under relative significance, the Arboretum is eligible for the NRHP under Criteria A and C as a planned landscape associated with the Olmsted Brothers and other master designers. It is significant as a park and as a historic property and is associated with a nationally renowned design team. It contains the NRHP-listed Arboretum Aqueduct and a segment of the NRHP-eligible Lake Washington Boulevard. It also contains Foster Island, which is individually eligible as a TCP.

### ***Foster Island***

The Preferred Alternative and all SDEIS options would impact Foster Island, which is eligible for listing in the NRHP as a TCP. Option K would have the greatest use of land on Foster Island and the most harmful effects, including the longest, most intense construction impacts and the more extreme change to the setting after construction. The Preferred Alternative would acquire 0.5 acre of Foster Island, slightly more than Options A and L. The Preferred Alternative is the only option that would not impact the more culturally sensitive southern portion of Foster Island outside the existing right-of-way because of a slight shift northward of the alignment footprint.

Mitigation has been agreed to with interested tribes through the Section 106 process. Effects from Option K would be the most difficult to mitigate due to the more extreme changes to the setting and feeling of the island. Mitigation measures for the Preferred Alternative would be similar under Options A and L. All options would diminish the integrity of setting and feeling of Foster Island under Section 106, but the Preferred Alternative would produce the least overall harm due to its shift to the north.

Foster Island is eligible for the NRHP as a TCP under Criterion A. It is culturally significant to Native American tribes of the area, as well as being a part of the NRHP-eligible Arboretum. Foster Island is the only known TCP in the project area.

### ***Factors 1 through 4 Conclusion***

The Preferred Alternative would acquire the least amount of overall acreage from Section 4(f) properties compared to the three SDEIS options, and it would have the least overall harm to a greater number of Section 4(f) properties. Of the fourteen Section 4(f) properties where a least harm

differentiation comparison can be made, the Preferred Alternative would cause the least overall harm at nine of the properties:

- Montlake Playfield
- East Montlake Park
- UW Open Space
- East Campus Bicycle Route
- 2220 East Louisa Street
- Pavilion Pedestrian Bridge, and North and South Pedestrian Bridges
- Washington Park Arboretum
- Arboretum Waterfront Trail
- Foster Island

The Preferred Alternative would require the least acquisition of park and recreation property at less than 7 acres, while Option K would require the most at more than 8.5 acres. Construction durations under the Preferred Alternative and Option A would be substantially the same and would be less than under Options K and L.

Option K would cause the least overall harm at eight of the Section 4(f) properties. Option A would use the most acreage from the Montlake Historic District and would diminish the historic integrity of the historic district and the NOAA facility. Option A is the only option that would use any property from 2220 East Louisa Street. For Foster Island, Option K would have the greatest relative harm after mitigation, primarily because of the nature of the impacts from the land bridge structure across Foster Island.

Therefore, the Preferred Alternative is the build alternative with the least amount of relative net harm, based on Factors 1 through 4, for the following reasons:

- Support from the regulatory agencies who expressed a preference (UW and City of Seattle)
- Least impact on the greatest number of Section 4(f) properties
- Least amount of acreage acquired from Section 4(f) properties overall
- Greater use of Montlake Playfield in place of the more significant NOAA Northwest Fisheries Science Center property
- Least harm to the more culturally sensitive southern section of Foster Island
- Shorter construction period than Options K and L
- No impact on active recreation features of the UW Open Space during construction or operation

- Less impact on the Arboretum Waterfront Trail during and after construction
- No use of 2220 East Louisa Street, Pavilion Pedestrian Bridge, or North and South Pedestrian Bridges

Factor 5: "The degree to which each alternative meets the purpose and need for the project"

***Factor 5 Discussion***

The SR 520, I-5 to Medina project purpose is to improve mobility for people and goods across Lake Washington within the SR 520 corridor from Seattle to Redmond in a manner that would be safe, reliable, and cost-effective, while avoiding, minimizing, and/or mitigating effects on affected neighborhoods and the environment. The No Build Alternative does not meet this purpose and need. The Preferred Alternative and SDEIS Options A, K, and L would meet the purpose and need of reliability, safety, and mobility to roughly the same degree.

***Factor 5 Conclusion***

The Preferred Alternative and the three SDEIS options all meet the stated purpose and need.

Factor 6: "After reasonable mitigation, the magnitude of any adverse impacts to resources not protected by Section 4(f)"

***Factor 6 Discussion***

For resources not protected by Section 4(f), the Preferred Alternative and Option A would have the fewest impacts on wetlands, in-water fill, aquatic resources and endangered species. According to the ecosystems analysis, the Preferred Alternative and Option A would also remove the least vegetation cover within the project area. See the summary tables at the end of Chapters 5 and 6, as well as the subject matter sections of this Final EIS for more information about permanent and temporary construction and operation impacts on each environmental element. The Preferred Alternative and all of the SDEIS design options would improve air quality and perform roughly equally in regards to overall compliance with air quality standards. The Preferred Alternative and Option A would also have the least effect on geology and soils.

Under operations of the project, the Preferred Alternative and the SDEIS options would increase energy use, as measured in million British thermal units, over existing conditions. However, the Preferred Alternative and Option A would use less energy than Options K or L. Option A would have the least effects from green house gas emissions.

The Preferred Alternative would have the least amount of right-of-way acquisitions. Under visual quality, the Preferred Alternative would have the least negative effects, in general, regarding intactness, vividness, and unity. The alternative and options would improve community cohesion and

connectivity as defined in the visual quality and social elements analyses in Chapters 5 and 6 of this Final EIS.

Overall, the Preferred Alternative and SDEIS Options A, K, and L would reduce noise levels in the corridor compared noise levels of the No Build Alternative. The Preferred Alternative and Option A would involve the least construction disruption due to a shorter construction period. Option L would be similar, but Option K would have a greater construction duration than the others. Option K, due in part to the longer construction period, would create more jobs and would have more effects on parking. The Preferred Alternative would have the least effects on parking during construction. Visual effects during construction would be slightly lower under the Preferred Alternative and Option A.

The Preferred Alternative and Option A would consume less energy during construction than Options K and L. The Preferred Alternative and Options A and L would have the least effect on water resources during construction; Option K would require the largest amount of dewatering. During construction, the Preferred Alternative would have the least fill effects on wetlands and fish and aquatic resources. Option K would result in the most harm to fish and aquatic resources, while impacts from the Preferred Alternative, Option A, and Option L would be roughly equivalent. Option A would result in effects on habitat caused by construction clearing. Finally, the Preferred Alternative and Option A would have the least effect on geology and soils during the construction period. As discussed in Factor 7 below, the Preferred Alternative and Option A would cost the least to construct.

### ***Factor 6 Conclusion***

Operational impacts would be similar or the same under the Preferred Alternative and all SDEIS options for the following elements: transportation, social, air quality, energy use, water resources, and navigation. There would be no differentiation among these resources as to least harm from operation of the project. The Preferred Alternative would produce the least harm and would result in the least number of receivers exceeding the noise abatement criteria. Option A would produce the least harm only as it concerns green house gases. Options K and L would not create the least harm to any of the environmental elements. The Preferred Alternative would have the least effect on land use, energy use, and vegetation. The Preferred Alternative and Option A would have the same effects and the least harm to visual quality, wetlands, and geology and soils. The Preferred Alternative and Options A and L would produce the least harm to fish and aquatic resources.

Based on this summary of effects on resources not protected under Section 4(f), the Preferred Alternative would cause the least overall harm to these non-Section 4(f) resources.

## Factor 7: "Substantial differences in costs among the alternatives"

### ***Factor 7 Discussion***

The following are construction cost estimates for the Preferred Alternative and the three SDEIS options for the SR 520, I-5 to Medina project study area (including right-of-way acquisition costs). WSDOT and a team of independent experts developed these estimates using the Cost Estimate Validation Process® (CEVP) approach. The estimates consider cost, schedule, risks, opportunities, and uncertainties. See Section 1.9 of the Final EIS (*How much would the project cost, and how much has been funded?*) for more detailed information about project costs, cost estimates, and the estimating process. All cost estimates have been adjusted to account for risk and inflation and are shown in year of expenditure dollars (WSDOT 2009e).

- Preferred Alternative: \$3,419 million
- Option A: \$3,392–\$3,668 million
- Option K: \$5,440–\$5,538 million
- Option L: \$3,932–\$4,012 million

Estimates for SDEIS Options A, K, and L were calculated in 2008 for the year of expenditure. The estimate for the Preferred Alternative was calculated in 2011 for the same year of expenditure, allowing for comparisons among the build alternatives. The Preferred Alternative and Option A would be the least costly.

### ***Factor 7 Conclusion***

The Preferred Alternative and Option A costs would be similar. Option L costs would be slightly higher than the Preferred Alternative and Option A. Option K would be the most costly option. There is no substantial difference in construction cost estimates between the Preferred Alternative and Option A and they would be the least costly options.

### **Summary of Least Harm**

The Preferred Alternative would produce the least harm to Section 4(f) properties under Factors 1, 2, 3, and 4. The Preferred Alternative and SDEIS options being evaluated would all meet the purpose and need of the project under Factor 5. The Factor 6 analysis indicates that the Preferred Alternative would cause the least overall harm to the environmental resources not protected under Section 4(f) regulations. There is no substantial difference in construction cost estimates between the Preferred Alternative and Option A under Factor 7, both of which are lower cost than Options K and L.

Based on this least harm analysis of the Preferred Alternative and the three options presented in the SDEIS, the Preferred Alternative would result in the least net harm to Section 4(f) properties, and also would result in the least overall harm in accordance with 23 USC Section 774.3(c).

## 9.6 Conclusion

Based on the evaluation and analysis of the SR 520, I-5 to Medina project in this Chapter 9, the FHWA concludes the following:

- There is no feasible and prudent alternative that completely avoids all Section 4(f) properties;
- The Preferred Alternative causes the least harm to Section 4(f) properties, and causes the least overall harm; and
- The Preferred Alternative includes all possible planning to minimize harm.

