

12 January 2006

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

**Addendum to  
Navigable Waterways  
Discipline Report**





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and HOV Project EIS  
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Waterways  
Discipline Report**



Prepared for  
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Federal Highway Administration  
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- 1 Lane Configuration of the 6 Lanes with Pacific Street Interchange Option
- 2 Lane Configuration of the Second Montlake Bridge Option
- 3 Lane Configuration of the South Kirkland Park-and-Ride Transit Access - 108th Avenue Northeast Option



# Acronyms and Abbreviations

Coast Guard	U.S. Coast Guard
HOV	high-occupancy vehicle
NOAA	National Oceanic and Atmospheric Administration
WSDOT	Washington State Department of Transportation





# Introduction

This addendum to the *Navigable Waterways Discipline Report* (Appendix L of the *SR 520 Bridge Replacement and HOV Project Environmental Impact Statement [Draft EIS]*) describes the 6-Lane Alternative options, describes the environment potentially affected by these options, and identifies any environmental consequences from these options that may differ from those described for the original 6-Lane Alternative. Two of these options are in Seattle, and one is on the Eastside.

## What are the key points of this report?

- No new navigable waterways would be affected by these three options that were not already addressed in the *Navigable Waterways Discipline Report*. However, construction of the bridges proposed under the Seattle project area options could pose additional navigational restrictions to vessels traveling on Lake Washington north of the Evergreen Point Bridge, especially for those vessels requiring a high clearance.
- The 6 Lanes with Pacific Street Interchange option differs from the original 6-Lane Alternative because it would require the construction and operation of a new bridge (Union Bay Bridge) crossing the Union Bay Reach portion of the designated navigational channel (ship canal). The navigational channel spanned by this bridge would be the same width as the existing Union Bay Reach (175 feet), with a vertical clearance of either 70 or 110 feet.
- Under the 6 Lanes with Pacific Street Interchange option, the establishment of a new governing clearance of 70 feet for vessels traveling to Lake Washington north of the Evergreen Point Bridge would prevent any vessel with a higher clearance requirement from traveling to this part of the lake. Currently, we have not identified any vessels with a vertical clearance greater than 110 feet.
- The operational effects of the second Montlake Bridge would essentially be the same as that of the existing Montlake Bridge.



- Effects on navigable waterways from the South Kirkland Park-and-Ride Transit Access – 108th Avenue Northeast option would not differ from the original 6-Lane Alternative.
- The establishment of the 70-foot vertical clearance under the 6 Lanes with Pacific Street Interchange option would create unavoidable negative effects on vessels with higher clearance requirements.
- Any effects from closures of the Ship Canal during construction of either Seattle option would be addressed in the *Local Notice to Mariners* distributed electronically by the Coast Guard to alert local commercial and recreational boating communities.
- The South Kirkland Park-and-Ride Transit Access – 108th Avenue Northeast option would not require any additional mitigation for navigation effects beyond those identified for the original 6-Lane Alternative.

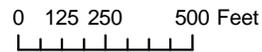
## What options are being considered in this addendum?

### 6 Lanes with Pacific Street Interchange Option

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

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





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

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

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

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

## Second Montlake Bridge Option

The intent of the Second Montlake Bridge option is to narrow the SR 520 footprint through the Montlake neighborhood, while providing for transit (bus) access from SR 520 to the University of Washington.

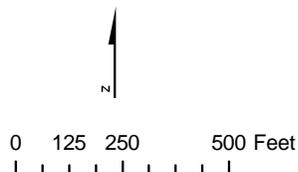
**Exhibit 2** shows the propose lane configuration for this option, which would be the same as the No Montlake Freeway Transit Stop option, except that it would also include a second Montlake bridge across the Montlake Cut. This bridge would be a parallel bascule (draw) bridge

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





- Option Lane Configuration
- Bicycle/Pedestrian Path
- Shoulders and Barriers
- Intersections



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

SR 520 Bridge Replacement and HOV Project

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

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

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

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

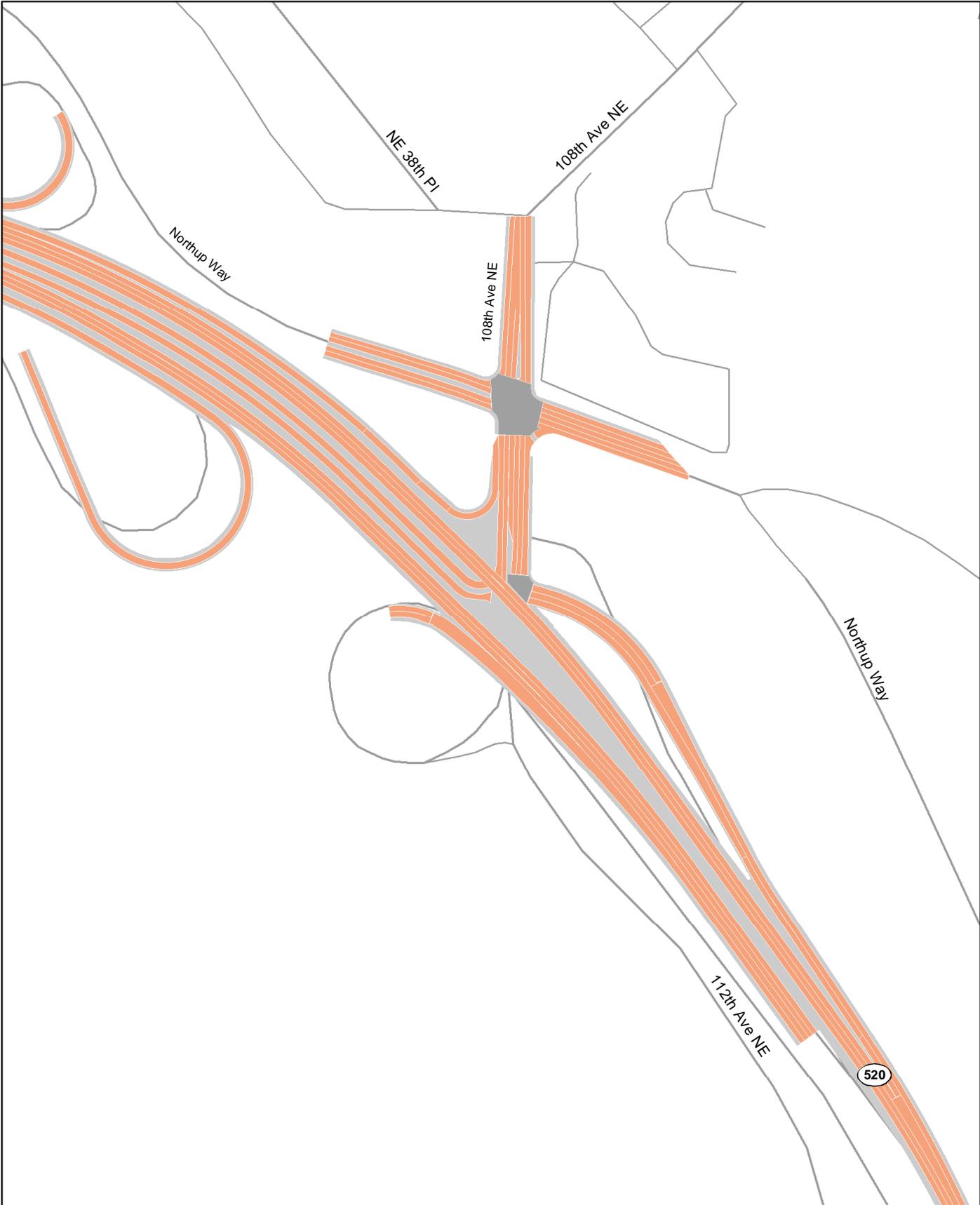
There is also a possibility for adding a westbound second left-turn lane at the 108th Avenue Northeast/Northup Way intersection to facilitate clearing the left-turn queue and serving a higher number of westbound left-turn and through

## **What additional information was collected for this analysis?**

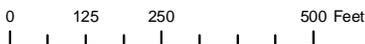
The navigable waterways discipline team obtained additional information from the following sources for performing the analyses reported here:

- We contacted Commander Mark Ablondi, Chief Operations Officer of the National Oceanic and Atmospheric Administration (NOAA) Marine Operations via e-mail to identify clearance requirements for NOAA vessels passing through the Union Bay Reach portion of the Lake Washington Ship Canal (Ablondi pers. comm. 2005).





- Option Lane Configuration
- Shoulders and Barriers
- Intersections



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

- We met with Commander Austin Pratt of the United States Coast Guard (Coast Guard) 13th District's Bridge Administration Program to discuss Union Bay navigation requirements (Pratt pers. comm. 2005).
- We also contacted Captain Daniel Schwartz, Manager of Marine Operations for the University of Washington School of Oceanography, via e-mail to identify clearance requirements for University of Washington vessels passing through the Union Bay Reach portion of the Lake Washington Ship Canal (Schwartz pers. comm. 2005).



# Affected Environment

Project area navigable waterways were described in detail in the *Navigable Waterways Discipline Report*. A summary of this information is provided here. Overall, no new navigable waterways would be affected by the options analyzed in this addendum.

## Seattle

The navigational channels and navigable waterways in the Seattle project area that could be affected by the two new options are the same as those identified in the *Navigable Waterways Discipline Report*. The construction of the bridges (Union Bay Bridge and second Montlake Bridge) proposed in the Seattle project area options could pose additional navigational restrictions to vessels traveling on Lake Washington north of the Evergreen Point Bridge, especially for those requiring a high clearance.

Two government research vessels, U.S. Navy's R/V Thomas G. Thompson (operated by the University of Washington) and NOAA's Ronald H. Brown, regularly pass through the ship canal and into the north Lake Washington area and could be affected by any change in vertical clearance<sup>2</sup>. The Thomas G. Thompson does sea trials in Lake Washington and has an "air draft" (height from waterline to masthead) of 105 feet (Pratt pers. comm. 2005, Schwartz pers. comm. 2005). The Ronald H. Brown has a maximum height of 102 feet above waterline and regularly passes through the Ship Canal to the north end of Lake Washington to reach the NOAA Sandpoint facility (Albondi pers. comm. 2005).

## Eastside

No additional navigable waterway areas would be affected by the South Kirkland Park-and-Ride Transit Access - 108th Avenue Northeast option in the Eastside project area.

<sup>2</sup> Discussions with the Coast Guard indicated that they would consider whether the ships requiring a high clearance had an essential use in north Lake Washington.



# Potential Effects of the Project

## What methods were used to evaluate effects?

Each 6-Lane Alternative option was evaluated by examining site plans to determine the planned vertical clearance for newly proposed bridge spanning the navigational channel. These proposed clearances were compared with existing vertical clearances to determine whether it would lower the current horizontal or vertical clearance in the existing navigational channel. New limits on either horizontal or vertical clearances were then compared with the current or future clearance requirements for this navigational channel to determine effects.

## Do the effects of the 6 Lanes with Pacific Street Interchange option differ from the original 6-Lane Alternative?

The 6 Lanes with Pacific Street Interchange option differs from the original 6-Lane Alternative because it would require the construction and operation of a new bridge crossing from Marsh Island to Husky Stadium parking lot and spanning the Union Bay Reach portion of the designated navigational channel. The navigational channel crossed by the new Union Bay Bridge would be the same width as the existing Union Bay reach (175 feet), with a vertical clearance of either 70 or 110 feet. The establishment of a new governing clearance of 70 feet for vessels traveling east from the Montlake Cut to Lake Washington north of the Evergreen Point Bridge would prevent any vessel with a higher clearance requirement from traveling to this part of the lake, particularly the Thomas G. Thompson and the Ronald H. Brown. The establishment of a new governing clearance of 110 feet for vessels traveling to Lake Washington north of the Evergreen Point Bridge would also prevent any vessel with a higher clearance requirement from traveling to this part of the lake. Currently, we have not identified any vessels with a higher vertical clearance.



## **Do the effects of the Second Montlake Bridge option differ from the original 6-Lane Alternative?**

The Second Montlake Bridge option would differ from the original 6-Lane Alternative in the construction of an additional bridge directly to the east of the existing Montlake Bridge. This second bridge would be a bascule (draw) bridge and be the same size and dimensions as the existing Montlake Bridge (also a bascule bridge). The effects of this option would involve potential closures of Montlake Cut to recreational and commercial boating traffic for unknown durations during unspecified times during construction. The operational effects of the second bridge would essentially be the same as that of the existing Montlake Bridge – a navigational channel that is 146 feet wide with unrestricted vertical clearance – with the bridges being open for more time to allow vessels to cover the increased distance required to clear both bridges.

All other effects on navigation with this option would be the same as identified in the *Navigable Waterways Discipline Report*.

## **Do the effects of the South Kirkland Park-and-Ride Transit Access – 108th Avenue Northeast option differ from the original 6-Lane Alternative?**

The South Kirkland Park-and-Ride Transit Access – 108th Avenue Northeast option would not differ in identified effects on navigable waterways from the original 6-Lane Alternative.



# Mitigation

## 6 Lanes with Pacific Street Interchange Option

Mitigation for the effects of the 6 Lanes with Pacific Street Interchange option would not differ from the original 6-Lane Alternative migration measures.

The establishment of the 70-foot vertical clearance would create unavoidable negative effects on vessels with higher clearance requirements. The Thomas G. Thompson would no longer be able to use the north Lake Washington for sea trials, and the Ronald H. Brown would no longer be able to dock at the NOAA Sandpoint facility. This would require the Thomas G. Thompson research vessel to find other locations to conduct sea trials, while the Ronald H. Brown would continue to use other locations to dock in the Puget Sound area.

The establishment of a governing clearance of 110 feet in the Union Bay Reach of the Ship Canal navigational channel would allow the Thomas G. Thompson and the Ronald H. Brown to pass back and forth from Lake Washington north of the Evergreen Point Bridge to Puget Sound throughout the year (regardless of the different lake levels maintained by the U. S. Army Corps of Engineers).

## Second Montlake Bridge Option

Any effects from any closures of the Ship Canal during construction would be addressed in the *Local Notice to Mariners* distributed electronically by the U. S. Coast Guard to alert local commercial and recreational boating communities. The notice would allow all potentially affected vessels time to relocate temporarily to prevent being blocked during the construction period. No additional mitigation would be required for the operation of the second Montlake Bridge because no new effects on navigation would result from its operation.



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

The South Kirkland Park-and-Ride Transit Access – 108th Avenue Northeast option would not require any additional mitigation beyond that identified for the original 6-Lane Alternative.





# References

Ablondi, Commander Mark, NOAA, Chief Operations, NOAA Marine Operations Center-Pacific, Seattle, Washington. April 25, 2005. E-mail communication with Lorie Parker, CH2M HILL.

Parametrix, Inc. 2005. *Navigable Waterways Discipline Report*. Appendix L of the *Draft SR 520 Bridge Replacement and HOV Project Environmental Impact Statement*. Prepared for Washington State Department of Transportation, Federal Highway Administration, and Sound Transit. March 1, 2005.

Pratt, Austin. Commander. United States Coast Guard. Seattle, Washington. April 13, 2005. Meeting in SR 520 Project Office to discuss Union Bay Navigation Requirements.

Schwartz, Capt. Daniel S., MMA, Manager of Marine Operations, University of Washington, School of Oceanography, Seattle, Washington. April 28, 2005. E-mail communication with J. Friebe, Parametrix.

