

# Recreation Discipline Report



SR 520: I-5 to Medina Bridge  
Replacement and HOV Project  
Supplemental Draft EIS

# Recreation Discipline Report



Prepared for  
Washington State Department of Transportation  
Federal Highway Administration

Lead Author  
**CH2M HILL**

Consultant Team  
**Parametrix, Inc.**  
**CH2M HILL**  
**HDR Engineering, Inc.**  
**Parsons Brinckerhoff**  
**ICF Jones & Stokes**  
**Cherry Creek Consulting**  
**Michael Minor and Associates**  
**PRR, Inc.**

December 2009



# Contents

**Acronyms and Abbreviations** ..... v

**Introduction**..... 1

    Why is recreation considered in an environmental impact statement? ..... 1

    What are the key points of this report? ..... 2

    What is the I-5 to Medina: Bridge Replacement and HOV Project? ..... 5

    What are the project alternatives? ..... 6

**Affected Environment** ..... 19

    How was the information collected? ..... 19

    What are the existing recreational resources and their characteristics? ..... 20

**Potential Effects of the Project**..... 39

    What methods were used to evaluate the potential effects? ..... 39

    How would construction of the project affect recreational resources? ..... 40

    How would operation of the project affect recreational resources? ..... 60

**Potential Mitigation Measures** ..... 73

    What has been done to avoid or minimize adverse effects on recreational resources? ..... 73

    How could the project mitigate effects that cannot be avoided? ..... 74

    What effects would remain after mitigation? ..... 76

**References**..... 79

## List of Exhibits

- 1 Permanent Park Acquisition per Option (Acres)
- 2 Construction-related Park Effects per Option (Acres)
- 3 Construction Duration Effects on Parks (months)
- 4 Project Vicinity Map
- 5 No Build Alternative Cross Section
- 6 6-Lane Alternative Cross Section
- 7 Option A, K, and L – Montlake and University of Washington Areas
- 8 6-Lane Alternative – Evergreen Point Bridge (Common to all Options)
- 9 Possible Towing Route and Pontoon Outfitting Locations
- 10 Geographic Areas along SR 520 and Project Phasing



- 11 Summary Information about Recreation Resources in the Project Vicinity
- 12 Parks and Recreation Facilities in the Seattle Area
- 13 Parks and Recreation Facilities in the Eastside Area
- 14 Construction Effects on Parks (Acres)
- 15 Effects on Parks in the I-5 to Portage Bay Area
- 16 Effects on Parks in the Portage Bay Area
- 17 Montlake Playfield Construction Effects
- 18 Effects on Parks in the Montlake and University of Washington Areas
- 19 East Montlake Park Construction Effects
- 20 University of Washington Campus, Open Space, Parking Lot, and Access Road Construction Effects
- 21 University of Washington Open Space Construction Effects
- 22 Effects on Parks in the Washington Park Arboretum Area
- 23 Washington Park Arboretum Construction Effects
- 24 Construction Park Effects (Acres), Phased Implementation Scenario
- 25 Permanent Park Acquisition (Acres)
- 26 East Montlake and McCurdy Park Acquisition
- 27 Washington Park Arboretum Acquisitions
- 28 University of Washington Open Space Acquisitions
- 29 Future Trail Connectivity: All Options
- 30 Permanent Park Effects (Acres), Phased Implementation Scenario



# Acronyms and Abbreviations

ALEA	Aquatic Lands Enhancement Account
dBa	decibel (A-weighted scale)
EIS	environmental impact statement
FHWA	Federal Highway Administration
GIS	geographic information system
HCT	high-capacity transit
HOV	high-occupancy vehicle
I-5	Interstate 5
LWCFA	Land and Water Conservation Fund Act
MOHAI	Museum of History and Industry
NEPA	National Environmental Policy Act
NOAA	National Oceanic and Atmospheric Administration
RCFB	Resource Conservation Funding Board
RCO	Washington State Recreation and Conservation Office
SDEIS	supplemental draft environmental impact statement
SEPA	State Environmental Policy Act
SPUI	single-point urban interchange
SR	State Route
USC	United States Code
WAC	Waterfront Activities Center
WSDOT	Washington State Department of Transportation





# Introduction

This report presents descriptions of recreation resources and the evaluation of potential effects that would result from the proposed Interstate 5 (I-5) to Medina: Bridge Replacement and High-Occupancy Vehicle (HOV) Project (the *I-5 to Medina Project*). This report evaluates three design options of a 6-Lane Alternative – referred to as options A, K, and L – and their respective suboptions, as well as the No Build Alternative.

## Why is recreation considered in an environmental impact statement?

Existing and planned parks and recreation resources are highly valued by local governments and community members. Park and recreation facilities of local, regional, and national significance are located within the project vicinity and vary in size, type, and function. These resources include public parks, open spaces, trails, university facilities, public docks, and the waters around the project site, which are heavily used by recreational boaters. State Route (SR) 520 is adjacent to parks, waterways, bicycle trails and paths, educational institutions, and athletic stadiums through the project site.

The recreation facilities in the project vicinity are generally owned or maintained by the parks and recreation departments of Seattle, Medina, Hunts Point, and Yarrow Point. The City of Seattle Parks and Recreation Department, for example, manages over 6,200 acres in more than 400 parks and open space; 11 parks are located within the project area. The University of Washington (with a 630-acre campus north of the Montlake Cut and Union Bay) also owns and maintains property used for recreational purposes. The recreational uses of area waters are primarily managed by the Coast Guard, and access to these waters is ensured by the Washington State Department of Natural Resources.

Federal regulations protect some, but not all, of the park and recreation resources in the project vicinity. Section 4(f) of the Department of Transportation Act of 1966 (23 USC 138) prohibits the Federal Highway Administration (FHWA) from approving a project or program that uses land from a significant park, recreation area, wildlife or waterfowl refuge, or historic site, except if either of the following criteria is met: 1) there is no feasible and prudent alternative to the use of the land, and 2)



the project includes all possible planning to minimize harm to the property. Section 6(f) of the Land and Water Conservation Fund Act (LWCFA) protects outdoor recreation property that was acquired or developed with LWCFA grant assistance. In Washington, the LWCFA is administered by the Washington State Recreation and Conservation Office (RCO). The RCO provides technical support to the Recreation and Conservation Funding Board (RCFB), which is responsible for LWCFA funds. If the project results in converting Section 6(f) properties to another use, replacement land would be necessary, and the National Park Service's approval on Section 6(f) property land transfer must be documented. A separate Section 4(f) and Section 6(f) evaluation will occur as a part of the Supplemental Draft Environmental Impact Statement (SDEIS), which also documents resources.

Recreation property purchased or developed with state Aquatic Lands Enhancement Account (ALEA) grants has requirements similar to Section 6(f)-protected property. Conversion of ALEA-funded recreation facilities to other uses requires replacement with lands of equivalent market value and recreation function within the same political jurisdiction of the converted property. The ALEA program is administered by the RCO. ALEA funds have been used for trail improvements within the Washington Park Arboretum.

Seattle parklands are further protected under Seattle Ordinance 118477 (which adopted Initiative 42), enacted in February 1997. This ordinance specifies that all lands and facilities held now or in the future by the City of Seattle for parks and recreational purposes, whether designated as park, boulevard, or open space, must be preserved for such use.

Some of the parks located in Seattle are part of the Olmsted Plan for Seattle's Parks, Boulevards, and Playgrounds (City of Seattle 2007). Designation as part of the Olmsted Plan heightens the historic and cultural importance of the resource to the surrounding community and to the city as a whole. Seattle's 2006 Parks and Recreation Development Plan demonstrates the City's intention to preserve and enhance Olmsted park and boulevard resources as key elements of the citywide parks system.

## **What are the key points of this report?**

A total of 18 parks and other land-based recreational facilities are located along the project corridor. These include eight Seattle parks



(including the Washington Park Arboretum), four designated trails, two historic boulevards, University of Washington recreational facilities, and three Eastside parks. Some of these parks – in particular the Washington Park Arboretum – are of regional and even national significance.

Three key comparative points are presented in this report: the direct effects related to operation of the project; direct effects related to construction of the project; and the time frame which would be required to complete each option.

Project operation would result in the permanent acquisition of approximately 5.6 to 7.5 acres of existing parkland in Seattle for transportation use. The size and location of the parkland acquired would vary depending on the 6-Lane Alternative design option chosen. Exhibit 1 provides information on acquisitions under each option. Under each option, a bicycle/pedestrian path would be constructed on the new Evergreen Point Bridge that would connect to regional trail systems on both the east and west sides of Lake Washington.

Exhibit 1. Permanent Park Acquisition per Option (Acres)

Option/Suboption	Total Acres <sup>1</sup>
<b>Option A</b>	5.55
Suboption to Option A	0
<b>Option K</b>	7.55
<b>Option L</b>	7.05

<sup>1</sup>Suboptions do not include effects of their base options.

The primary operational difference among the options is in their effects on recreational facilities at the University of Washington. All options would cross Foster Island in the Washington Park Arboretum; would require the majority of East Montlake Park, including the Museum of History and Industry (MOHAI) building; and would acquire all of Bagley Viewpoint and McCurdy Park.

However, Option A would only affect the University of Washington adjacent to Montlake Boulevard, while Options K and L would affect stadium parking, University of Washington Open Space, and the Canoe House and Waterfront Activities Center through construction activities. The addition of lids over I-5 at Roanoke Street, and over SR 520 between 10th Avenue East and Delmar Drive East, and at Montlake



Boulevard, would improve pedestrian and bicycle access to Roanoke and East Montlake Parks.

Once constructed, all project options would have similar effects to recreational activities on Lake Washington. Option K would result in less shoreline and lake area for recreation because the ramps for the depressed SPUI would create additional in-water structures within Union Bay. The experience for small boats around the project area would be different than today, with larger shaded areas over water associated with new bridge structures. There could be a change in noise levels on the water, depending on specific location.

Project construction would result in the occupancy of approximately 5.1 to 7.0 acres of parkland, in addition to parklands acquired by the project, as shown in Exhibit 2. These construction occupancies would be for the duration of localized project construction as shown in Exhibit 3. The size and location of the parkland acquired would vary depending on the design option chosen.

Exhibit 2. Construction-related Park Effects per Option (Acres)

Option/Suboption	Total Acres <sup>1</sup>
<b>Option A</b>	5.1
Suboption to Option A	0.4
<b>Option K</b>	7.0
<b>Option L</b>	6.3

<sup>1</sup>Suboptions do not include effects to their base options.

Exhibit 3. Construction Duration Effects on Parks (Months)

Resource	Option A	Option K	Option L
Rogers Playground	12-24	12-24	12-24
Roanoke Park	12-24	12-24	12-24
Bagley Viewpoint	15-24	15-24	15-24
Interlaken Park	15-24	15-24	15-24
Montlake Playfield	30-36	30-36	30-36
East Montlake Park	24-30	72-84	60-78
McCurdy Park	24-30	72-84	60-78
Washington Park Arboretum	72	84	72
University of Washington Open Space	36-42	48-54	42-48
<b>Total Effects</b>	72	84	72



During construction, all options have the potential to affect recreational use of Lake Washington. Recreation associated with smaller boats around Foster and Marsh Island would be most affected by construction. Those effects would be due to restricted access under work bridges and possibly to noise and vibration during pile driving for bridge structures. Wildlife and fish use of these areas, as well as the associated recreational enjoyment of those resources, could also be affected by temporary work bridge shading, and vibration and noise associated with pile driving.

The Washington State Department of Transportation (WSDOT) is coordinating with the University of Washington and each jurisdiction in which affected parks and recreational facilities are located to identify appropriate mitigation measures that are consistent with all local, state, and federal plans and policies. Additional coordination is also required with FHWA and the RCO during Section 4(f) and Section 6(f) evaluations, respectively.

## What is the I-5 to Medina: Bridge Replacement and HOV Project?

The I-5 to Medina: Bridge Replacement and HOV Project is part of the SR 520 Bridge Replacement and HOV Program (SR 520 Program) – detailed in the text box on the following page – and encompasses parts of three main geographic areas: Seattle, Lake Washington, and the Eastside. A project vicinity map is provided in Exhibit 4.

The project area includes the following:

- Seattle communities: Portage Bay/Roanoke, North Capitol Hill, Montlake, University District, Laurelhurst, and Madison Park
- Eastside communities: Medina, Hunts Point, Clyde Hill, and Yarrow Point
- The Lake Washington ecosystem and associated wetlands
- Usual and accustomed fishing areas of tribal nations that have historically used the area's aquatic resources and have treaty rights

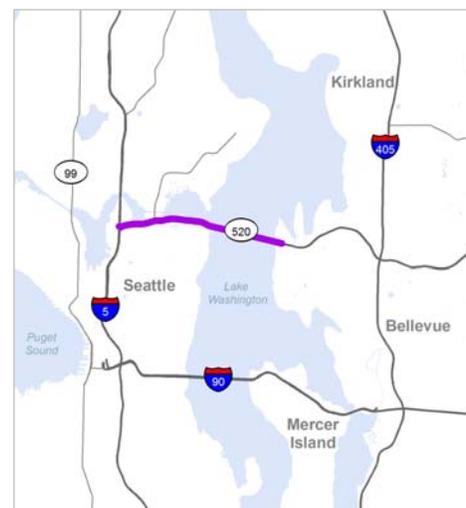


Exhibit 4. Project Vicinity Map



The SR 520 Bridge Replacement and HOV Project Draft Environmental Impact Statement, published in August 2006, evaluated a 4-Lane Alternative, a 6-Lane Alternative, and a No Build Alternative. Since the Draft EIS was published, circumstances surrounding the SR 520 corridor have changed in several ways. These changes have resulted in

#### What is the SR 520 Program?

The **SR 520 Bridge Replacement and HOV Program** will enhance safety by replacing the aging floating bridge and keep the region moving with vital transit and roadway improvements throughout the corridor. The 12.8-mile program area begins at I-5 in Seattle and extends to SR 202 in Redmond.

In 2006, WSDOT prepared a Draft EIS—published formally as the **SR 520 Bridge Replacement and HOV Project**—that addressed corridor construction from the I-5 interchange in Seattle to just west of I-405 in Bellevue. Growing transit demand on the Eastside and structure vulnerability in Seattle and Lake Washington, however, led WSDOT to identify new projects, each with a separate purpose and need, that would provide benefit even if the others were not built. These four independent projects were identified after the Draft EIS was published in 2006, and these now fall under the umbrella of the entire **SR 520 Bridge Replacement and HOV Program**:

- **I-5 to Medina: Bridge Replacement and HOV Project** replaces the SR 520 roadway, floating bridge approaches, and floating bridge between I-5 and the eastern shore of Lake Washington. This project spans 5.2 miles of the SR 520 corridor.
- **Medina to SR 202: Eastside Transit and HOV Project** completes and improves the transit and HOV system from Evergreen Point Road to the SR 202 interchange in Redmond. This project spans 8.6 miles of the SR 520 corridor.
- **Pontoon Construction Project** involves constructing the pontoons needed to restore the Evergreen Point Bridge in the event of a catastrophic failure and storing those pontoons until needed.
- **Lake Washington Congestion Management Project**, through a grant from the U.S. Department of Transportation, improves traffic using tolling, technology and traffic management, transit, and telecommuting.

decisions to forward advance planning for potential catastrophic failure of the Evergreen Point Bridge, respond to increased demand for transit service on the Eastside, and evaluate a new set of community-based designs for the Montlake area in Seattle.

To respond to these changes, WSDOT and FHWA initiated new projects to be evaluated in separate environmental documents. Improvements to the western portion of the SR 520 corridor – known as the I-5 to Medina: Bridge Replacement and HOV Project – are being evaluated in the SDEIS; this discipline report is a part of that SDEIS. Project limits extend from I-5 in Seattle to 92nd Avenue NE in Yarrow Point, where it transitions into the Medina to SR 202: Eastside Transit and HOV Project (the *Medina to SR 202 project*).

## What are the project alternatives?

As noted above, the Draft EIS evaluated a 4-Lane Alternative, a 6-Lane Alternative (including three design options in Seattle), and a No Build Alternative. In 2006, following Draft EIS publication, Governor Gregoire identified the 6-Lane Alternative as the state's preference for the SR 520 corridor, but urged that the affected communities in Seattle



develop a common vision for the western portion of the corridor. Accordingly, a mediation group convened at the direction of the state legislature to evaluate the corridor alignment for SR 520 through Seattle. The mediation group identified three 6-lane design options for SR 520 between I-5 and the floating span of the Evergreen Point Bridge; these options were documented in a Project Impact Plan (Parametrix 2008). The SDEIS evaluates the following:

- No Build Alternative
- 6-Lane Alternative
  - Option A
  - Option K
  - Option L

These alternatives and options are summarized below. The 4-Lane Alternative and the Draft EIS 6-lane design options have been eliminated from further consideration. More information on how the project has evolved since the Draft EIS was published in 2006, as well as more detailed information on the design options, is provided in the Description of Alternatives Discipline Report (WSDOT 2009a).

## What is the No Build Alternative?

Under the No Build Alternative, SR 520 would continue to operate between I-5 and Medina as it does today: as a 4-lane highway with nonstandard shoulders and without a bicycle/pedestrian path. (Exhibit 5 depicts a cross section of the No Build Alternative.) No new facilities would be added to SR 520 between I-5 and Medina, and none would be removed, including the unused R.H. Thomson Expressway ramps near the Washington Park Arboretum. WSDOT would continue to manage traffic using its existing transportation demand management and intelligent transportation system strategies.

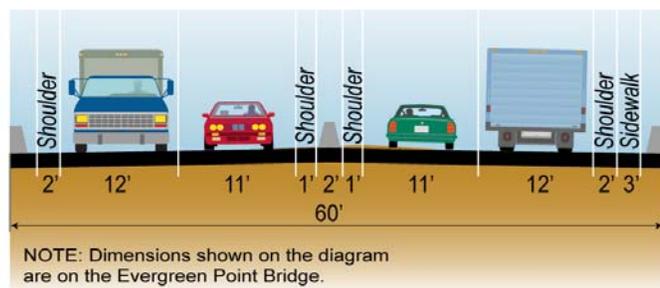


Exhibit 5. No Build Alternative Cross Section

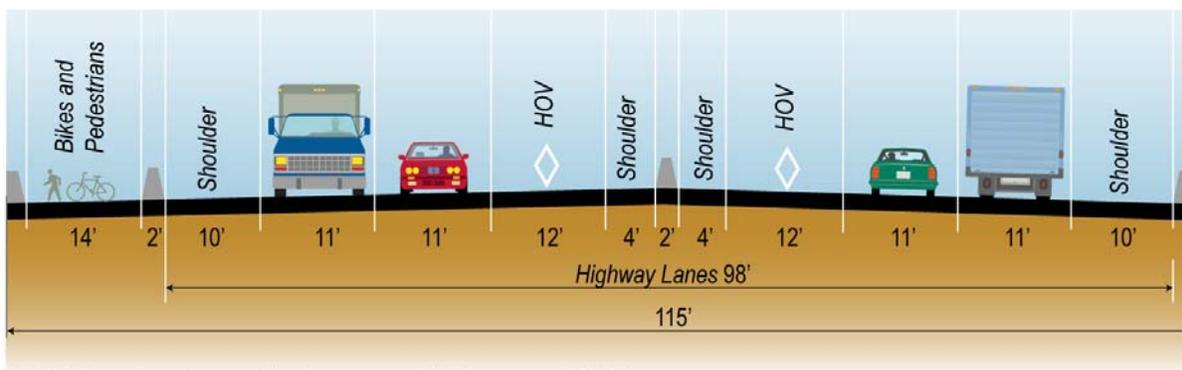
The No Build Alternative assumes that the Portage Bay and Evergreen Point bridges would remain standing and functional through 2030 and that no catastrophic events, such as earthquakes or extreme storms, would cause major damage to the bridges. The No Build Alternative also assumes completion of the Medina to SR 202 project as well as other regionally planned and programmed transportation projects.



The No Build Alternative provides a baseline against which project analysts can measure and compare the effects of each 6-Lane Alternative build option.

## What is the 6-Lane Alternative?

The 6-Lane Alternative would complete the regional HOV connection (3+ HOV occupancy) across SR 520. This alternative would include six lanes (two 11-foot-wide outer general-purpose lanes and one 12-foot-wide inside HOV lane in each direction), with 4-foot-wide inside and 10-foot-wide outside shoulders (Exhibit 6). The proposed width of the roadway would be approximately 18 feet narrower than the one described in the Draft EIS, reflecting public comment from local communities and the City of Seattle.



NOTE: Dimensions shown on the diagram are on the Evergreen Point Bridge.

Exhibit 6. 6-Lane Alternative Cross Section

SR 520 would be rebuilt from I-5 to Evergreen Point Road in Medina and restriped and reconfigured from Evergreen Point Road to 92nd Avenue NE in Yarrow Point. A 14-foot-wide bicycle/pedestrian path would be built along the north side of SR 520 through the Montlake area and across the Evergreen Point Bridge, connecting to the regional path on the Eastside. A bridge maintenance facility and dock would be built underneath the east approach to the Evergreen Point Bridge.

The sections below describe the 6-Lane Alternative and design options in each of the three geographical areas the project would encompass.

## Seattle

### Elements Common to the 6-Lane Alternative Options

SR 520 would connect to I-5 in a configuration similar to the way it connects today. Improvements to the I-5/SR 520 interchange would



include a new reversible HOV ramp connecting the new SR 520 HOV lanes to existing I-5 reversible express lanes. WSDOT would replace the Portage Bay Bridge and the Evergreen Point Bridge (including the west approach and floating span), as well as the existing local street bridges across SR 520. New stormwater facilities would be constructed for the project to provide stormwater retention and treatment. The project would include landscaped lids across SR 520 at I-5, 10th Avenue East and Delmar Drive East, and in the Montlake area to help reconnect the communities on either side of the roadway. The project would also remove the Montlake freeway transit station.

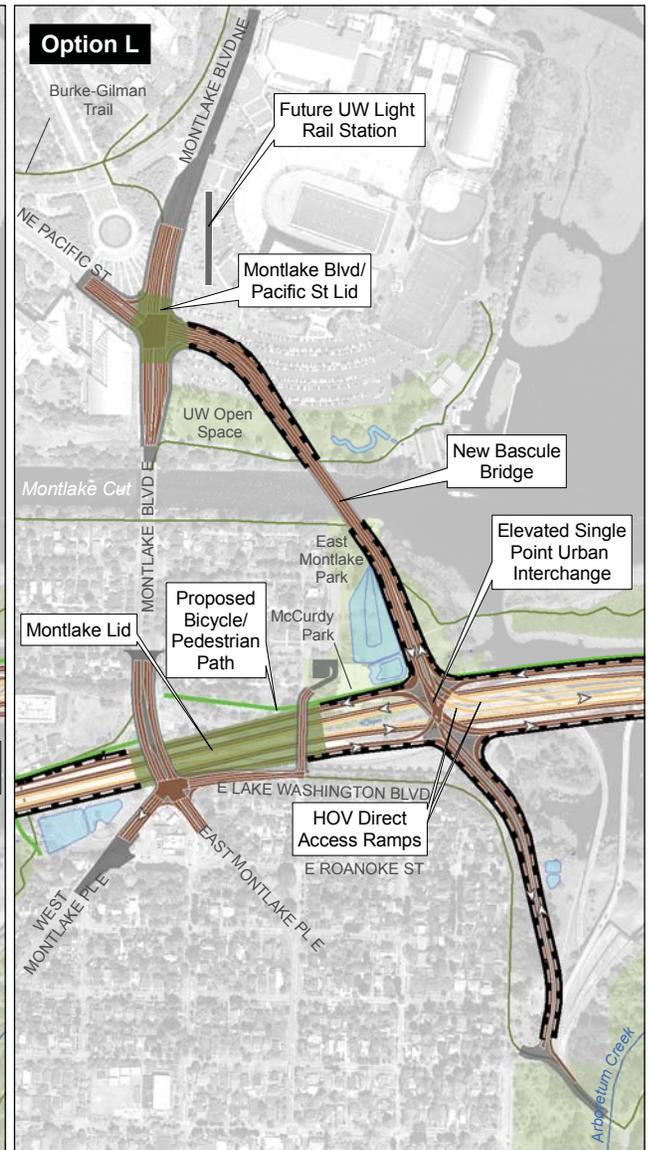
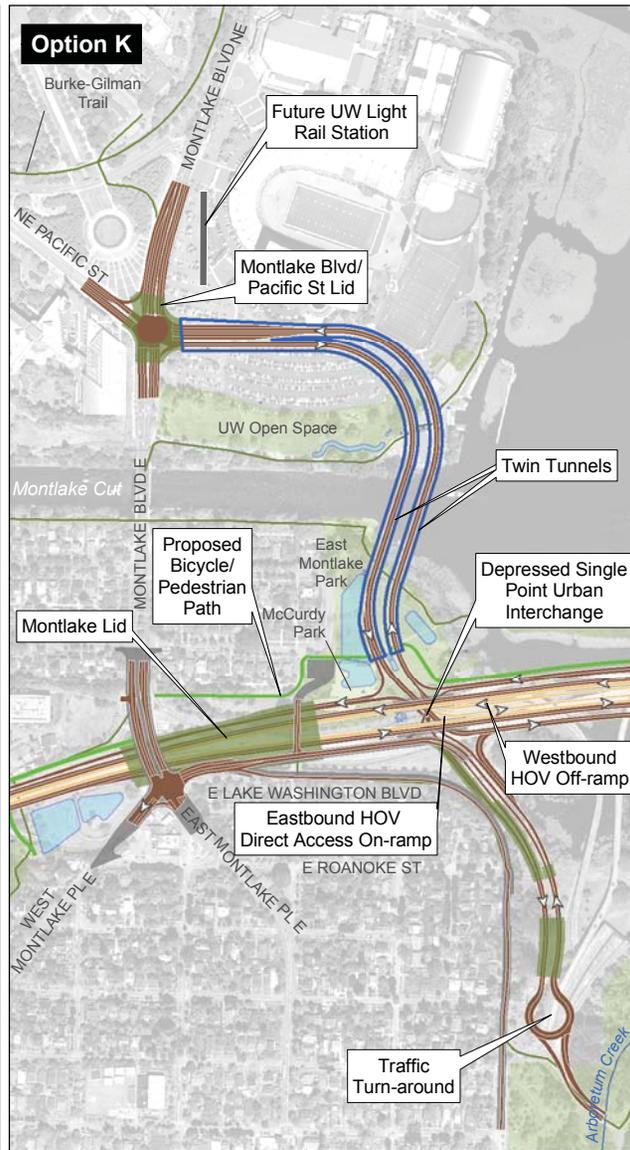
The most substantial differences among the three options are the interchange configurations in the Montlake and University of Washington areas. Exhibit 7 depicts these key differences in interchange configurations, and the following text describes elements unique to each option.

### **Option A**

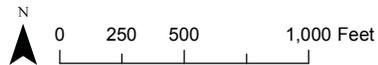
Option A would replace the Portage Bay Bridge with a new bridge that would include six lanes (four general-purpose lanes, two HOV lanes) plus a westbound auxiliary lane. WSDOT would replace the existing interchange at Montlake Boulevard East with a new, similarly configured interchange that would include a transit-only off-ramp from westbound SR 520 to northbound Montlake Boulevard. The Lake Washington Boulevard ramps and the median freeway transit stop near Montlake Boulevard East would be removed, and a new bascule bridge (i.e., drawbridge) would be added to Montlake Boulevard NE, parallel to the existing Montlake Bridge. SR 520 would maintain a low profile through the Washington Park Arboretum and flatten out east of Foster Island, before rising to the west transition span of the Evergreen Point Bridge. Citizen recommendations made during the mediation process defined this option to include sound walls and/or quieter pavement, subject to neighborhood approval and WSDOT's reasonability and feasibility determinations.

Suboptions for Option A would include adding an eastbound SR 520 on-ramp and a westbound SR 520 off-ramp to Lake Washington Boulevard, creating an intersection similar to the one that exists today but relocated northwest of its current location. The suboption would also include adding an eastbound direct access on-ramp for transit and HOV from Montlake Boulevard East, and providing a constant slope profile from 24th Avenue East to the west transition span.





- Potential Sound Wall
- Existing Regional Bicycle/Pedestrian Path
- Tunnel
- Lid or Landscape Feature
- Proposed Bicycle/Pedestrian Path
- Stormwater Facility
- General Purpose Lane
- HOV, Direct Access, and/or Transit-Only Lane
- Future UW Light Rail Station
- Park



Source: King County (2006) Aerial Photo, King County (2005) GIS Data (Streams), City of Seattle (1994) GIS Data (Bike/Ped Trail), Seattle Bicycle Map (2008) GIS Data (Bike/Ped Trail) CH2M HILL (2008) GIS Data (Park). Horizontal datum for all layers is NAD83(91); vertical datum for layers is NAVD88.



**Exhibit 7. Options A, K, and L: Montlake and University of Washington Areas**

I-5 to Medina: Bridge Replacement and HOV Project

## Option K

Option K would also replace the Portage Bay Bridge, but the new bridge would include four general-purpose lanes and two HOV lanes with no westbound auxiliary lane. In the Montlake area, Option K would remove the existing Montlake Boulevard East interchange and the Lake Washington Boulevard ramps and replace their functions with a depressed, single-point urban interchange (SPUI) at the Montlake shoreline. Two HOV direct-access ramps would serve the new interchange, and a tunnel under the Montlake Cut would move traffic from the new interchange north to the intersection of Montlake Boulevard NE and NE Pacific Street. SR 520 would maintain a low profile through Union Bay, make landfall at Foster Island, and remain flat before rising to the west transition span of the Evergreen Point Bridge. A land bridge would be constructed over SR 520 at Foster Island. Citizen recommendations made during the mediation process defined this option to include only quieter pavement for noise abatement, rather than the sound walls that were included in the 2006 Draft EIS. However, because quieter pavement has not been demonstrated to meet all FHWA and WSDOT avoidance and minimization requirements in tests performed in Washington State, it cannot be considered as noise mitigation under WSDOT and FHWA criteria. As a result, sound walls could be included in Option K. The decision to build sound walls depends on neighborhood interest, the findings of the Noise Discipline Report (WSDOT 2009b), and WSDOT's reasonability and feasibility determinations.

A suboption for Option K would include constructing an eastbound off-ramp to Montlake Boulevard East configured for right turns only.

Is it a highrise or a transition span?



A transition span is a bridge span that connects the fixed approach bridge to the floating portion of the bridge. The Evergreen Point Bridge has two transition spans, one at the west end of the floating bridge transitioning traffic on and off of the west approach, and one on the east end of the floating bridge transitioning traffic on and off of the east approach. These spans are often referred to as the "west highrise" (shown) and the "east highrise" during the daily traffic report, and the west highrise even has a traffic camera mounted on it.

Today's highrises have two characteristics—large overhead steel trusses and navigation channels below the spans where boat traffic can pass underneath the Evergreen Point Bridge. The new design for the floating bridge would not include overhead steel trusses on the transition spans, which would change the visual character of the highrise. For the SDEIS, highrise and transition span are often used interchangeably to refer to the area along the bridge where the east and west approach bridges transition to the floating bridge.



## Option L

Under Option L, the Montlake Boulevard East interchange and the Lake Washington Boulevard ramps would be replaced with a new, elevated SPUI at the Montlake shoreline. A bascule bridge (drawbridge) would span the east end of the Montlake Cut, from the new interchange to the intersection of Montlake Boulevard NE and NE Pacific Street. This option would also include a ramp connection to Lake Washington Boulevard and two HOV direct-access ramps providing service to and from the new interchange. SR 520 would maintain a low, constant slope profile from 24th Avenue East to just west of the west transition span of the floating bridge. Noise mitigation identified for this option would include sound walls as defined in the Draft EIS.

Suboptions for Option L would include adding a left-turn movement from Lake Washington Boulevard for direct access to SR 520 and adding capacity on northbound Montlake Boulevard NE to NE 45th Street.

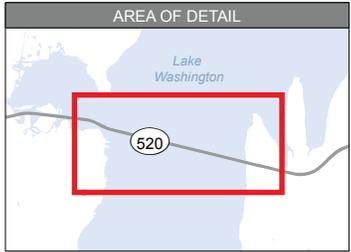
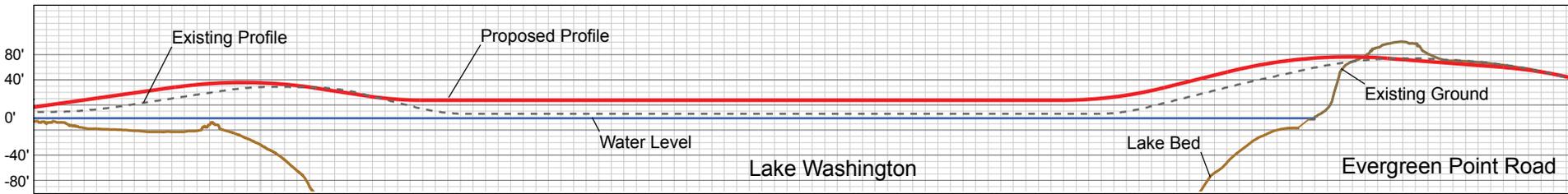
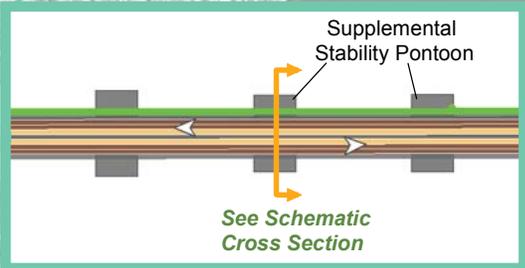
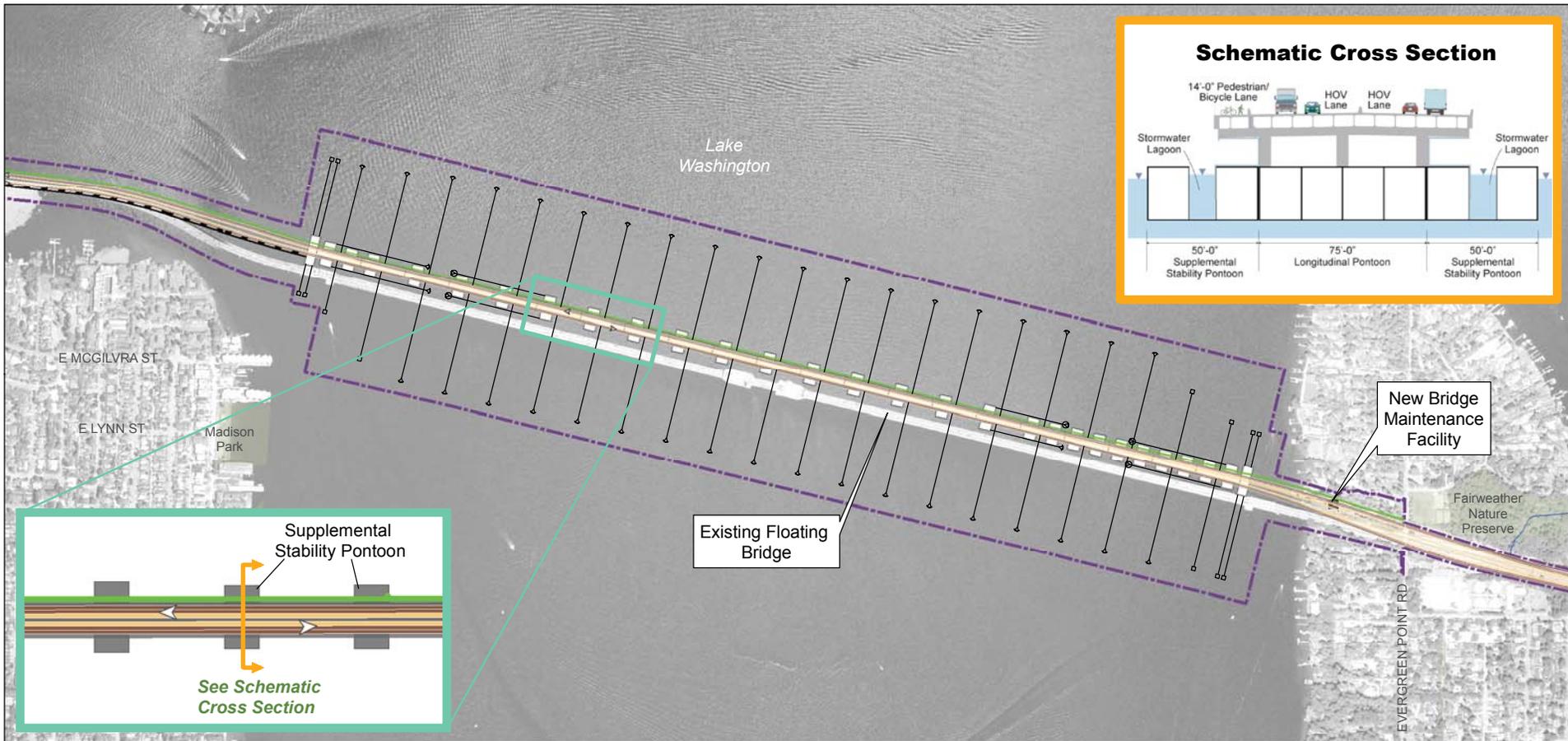
## Lake Washington

### Floating Bridge

The floating span would be located approximately 190 feet north of the existing bridge at the west end and 160 feet north at the east end (Exhibit 8). Rows of three 10-foot-tall concrete columns would support the roadway above the pontoons, and the new spans would be approximately 22 feet higher than the existing bridge. A 14-foot-wide bicycle/pedestrian path would be located on the north side of the bridge.

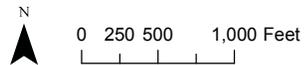
The design for the new 6-lane floating bridge includes 21 longitudinal pontoons, two cross pontoons, and 54 supplemental stability pontoons. A single row of 75-foot-wide by 360-foot-long longitudinal pontoons would support the new floating bridge. One 240-foot-long by 75-foot-wide cross-pontoon at each end of the bridge would be set perpendicularly to the longitudinal pontoons. The longitudinal pontoons would be bolstered by the smaller supplemental stability pontoons on each side for stability and buoyancy. The longitudinal pontoons would not be sized to carry future high-capacity transit (HCT), but would be equipped with connections for additional supplemental stability pontoons to support HCT in the future. As with the existing floating bridge, the floating pontoons for the new bridge would be anchored to the lake bottom to hold the bridge in place.





- Anchor and Cable
- Pontoons
- Limits of Construction
- Proposed Bicycle/Pedestrian Path
- General Purpose Lanes
- HOV, Direct Access, and/or Transit-Only Lane

Park



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

**Exhibit 8. 6-Lane Alternative at the Evergreen Point Bridge (Common to All Options)**

I-5 to Medina: Bridge Replacement and HOV Project

Near the east approach bridge, the roadway would be widened to accommodate transit ramps to the Evergreen Point Road transit stop. Exhibit 8 shows the alignment of the floating bridge, the west and east approaches, and the connection to the east shore of Lake Washington.

### Bridge Maintenance Facility

Routine access, maintenance, monitoring, inspections, and emergency response for the floating bridge would be based out of a new bridge maintenance facility located underneath SR 520 between the east shore of Lake Washington and Evergreen Point Road in Medina. This bridge maintenance facility would include a working dock, an approximately 7,200-square-foot maintenance building, and a parking area.

### Eastside Transition Area

The I-5 to Medina project and the Medina to SR 202 project overlap between Evergreen Point Road and 92nd Avenue NE in Yarrow Point. Work planned as part of the I-5 to Medina project between Evergreen Point Road and 92nd Avenue NE would include moving the Evergreen Point Road transit stop west to the lid (part of the Medina to SR 202 project) at Evergreen Point Road, adding new lane and ramp striping from the Evergreen Point lid to 92nd Avenue NE, and moving and realigning traffic barriers as a result of the new lane striping. The restriping would transition the I-5 to Medina project improvements into the improvements to be completed as part of the Medina to SR 202 project.

### Pontoon Construction and Transport

If the floating portion of the Evergreen Point Bridge does not fail before its planned replacement, WSDOT would use the pontoons constructed and stored as part of the Pontoon Construction Project in the I-5 to Medina project. Up to 11 longitudinal pontoons built and stored in Grays Harbor as part of the Pontoon Construction Project would be towed from a moorage location in Grays Harbor to Puget Sound for outfitting (see the sidebar to the right for an explanation of pontoon *outfitting*). All outfitted pontoons, as well as the remaining pontoons stored at Grays Harbor would be towed to Lake Washington for incorporation into the floating bridge. Towing would occur as weather permits during the months of March through October. Exhibit 9 illustrates the general towing route from Grays Harbor to Lake Washington, and identifies potential outfitting locations.

#### What is Outfitting?

Pontoon outfitting is a process by which the columns and elevated roadway of the bridge are built directly on the surface of the pontoon.





Exhibit 9. Possible Towing Route and Pontoon Outfitting Locations

The I-5 to Medina project would build an additional 44 pontoons needed to complete the new 6-lane floating bridge. The additional pontoons could be constructed at the existing Concrete Technology Corporation facility in Tacoma, and/or at a new facility in Grays Harbor that is also being developed as part of the Pontoon Construction Project. The new supplemental stability pontoons would be towed from the construction location to Lake Washington for incorporation into the floating bridge. For additional information about pontoon construction, please see the Construction Techniques Discipline Report (WSDOT 2009c).

## Would the project be built all at once or in phases?

Revenue sources for the I-5 to Medina project would include allocations from various state and federal sources and from future tolling, but there remains a gap between the estimated cost of the project and the revenue available to build it. Because of these funding limitations, there is a strong possibility that WSDOT would construct the project in phases over time.



If the project is phased, WSDOT would first complete one or more of those project components that are vulnerable to earthquakes and windstorms; these components include the following:

- The floating portion of the Evergreen Point Bridge, which is vulnerable to windstorms. This is the highest priority in the corridor because of the frequency of severe storms and the high associated risk of catastrophic failure.
- The Portage Bay Bridge, which is vulnerable to earthquakes. This is a slightly lower priority than the floating bridge because the frequency of severe earthquakes is significantly less than that of severe storms.
- The west approach of the Evergreen Point Bridge, which is vulnerable to earthquakes (see comments above for the Portage Bay Bridge).

Exhibit 10 shows the vulnerable portions of the project that would be prioritized, as well as the portions that would be constructed later. The vulnerable structures are collectively referred to in the SDEIS as the Phased Implementation scenario. It is important to note that, while the new bridge(s) might be the only part of the project in place for a certain period of time, WSDOT's intent is to build a complete project that meets all aspects of the purpose and need.

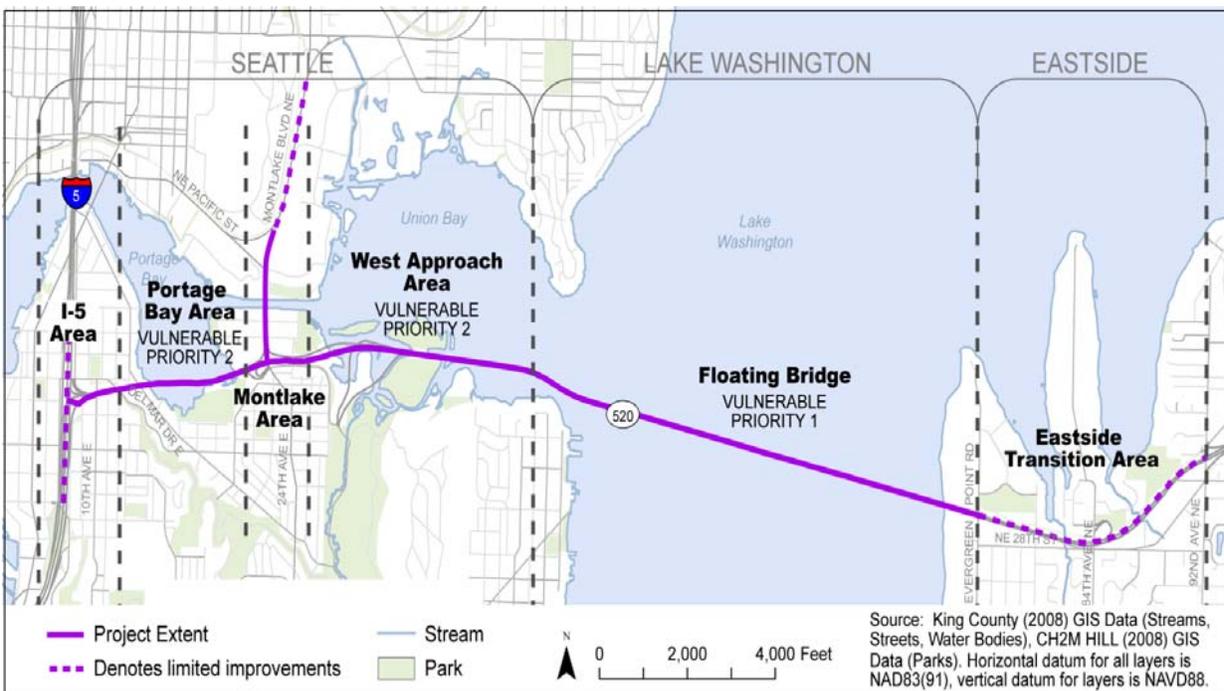


Exhibit 10. Geographic Areas along SR 520 and Project Phasing



The Phased Implementation scenario would provide new structures to replace the vulnerable bridges in the SR 520 corridor, as well as limited transitional sections to connect the new bridges to existing facilities.

This scenario would include stormwater facilities, noise mitigation, and the regional bicycle/pedestrian path, but lids would be deferred until a subsequent phase. WSDOT would develop and implement all mitigation needed to satisfy regulatory requirements.

To address the potential for phased project implementation, the SDEIS evaluates the Phased Implementation scenario separately as a subset of the “full build” analysis. The evaluation focuses on how the effects of phased implementation would differ from those of full build and on how constructing the project in phases might have different effects from constructing it all at one time. Impact calculations for the physical effects of phased implementation (for example, acres of wetlands and parks affected) are presented alongside those for full build where applicable.



# Affected Environment

## How was the information collected?

The recreation discipline team collected site-specific information about the type and function of each potentially affected recreational resource in the project vicinity. The team reviewed current park plans and maps to identify plans for proposed property acquisitions, expansions, and improvements. The primary sources of this information were the cities of Seattle, Hunts Point, Yarrow Point, and Medina and the University of Washington. Recreation analysts contacted staff from the parks and recreation departments of these entities to obtain mapping and master planning data. Seattle Parks and Recreation has established the Seattle's 2006 Parks and Recreation Development Plan along with park-specific vegetation management plans to guide the growth, development, and maintenance of parks and open spaces. Each plan is designed to bring together those with diverse interests in a park or open space, and to inform and direct the actions of the organizations and individuals that manage the parks system. The Washington Park Arboretum has an adopted master plan, and the University of Washington has an established Campus Master Plan. These plans are important to identify the effects of the project upon the recreational resources.

Throughout the National Environmental Policy Act (NEPA) process, WSDOT has also coordinated directly with the agencies that have jurisdiction over park and recreation resources. Most recently, WSDOT held a series of Parks Working Group meetings for the I-5 to Medina: Bridge Replacement and HOV Project. The meetings have included participants from the city of Seattle, the University of Washington, the RCO, FHWA, and the National Park Service. To date, these meetings have served as forums to define the key features and attributes of each recreational facility, convey information about project effects, and identify potential mitigation measures. The Parks Working Group is planned to continue through the Final EIS to inform mitigation planning.

For purposes of evaluating the effects of the project, recreational resources in the project area were defined as those within 500 feet of the proposed highway footprint and any proposed construction activities. The presumption was that a 500-foot radius was an adequate distance in which to capture potential effects to recreational resources, whether a



park or other on-land facility or an activity on the lake; this distance would be adequate to identify resources that could potentially be affected by acquisition and construction activities, or effects related to proximity to the project, such as noise, that could impair the use and function of the facility.

## **What are the existing recreational resources and their characteristics?**

In all, 18 land-based parks and recreational facilities were identified in the project vicinity. Exhibit 11 lists these facilities grouped by geographical area with their size, type, function, and amenities noted. Lake Washington is also an important recreational resource and is discussed below.

### **SR 520 Corridor**

This section describes recreational resources in the Seattle area that the project could affect and Exhibit 12 shows their locations.

#### **Rogers Playground**

Rogers Playground is a 1.9-acre city of Seattle neighborhood park located along Eastlake Avenue East, south of Roanoke Street. The SR 520 and I-5 interchange and the Roanoke Street overpass are located approximately 250 feet east of the site. Access is available on all sides of the playground from Eastlake Avenue, Franklin Avenue, Roanoke Street, and Louisa Street. The playground has manicured lawns used for baseball and soccer, restroom facilities, a children's play area, walking trails, and off-street parking.

#### **Roanoke Park**

Roanoke Park is a 2.2-acre city of Seattle neighborhood park located at 950 East Roanoke Street. Developed in 1910, it is located within the proposed Roanoke Park Historic District (see the Cultural Resources Discipline Report [WSDOT 2009d]). WSDOT property and the 10th Avenue East overpass are located across East Roanoke Street from the park; the other three sides of the park are enclosed by the historic district. Access is available from all sides of the park from 10th Avenue East, Broadway Avenue East, East Roanoke Street, and East Edgar Street. The park has many mature fruit trees as well as picnic sites, a children's play area, walking trails, and a half-basketball court.



Exhibit 11. Summary Information about Recreation Resources in the Project Vicinity

Park ID No.	Name/Location	Size or length	Facility Type and/or Function <sup>1</sup>	Ownership and Management	Site Features and Characteristics
1	Rogers Playground Eastlake Avenue East and East Roanoke Street	1.9 acres	Neighborhood park	City of Seattle Department of Parks and Recreation	Tennis courts, ball field, restrooms
2	Roanoke Park 950 East Roanoke Street	2.2 acres	Neighborhood park	City of Seattle Department of Parks and Recreation	Basketball court, play area, picnic tables, trails
3	Bagley Viewpoint 2548 Delmar Drive East	0.1 acres	Viewpoint park	City of Seattle Department of Parks and Recreation	View of Portage Bay, off-street parking
4	Interlaken Park 2451 Delmar Drive East	51.7 acres	Regional park	City of Seattle Department of Parks and Recreation	Woods, trails
5	Montlake Playfield 1618 East Calhoun Street	27 acres	Neighborhood park	City of Seattle Department of Parks and Recreation	Play areas, trails, picnic tables, tennis courts, community center
6	Bill Dawson Trail (Montlake Boulevard to Montlake Playfield)	Approximately 1,750 feet	Bike and pedestrian trail	WSDOT right-of-way, City of Seattle Department of Parks and Recreation National Oceanic and Atmospheric Administration (NOAA)	Multiuse pathway
7	East Montlake Park 2802 East Park Drive East	7.1 acres	Neighborhood waterfront park	City of Seattle Department of Parks and Recreation, The Arboretum Foundation	Northern half of MOHAI building, parking, benches, trails, waterfront access
8	McCurdy Park 2720 East Lake Washington Boulevard	1.5 acres	Neighborhood park	City of Seattle Department of Parks and Recreation	Southern half of MOHAI building, open space
9	Washington Park Arboretum 2300 Arboretum Drive	193 acres	Regional park	City of Seattle Department of Parks and Recreation, University of Washington	Arboretum collection, Japanese garden, visitor center, waterfront trail and access, views
10	Ship Canal Waterside Trail	Approximately 1,200 feet	Recreation trail	City of Seattle Department of Parks and Recreation	Trail, benches, viewpoints
11	Burke-Gilman Trail	12.5 miles	Bike and pedestrian trail	City of Seattle and the University of Washington	Multiuse pathway
12	Montlake Boulevard from Lake Washington Boulevard across the Montlake Bridge	0.3 acres	Historic boulevard	WSDOT right-of-way	Mature trees and landscaping



## Exhibit 11. Summary Information about Recreation Resources in the Project Vicinity

Park ID No.	Name/Location	Size or length	Facility Type and/or Function <sup>1</sup>	Ownership and Management	Site Features and Characteristics
13	Lake Washington Boulevard from Montlake Boulevard to Seward Park	116 acres	Historic boulevard	Seattle Department of Transportation right-of-way	Mature trees and landscaping, on-street bike path
14	University of Washington Recreational Facilities, 1326 5th Avenue	630-acre campus	Campus recreational activities	University of Washington	Boathouse, open space, benches, docks, climbing rock, trails, athletic facilities
15	Points Loop Trail	5.6 miles	Trail	WSDOT right-of-way, Communities of Medina, Hunts Point, and Yarrow Point	Includes off-street trails, streets, and sidewalks
16	Fairweather Park between Evergreen Point Road and 80th Avenue Northeast	11 acres	Nature park	City of Medina	Forested open space, tennis courts, trail
17	Wetherill Nature Preserve between Cozy Cove and SR 520	16 acres	Nature park	Communities of Hunts Point and Yarrow Point	Benches
18	Hunts Point Park	2.5 acres	Neighborhood park	City of Hunts Point	Playground

<sup>1</sup>Facility designation determined by jurisdiction or use.

## Bagley Viewpoint

Bagley Viewpoint is located at 2548 Delmar Drive East, adjacent to the north boundary of the Roanoke Street off-ramp from westbound SR 520. Bagley Viewpoint is a small (0.15 acre) park owned by the City of Seattle. The facility offers views of Portage Bay, Lake Washington, and the Cascade Mountains, although invasive vegetation has limited the extent of these views. This viewpoint is popular with both residents and tour groups. The viewpoint was originally part of Interlaken Park in the early 1900s; however, with the construction of SR 520 in 1963, the viewpoint was effectively cut off from the remainder of Interlaken Park. Access is available from both the top of the slope and the bottom. A concrete staircase along the north side of the slope provides additional access, and off-street parking is available.



Bagley Viewpoint





- Recreation Site
- Existing Regional Bicycle/Pedestrian Path
- Parks within Study Area
- Open Space
- Seattle Park



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

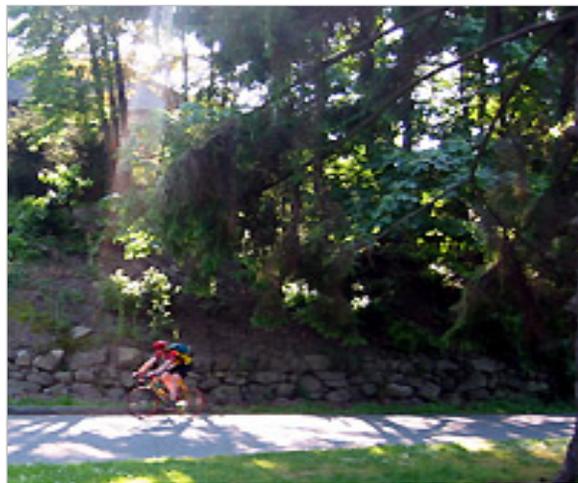
### Exhibit 12. Parks and Recreation Facilities in the Seattle Area

I-5 to Medina: Bridge Replacement and HOV Project

Bagley Viewpoint is identified in the draft *Vegetation Management for Seattle Parks Viewpoints* (City of Seattle 2005), a report that proposes procedures for controlling erosion and removing weeds in the area. A phased replanting and weed control plan is intended to reclaim the views lost to invasive vegetation. Bagley Viewpoint is also protected under the City of Seattle’s State Environmental Policy Act (SEPA) ordinance as a “SEPA viewpoint.” Proposed alterations to these viewpoints are subject to visual guidelines set forth in *Seattle Views: An Inventory of 86 Public View Sites Protected under SEPA* (City of Seattle 2002).

### Interlaken Park

Interlaken Park is a densely wooded city of Seattle Park located at 2451 Delmar Drive East on the north end of Capitol Hill. Bikers, hikers, and joggers frequent the paths and trails throughout the park. In the 1890s, Interlaken Boulevard was the principal bike and buggy path linking Capitol Hill with the boulevards on Lake Washington. In 1903, the Olmsted Brothers designated Interlaken as a boulevard route. Access from the north is available from Delmar Drive, through Interlaken Boulevard, but local roadways provide many access points. A striped and designated bike path is located either on-street or adjacent to Delmar Drive for pedestrian and bicycle access.



Interlaken Park

### Montlake Playfield

Located at 1618 East Calhoun Street on the shore of Portage Bay, Montlake Playfield is a 27-acre City of Seattle regional park. The park was originally created in the 1920s as a means to help solve the crime and juvenile delinquency problems in the neighborhood. The playfield and associated recreation/community center were dedicated in 1935. The Community Center was recently expanded and renovated, including a children’s play area adjacent to the building.



Community Center at Montlake Playfield



main park site and at the shoreline to allow for continued expansion of the facilities. However, in 1968 filling stopped when the Parks and Recreation Department decided to preserve the shoreline environment. Occasional closures of the park have occurred because of flooding of the shoreline areas. The City of Seattle has been restoring the western shoreline to make the area more accessible.

The playfield is now used for many recreational events, including football, baseball, soccer, tennis, and track; a project to renovate the playfields is in the design stage. The Community Center hosts many neighborhood meetings and events. Currently, the draft *Vegetation Management for Seattle Parks Viewpoints* (City of Seattle 2005) identifies restoring intended views at Montlake Playfield as “high priority” because invasive species and overgrown vegetation obscure the views to a high degree. Access to Montlake Playfield and Community Center is available from Calhoun Street, with off-street parking. Pedestrian access from the north is available from the Bill Dawson Trail.

### **Bill Dawson Trail (Montlake Bike Path)**

The Bill Dawson Trail is a designated multi-use pathway that extends under SR 520 between the northeast corner of the Montlake Playfield and the southern edge of the National Oceanic and Atmospheric Administration (NOAA) Northwest Fisheries Science Center. The trail lies both on NOAA property and within the existing WSDOT SR 520 right-of-way. The trail receives considerable use because it connects to Montlake Boulevard and the larger citywide trail system. Access from the north is at Montlake Boulevard, and access from the south is at Montlake Playfield at Calhoun Street.



Bill Dawson Trail (Montlake Bike Path)

### **East Montlake Park and McCurdy Park**

East Montlake Park and McCurdy Park are located on the shore of Union Bay adjacent to the Shelby-Hamlin portion of the Montlake neighborhood.

East Montlake Park was created from land deeded to the City of Seattle for park purposes in the 1909 plat of the Montlake neighborhood. The 7.1-acre park is jointly owned by the Seattle Parks and

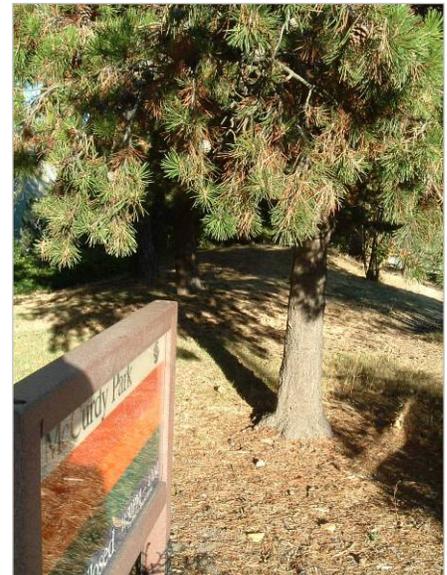


East Montlake Park  
Trail at north end of park with view of Union Bay.



Recreation Department (western one-third of the park) and the Arboretum Foundation (eastern two-thirds of the park). As the shorelines have changed based on filling, vegetative growth, and the management of the water levels in Lake Washington, these growing shorelines are owned by the Washington Department of Natural Resources. While the split in ownership of the land is still in effect, the entire area is signed and recognized by the City of Seattle and the public as East Montlake Park. Today, East Montlake Park provides trail connections to the Washington Park Arboretum and the Montlake neighborhood and contains trailheads for both the Arboretum Waterfront Trail and the Ship Canal Waterside Trail. This waterfront park has a launch point for canoes and kayaks, a viewing platform with views of the ship canal, Lake Washington, and the Cascade Mountains, and a grassy passive-use area. The shoreline is used for viewing wildlife. Park amenities include a totem pole, bike path, and parking lot.

McCurdy Park is situated between the north side of SR 520 and the southern boundary of East Montlake Park. In the 1940s, the Port of Seattle deeded a portion of the old canal right-of-way (originally reserved for the Lake Washington Ship Canal) to Seattle for park use. Currently, the draft *Vegetation Management for Seattle Parks Viewpoints* (City of Seattle 2005) rates restoring intended views at McCurdy Park as “high priority” because of the high degree of obstruction that has occurred at the park from invasive species and overgrown vegetation. The City of Seattle has designated McCurdy Park as a SEPA viewpoint because of its views of Marsh and Foster Islands and limited views of Lake Washington. Vehicular access to East Montlake and McCurdy parks as well as the Museum of History and Industry is available from the 24th Avenue overpass, with off-street parking. Pedestrian traffic can access these parks from the Montlake neighborhood, the Arboretum Waterfront Trail, and the Ship Canal Waterside Trail.



McCurdy Park  
Vegetation in park separates SR 520  
and MOHAI.

## Museum of History and Industry (MOHAI)

MOHAI straddles the property line between East Montlake Park and McCurdy Park. This structure was built by the Seattle Historical Society (now the Seattle-King County Historical Society), completed in 1952, and then deeded to the City of Seattle. The MOHAI building is a contributing element to the Montlake Historic District, which is eligible for the National Register of Historic Places. The Cultural Resources



Discipline Report provides more information about the history of MOHAI and the Montlake historic district (WSDOT 2009d).

The Seattle-King County Historical Society, a private nonprofit organization, operates MOHAI. The museum contains historical exhibits, provides interactive learning activities, and houses more than 1.5 million historic photos. Each year, roughly 60,000 people visit the museum collections. The City of Seattle has scheduled the museum to move to a new location, but museum storage and some exhibit space may remain in the current building.

In May 2001, the Seattle City Council approved the *Washington Park Arboretum Master Plan* (City of Seattle et al. 2001). This plan identifies the need for an additional 4,000 square feet of floor area to accommodate an expansion of Arboretum staff. The plan suggests that these facility requirements could be accommodated in the MOHAI building once the museum moves from the building. The Seattle City Council adopted Resolution 31092 on September 28, 2008, to authorize the parks director to negotiate relocating the museum, including the MOHAI collection, to a regional museum located at Lake Union Park. Approval of the negotiation to move the MOHAI occurred July 6, 2009, although it may be some time before the relocation is complete.

## Washington Park Arboretum

Washington Park Arboretum began as Washington Park in the early 1900s (City of Seattle 1974) on private parkland the City acquired. In 1907, the University of Washington expanded its own Arboretum facilities and hired the Olmsted Brothers to create a boulevard entry for the Alaska-Yukon-Pacific Exposition at East Lake Washington Boulevard, contiguous with the southern portion of the City park. The Washington Park Arboretum was established in 1934 by an agreement approved by the University of Washington (Board of Regents) and the City of Seattle (City Council/Mayor). In this agreement, the City of Seattle gave the university permission to design, construct, plant, and manage an Arboretum and Botanical Garden in Washington Park.



Washington Park Arboretum

In 1936, the Olmsted landscape firm developed the first formal plan for the Arboretum. Some 500 men from the Works Progress Administration



completed much of the park's development between 1936 and 1941, including a good deal of the basic infrastructure that exists today; however, much of the plant collection was developed after World War II (BOLA and Kiest 2003). The northern portion of the park was substantially altered by the original construction of SR 520. The Highway Commission (now WSDOT) acquired over 40 acres of park property for right-of-way and did extensive dredging around Foster and Marsh islands.

Today, Seattle Parks and Recreation and the University of Washington cooperatively manage the 193-acre Washington Park Arboretum. Seattle's Department of Parks and Recreation maintains its park functions, and the University of Washington owns, maintains, and manages the plant collections and associated programs (BOLA and Keist 2003). The Arboretum Foundation manages fund raising, membership, and volunteer services. Although the City of Seattle owns most of the park, the university owns portions of it, and the Washington Department of Natural Resources owns most of Marsh Island and the northern half of Foster Island.

The Washington Park Arboretum contains more than 40,000 trees, shrubs, and vines, making up more than 4,600 cultivated species from around the world. These include 750 species collected in the wild and 139 plants on the endangered species list. The public can view approximately 95 percent of these species. The University of Washington, the Washington Park Arboretum's major educational user, offers some 40 courses each year using the Arboretum collections in fields such as urban horticulture, botany, forestry, and landscape architecture (University of Washington 1997).

Future development of the Washington Park Arboretum is guided by the 2001 Washington Park Arboretum Master Plan (City of Seattle et al. 2001). Planned improvements in the project area include the addition of a 300-square-foot outdoor educational building on Foster Island and a viewing platform on Marsh Island.

### **Foster and Marsh Islands**

Foster and Marsh islands are peat and marsh landscapes that occupy the southern shore of Union Bay. There are also wetland and waterway landscape features in the Washington Park Arboretum located north of the main features of the park (which include the Japanese Gardens and the greenhouses at the Graham Visitors Center) (City of Seattle 2001). The waterways surrounding the Foster and Marsh islands consist of



marshes and open-water channels that contain native and non-native vegetation unique to this portion of the park. The park provides four designated non-motorized watercraft landings in the waterways with access to the trail system.

Foster Island was purchased in 1917 to be included as a part of Washington Park. The island grew considerably when the opening of the Ship Canal and the Hiram M. Chittenden Locks (Ballard Locks) lowered the water level of Lake Washington by 9 feet. The University of Washington and Seattle Parks and Recreation own portions of Marsh Island, but the bulk of ownership is under the Washington State Department of Natural Resources. The original SR 520 project in 1963 divided the island from east to west and dredged through its central portion to create the isthmus over which the highway passes. SR 520 provides a pedestrian underpass for trail connection; the underpass is approximately 8 feet high by 12 feet wide and 92 feet long. In 1967, the sensitive areas of the island were recognized as valuable resources, and the Arboretum Waterfront Trail was established by the University of Washington, the Interagency Committee for Outdoor Recreation (now the Recreation and Conservation Office), the U.S. Department of Interior, and the City of Seattle. Land and Water Conservation Act funds were used for the original development of the trail, and ALEA funds were used for improvements to the trail and overwater boardwalk.

### **Arboretum Waterfront Trail**

The Arboretum Waterfront Trail is a 0.05-mile trail that meanders on a series of floating piers and structures through the marsh and connects Marsh and Foster Islands to the main features of the Washington Park Arboretum. Raised observation platforms provide views of the various wetlands around the islands and of Union Bay and Husky Stadium. The western trailhead is located in East Montlake Park and connects to the Ship Canal Waterside Trail and on to the University of Washington.



Arboretum Waterfront Trail under SR 520 on Foster Island

### **WSDOT Right-of-Way**

Adjacent to Lake Washington Boulevard is a WSDOT-owned parcel that forms a peninsula extending into Union Bay and is enclosed by the Lake Washington Boulevard ramps. Although the public perceives this



land to be part of the Washington Park Arboretum, it is actually part of the existing WSDOT right-of-way for SR 520. The land was originally purchased to build the R.H. Thomson Expressway, proposed in the 1960s but never constructed. The City of Seattle and WSDOT entered into an agreement in 1966 that divided maintenance responsibilities for this area between Seattle and the state (Washington State Highway Commission 1966). The agreement holds that, while the state allows Seattle to use and maintain portions of the property for park purposes, the property remains within WSDOT ownership and must be relinquished within 90 days if WSDOT needs it for transportation purposes.

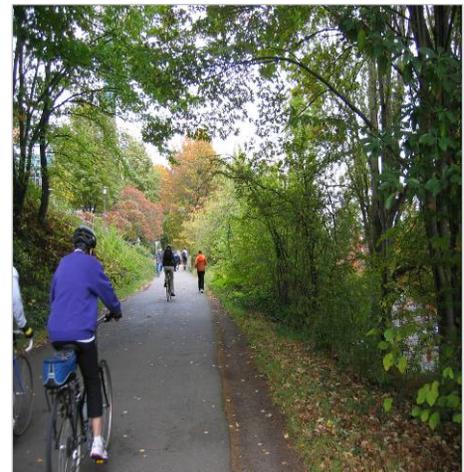
The Seattle Department of Parks and Recreation has improved and maintained the areas near the ramps under the terms of a 1989 agreement with WSDOT. According to the Washington Park Arboretum Master Plan (City of Seattle et al. 2001), the City wishes to enhance the use and appreciation of this area further in conjunction with implementation of the proposed master plan.

### Ship Canal Waterside Trail

The Ship Canal Waterside Trail is located east of Montlake Boulevard along the south side of the Montlake Cut. The 1,200-foot-long trail connects the Arboretum Waterfront Trail with West Montlake Park on Portage Bay. A variety of plants and animals can be seen along the footpath and three observation decks. Designed by the U.S. Army Corps of Engineers and the Seattle Garden Club, the trail was constructed in 1970 and designated as a National Recreation Trail a year later (City of Seattle 1974). The Seattle Parks Department maintains the trail. Popular year-round activities along the trail include sightseeing, picnicking, fishing, and jogging, and each May thousands of Seattleites line the shores of the Montlake Cut to watch the parade of boats that marks the opening day of boating season. The Ship Canal can be accessed from Montlake Boulevard as well as from East Montlake Park at East Shelby Street.



Ship Canal Waterside Trail  
One of the open water views from the Ship Canal Waterside Trail.



Burke-Gilman Trail System  
The trail runs between Kenmore and Seattle, connecting the University of Washington campus and Montlake Boulevard.



non-motorized commuters. This 14-mile paved trail is located in the cities of Seattle, Lake Forest Park, and Kenmore and provides views of the city, waterways, and Lake Washington. In the project vicinity, the trail is jointly maintained by the Seattle Department of Transportation and Seattle Parks and Recreation Department.

The Burke-Gilman Trail is a regional facility built on an old railway bed, with the southern trailhead located west of the project area at 8th Avenue NW and Leary Way on the Fremont-Ballard border. The trail passes through the University of Washington, paralleling the west side of Montlake Boulevard. The trail has become a major transportation corridor that serves thousands of commuters and recreational users.

### **Olmsted Boulevards**

Montlake and Lake Washington Boulevards were designed as part of the Olmsted Plan for Seattle Parks, Boulevards, and Playgrounds. The boulevards are distinguished by planting strips that contain mature trees and landscaping. The Montlake Boulevard planting strip is approximately 550 feet long and is located between the SR 520 interchange and East Shelby Street. The Lake Washington Boulevard planting strip is located between the Montlake Boulevard interchange and the western boundary of Washington Park Arboretum. Both planting strips are contributing elements to the historic designation of the neighborhood and are maintained for aesthetic values and traffic operations by the City of Seattle. (For more information, refer to the Cultural Resources Discipline Report [WSDOT 2009d].)

Montlake Boulevard within the city of Seattle is a designated state route, SR 513. It is a managed-access highway and an arterial city street in which jurisdiction, maintenance, operations, and construction are divided between WSDOT and the City of Seattle. The City of Seattle DOT owns Lake Washington Boulevard. According to the *Lake Washington Boulevard Vegetation Management Plan* (City of Seattle 2008), the section of Lake Washington Boulevard within the project vicinity is not part of Lake Washington Boulevard Park, which is located south of the Washington Park Arboretum and outside of the study area.

### **University of Washington Campus Recreational Facilities**

The University of Washington provides several recreational sites and facilities for intercollegiate and intramural activities and for passive recreation. The intercollegiate athletic program provides organized spectator sports such as football, basketball, baseball, and track.



Facilities include the Bank of America Arena at Hec Edmundson Pavilion and Husky Stadium, both located in the south campus area near the SR 520 Montlake Boulevard interchange. Montlake Boulevard provides the main arterial access to these facilities from the south campus, but many access points to the campus are possible. Other recreational areas include the Ship Canal and Union Bay waterfront, Burke-Gilman Trail, and other natural areas of the southeast campus. All recreational areas are open to the public as well as to University students and staff.

### **Intercollegiate Facilities**

Husky Stadium is located immediately north of the Montlake Cut and the University of Washington Open Space. The stadium hosts football and track and field events during their respective sporting seasons. The south parking lot to the stadium holds approximately 1,200 parking spaces and is used for tailgating during the football events. East of Husky Stadium are the Husky Softball Stadium and the Husky Soccer Field; these areas are also used for intercollegiate events. Although these facilities are not open to the public during athletic seasons, they are also used for broader community uses.



University of Washington  
Aerial view of the University of Washington's  
Husky Stadium and southeast campus facilities.

Husky Stadium is a resource for the community as it is used for more than just University of Washington athletic contests. More than 50 other events involving more than 70,000 individuals are held annually at Husky Stadium. These events include annual commencement exercises, American Cancer Society Relay for Life, Multiple Sclerosis Society Walk, community youth soccer practices, Washington State Patrol training, Seattle Public School Board Walk, and high school football (University of Washington 2008). Youth sports participation is also an important activity, with thousands of young people attending sports and band camps each year.

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

The University of Washington Open Space is a large grassy area, approximately 3 acres in size, located between the Husky Stadium parking lot and the Montlake Cut. The Open Space is vegetated and includes a climbing wall with facilities for picnicking that are open for public use and other recreational activities. The Open Space also contains the Waterfront Activities Center (WAC), the Canoe House, and the connecting East Campus Bicycle Trail.



### Waterfront Activities Center

Water-related recreational facilities are available at the Waterfront Activities Center (WAC), which is located south of Husky Stadium on Union Bay and the Montlake Cut. The Washington Yacht Club, Sailing Team, Kayak Club (flat and white water), and Union Bay Rowing Club organize their activities at the WAC. The WAC also rents canoes and rowboats to the general public with discount rates for students, staff, and alumni; storage for private non-motorized boats is also available to students, faculty, staff, and alumni association members. Most often, users cross the Montlake Cut, and then proceed through Union Bay and under SR 520 in non-motorized craft in order to dock, hike, or picnic in the Washington Park Arboretum. While user counts are unknown, users of the WAC are numbered in the thousands. Waterfront activities occur from February to October and are closed during winter months.



Waterfront Activities Center and Canoe House  
Canoe rentals are available at the Waterfront Activities Center.

### University of Washington Canoe House

The Canoe House on the University of Washington campus is listed on the National Register of Historic Places. It is located adjacent to the WAC at the entrance to the Lake Washington Ship Canal from Union Bay. In 1928, the U.S. Navy built the Canoe House to serve as a hangar for the Aviation Training Corps. It was donated to the university and used as the shellhouse for the rowing team until 1949. Currently, the University of Washington's crew team uses the Canoe House.

### East Campus Bicycle Route

The East Campus Bicycle Route is a gravel trail located in the southeast campus along Lake Washington and the Montlake Cut between the WAC and Montlake Boulevard. A vegetated slope provides a buffer between the trail and the cut.

### Lake Washington

Recreational boating activities occur on Lake Washington throughout the year, although water-based recreation increases during the summer months. Recreational boating takes different forms, ranging from motorized craft for cruising, sightseeing, bird watching, water skiing, or fishing to nonmotorized craft such as sail boats, canoes, row boats, and kayaks for activities such as fishing, sightseeing, bird-watching, exercise, or simply more active and hands-on enjoyment of the aquatic



environment. Lake Washington, the Lake Washington Ship Canal, and Lake Union are navigable waterways, and a number of private marinas, yacht clubs, docks, and boat launch facilities exist in the project area. In addition, there are public facilities in the study area.

Washington Park Arboretum has multiple boat landings for launching and receiving non-motorized watercraft. The University of Washington WAC, discussed above, rents canoes and kayaks with multiple launch points for both motorized and non-motorized watercraft.

On the lake, larger recreational vessels generally remain in the established navigation channels. The Navigable Waterways Discipline Report (WSDOT 2009f) provides information on the boating experience for larger vessels. Smaller vessels and nonmotorized water craft often use the shallower water around the lake shore for wildlife viewing and bird watching, especially around Marsh Island and Foster Island at the Washington Park Arboretum. The Ecosystems Discipline Report (WSDOT 2009g) provides details on the types of wildlife, birds, and fish that may be part of the recreational experience on Lake Washington.

Viewing special activities on Lake Washington is also part of the lake's recreational experience, whether from a boat on the lake or from the shoreline. The public has the opportunity to view regularly recurring events on the lake as discussed below.

### **Annual Events**

The study area hosts a number of annual events that have citywide importance. These include:

- Opening Day of boating season is held in early May. The Montlake Bridge is raised to allow larger watercraft through the Cut. Spectators line the banks of the Cut and also watch from boats moored in Union Bay.
- The Windermere Cup is a rowing competition held in the Montlake Cut on the Opening Day of boating season. Viewing is generally from the Canoe House, the trails and open space along the Montlake Cut, and the Montlake Bridge, which is closed to traffic during the event.
- The Nordstrom Beat the Bridge is a fundraising run that uses the Husky Stadium parking lot and crosses the Montlake Bridge.



## Eastside Transition Area

This section describes the recreational facilities in the Eastside project vicinity that the project alternatives could affect. Exhibit 13 shows the locations of these facilities.

### Points Loop Trail

The Points Loop Trail lies within the jurisdictions of Medina, Hunts Point, Clyde Hill, and Yarrow Point. The trail is situated within the WSDOT right-of-way in the project site and along the south side of Fairweather Park, Hunts Point Park, and Wetherill Nature Preserve.

### Fairweather Park

Fairweather Park has tennis courts and open space, with 11 acres of woods, streams, and wetlands managed by the City of Medina. The park has considerable ecological diversity, with more than 53 species of plants, six species of mammals, and 20 species of birds. The terrain ranges from upland forest to wetland, and a spring-fed stream bisects the park. Volunteer efforts and contributions maintain the park. The Points Loop Trail is located immediately adjacent to the south side of the park, within the WSDOT right-of-way.

### Hunts Point Park

Hunts Point Park, also known as D.K. McDonald Park, encompasses roughly 2.5 acres in the south part of town. The parkland was originally acquired from the Bellevue School District and named after long-time resident D. K. McDonald who purchased enough bonds to finance the construction of the park. The park has tennis courts and playground facilities, and also contains the Town Hall. The Points Loop Trail is located immediately adjacent to the south side of the park, within the WSDOT right-of-way.



Points Loop Trail  
Trail connects the Points Communities in the Eastside study area.



Fairweather Park



Hunts Point Park





- Existing Regional Bicycle/Pedestrian Path
- Parks within Study Area
- Park
- City Limits



Source: City of Bellevue (2005) GIS Data (Trails), City of Bellevue (1999) GIS Data (City Limits), King County (2005) GIS Data (Streams and Streets), King County (2007) GIS Data (Water Bodies), CH2M HILL (2008) GIS Data (Parks). Horizontal datum for all layers is NAD83(91); vertical datum for layers is NAVD88.

### Exhibit 13. Parks and Recreation Facilities in the Eastside Area

I-5 to Medina: Bridge Replacement and HOV Project

## Wetherill Nature Preserve

The 16-acre Wetherill Nature Preserve was given to the towns of Hunts Point and Yarrow Point in 1988 by Didonia Wetherill Foley and Marjorie Wetherill Baird, descendants of an early Seattle pioneer family. Many trees and shrubs in the park are labeled and extensive plant and animal lists are provided at the entrance kiosk. Although conifers grow in the higher parts of the park, only deciduous trees grow in the damp soil near the lake that was under Lake Washington until 1916. Volunteer efforts and contributions privately maintain the land.



Wetherill Nature Preserve

## Pontoon Production and Transport

As previously described, the I-5 to Medina project would include an additional 44 supplemental stability pontoons for the new 6-lane floating bridge. To build the additional supplemental stability pontoons, WSDOT would utilize a new casting basin located in Grays Harbor, and potentially a casting basin at Concrete Technology Corporation (CTC) in Tacoma.

There would be no effects on recreation facilities from the pontoon production and transport. In addition, recreation facilities adjacent to the haul routes used during construction would not experience negative effects related to noise, air quality, traffic, or construction activities because noise levels and air quality levels would not exceed any allowable limits.



# Potential Effects of the Project

## What methods were used to evaluate the potential effects?

This section assesses the potential effects of the project on recreational facilities. Site-specific information was collected about the type and function of each potentially affected recreational resource in the project vicinity. Park plans were also collected and reviewed to identify any plans for proposed property acquisitions, expansions, and improvements. To identify the potential effects in the project vicinity, the recreation discipline team reviewed the project's Geographic Information System (GIS) database, met with project design team members and relevant parks and recreation department staff, reviewed other technical discipline reports, and visited the sites. This section evaluates effects during construction and operation of the project.

Construction effects are defined as those that would not permanently alter recreational facilities or change them to another use. Construction effects may include the following:

- Use of staging areas within or near recreational facilities
- Construction of temporary structures (that is, bridges over water) to provide access to the construction area
- Construction-generated noise or air pollution and traffic detours and closures that change access and add visual clutter
- Periodic and temporary closures of aquatic areas where recreational boaters would normally travel, as well as boat launches, associated parking, and lake viewing areas.

Possible operational effects that were considered included the following:

- Acquisition or physical use of all or a portion of parks or recreational areas to accommodate additional right-of-way for highway improvements (this does not include other areas considered to be conversion of recreation facilities as defined under Section 6(f) of the LWCF Act)



- Relocation of or additional coverage over trails
- Permanent changes to recreational aquatic access and launch points
- Proximity effects, including increased levels of traffic noise or air pollution; changed, reduced, or lost access; degradation of the visual setting; or changes in the nature of the surrounding land use that could affect the continued viability, integrity, usage, or value of the recreational resource and that could degrade the overall recreational experience
- Addition of new open space (for example, lids) as part of the project design
- Addition of new pedestrian and bicycle connections

An important factor considered in an EIS is the increased traffic noise that could occur when a project is constructed near a park or other recreational resource. Mitigation for traffic noise effects is considered when the predicted noise levels approach, within 1 decibel (A-weighted scale) (dBA), the FHWA noise abatement criterion of 67 dBA for parks and recreational land uses. The Noise Discipline Report provides more information about the effects of noise levels in the project vicinity (WSDOT 2009b).

## How would construction of the project affect recreational resources?

### No Build Alternative

The No Build Alternative would not result in construction effects on recreation resources as the project would not be built under this alternative. The No Build Alternative assumes that existing infrastructure would remain exactly the same as it is today.

### 6-Lane Alternative

Project construction would require the closure and demolition of existing roadways, bridges, ramps, and portions of pedestrian and bicycle trails, along with construction of new facilities. The effects of the project on bicycle and pedestrian facilities are discussed further in the Transportation Discipline Report (WSDOT 2009e)

Construction effects may include the creation of staging areas within or near recreational resources, construction-related noise and air pollution, traffic detours and closures that change access, and visual clutter. The



noise and presence of heavy equipment associated with project construction may temporarily reduce visitation to recreation areas.

Exhibit 14 lists the park resources that would be affected by the project, the size of the park, and the amount of park area in which construction and equipment staging could occur. The totals shown do not include areas that would be acquired permanently; those areas are discussed in the operational effects section below.

Exhibit 14. Construction Effects on Parks (Acres)

Resource	Park Size (acres)	Option A	Suboption for Option A	Option K	Option L
<b>Seattle</b>					
Rogers Playground	1.9	0	0	0	0
Roanoke Park	2.2	0	0	0	0
Bagley Viewpoint*	0.1	0*	0*	0*	0*
Interlaken Park	51.7	0.05	0.05	0.05	0.05
Montlake Playfield	27	0.3	0.3	0.2	0.2
East Montlake Park	7.1	1.2	1.3	0.9	1.6
McCurdy Park*	1.5	0*	0*	0*	0*
Washington Park Arboretum	193	2.4	2.7	5.3	3.5
University of Washington Open Space	630	1.1	1.1	0.5	0.9
<b>Eastside</b>					
Fairweather Park	11	0	0	0	0
Hunts Point Park	2.5	0	0	0	0
Wetherill Nature Preserve	16	0	0	0	0
<b>Total Effects</b>	--	5.1	5.5	7.0	6.3

\*Note: All of Bagley Viewpoint and McCurdy Park would be permanently acquired prior to construction; therefore, these totals appear in the operations discussion.

The following discussion describes potential construction effects by resource. Where the effects of the 6-Lane design options would differ for a particular resource, the options are discussed under separate headings.

## SR 520 Corridor

### Rogers Playground

Construction activities related to placement of the I-5/East Roanoke Street lid would affect Rogers Playground. Construction would consist



of heavy equipment operating several hundred feet east of the park. This could generate dust and construction-related noise and vibration in proximity to the park, as shown on Exhibit 15. Construction would occur on Roanoke Street for approximately 15 to 24 months as Roanoke Street is a primary haul road for the lid construction.

Rogers Playground would experience construction traffic and equipment during this time frame.

### **Roanoke Park**

Roanoke Park would be affected by construction activities at the I-5 lid and at the 10th Avenue East/Delmar Drive East lid, as shown on Exhibit 15; no construction would occur within the park. To accommodate traffic during construction, WSDOT would construct a temporary bridge east of the existing 10th Avenue East crossing of SR 520. Roanoke Park is adjacent to the proposed construction haul route along East Roanoke Street. Heavy construction equipment operating along the south boundary of the park would generate dust and construction-related noise and vibration. Construction would occur near Roanoke Park for approximately 15 to 24 months. Access from East Roanoke Street and Delmar Drive East would be limited during the construction, although other access points to the park would remain open.

### **Bagley Viewpoint**

The entire 0.15-acre viewpoint would be permanently acquired and used during construction of the 10th Avenue East/Delmar Drive East lid (Exhibit 15). The park would be fenced and inaccessible to the public for approximately 15 to 24 months during the construction period. Bagley Viewpoint would be acquired during construction. Although the viewpoint would be restored as a part of the 10th Avenue East/Delmar Drive East lid, the viewpoint could not be returned as a City of Seattle park since the lid is considered a transportation facility under WSDOT ownership.

### **Interlaken Park**

Delmar Drive East divides Interlaken Park into two parts. Construction would occur within the park as curbs and sidewalks are replaced along Delmar Drive East (Exhibit 15). Approximately 0.05 acre of the park would be affected by each of the design options and suboptions.

Bicyclists and pedestrians that currently use the on-street bike path to access the park would be routed along the 10th Avenue East





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



**Exhibit 15. Effects on Parks in the I-5 to Portage Bay Area**  
 I-5 to Medina: Bridge Replacement and HOV Project

construction crossing. This area of the park would also experience noise and dust from construction activity associated with the construction of the 10th Avenue East/Delmar Drive East lid for approximately 15 to 24 months.

### **Montlake Playfield**

Montlake Playfield is located along the south side of the SR 520 right-of-way, as shown in Exhibit 16. SR 520 would be widened to the north, and construction 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 (Exhibit 17). Construction would require building a temporary support structure in the park to remove and replace the SR 520 off-ramp to Montlake Boulevard. The temporary structure would be in place for 30 to 36 months and would be removed upon completion. Construction activities are anticipated to generate dust and construction-related noise and vibration in close proximity to the active-use areas of the park. A pile-driver is an impact-type of equipment capable of producing noise in the 99 to 105 dBA range as it drives pilings into the ground (see the Noise Discipline Report [WSDOT 2009d] for further discussion). Construction limits are similar for each design option and the suboptions, as shown in Exhibit 16.

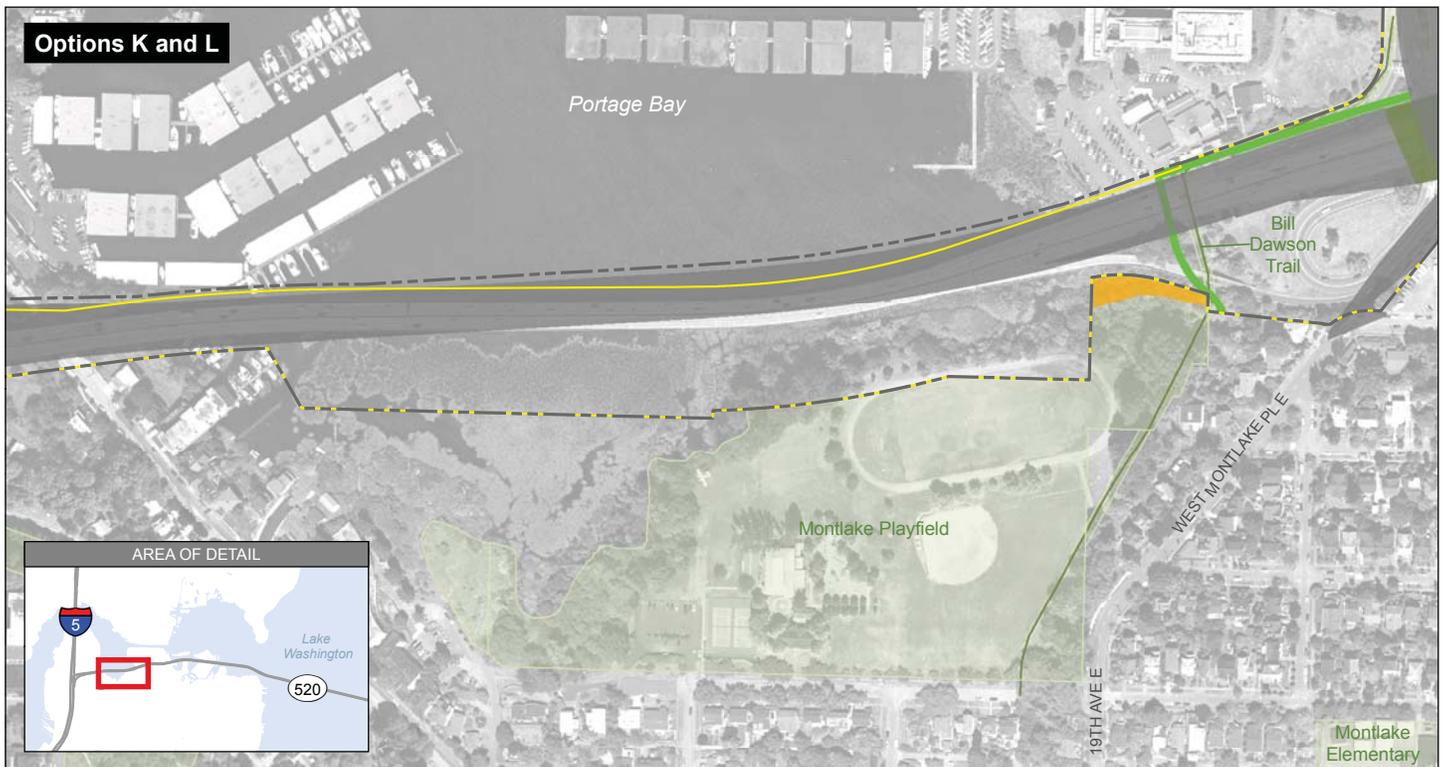
### **Bill Dawson Trail**

The Bill Dawson Trail extends from Montlake Playfield under SR 520 to Montlake Boulevard. During construction, parts of the trail would be detoured east of the project where the trail would be relocated during operation. The reestablished trail would continue to be located within the SR 520 right-of-way approximately 100 feet north of the existing location. Trail closures along the trail would take place between 30 and 36 months during rebuilding of the Portage Bay bridges and the Montlake Boulevard interchange. Detours to avoid construction would be provided for bicyclists and pedestrians to Montlake Playground from the Montlake Boulevard neighborhood.

### **East Montlake Park and McCurdy Park**

East Montlake Park is 7.1 acres in size, and McCurdy Park is 1.5 acres in size. These two contiguous parks are located immediately north of SR 520 and east of the Montlake Boulevard interchange, as shown in Exhibit 18. Trailheads to the Arboretum Waterfront Trail and the Ship Canal Waterside Trail are located at the northwest corner of East Montlake Park. For all design options, McCurdy Park, MOHAI, and the associated parking lot would be permanently closed at the start of





Source: King County (2006) Aerial Photo, City of Seattle (1994) GIS Data (Bicycle Routes), and CH2M HILL (2008) GIS Data (Parks). Horizontal datum for all layers is NAD83(91); vertical datum for layers is NAVD88.

-  Existing Regional Bicycle/Pedestrian Path
-  Proposed Right-of-way
-  Existing Right-of-way
-  Construction Effect
-  Pavement
-  Park or Recreation Feature
-  Proposed Bicycle/Pedestrian Path



**Exhibit 16. Effects on Parks in the Portage Bay Area**

I-5 to Medina: Bridge Replacement and HOV Project

## Exhibit 17. Montlake Playfield Construction Effects

Option	(acres)
<b>Option A</b>	
and Suboption to Option A	0.3
<b>Option K</b>	0.2
<b>Option L</b>	0.2

construction. The 24th Avenue East crossing, which provides access to MOHAI and is a designated city bike route, would be closed during construction and traffic detoured to Montlake Boulevard.

Exhibit 19 presents the construction effects on East Montlake Park under each option and suboption.

**Option A**

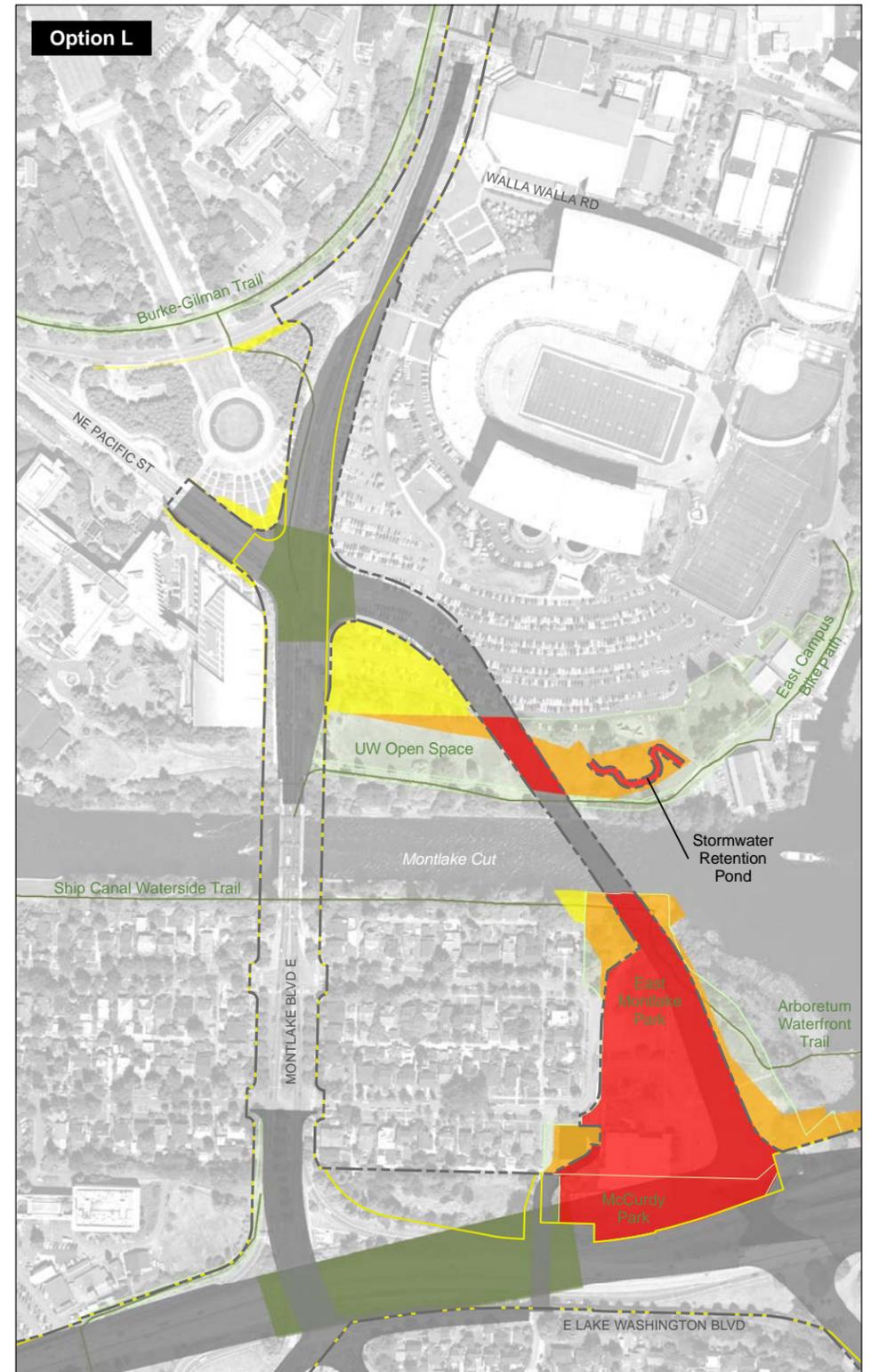
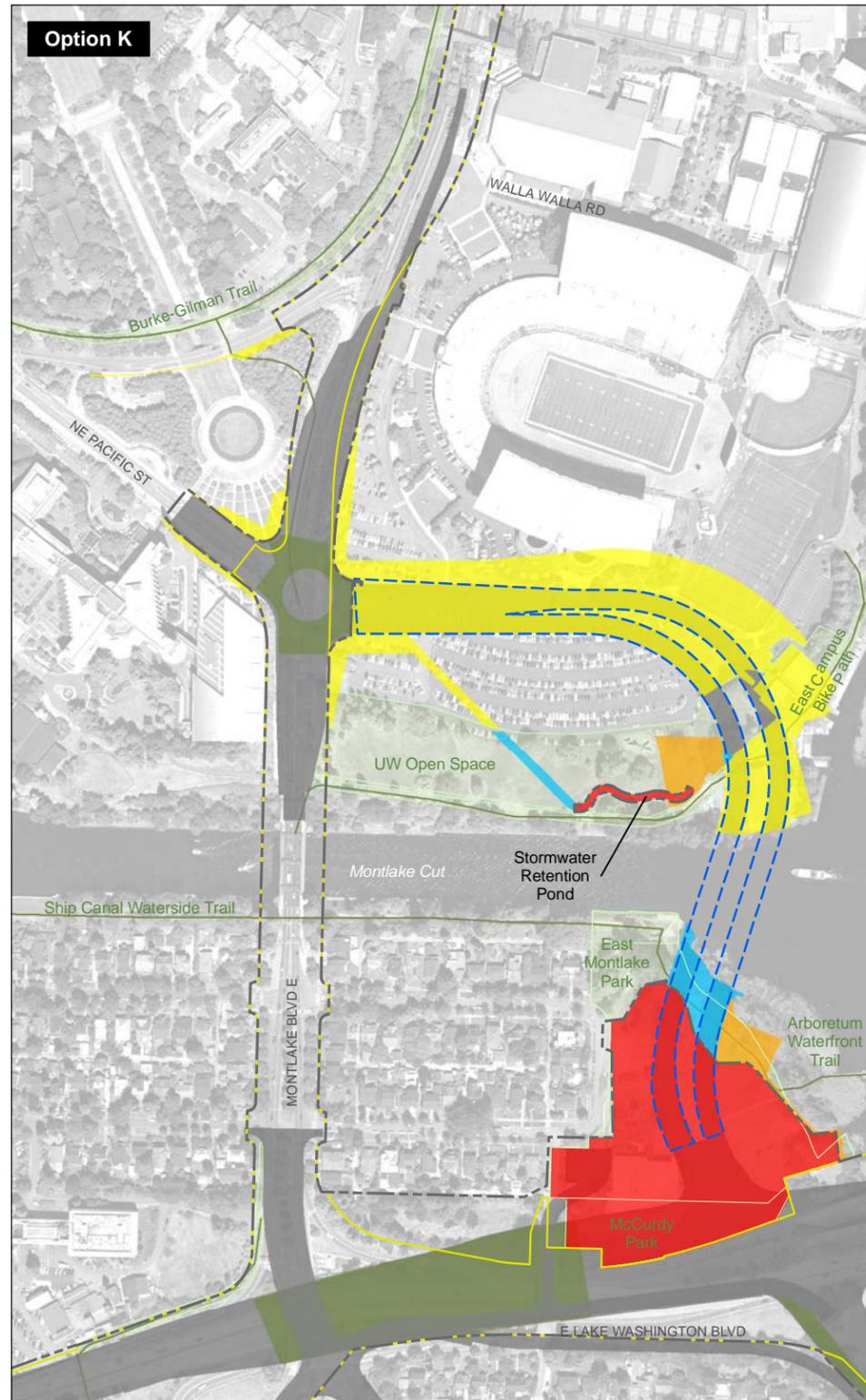
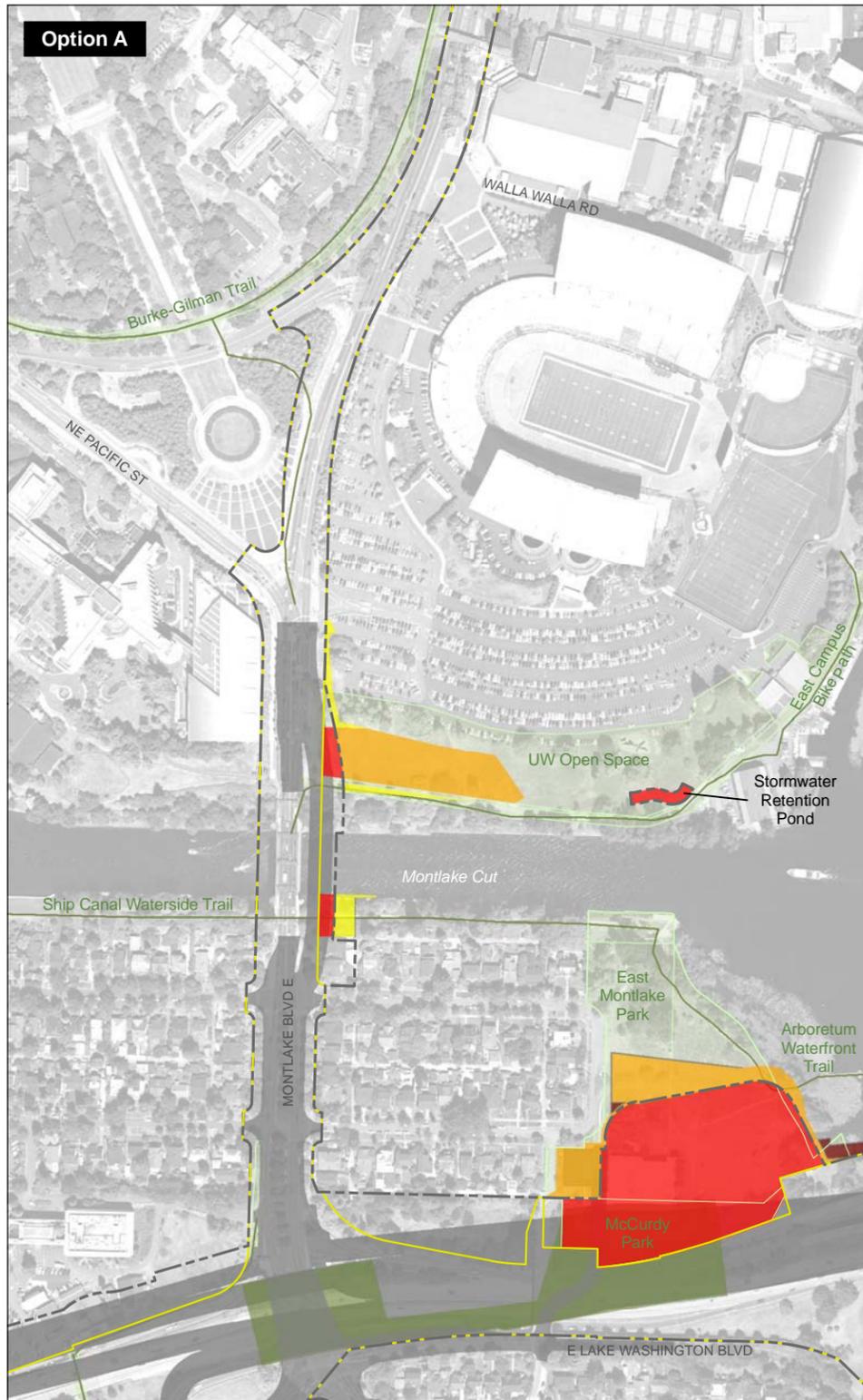
Option A would require 1.2 acres of construction easement in East Montlake Park. When combined with the permanent acquisitions from East Montlake Park (2.8 acres) and McCurdy Park (1.5 acres), over 60 percent of park area would be closed for 24 to 30 months during construction of the SR 520 widening. Only the northern portion of East Montlake Park would remain in use. The suboption for Option A that adds ramps to and from Lake Washington Boulevard would require an additional 0.1 acre of construction easement in the park.

During construction of the new Union Bay bascule bridge, the Arboretum Waterfront Trail and trail access in East Montlake Park, as well as the Ship Canal waterside trails and trail access from Montlake Boulevard, are likely to be periodically closed for safety reasons. Detour trail routes would be provided during extended periods of closure. The kayak and canoe launch point on the Lake Washington shoreline would also be periodically inaccessible. Access to the Ship Canal Waterside Trail from the park would remain open, although passage beneath Montlake Boulevard would be temporarily closed between 24 and 30 months during construction of the second Montlake bascule bridge although East Montlake Park would be open during the trail closure.

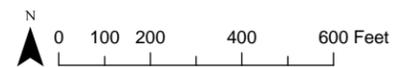
**Option K**

Option K would require 0.9 acre of construction easements in East Montlake Park to construct the stormwater treatment wetland and the tunnel beneath the Montlake Cut. When combined with the permanent acquisitions from East Montlake Park (4.5 acres) and McCurdy Park





- Existing Regional Bicycle/Pedestrian Path
- Proposed Right-of-way
- Existing Right-of-way
- Permanently Acquired
- Construction Effect
- Temporarily Affected Resource (Transitioning to Subterranean Easement)
- Temporarily Affected Resources (Only Suboption A)
- Construction Easement
- Tunnel
- Proposed Lid or Landscape Feature
- Park or Recreation Feature
- Pavement



Source: King County (2006) Aerial Photo, City of Seattle (1994) GIS Data (Bicycle Routes), and CH2M HILL (2008) GIS Data (Parks). Horizontal datum for all layers is NAD83(91); vertical datum for layers is NAVD88.



**Exhibit 18. Effects on Parks in the Montlake and the University of Washington Areas**

I-5 to Medina: Bridge Replacement and HOV Project



## Exhibit 19. East Montlake Park Construction Effects

Option	(acres)
<b>Option A</b>	<b>1.2</b>
Suboption for Option A	0.1
<b>Option K</b>	<b>0.9</b>
<b>Option L</b>	<b>1.6</b>

(1.5 acres), approximately 80 percent of the park area, including parking, would be closed for 72 to 84 months during construction. Construction of SR 520 widening would be similar to Option A, while an additional 48 months would be required for tunnel construction. Only a small area in the northwest corner of Montlake Park would remain in use as the tunnel would require the majority of the park for construction. The other construction effects of Option K, including temporary closure of trail access and watercraft launch points, would be similar to those described above for Option A, although the length of closures would differ as described above.

**Option L**

Option L would require 0.9 acre of construction easements in East Montlake Park. When combined with the operational acquisition from East Montlake Park (4.3 acres) and McCurdy Park (1.5 acres), over 75 percent of park area would be closed during construction of the bascule bridges for a total of 60 to 78 months. Construction of SR 520 widening would be similar to Option A, while an additional 42 months would be required for bridge construction. The other construction effects of Option L, including temporary closure of trail access and watercraft launch points, would be similar to those described above for Option A, although the length of closures would differ as described above.

**University of Washington Recreational Facilities**

All options would require construction of new facilities to improve traffic conditions on Montlake Boulevard through the University of Washington campus. The main recreational features of the campus are located immediately north of the Montlake Cut, adjacent to Husky Stadium. The stadium parking lots E11 and E12 are used primarily for University of Washington employee parking during the day and into the evening. The majority of the University of Washington employees parking in these lots are employees of the University of Washington



Medical Center just across the street from the stadium. During sporting events on the weekend and evenings, those attending events at these recreational facilities also use these two lots. The stadium parking lots E11 and E12 are also used in support of these recreational facilities, as WAC users are directed to lot E12 for access. Loss of parking and limited access through the parking lots will limit the recreational opportunities in their immediate vicinity (see Transportation Discipline Report [WSDOT 2009e]). On the University of Washington campus, reduced access to facilities as well as traffic delays during construction would be expected with any option, as discussed with each respective option. These delays would likely adversely affect intercollegiate competitions and recreational activities that use these facilities outside of athletic seasons due to the reduced parking, detouring around construction, and proximity effects of construction adjacent to these facilities. Exhibit 20 presents the construction effects of each option on the open space, athletic facilities, access roads, and parking lots on the University of Washington campus.

Exhibit 20. University of Washington Campus, Open Space, Parking Lot, and Access Road Construction Effects

Option	(acres)
Option A	1.6
Option K	11.6
Option L	5.2

Exhibit 21 presents the construction effects of each option on University of Washington Open Space. The Open Space is a recreational resource that is open to the public and used for public events; therefore, the open space has been considered separate from the remaining University of Washington Campus facilities.

Exhibit 21. University of Washington Open Space Construction Effects

Option	(acres)
Option A	1.1
Option K	0.5
Option L	0.9



**Option A**

Option A includes construction of a new bascule bridge along Montlake Boulevard, parallel to and east of the existing Montlake bascule bridge (Exhibit 18). The new bridge would be located east of the existing bridge on the Open Space side of Montlake Boulevard. Construction would mainly affect access to the Open Space adjacent to Montlake Boulevard and 4 percent of parking at Husky Stadium. Construction closures of the East Campus Bicycle Route and the Burke-Gilman Trail access spur are anticipated as Montlake Boulevard is widened from two to three lanes. Detours would be provided for Option A for the duration of construction, and continued access to the WAC and the Open Space would be provided. Construction effects are likely to occur between 36 and 42 months. Access during construction may be detoured to the recreational sites and athletic facilities from Walla Walla Road. Periodic closures may occur during construction of the bascule bridge or its connection to Montlake Boulevard as access approaches are replaced.

The total construction easements required within campus parking facilities, the WAC, and athletic facilities would be 1.6 acres. In addition, approximately 1.1 acres of construction easement would be required at the western end of the University of Washington Open Space.

However, construction would occur in the western portion of the area that is passive use and not affect the use of other recreational features.

**Option K**

Option K includes the construction of a tunnel under the Montlake Cut and a new intersection at Pacific Street (Exhibit 18). Because of the depth of the tunnel and the supporting infrastructure, several types of construction effects would occur at the University of Washington recreational facilities. Access to Walla Walla Road through the Husky Stadium parking lot would be detoured and only accessible from parking facilities north of the stadium. Access to Husky Stadium and the baseball stadium from Walla Walla Road would be limited during the 48- to 54-month duration of tunnel construction; a total of 549 parking spaces would be closed during this time. The Transportation Discipline Report (WSDOT 2009e) addresses access and parking effects on these resources.

Tunnel construction would require permanent relocation of the WAC and the periodic closure of the Canoe House. The East Campus bicycle



route, climbing wall, and Burke-Gilman Trail access spur would not be accessible for the duration of the construction of the tunnel and the new intersection at Pacific Street. Detours for the campus access spur of the Burke-Gilman trail would be provided for Option K for the duration of construction. The total construction easements required within campus parking facilities, the Open Space, and athletic facilities would be 11.6 acres. The construction easement would be required through the majority of the University of Washington Open Space, requiring relocation of the WAC during construction. A temporary rental facility would be provided for waterfront access projected to be located between its existing location and the Husky softball stadium.

### **Option L**

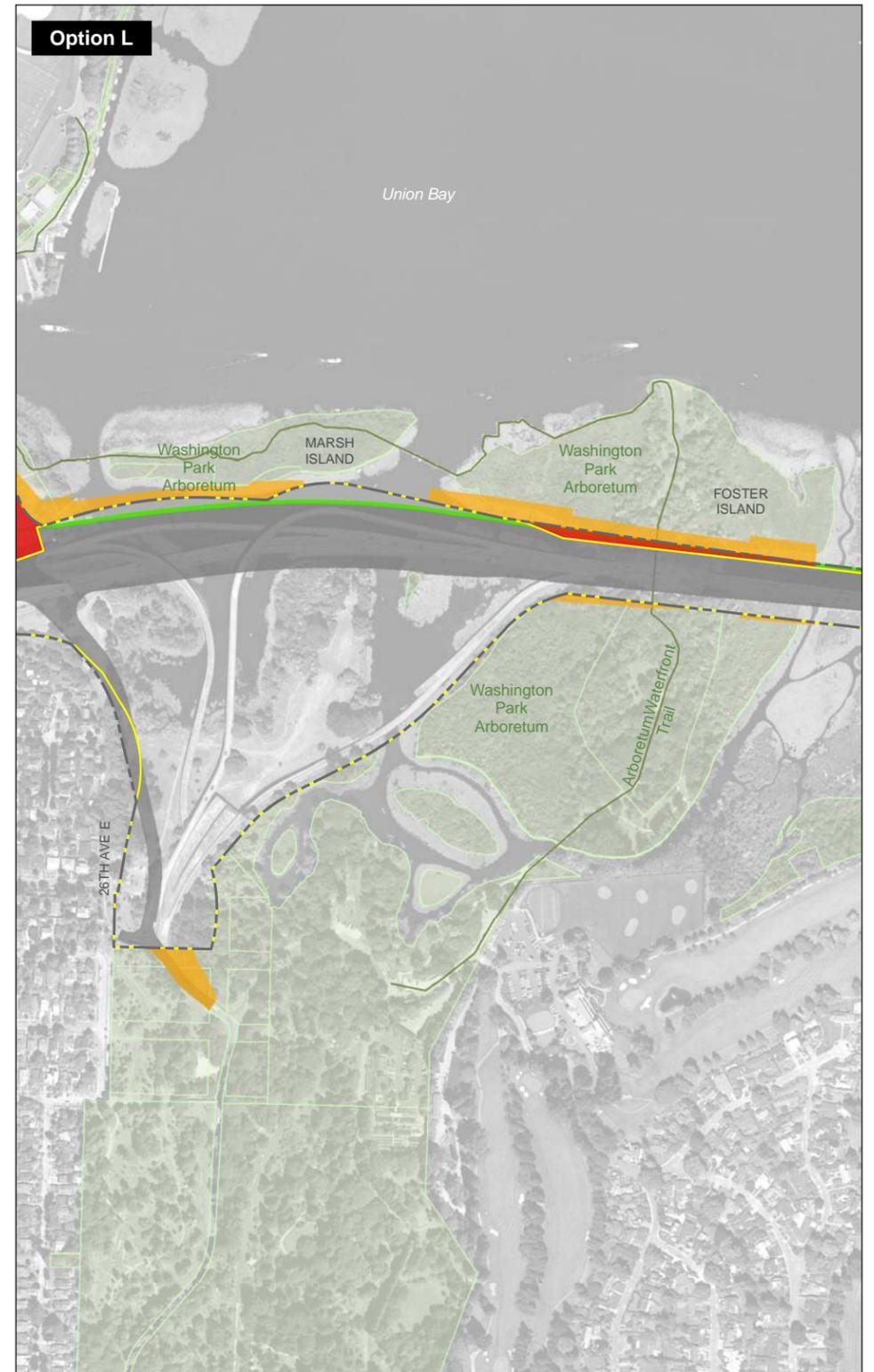
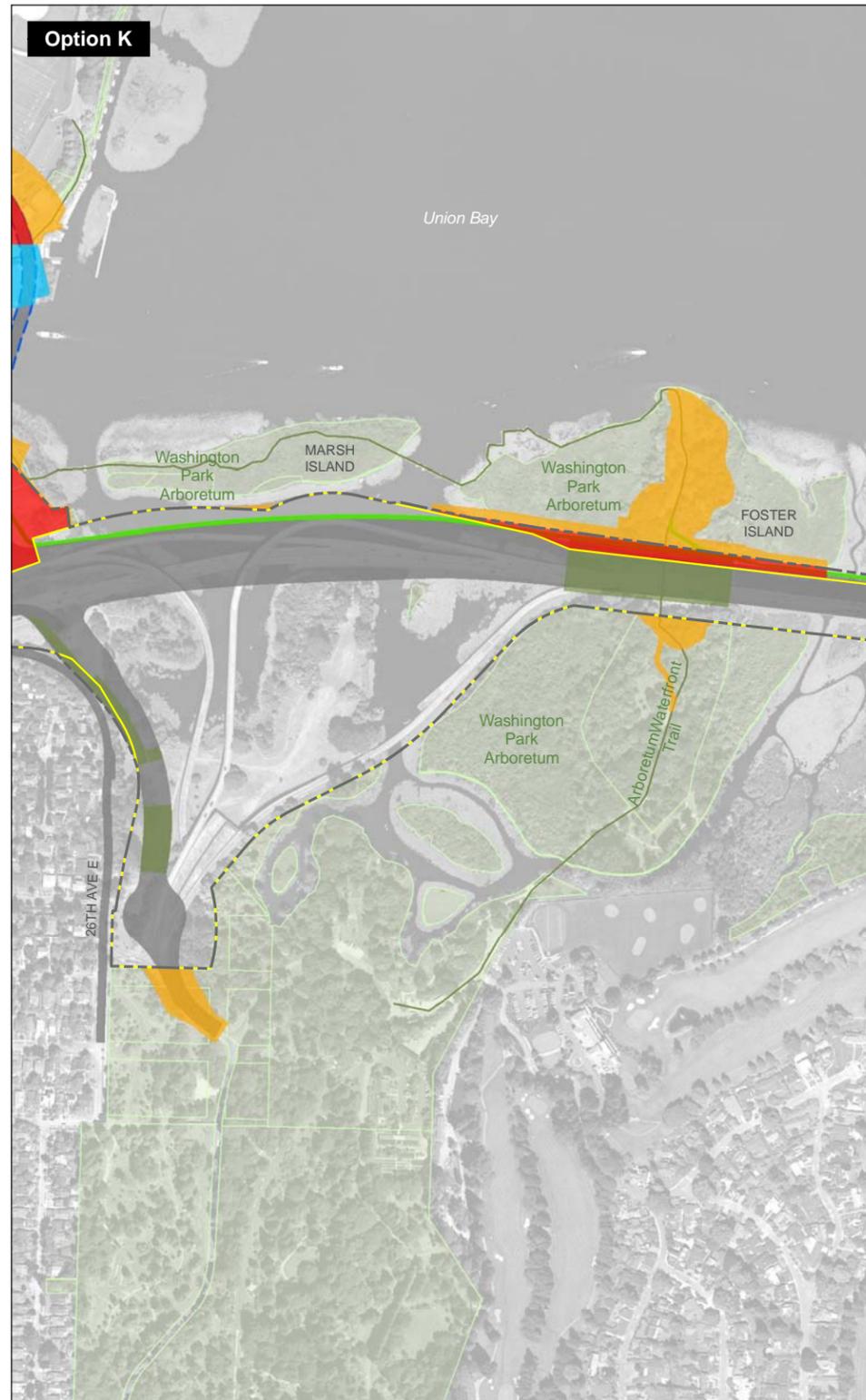
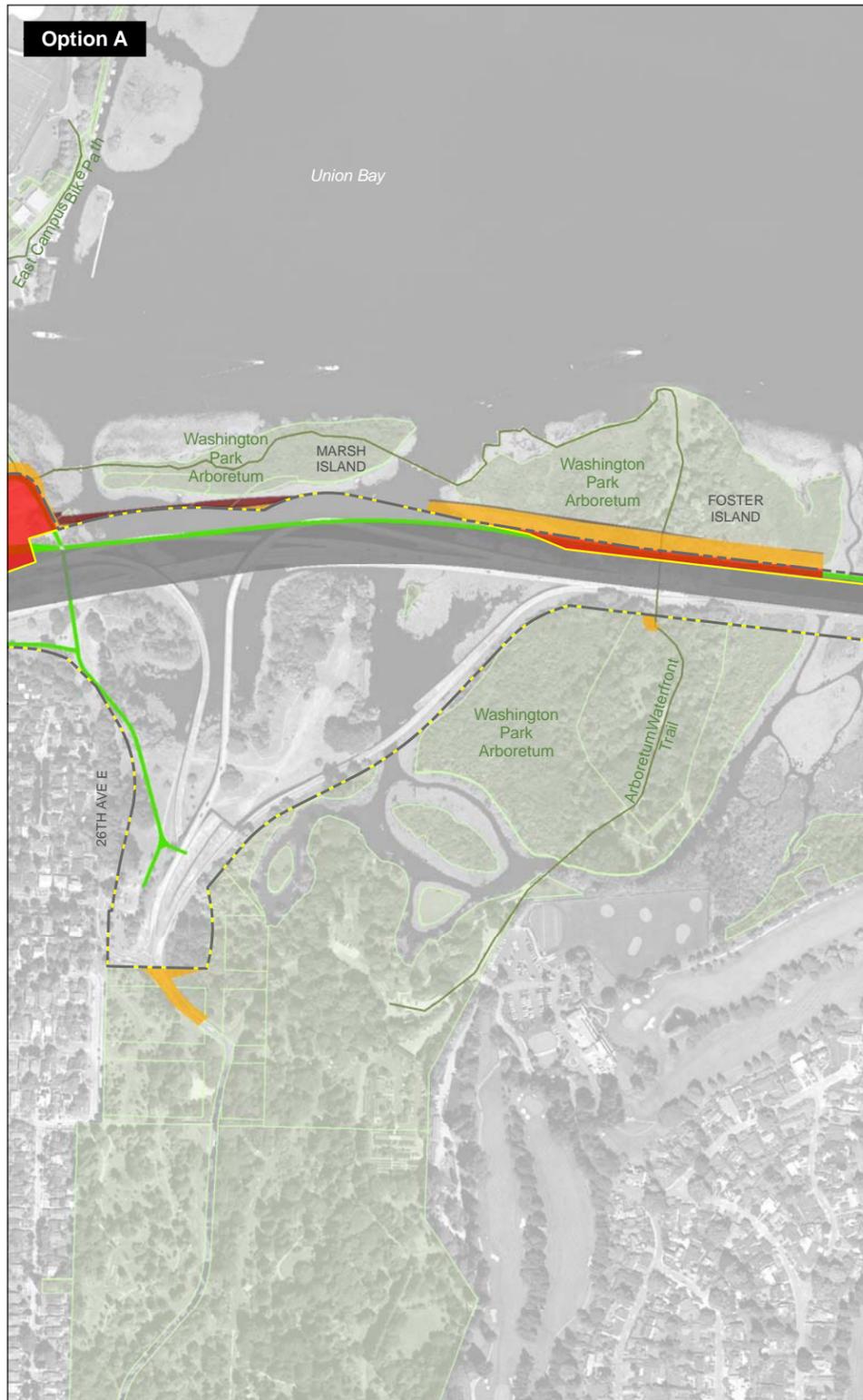
Construction of the new bascule bridge across Montlake Cut would affect access to the university's southeast campus recreational facilities and access to the Burke Gilman Trail during the approximately 42- to 48-month construction duration (Exhibit 18). Walla Walla Road would be detoured for access to the WAC and through the Husky Stadium south parking lot to the Pacific Street intersection. At this location, the bridge construction would relocate the climbing wall and portions of the East Campus Bicycle Route for the duration of construction.

Detours for the campus access spur of the Burke-Gilman trail would be provided for Option L for the duration of construction. Construction of the bridge span and support columns would require the periodic closure of the trails, the Canoe House, and the WAC. Construction of the Pacific Street intersection and lid would limit access to Husky Stadium. These construction easements would close 211 parking spaces and local road access through the parking lots. The Transportation Discipline Report (WSDOT 2009e) addresses access and parking effects on these resources. The total construction easements required within campus parking facilities and the WAC would be 4.3 acres. In addition, approximately 0.9 acre of construction easement would be required in the center of the University of Washington Open Space.

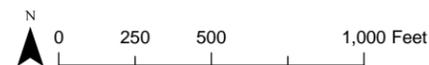
### **Washington Park Arboretum**

Under all design options, construction of the proposed improvements would require the periodic closure of the section of the Arboretum Waterfront Trail located under SR 520 on Foster Island, as detailed below in the discussion of the individual options and as shown on Exhibit 22. The trail segment between East Montlake Park and the northern portion of Foster Island could be accessed from the East





- Existing Trail/Bicycle Path
- Permanently Acquired
- Construction Effect
- Temporarily Affected Resource (Transitioning to Subterranean Easement)
- Proposed Right-of-way
- Existing Right-of-way
- Temporarily Affected Resources (Only Suboption A)
- Tunnel
- Proposed Bicycle/Pedestrian Path
- Proposed Lid or Landscape Feature
- Park or Recreation Feature
- Pavement



Source: King County (2006) Aerial Photo, City of Seattle (1994) GIS Data (Bicycle Routes), and CH2M HILL (2008) GIS Data (Parks). Horizontal datum for all layers is NAD83(91); vertical datum for layers is NAVD88.



**Exhibit 22. Effects on Parks in the Washington Park Arboretum Area**  
I-5 to Medina: Bridge Replacement and HOV Project



Montlake Park trailhead, although this trail access would be subject to closures due to sequenced construction activities at East Montlake and McCurdy parks. During such closures, trail users would be unable to use any portion of the trail between East Montlake Park and the limits of construction. Park users would be able to access the remainder of the trail, including the portion of Foster Island south of SR 520, from the Graham Visitor Center throughout the construction period. Exhibit 23 presents the construction effects of each option on the Washington Park Arboretum.

Exhibit 23. Washington Park Arboretum Construction Effects

Option	(acres)
<b>Option A</b>	2.4
Suboption to Option A	0.3
<b>Option K</b>	5.3
<b>Option L</b>	3.5

**Option A**

Option A crosses Foster Island within the Washington Park Arboretum with a pier and span bridge. Construction would include an access work bridge on and adjacent to Foster and Marsh islands. These bridges would be located parallel to SR 520 in the approach areas. The construction bridges would be removed after completion of the permanent structure. Construction for the west approach area adjacent to Marsh Island and the Washington Park Arboretum is scheduled to take up to 72 months.

The Foster Island construction easement would extend south into the park to accommodate waterfront trail reconstruction, and north of the existing bridge to allow completion of the temporary work bridge. The 2.4 acres of construction easements on Foster and Marsh islands would be returned to park use once construction is completed. The canoe and kayak launch point near the north end of Foster Island would remain in use, and use of the park and trail north of the construction area would be allowed.

Option A would eliminate access to SR 520 from Lake Washington Boulevard, except under the suboption that includes the addition of new Lake Washington Boulevard ramps. In either case, the old Lake Washington Boulevard ramps and the unused R.H. Thomson



Expressway ramps would be removed. Although expressway ramp removal would occur entirely on WSDOT-owned property, adjacent park areas could be affected. Construction activities would generate dust and construction-related noise and vibration in close proximity to the active areas of the park. Pile-driving equipment would likely be used in this location to construct bridges over the water. The method of construction could generate noise levels from around 95 dBA up to 105 dBA.

The Lake Washington Boulevard ramp suboption to Option A includes an eastbound on-ramp in the Arboretum area to provide direct SR 520 access for northbound Lake Washington Boulevard traffic. Construction of this ramp would require 0.3 acre of construction easements on the north side of SR 520 at Marsh Island.

### **Option K**

Option K crosses Foster Island with a land bridge in which the roadway would be lidded by an earthen berm. The Arboretum Waterfront Trail would be reconstructed over the land bridge and on fill material extending to the north end of Foster Island. The 5.3 acres of construction easements for work bridges, trail construction, and fill on Foster and Marsh islands would be returned to park use once construction is completed. Option K would not provide a right-of-way to accommodate the continuity of the Arboretum Waterfront Trail until the road widening and land bridge construction were complete. This would leave up to an 84-month span in which there would be no continuity of this trail on Foster Island or within East Montlake Park. The land bridge option would construct a manicured vegetative area (similar to an urban park) to be managed by Seattle Parks and Recreation. The natural features would be altered by the land bridge because the vegetation would be placed at a higher elevation than the natural grades; however, access to the waterfront trail would not change. The canoe and kayak launch point near the north end of Foster Island would remain in use.

Option K would eliminate access to SR 520 from the Lake Washington Boulevard ramps and replace this access with a new single-point urban interchange (SPUI) from the new 26th Avenue East and Lake Washington Boulevard intersection. Construction of the SPUI would involve removal of the existing Lake Washington Boulevard ramps and the unused R.H. Thomson Expressway ramps. Although removal of the old ramps would occur entirely on WSDOT-owned property, adjacent park areas could be affected.



Construction activities would generate dust and construction-related noise and vibration, similar to Option A, in close proximity to the active areas of the park. Reconstruction of the 26th Avenue East and Lake Washington Boulevard intersection would temporarily affect the park and bicycle and pedestrian access between 3 and 12 months.

### **Option L**

Option L crosses Foster Island with a pier and span bridge, similar to Option A. However, because SR 520 would be wider in this area than under Option A, there would be a larger construction footprint on Foster and Marsh islands. Foster and Marsh islands include SR 520 access ramps from Lake Washington Boulevard. The 3.5 acres of construction easements for work bridges and trail construction on Foster and Marsh islands would be returned to park use once construction is completed. Option L would not provide a right-of-way to accommodate the continuity of the Arboretum Waterfront Trail until the road widening and bridge construction were complete. This would leave up to a 72-month span in which there would be no continuity of this trail on Foster Island or within East Montlake Park. The canoe and kayak launch point near the north end of Foster Island would remain in use with construction-related restrictions. Canoe and kayak access within the park would be restricted to the waterways south of SR 520.

Option L would eliminate access to SR 520 from the Lake Washington Boulevard ramps and replace this access with a new SPUI. The new SPUI would involve removal of the existing Lake Washington Boulevard ramps and the unused R.H. Thomson Expressway ramps. Although removal of the old ramps would occur entirely on WSDOT-owned property, adjacent park areas could be affected. Construction activities would generate dust and construction-related noise and vibration, similar to Option A, in close proximity to the active areas of the park. SPUI construction and reconstruction of the 26th Avenue East and Lake Washington Boulevard intersection would temporarily affect the park and bicycle and pedestrian access for 24 to 30 months.

## **Lake Washington**

All options have the potential to affect recreational use of Lake Washington. For recreation associated with larger vessels, the project's construction impacts would be minimal. The majority of effects for these types of recreational users would occur around the floating portion of the Evergreen Point Bridge. The Navigational Waterways



Discipline Report (WSDOT 2009f) provides details on projects effects to movement of larger recreational vessels.

Small vessel and non motorized access around the project area would be affected during construction. The ability to boat around the project area would be affected under all options for safety reasons, because boats would not be allowed to pass beneath work bridges and overwater construction areas. Pile driving would produce noise and vibration effects that could be unpleasant, and the magnitude of those effects is discussed for each option below. Users would continue to have access to Lake Washington from alternative public launch points. The discussion of each alternative below details the timing of recreation-related impacts, especially lake access points.

Construction effects on recreation opportunities on the lake are also related to the effects on wildlife and fish. The Ecosystems Discipline Report (WSDOT 2009g) discusses the possible effects that all options could have on wildlife and fish. The potential recreation effects resulting from effects on wildlife and fish would be most noticeable around Foster and Marsh Islands. As described in the Ecosystems Discipline Report, Option K would have the greatest potential effect to aquatic habitat and potentially to fish, and the greatest impact to wildlife; therefore, it would also have the greatest potential effect to recreational use of those wildlife and fish resources.

### **Option A**

Option A requires restricted access for safety measures under SR 520 for the 24- to 30-month duration of construction of the west approach area. No effects to the watercraft launches in East Montlake Park or at the WAC are anticipated, although access to and from the Washington Park Arboretum would be interrupted.

### **Option K**

Option K requires restricted access for safety measures under SR 520 for the 72- to 84-month duration of construction of the west approach area and SPUI interchange to Pacific Street. East Montlake Park access would be closed for the entire duration of construction with intermittent access to the Arboretum Waterfront Trail and launches on Foster Island. The watercraft launches at the WAC are anticipated to be closed intermittently and relocated to another location. Temporary rental facilities replacing the WAC would be provided for approximately 48 to 54 months during tunnel construction. Tunnel construction would not impede watercraft users in the Montlake Cut.



**Option L**

Option L requires restricted access for safety measures under SR 520 for the 60- to 78-month duration of construction of the west approach area and Union Bay Bridge interchange to Pacific Street. The watercraft launch in East Montlake Park is anticipated to be closed intermittently as required by construction. Access to and parking for the WAC would be restricted for the 42- to 48-month construction of the Union Bay bascule bridge. Bridge construction is likely to intermittently delay or impede watercraft users in the Montlake Cut.

**Eastside Transition Area**

No construction would occur within Fairweather Park, Hunts Point Park, or Wetherill Nature Preserve. Construction of the east approach bridge would restrict canoe and kayak access to Lake Washington along the Medina shoreline. The existing Points Loop Trail would be relocated north of SR 520 as part of the Medina to SR 202: Eastside Transit and HOV Project and would terminate at Evergreen Point Road. The project would connect the trail from Evergreen Point Road to the bike lane on the new Evergreen Point Bridge.

**Pontoon Production and Transport**

No effects would occur within or adjacent to recreational resources as a result of pontoon transportation and outfitting or final construction in Lake Washington of the floating bridge. Pontoon transport through the Montlake Cut would be timed to avoid interference with boating events, such as opening day of boating season, the Windermere Cup, and Seafair.

**Phased Implementation Scenario**

Under the Phased Implementation scenario, no construction effects to Rogers Playground, Roanoke Park, or the University of Washington campus would occur. Construction effects on Interlaken Park, McCurdy Park, Bagley Viewpoint, and the Washington Park Arboretum would be similar to those described for the full build options. Exhibit 24 shows the construction easements that would be needed for phased implementation. They are less than the acreage required for the full build options in East Montlake Park because there would be no new crossing of the Montlake Cut. Access to the Bill Dawson Trail and the Arboretum Waterfront Trail would be restricted during construction.



Construction on SR 520 is likely to indirectly affect the University of Washington as delays, detours, and construction-related activities

Exhibit 24. Construction Park Effects (Acres), Phased Implementation Scenario

Resource	Option A	Suboption for Option A*	Option K	Option L
Bagley Viewpoint	0.0**	0.0**	0.0**	0.0**
Interlaken Park	0.05	0.05	0.05	0.05
East Montlake Park	1.2	1.3	0.04	0.9
McCurdy Park	0**	0**	0**	0**
Washington Park Arboretum	2.4	2.7	4.9	3.1
<b>Total Effects</b>	3.65	4.05	4.99	4.05

\* Note: Suboption total includes Option A effects.

\*\* Note: All of Bagley Viewpoint and McCurdy Park would be permanently acquired and used for construction; therefore, these totals appear in the operations discussion.

would cause additional traffic congestion on Montlake Boulevard. On the Eastside, Fairweather Park could experience noise and dust during construction of the Eastside connection.

Although phased implementation would have fewer construction effects initially than full build, it would result in two distinct periods of impact on certain parks and recreational resources, and would, therefore, have greater effects overall than if the project were built all at once. Construction of new interchange ramps during full build out would affect parks during two construction periods. The parks are East Montlake Park (under Options K and L) and the Washington Park Arboretum (under all options).

## How would operation of the project affect recreational resources?

### No Build Alternative

The No Build Alternative would not require any permanent acquisition of park or recreational property for right-of-way. There would continue to be no bicycle and pedestrian connection across the Evergreen Point Bridge connecting the Eastside and Seattle. The existing proximity effects of SR 520 on adjacent parks would likely increase because more vehicles would be traveling on the roadway, which would in turn result in longer periods during which traffic would be present near parklands



and in longer durations of traffic noise experienced in those parks. Because the No Build Alternative would not include any noise mitigation, noise levels would continue to exceed the FHWA noise abatement criteria in many locations within adjacent parks.

## 6-Lane Alternative

Operational effects for all design options would include acquisition of all or a portion of four to five recreational properties (depending on design option) in the project vicinity and the relocation of trails. The team evaluated the potential for proximity effects, such as increased levels of traffic noise or air pollution; changed, reduced, or lost access; degradation of the visual setting; or changes in the nature of the surrounding land use that could affect the continued viability, integrity, usage, or value of the recreational resource. Exhibit 25 shows estimated permanent acquisition of park and recreational resources under the different options. Trail relocation is discussed further in the Transportation Discipline Report (WSDOT 2009e).

Exhibit 25. Permanent Park Acquisition (Acres)

Resource	Park Size (acres)	Option A	Option K	Option L
<b>Seattle</b>				
Rogers Playground	1.9	0	0	0
Roanoke Park	2.2	0	0	0
Bagley Viewpoint	0.15	0.15	0.15	0.15
Interlaken Park	51.7	0	0	0
Montlake Playfield	27	0	0	0
East Montlake Park	7.1	2.8	4.5	4.3
McCurdy Park	1.5	1.5	1.5	1.5
Washington Park Arboretum	193	0.9	1.4	0.6
University of Washington Open Space	630	0.2	0	0.5
<b>Eastside</b>				
Fairweather Park	11	0	0	0
Hunts Point Park	2.5	0	0	0
Wetherill Nature Preserve	16	0	0	0
<b>Total Effects</b>	--	5.55	7.55	7.05



The following discussion describes operational effects of the 6-Lane Alternative by resource. Where the effects of the 6-lane design options differ for a particular resource, the options are discussed under separate headings. Air quality effects during operation are not anticipated, and therefore are not discussed in this section. In addition, Rogers Playground and Interlaken Park would experience neither land acquisition nor proximity effects during project operation.

### **Bagley Viewpoint**

Each of the design options would result in complete acquisition of Bagley Viewpoint. A new viewpoint could be located on the 10th Avenue East/Delmar Drive East lid and could be designed to recreate the original intended panoramic views of Portage Bay and the Cascade Mountains.

### **Roanoke Park**

Although no property would be acquired from Roanoke Park, the park's setting would change as a result of the construction of the I-5 and 10th and Delmar lids. Views from the park toward the south would take in the landscaped lid area stretching uphill across SR 520. This change could improve the experience of park users if the lid's features are designed to be compatible with the park and the surrounding historic district (see Visual Quality and Aesthetics Discipline Report [WSDOT 2009i] for more information).

### **Montlake Playfield**

Views of the Portage Bay Bridge from Montlake Playfield would change under any of the design options and would vary according to the specific aesthetic treatment used for each option (see Visual Quality and Aesthetics Discipline Report [WSDOT 2009i] for more information). Noise levels at the park would decrease under design options where sound walls are included in the project (Option L and potentially Option A). Without further mitigation (see Noise Discipline Report [WSDOT 2009b] for more information), noise levels would likely remain the same or increase under Option K, which is defined as not including sound walls. The project would not affect the proposed renovation of the sports fields.

### **East Montlake Park and McCurdy Park**

All options would convert at least half of the land in McCurdy Park and East Montlake Park from recreation use to transportation use



(Exhibit 18). As noted earlier, all of McCurdy Park would be permanently acquired for right-of-way. The remainder of East Montlake Park that is not used for SR 520 facilities would be restored and available for recreational use after construction is completed. The park would be contiguous with the open space provided on the landscaped lid at 24th Avenue East, expanding the area available for passive recreation. Each option has a unique lid design, and each lid provides bicycle/pedestrian connections with the new bike lane on the Evergreen Point Bridge and local neighborhoods south of SR 520.

Under all design options, the MOHAI building and its parking lot would be removed. Currently, SR 520 cannot be seen from areas within East Montlake Park because the view to the south is blocked by the MOHAI building and trees in McCurdy Park. Removal of the building and the trees and other well-established vegetation would occur during construction. Upon project completion, vegetation would be reestablished wherever possible to provide a visual buffer between the park and the highway. Replacement parking for park users would be provided, although the location has not yet been determined. The non-motorized boat launch would be restored within the park, but parking could be located further from the launch.

A stormwater treatment wetland is proposed to be built in East Montlake Park. Although the wetland would remain within the new WSDOT right-of-way, it could provide a positive visual effect for users of the Arboretum Waterfront Trail by replacing the existing parking lot with a more natural-appearing landscape that would blend in with the adjacent shoreline. Unlike conventional stormwater retention/detention ponds, this treatment wetland would not be contained within a fence or constructed of concrete materials.

Exhibit 26 shows the land acquisition in McCurdy Park and East Montlake Park under each option.

Exhibit 26. East Montlake and McCurdy Park Acquisition

Option	(acres)
Option A	4.3
Option K	6.0
Option L	5.8



**Option A**

With Option A, a total of 4.3 acres (50 percent) of the total park area would be converted to transportation use. The remainder of the park, primarily along the Arboretum Waterfront Trail, the north end of Montlake Park, and the connection to the Ship Canal Waterside Trail, would be returned to park use. The restored park areas are adjacent to Lake Washington and the Montlake Cut where the majority of passive use features are located. The MOHAI and associated parking lots include the majority of the area changed from park use to transportation use. The non-motorized boat launch, access to the Ship Canal Waterside Trail, and the Arboretum Waterfront Trail would retain their current condition and feel.

**Option K**

A total of 6.0 acres (69 percent) of the total park area would be converted to transportation use with Option K. The remainder of the park, primarily along the Arboretum Waterfront Trail, the north end of Montlake Park, and the connection to the Ship Canal Waterside Trail, would be restored to park use.

The restored portion of the park would be located near a new SR 520 SPUI interchange. The additional traffic adjacent to the park and reduced acreage, from a combined 8.6 acres to 2.6 acres (31 percent of original size), would change the function of the park from passive open space to an urban park setting with additional manicured landscapes to limit the effects of the transportation facility. Additional features required for tunnel operation include an exhaust tower with ventilation fans and pumping stations placed along the tunnel alignment. These features would be aboveground and would generate additional noise and visual elements associated with the tunnel operation. Bicycle and pedestrian features would be added to provide non-motorized connections to the Washington Park Arboretum and the Evergreen Point bicycle path included with SR 520 to the Points Loop Trail. The non-motorized boat launch, access to the Ship Canal Waterside Trail, and the Arboretum Waterfront Trail would be restored in close proximity to the SPUI interchange, which would change the user experience.

**Option L**

With Option L, a total of 5.8 acres (67 percent) of the total park area would be converted to transportation use. The remainder of the park, primarily along the Arboretum Waterfront Trail, the north end of



Montlake Park, and the connection to the Ship Canal Waterside Trail, would be restored to park use.

The restored portion of the park would be located near a new SR 520 interchange. The interchange would provide access to SR 520 and cross over the Montlake Cut to the Pacific Street intersection. The additional traffic and reduced acreage, from a combined 8.6 acres to 2.8 acres (33 percent of original size), would change the function of the park from passive open space to an urban park setting with additional manicured landscapes and bicycle features under a large bridge structure. The non-motorized boat launch, access to the Ship Canal Waterside Trail, and the Arboretum Waterfront Trail would be restored in close proximity to the Pacific Street interchange and the Union Bay Bascule bridges, and the user experience would change.

## Washington Park Arboretum

All options would convert land from the Washington Park Arboretum at Foster Island from recreation use to transportation use. For all options, the acquisition would be north of the existing roadway as shown in Exhibit 22. Exhibit 27 shows the amount of land to be acquired at the Washington Park Arboretum under each option. Conversions of the Washington Park Arboretum adjacent to the existing SR 520 would include filling of wetlands and removal of trees (see Ecosystems Discipline Report [WSDOT 2009g]).

Exhibit 27. Washington Park Arboretum Acquisitions

Option	Acquisitions (acres)
Option A <sup>a</sup>	0.9
Option K	1.4
Option L	0.6

<sup>a</sup>Total would be the same with or without the Lake Washington Boulevard ramps.

### Option A

In Option A, SR 520 would cross Foster Island with a bridge. The wider footprint of the new roadway would require acquisition of 0.9 acres of land on Foster Island, of which 0.2 acres is forested. The highway main line would provide approximately 15 to 18 feet of clearance above the crossing of the Arboretum Waterfront Trail on Foster Island, compared to the current clearance of approximately 11 feet. Although the land



underneath the footprint of the highway would be within the WSDOT right-of-way, it would be available for park use after construction (except for the area necessary for the columns to support the highway structure). A permanent air space lease would be required for the elevated structure.

The Arboretum Waterfront Trail currently crosses under SR 520 in a low and narrow pedestrian underpass that many trail users find unpleasant and uncomfortable. The new SR 520 structure would allow the trail to pass between columns of an elevated structure, improving the user experience by opening views at ground level. Because the highway mainline would be higher than the existing roadway, the structure would become a more dominant and noticeable feature and would affect the visual environment for trail users.

The existing unused R.H. Thomson Expressway ramps would be removed which would further open views for park users and eliminate some columns that currently impede boat access. The wider spacing of the new columns (to support the elevated structure) on the proposed bridge would also contribute to the positive visual change. If sound walls are included in Option A, noise in the Arboretum would decrease from the existing levels, a substantial reduction that would improve the experience of park users (see Noise Discipline Report for more information [WSDOT 2009b]).

### **Option K**

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 that would provide pedestrian access over the highway. This option would require acquisition of 1.4 acres of land, of which 0.4 acres is forested on Foster Island. Although the land bridge would be within the WSDOT right-of-way, it would be available for park use after construction. The Arboretum Waterfront Trail would be reconstructed to pass over the land bridge and connect to the new bicycle/pedestrian path to be provided on the Evergreen Point Bridge.

The top of the land bridge would be landscaped which would provide a positive effect for users compared to the experience of crossing beneath the existing roadway. Fill would be placed north of the land bridge to create a gentle slope from the bridge to the north end of Foster Island. This would change the character of this portion of the Arboretum Waterfront Trail and Foster Island from a wetland viewing opportunity to a more landscaped upland setting.



Similar to Option A, the existing unused R.H. Thomson Expressway ramps would be removed which would open views for park users and improve visibility across the land and water.

### **Option L**

Similar to Option A, in Option L SR 520 would cross over Foster Island with a bridge and would require acquisition of 0.6 acres of land on Foster Island, of which 0.4 acres is forested. Option L requires acquisition of less land (see Exhibit 26) than Options A or K. The highway main line would provide approximately 10 to 12 feet of clearance above the crossing of the Arboretum Waterfront Trail on Foster Island, which is the same as the current clearance of 11 feet. A permanent air-space lease would be required for the new elevated structure.

The existing trail undercrossing beneath SR 520 is a narrow tunnel between a bridge abutment and a retaining wall. In Option L, the new undercrossing would allow the trail to pass between widely spaced columns of an elevated structure, improving the user experience by opening views at ground level. Because the highway main line would be higher than the existing roadway, the highway would become a more dominant and noticeable feature and would affect the visual environment for trail users on Marsh Island.

The existing unused R.H. Thomson Expressway ramps would be removed, which would further open views for park users and eliminate some columns that currently impede boat access. The wider spacing of the new columns on the proposed bridge would also contribute to the positive visual change, opening views of Lake Washington. Option L includes sound walls, and noise in the Arboretum would decrease from the existing levels, a substantial reduction that would improve the experience of park users (see Noise Discipline Report for more information [WSDOT 2009b]).

## **University of Washington Recreational Facilities**

Exhibit 28 presents the land acquisition from the University of Washington Open Space under each option.

### **Option A**

Option A would widen Montlake Boulevard from SR 520 to Pacific Street, with minor modifications to the intersection at Pacific Street. Approximately 0.2 acre of the University of Washington Open Space would be acquired for the new bascule bridge. The presence of the



## Exhibit 28. University of Washington Open Space Acquisitions

Option	Acquisitions (acres)
Option A	0.2
Option K	0
Option L	0.5

bridge would change views from the University Open Space to the Montlake Cut as two bridge structures would provide access across the Cut instead of one. Noise and visual intrusion would increase at the Open Space with the eastward expansion of Montlake Boulevard to accommodate the new bascule bridge; however, these levels are anticipated to be the same as under the No Build Alternative as the traffic and structures remain consistent with the existing bascule bridge. Recreational activities (such as canoe and rowboat rentals, open space, and trail use) are likely to see no effects, as these resources are located away from the new right-of-way and access to them would remain available.

### Option K

Option K would tunnel beneath the Montlake Cut, passing under the University of Washington Open Space to its connection with Montlake Boulevard. The WAC would be reconstructed at its current location, and none of the University of Washington Open Space would be acquired. The intersection at Pacific Street would include a grade-separated crossing of Montlake Boulevard to facilitate access on the campus. Because traffic patterns would be shifted from southbound Montlake Boulevard, noise levels related to traffic would likely be reduced at the recreational facilities with the placement of the roadway underground. Additional features required for tunnel operation include an exhaust tower with ventilation fans and pumping stations placed along the tunnel alignment. These features would be aboveground and would generate additional noise and visual elements associated with the tunnel operation.

### Option L

Option L would include a new bascule bridge that would span the Montlake Cut and the WAC, and pass through the Husky Stadium south parking lot enroute to the intersection at Pacific Street. The bridge structure would be about 80 feet wide with a driving surface about 50



to 60 feet above the Montlake Cut. The bridge control tower is anticipated to be 80 to 90 feet above the campus waterfront. The new bridge would be visible from all points around Union Bay. The bridge overhead and the new piers would encroach on the existing broad views from the university's recreational facilities toward the lake, the Arboretum, and the Cascade Mountains.

Approximately 0.5 acre of the University of Washington Open Space would be acquired for the bascule bridge. The bridge only requires acreage where the support structures are located. The area beneath the bridge is likely to be available for passive recreational use to link the remaining Open Space to the WAC, Canoe House, and athletic facilities. The bridge would require relocation of the East Campus bike trail. It would also remove 211 parking spaces (approximately 20 percent of the parking) in Husky Stadium parking lots E11 and E12.

### **Recreational Trail Connectivity**

All alternatives would improve bicycle and pedestrian connections over the SR 520 corridor and the Montlake Cut by retaining and improving existing trails. Each option has unique designs for improving bicycle and pedestrian connectivity. As shown in Exhibit 29, these options differ slightly in terms of the placement of connections and the availability of existing connections to recreational resources. Also proposed are the neighborhood trails on the landscaped lids at I-5 and 10th and Delmar, and in the Montlake area. These trails would further improve connectivity for bicyclists and pedestrians. The connection between the Arboretum Waterfront Trail and the Ship Canal Waterside Trail would be retained for all design options.

All options provide a new connection from Seattle's bicycle and pedestrian system to the Points Loop Trail and associated bicycle and pedestrian opportunities on the Eastside. Nonmotorized commuters would be able to cross Lake Washington via the 14-foot bicycle/pedestrian path on the north side of the newly constructed Evergreen Point Bridge.

### **Lake Washington**

No parkland or land-based recreational resources would be acquired that would permanently affect Lake Washington recreational uses. Upon completion of the project, recreational use of Lake Washington would be essentially unchanged from today and all of the same activities would be available. The public access to Lake Washington at





- Pedestrian Only Path
- Shared Use Trail
- Proposed Bicycle/Pedestrian Path
- ..... Bicycle Lane
- - - Non-Arterial Street (Commonly Used by Bicyclists)
- Arterial Street (Commonly Used by Bicyclists)
- Tunnel
- Lid or Landscape Feature
- Park and/or Recreation Resource
- Pavement

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

**Exhibit 29. Future Trail Connectivity: All Options**  
 I-5 to Medina: Bridge Replacement and HOV Project



East Montlake Park that was lost during construction would be re-established. Approximately 0.1 acre of aquatic area would be filled under all options by bridge support structures. Option K would require the most in-water columns and structures. Option K would also reduce recreational boating for smaller vessels within Union Bay because of the added in-water structures of the depressed SPUI.

The new bridge structures would not affect movement of larger recreational vessels, which would be restricted to established navigational channels. The wider profile of the roadway would also create more shade, leading to a different effect for those on smaller boats while under the bridges. Depending on specific location, recreational boaters could experience changes in noise associated with the project, with a wider roadway and more traffic.

The potential effects to wildlife discussed in the Ecosystems Discipline Report (WSDOT 2009g) have the potential to affect recreational enjoyment of wildlife. The project would affect wildlife by creating noise and removing and altering habitat. Option K would result in the greatest loss of wildlife habitat.

Fish would lose some habitat in the project vicinity under all options because of the new columns for bridge support. Shading by the larger bridge structures could also have an effect on fish, which could in turn have an effect on recreational fishing.

## Eastside Transition Area

No parkland or recreational resources would be acquired for the Eastside improvements. The completed project would connect the Points Loop Trail with the bicycle/pedestrian path on the new Evergreen Point Bridge, thereby providing a non-motorized connection of the Eastside with Seattle.

## Phased Implementation Scenario

Initial development of the vulnerable structures (floating bridge, Portage Bay Bridge, and west approach) would acquire the same amount of land in McCurdy Park and the Washington Park Arboretum as the full build scenario (Exhibit 30). Land acquisition in East Montlake Park would be less for Options K and L because there would be no new crossing of the Montlake Cut in the park. Other operational effects on these parks would be similar to those described for full build. Regional pedestrian connectivity would improve with the new regional



bicycle/pedestrian path across Lake Washington, but local connectivity using the landscaped lids would not be established until full build out.

Exhibit 30. Permanent Park Effects (Acres), Phased Implementation Scenario

<b>Resource</b>	<b>Option A</b>	<b>Option K</b>	<b>Option L</b>
East Montlake Park	2.8	2.9	2.5
McCurdy Park	1.5	1.5	1.5
Washington Park Arboretum	0.9	1.4	0.6
<b>Total Acquisition</b>	<b>5.2</b>	<b>5.8</b>	<b>4.6</b>



# Potential Mitigation Measures

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

Throughout the design process for the proposed project, care has been taken to avoid and minimize adverse effects on parks and recreational resources 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, effects on parks could not be avoided in many cases.

The Noise Discipline Report (WSDOT 2009b) recommends measures to reduce noise levels at sensitive receptors adjacent to the highway, including most parks and recreational facilities, by proposing sound walls in the design. It should be noted that sound walls are not included under all design options defined in the mediation process. However, note that FHWA and WSDOT policies require that WSDOT evaluate sound walls on a neighborhood-by-neighborhood basis, recommending all reasonable and feasible barriers. WSDOT must make the opinions of neighbors located behind the wall(s) a major consideration before making the final decision on the abatement.

Although they are not considered mitigation measures, the lids included in all project options would have beneficial effects in connecting existing parks. In addition, they would provide additional passive open space for community use.

The same minimization measures applied for navigation effects would apply to recreational boating. This includes construction staging to maintain reasonable navigation underneath the Evergreen Point Floating Bridge and maintaining vertical clearance underneath the Bridge during construction. Operationally, there were no navigation-related effects to be minimized for recreational vessels.



## How could the project mitigate effects that cannot be avoided?

### Construction Effects

Following are possible mitigation measures for the identified project construction effects:

- Best management practices, including those already developed in WSDOT construction manuals, would be implemented to protect recreational resources from construction-related effects, such as dust, vibration, noise, lighting glare, and accidental damage from construction equipment (see Construction Techniques and Noise Discipline Reports) for more specific mitigation possibilities).
- Trails and bicycle routes would be temporarily routed around construction sites to minimize trail closures. Trails would be kept open as often as safely possible. Simultaneous closures would be avoided when feasible.
- Construction would require periodic closures of the Arboretum Waterfront Trail and the Bill Dawson Trail beneath SR 520 and the Arboretum Waterfront Trail access at East Montlake Park. Construction would be coordinated to avoid simultaneous closures of these two locations and to maintain trail access from at least one direction.
- Under Option K, the WAC would be dismantled. Replacement facilities would be provided for boat rentals until the WAC is replaced. A new center would be reconstructed at the facility's original location upon completion of construction.
- Detour routes and traffic control measures would be implemented to provide access to University of Washington recreational activities. Construction closures would be timed to minimize effects on large events.
- During construction at East Montlake Park, an alternate canoe/kayak launch point and associated parking would be identified.
- WSDOT, the City of Seattle, the University of Washington, and other appropriate regulatory agencies will evaluate the potential for



determining the best methods for protecting specimen trees and important vegetation in the Arboretum.

- Planting strips along Lake Washington Boulevard and Montlake Boulevard would be restored.
- Construction areas within parks would be regraded and landscaped (although the vegetation would not be as mature as what previously existed).

## Operation Effects

Where park property is proposed for change to non-park use, WSDOT will continue to work with the City of Seattle Department of Parks and Recreation, the University of Washington, the Recreation and Conservation Office, the National Park Service, and the Federal Highway Administration to identify suitable replacement property. Replacement property for facilities purchased or improved with LWCFR and ALEA funding (which includes the Arboretum Waterfront Trail and the Ship Canal Waterside Trail) must satisfy the requirements of Section 6(f) and the ALEA program, respectively. In addition, the City of Seattle will need to demonstrate compliance with Ordinance 118477. Mitigation may also include enhancement of existing parks and recreational properties in accordance with applicable plans. The remainder of this section provides more detailed mitigation measures related to specific properties.

## Bagley Viewpoint

A new viewpoint would be designed and constructed on the 10th and Delmar lid to recreate the original intended panoramic views of Portage Bay and the Cascade Mountains.

## McCurdy Park and East Montlake Park

- If MOHAI has not moved to another site before construction, WSDOT would assist MOHAI in moving to suitable replacement facilities. WSDOT would also compensate the Seattle Parks and Recreation Department and the University of Washington for the loss of the MOHAI facilities in accordance with applicable WSDOT policies and regulations for right-of-way acquisition.
- WSDOT would coordinate with the City of Seattle and the University of Washington to investigate opportunities to restore



and enhance the shoreline wetlands and/or protect the wetland buffer area.

### **Washington Park Arboretum**

- Affected park property used for construction easements would be replaced and restored to park use when construction is complete. WSDOT is working with the City of Seattle and the University of Washington to identify additional appropriate replacement land for park property permanently acquired.
- Trees and other vegetation would be moved and saved, or replanted to mitigate effects to vegetation that is removed during construction.
- WSDOT, the City of Seattle, the University of Washington, and other appropriate regulatory agencies will evaluate the potential for shoreline and wetland restoration on both sides of SR 520 on Foster Island, consistent with the Washington Park Arboretum Master Plan.

### **University of Washington**

WSDOT would work with the University to replace lost functions of property acquired at the University of Washington Open Space and lost parking.

## **What effects would remain after mitigation?**

The project would permanently convert approximately 5.55 to 7.55 acres of parkland to transportation use, depending on the design option. Structures would encroach on water and mountain views at some locations. Construction would result in loss of mature trees that provide a positive visual effect for park and recreational facility users.



# References

BOLA Architecture + Planning and Karen Kiest. 2003. Washington Park Arboretum Historic Review. <http://www.seattle.gov/parks/arboretum/History.pdf>. Accessed April 2009. Prepared for the City of Seattle Department of Parks and Recreation, Seattle, Washington. September 2003.

City of Seattle. 1974. Washington Park. [www.seattle.gov/PARKS/history/WashingtonPk.pdf](http://www.seattle.gov/PARKS/history/WashingtonPk.pdf). Accessed May 2009.

City of Seattle. 2001. Park Guide. City of Seattle Parks and Recreation Department, Seattle, Washington.

City of Seattle. 2002. Seattle Views: An Inventory of 86 Public View Sites Protected under SEPA (SMC 25.05.675). [http://www.seattle.gov/DPD/Planning/View\\_Protection/Inventory/default.asp](http://www.seattle.gov/DPD/Planning/View_Protection/Inventory/default.asp). Accessed May 2009. City of Seattle Department of Design, Construction, and Land Use, Seattle, Washington. May 2002.

City of Seattle. 2005. Vegetation Management for Seattle Parks Viewpoints, Revised Draft. <http://www.seattle.gov/parks/horticulture/vmp/Viewpoints.htm>. Accessed March 2009. City of Seattle Department of Parks and Recreation, Seattle, Washington. April 2005.

City of Seattle. 2007. Park History: Sherwood History Files – H.W. McCurdy Park, Washington Park, East Montlake Park, Montlake Playfield, Boren-Interlaken Park, Bagley Viewpoint. <http://www.ci.seattle.wa.us/parks/history/sherwood.htm>. Accessed March 2009. City of Seattle Parks and Recreation Department, Seattle, Washington. May 2007.

City of Seattle. 2008. Draft Lake Washington Boulevard Vegetation Management Plan. <http://www.seattle.gov/parks/Horticulture/VMP/LakeWashingtonBlvd.htm>. Accessed March 2009. City of Seattle Department of Parks and Recreation, Seattle, Washington. May 2008.

City of Seattle, University of Washington, and The Arboretum Foundation. 2001. Washington Park Arboretum Master Plan. January 2001.



Parametrix. 2008. *SR 520 Bridge Replacement and HOV Project Westside Project Impact Plan*. Prepared for Washington State Joint Transportation Committee and Governor Christine Gregoire. Bellevue, WA.

University of Washington. 1997. The Washington Park Arboretum. <http://www.washington.edu/research/showcase/1934b.html>. Accessed May 2009. University of Washington Office of Research, Seattle, Washington.

University of Washington. 2008. University of Washington Husky Stadium Proposal. [www.washington.edu/about/staterel/publications/2008%20documents/Husky%20Fact%20Sheet.pdf](http://www.washington.edu/about/staterel/publications/2008%20documents/Husky%20Fact%20Sheet.pdf). Accessed May 2009. University of Washington, Seattle, Washington.

WSDOT. 2009a. Description of Alternatives Discipline Report, I-5 to Medina: Bridge Replacement and HOV Project, SR 520 Bridge Replacement and HOV Program. Washington State Department of Transportation, Olympia, Washington.

WSDOT. 2009b. Noise Discipline Report, I-5 to Medina: Bridge Replacement and HOV Project, SR 520 Bridge Replacement and HOV Program. Washington State Department of Transportation, Olympia, Washington.

WSDOT. 2009c. Construction Techniques Discipline Report, I-5 to Medina: Bridge Replacement and HOV Project, SR 520 Bridge Replacement and HOV Program. Washington State Department of Transportation, Olympia, Washington.

WSDOT. 2009d. Cultural Resources Discipline Report, I-5 to Medina: Bridge Replacement and HOV Project, SR 520 Bridge Replacement and HOV Program. Washington State Department of Transportation, Olympia, Washington.

WSDOT. 2009e. Transportation Discipline Report, I-5 to Medina: Bridge Replacement and HOV Project, SR 520 Bridge Replacement and HOV Program. Washington State Department of Transportation, Olympia, Washington.

WSDOT. 2009f. Navigable Waterways Discipline Report, I-5 to Medina: Bridge Replacement and HOV Project, SR 520 Bridge Replacement and HOV Program. Washington State Department of Transportation, Olympia, Washington.



WSDOT. 2009g. Ecosystems Discipline Report, I-5 to Medina: Bridge Replacement and HOV Project, SR 520 Bridge Replacement and HOV Program. Washington State Department of Transportation, Olympia, Washington.

WSDOT. 2009h. Water Resources Discipline Report, I-5 to Medina: Bridge Replacement and HOV Project, SR 520 Bridge Replacement and HOV Program. Washington State Department of Transportation, Olympia, Washington.

WSDOT. 2009i. Visual Quality and Aesthetics Discipline Report for the SR 520 Bridge Replacement and HOV Project. Washington State Department of Transportation, Olympia, Washington.

Washington State Highway Commission. 1966. Agreement GM-381. Olympia, Washington. April 1966.

## GIS References

City of Bellevue. 1999. City Limits GIS Data. City of Bellevue Standard CD. [http://www.ci.bellevue.wa.us/mapping\\_request\\_form.htm](http://www.ci.bellevue.wa.us/mapping_request_form.htm). Information Technology Department, Bellevue, WA. Accessed on August 31, 2005.

King County. 2004. City Limits GIS Data, King County Incorporated Areas. King County Standard GIS Data. <http://www.kingcounty.gov/operations/GIS.aspx>. King County, GIS Data Center, Seattle, WA. Accessed on October 2008.

King County. 2005. Stream and River GIS Data. King County Standard GIS Data CD. <http://www.kingcounty.gov/operations/GIS.aspx>. King County GIS Data Center, Seattle, WA. Accessed in October 2008.

King County. 2005. Street GIS Data. King County Standard GIS Data. <http://www.kingcounty.gov/operations/GIS.aspx>. King County, GIS Center, Seattle, WA. Accessed in October 2008.

King County. 2006. Aerial Photo GIS Data, original source NAIP USDA Imagery (USDA-FSA Aerial Photography Field Office). <http://rocky2.ess.washington.edu/data/raster/naip/King/index.html>. King County, GIS Center, Seattle, WA. Accessed October 2006.

King County. 2007. Waterbody GIS Data. King County Standard GIS CD. <http://www.kingcounty.gov/operations/GIS.aspx>. King County, GIS Center, Seattle, WA. Accessed on October 2008.



WSDOT. 2004. State Routes GIS Data, WSDOT GeoData Distribution Catalog. <http://www.wsdot.wa.gov/mapsdata/geodatacatalog>. Washington State Department of Transportation, Office of Information, Olympia, WA. Accessed on February 4, 2004.

**CH2M HILL (2008) GIS Data (Park and Trails) include the following datasets:**

City of Bellevue. 2005. Parks GIS Data, City of Bellevue Parks Property. City of Bellevue Standard GIS Data CD/July 2007. [http://www.ci.bellevue.wa.us/mapping\\_request\\_form.htm](http://www.ci.bellevue.wa.us/mapping_request_form.htm). Information Technology Center, Bellevue WA. Accessed on July 24, 2007.

City of Kirkland. 2001. Parks GIS Data. City of Kirkland Custom GIS Data CD. [http://www.ci.kirkland.wa.us/depart/Information\\_Technology/GIS/GIS\\_maps.htm](http://www.ci.kirkland.wa.us/depart/Information_Technology/GIS/GIS_maps.htm). City of Kirkland GIS Department, Kirkland WA. Accessed on September 10, 2008.

City of Seattle. 1994. Bike Pedestrian Trail GIS Data, Bike Class Look-up Table. Custom GIS CD/ August 2007. <http://www.cityofseattle.net/GIS/docs/dataacds.htm>. City of Seattle SPU/GIS Product and Services Unit, Seattle WA. Accessed on May 15, 2008.

City of Seattle. 2005. Parks GIS Data. City of Seattle Standard GIS Data CD#3. <http://www.cityofSeattle.net/GIS/docs/dataacds.htm>. City of Seattle SPU/GIS Product and Services Unit, Seattle WA. April 10, 2007

King County. 2006. Parks GIS Data. King County Standard GIS CD. <http://www.kingcounty.gov/operations/GIS.aspx>. King County GIS Center, Seattle, WA. Accessed in October 2008.

SDOT and SPU. 2008. Seattle Bicycle Map, Bike Pedestrian Trail GIS Data-Seattle Bicycling Guide Map. <http://www.seattle.gov/transportation/bikemaps.htm>. Seattle Department of Transportation and Seattle Public Utilities GIS Products, Seattle, WA. Accessed in March 2008.

Seattle Parks and Recreation. 2009. Parks GIS Data. Seattle Parks and Recreation Data Request. Seattle Parks and Recreation and City of Seattle SPU/GIS Product and Services Unit, Seattle, WA. Accessed on February 25, 2009.

