

9 March 2006

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

**Addendum to  
Indirect and  
Cumulative Effects  
Discipline Report**





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

**Addendum to Indirect and  
Cumulative Effects  
Discipline Report**



Prepared for  
Washington State Department of Transportation  
Federal Highway Administration  
Sound Transit

Lead Author  
**CH2M HILL**

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

March 9, 2006



# Contents

**List of Exhibits** ..... v

**Acronyms and Abbreviations** ..... vii

**Introduction**..... 1

    What are the key points of this report? ..... 1

    What options are being considered in this addendum? ..... 2

**Affected Environment**..... 7

**Potential Effects of the Project**..... 9

    What are the indirect effects of the options?..... 9

    What are the cumulative effects of the options and other  
    planned development and transportation projects? ..... 18

**References**..... 25





# List of Exhibits

- 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
- 4 Weighted Average Percent Change of 2030 Population and Employment by FAZ from No Build to 6-Lane Alternative – Indirect Scenario
- 5 AM Peak Period Vehicle Demand Forecasts on the I-5 Ship Canal Bridge
- 6 PM Peak Period Vehicle Demand Forecasts on the I-5 Ship Canal Bridge
- 7 Year 2030 Local vs Freeway Volumes – During the AM Peak Hour
- 8 Year 2030 Local vs Freeway Volumes – During the PM Peak Hour
- 9 Weighted Average Percent Change of 2030 Population and Employment by FAZ from No Build to 6-Lane Alternative – Cumulative Scenario
- 10 Relationship Between SR 520 and Proposed North Link Project Elements





# Acronyms and Abbreviations

FAZ	Forecast Analysis Zone
PRSC	Puget Sound Regional Council
vph	vehicles per hour
WSDOT	Washington State Department of Transportation





# Introduction

This addendum to the *Indirect and Cumulative Effects Discipline Report* (Appendix J of the Draft *SR 520 Bridge Replacement and HOV Project Environment Impact Statement* [Draft EIS; CH2M HILL 2005]) describes the affected environment and environmental consequences for three options to the original 6-Lane Alternative. Two of these options are in Seattle and one is on the Eastside. These options are described below.

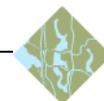
## What are the key points of this report?

Based on feedback from the Puget Sound Regional Council (PSRC), the SR 520 project team determined that the population and employment forecasts used in the *Indirect and Cumulative Effects Discipline Report* would not change measurably as a result of the 6-Lane Alternative options (Blaine, pers. comm. 2006). These forecasts were used to identify the redistribution of the 2030 population and employment from the No Build Alternative to the 4-Lane and 6-Lane Alternatives in the PSRC's four-county region. (Snohomish, King, Pierce, and Kitsap counties comprise the four-county region, which is the study area for this cumulative and indirect effects analysis).

One forecast was done to assess indirect effects based on the transportation network used for the transportation analysis presented in Appendix R, *Transportation Discipline Report*, of the Draft EIS. The other forecast was used to evaluate potential cumulative effects and was based on a set of reasonable foreseeable regional and local high-priority transportation projects.

Forecasts for both indirect and cumulative effects showed minor differences from the distribution of population and employment for the No Build Alternative to their redistribution under either the 4-Lane or the 6-Lane Alternative. Under the indirect scenario, the differences would range from an increase of less than 1 percent to a decrease of less than 0.5 percent. For the cumulative scenario, the range would be similar: less than a 1 percent increase to a 0.75 percent decrease. The alternatives did show a slight difference in where population and employment growth may occur under both scenarios; however, the differences were minor.

The indirect and cumulative effects on the built and natural resources would be similar between the original 6-Lane Alternative and its



options. Like the original 6-Lane Alternative, the proposed project with any of the options would have very few, if any, indirect and cumulative effects on local communities and the ecosystem. As reported in the *Indirect and Cumulative Effects Discipline Report*, the forecasted distribution of population and employment growth without the proposed project would not be noticeably different from the distribution of population and employment growth that could occur under the original 6-Lane Alternative or any of the options.

## What options are being considered in this addendum?

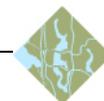
### 6 Lanes with Pacific Street Interchange Option

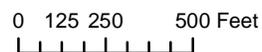
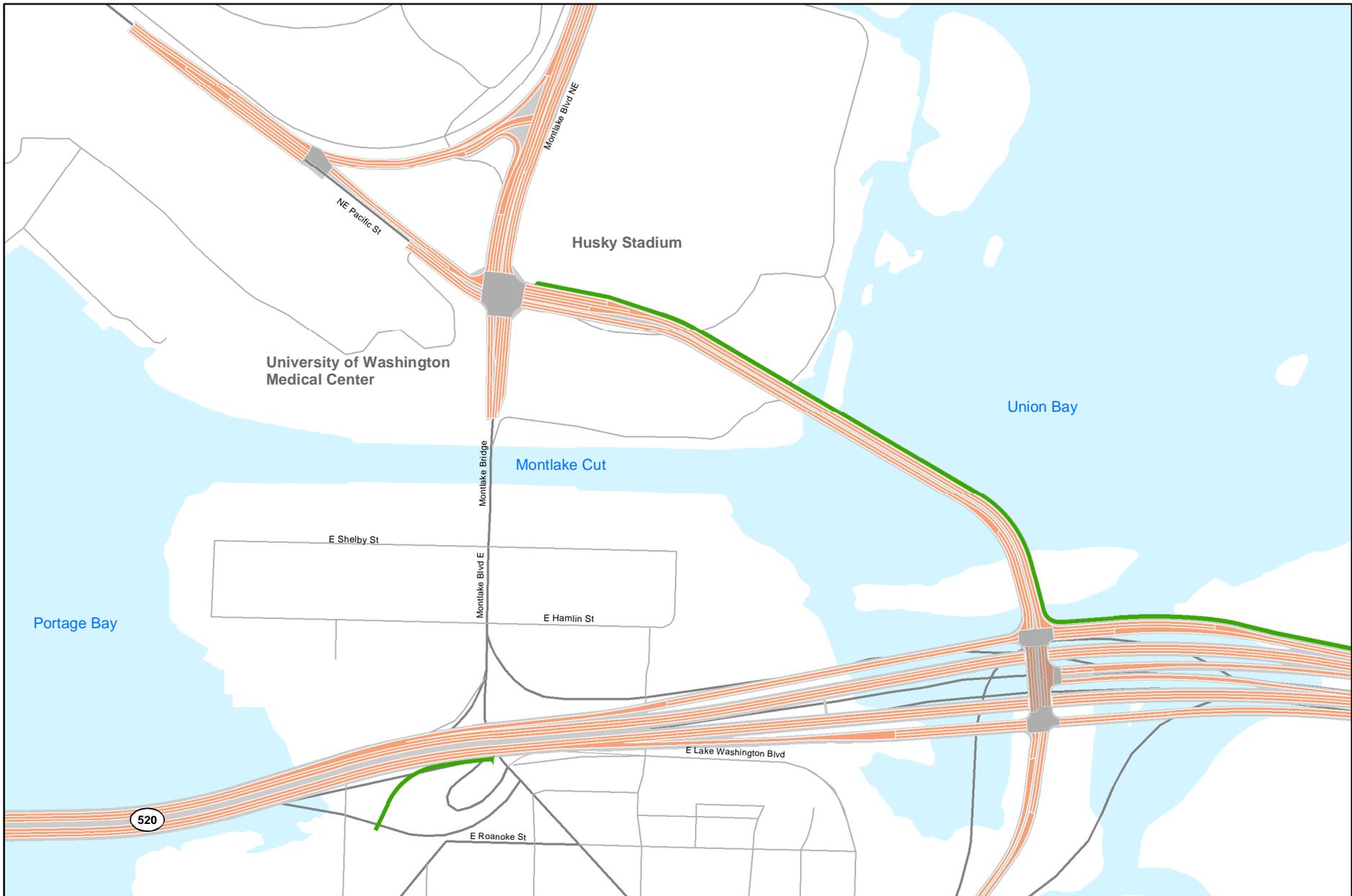
This option would remove the Montlake interchange along SR 520 and would construct a new interchange at Pacific Street, just east of the Montlake interchange. Exhibit 1 shows the proposed lane configuration for this option.

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.

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.

<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.





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

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.

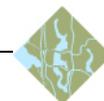
From Montlake Boulevard to I-5, SR 520 would be six lanes wide (three in either direction). The profile of the Portage Bay Bridge would not differ under this option from the original 6-Lane Alternative. Buses would access SR 520 via the Union Bay Bridge through the University area, providing for a more 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 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.

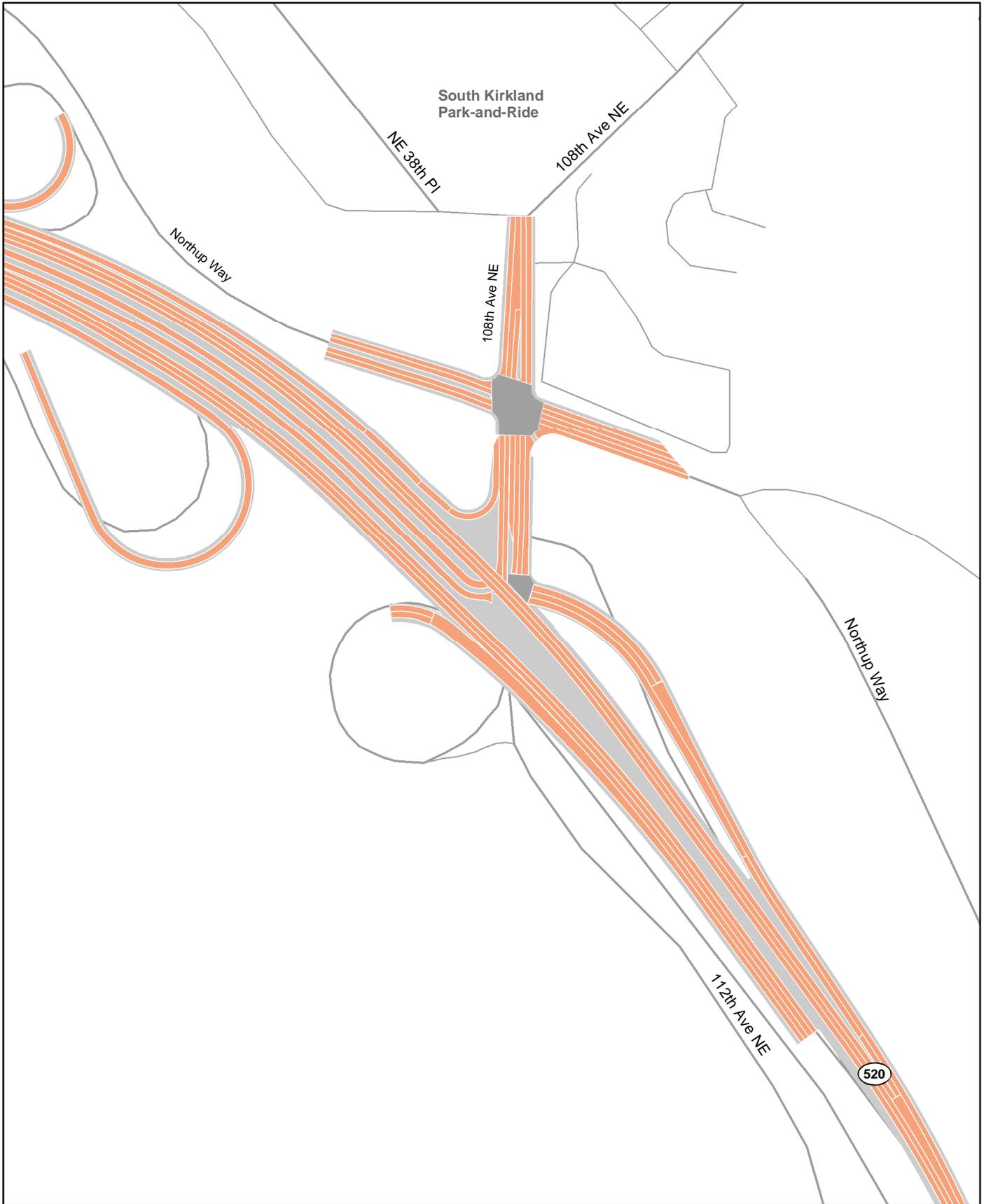




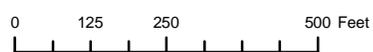
- Option Lane Configuration
- Bicycle/Pedestrian Path
- Shoulders and Barriers
- Intersections



**Exhibit 2. Lane Configuration of the Second Montlake Bridge Option**  
 SR 520 Bridge Replacement and HOV Project



-  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

The footprint of SR 520 east of Bellevue Way would be widened slightly to accommodate the new ramps. Both 108th Avenue Northeast and Northrup 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/Northrup 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/Northrup Way intersection to facilitate clearing the left-turn queue and serving a higher number of westbound left-turn and through trips.

## Affected Environment

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

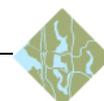
The indirect and cumulative effects discipline team contacted the City of Seattle to find out about pending permits or reasonably foreseeable plans for street improvements, development, or redevelopment within approximately 1/4 mile of the proposed options. We also reviewed and identified the projects listed in the University of Washington master plan semi-annual report that may be within the project vicinity (University of Washington 2004b).

### What are the historic and existing characteristics of the project area?

Development in the study area is discussed in detail in the *Indirect and Cumulative Effects Discipline Report*.

### How is the region expected to change by 2030?

Changes in the region are discussed in detail in the *Indirect and Cumulative Effects Discipline Report*.



## What development projects are proposed in the project area?

Development projects proposed in the project area are described in the *Indirect and Cumulative Effects Discipline Report*. The discipline team did not identify any new development projects, with the exception of potential development sites identified in the University of Washington's master plan near the project area (University of Washington 2006).

The City of Seattle Department of Planning and Development permitting data indicates 28 recent or pending residential projects in the University District. In total these projects will add 609 residential units. Note that the permits are sometimes applied for years in advance of construction. The property may change ownership during that time and plans may change in response to regulatory and other factors.

## What transportation projects are proposed in the project area?

Transportation projects proposed in the project area are described in the *Indirect and Cumulative Effects Discipline Report*. We did not identify any new development projects. Transportation projects proposed in the project area are:

- North Link Light Rail Project
- Alaskan Way Viaduct
- I-90 Two-Way Transit and HOV Operations Project
- Sound Transit Light Rail on I-90
- I-405 Congestion Relief and Bus Rapid Transit Projects – Phase I



# Potential Effects of the Project

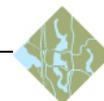
## What methods were used to evaluate potential indirect and cumulative effects?

The SR 520 Bridge Replacement and HOV Project could affect the timing of planned growth; therefore, the pattern of development in 2030 could be different depending on the alternative. The methodology as described in the *Indirect and Cumulative Effects Discipline Report* considers the effects of development of just the project alternatives by themselves (indirect effects), and the effects of the project alternatives combined with other past, present, and reasonably foreseeable development and transportation projects (cumulative effects).

The discipline team consulted with PSRC to discuss the options and the need to prepare new DRAM/EMPAL model forecasts to determine the location of population and employment growth in the region. Based on feedback from the PSRC, the team determined that a new forecast analysis would not be necessary for any of the options and that it would be appropriate to use the same forecast results as those used for the original 6-Lane Alternative. See the *Indirect and Cumulative Effects Discipline Report* for a description of the process used to forecast the pattern of development for the original 6-Lane Alternative.

## What are the indirect effects of the options?

Under the indirect scenario, redistribution of development in the study area with any of the options would be the same as the original 6-Lane Alternative. The difference in development redistribution between the No Build Alternative and the original 6-Lane Alternative would be minimal. As shown in Exhibit 4, the amount of redistribution at the Forecast Analysis Zone (FAZ) level would range from an increase of less than 1 percent to a decrease of 0.5 percent. As described for the original 6-Lane Alternative, because the forecasted population and employment redistribution is so small (less than a 1 percent increase),



the difference in effect outside the project area may not be discernable when compared to the No Build Alternative on the following resources:

- Land Use and Economics
- Social (including Recreation, Public Services and Utilities)
- Visual Quality and Aesthetics
- Cultural Resources
- Water Resources
- Wetlands
- Fish Resources
- Wildlife and Habitat
- Geology and Soils

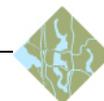
See the *Indirect and Cumulative Effects Discipline Report* for a more detailed discussion about the effects from the redistribution of population and employment.

## **Land Use and Economics**

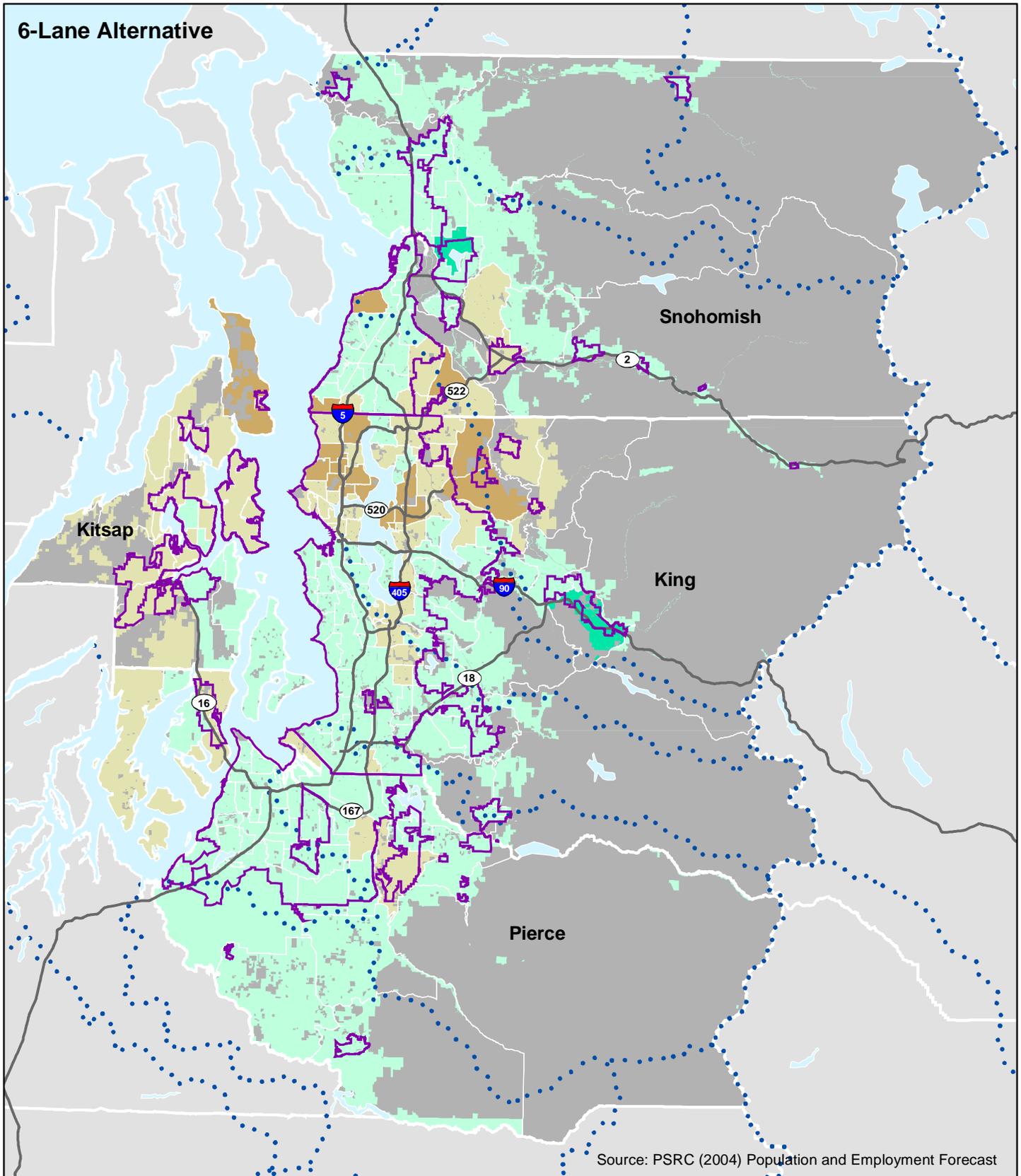
Indirect effects on the social environment would be the same as described for the original 6-Lane Alternative with the following exception. Unlike the original 6-Lane Alternative, this option could provide limited redevelopment opportunities at the Montlake interchange. The ramps at the interchange would be removed, and excess property could be reused as parklands or open space.

## **Social (including Recreation, Public Services and Utilities)**

Indirect effects on the social environment would be the same as described for the original 6-Lane Alternative with the following exception. The Montlake neighborhood would benefit more from the construction of the 6 Lanes with Pacific Street Interchange option than with the Second Montlake Bridge option or original 6-Lane Alternative. The Montlake interchange, as we know it today, is perpetually congested. Nearly 40 percent of the traffic crossing Lake Washington and 30 percent of the traffic crossing Portage Bay uses the Montlake interchange and the Lake Washington Boulevard ramps. The 6 Lanes with Pacific Street Interchange option would move the traffic out of the neighborhood by closing the Montlake interchange and relocating it to

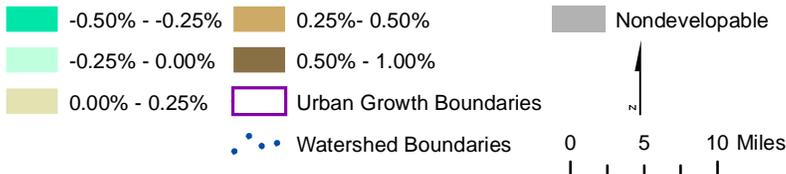


**6-Lane Alternative**



Source: PSRC (2004) Population and Employment Forecast

**Average Percent Change in Population and Employment from No Build Alternative**



**Exhibit 4. Weighted Average Percent Change of 2030 Population and Employment by FAZ from No Build to 6-Lane Alternative — Indirect Scenario**  
 SR 520 Bridge Replacement and HOV Project

the east. Moving the Montlake interchange out of this community would help reconnect the north and south portions of the neighborhood that were disconnected during construction of the original highway. Relocating the interchange would reduce congestion and improve reliability between SR 520 and the University District. It would improve intra-city traffic flow on Montlake Boulevard, which SR 520 currently impedes, and it would remove the unreliability of crossing the Montlake Bridge for vehicles accessing SR 520.

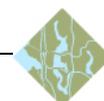
## **Air Quality**

Indirect effects on air quality are included in the analysis of direct effects presented in the *Addendum to Air Quality Discipline Report Addendum*. Indirect effects are included in the air quality analysis discussion because the air emission burden and ambient carbon monoxide concentration analyses are based on traffic forecast data, which include effects from growth in the region and for 2030. The air quality analysis shows that emissions would be lower under the original 6-Lane Alternative with any of the options when compared to the No Build Alternative. Consequently, no negative indirect effects are expected because the project is anticipated to slightly improve regional air quality compared to the No Build Alternative.

## **Transportation**

Indirect effects on transportation are included in the analysis of effects presented in the *Addendum to Transportation Discipline Report*, which describes the anticipated effects of the 6-Lane Alternative options on transportation. The transportation effects analysis is, in part, an indirect effects analysis because it is based on traffic forecast data, which include effects from growth in the region that would occur later in time and outside of the immediate project corridor.

The Second Montlake Bridge and Pacific Street Interchange options would only differ from the original 6-Lane Alternative in their effect on traffic volumes on I-5 to the north of the I-5/SR 520 Interchange. The transportation network changes associated with both of these options would cause vehicle trips to shift to the local arterial network in order to access the Montlake interchange area, which would affect traffic demand on I-5 to the north of the I-5/SR 520 Interchange.



Exhibits 5 and 6 summarize the changes in vehicle demand that would occur on I-5 at the Ship Canal Bridge in 2030 with different alternatives and options.

Exhibit 5. AM Peak Period Vehicle Demand Forecasts on the I-5 Ship Canal Bridge

	Year 2030			
	No Build Alternative	Original 6-Lane Alternative <sup>a</sup>	Second Montlake Bridge Option	Pacific Street Interchange Option
<b>Southbound I-5</b>	7,220 vph	7,060 vph ↓ 2%	7,220 vph No change	7,095 vph ↓ 2%
<b>Northbound I-5</b>	<b>7,140 vph</b>	7,370 vph ↑ 3%	7,280 vph ↑ 2%	6,930 vph ↓ 3%

vph = vehicles per hour

<sup>a</sup>Original 6-Lane Alternative, Second Montlake Bridge option, and Pacific Street Interchange option changes in vehicle demand are compared with No Build Alternative.

The Second Montlake Bridge and Pacific Street Interchange options would shift traffic patterns on local streets because roadway capacity on Montlake Boulevard Northeast would be increased. With the Pacific Street Interchange option, a new road would also be built between the new Pacific Street interchange at SR 520 and the Northeast Pacific Street/Montlake Boulevard intersection. This would increase roadway capacity and lead to an increase in traffic traveling through the area, especially on Northeast Pacific Street and 15th Avenue Northeast.

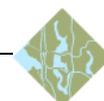
Exhibit 6. PM Peak Period Vehicle Demand Forecasts on the I-5 Ship Canal Bridge

	Year 2030			
	No Build Alternative	Original 6-Lane Alternative <sup>a</sup>	Second Montlake Bridge Alternative	Pacific Street Interchange Alternative
<b>Southbound I-5</b>	8,550 vph	8,780 vph ↑ 3%	8,730 vph ↑ 2%	8,550 vph No change
<b>Northbound I-5</b>	8,190 vph	8,640 vph ↑ 5%	8,710 vph ↑ 6%	8,325 vph ↑ 2%

vph = vehicles per hour

<sup>a</sup> Original 6-Lane Alternative, Second Montlake Bridge option, and Pacific Street Interchange option changes in vehicle demand are compared with No Build Alternative.

Compared to the original 6-Lane Alternative, the Second Montlake Bridge and Pacific Street Interchange options would increase traffic demand on Northeast Pacific Street between Montlake Boulevard and



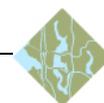
west of 15th Avenue Northeast, on Montlake Boulevard north of the Montlake Cut, and on 15th Avenue Northeast during both the a.m. and p.m. peak hours.

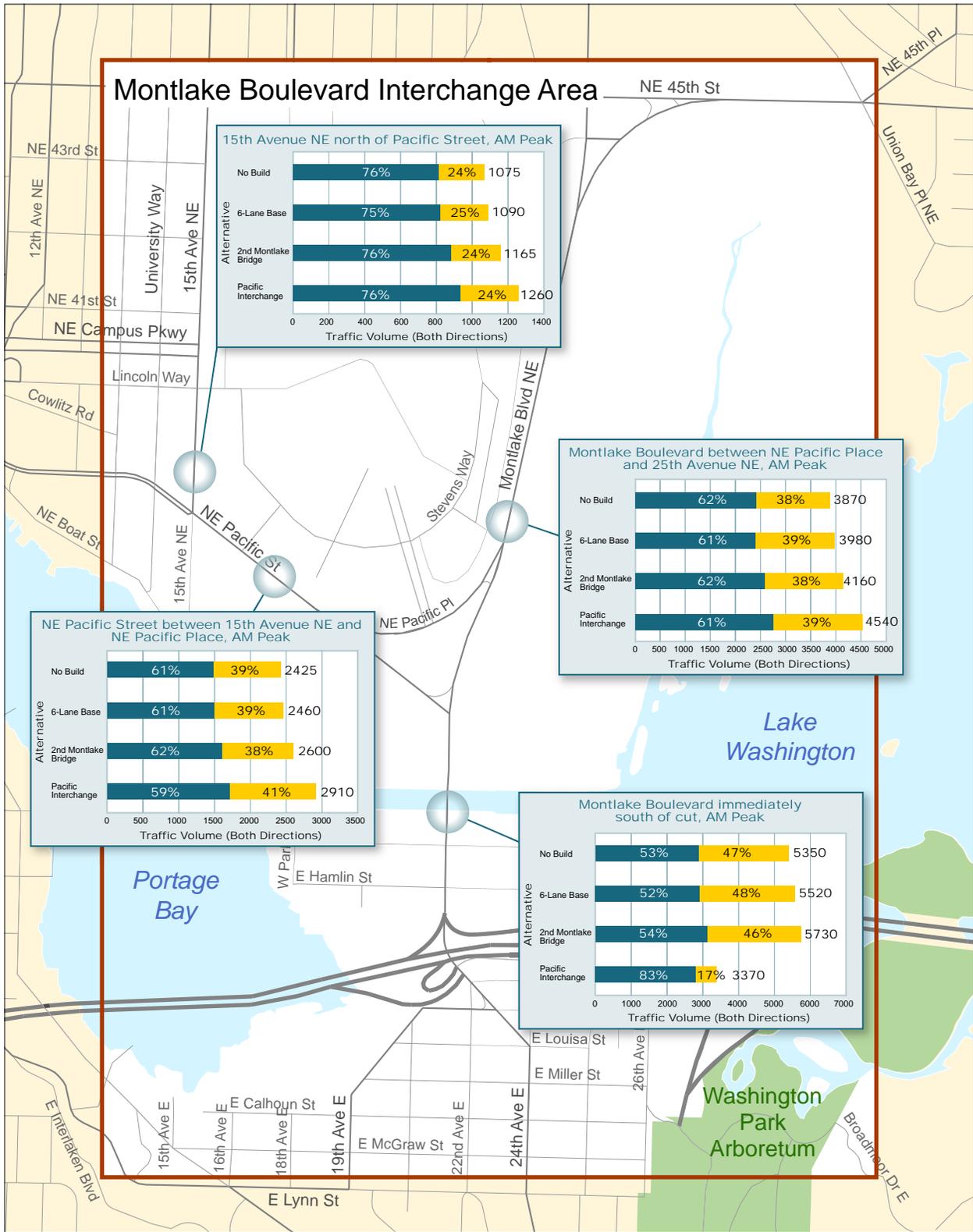
With the Pacific Street Interchange option only, traffic demand would decrease on Montlake Boulevard between the Montlake Cut and SR 520 because access to the SR 520 ramps would be relocated. Relocating SR 520 access would increase traffic on Lake Washington Boulevard Northeast because traffic from north Capitol Hill would use this route. Some drivers would also travel through the Pacific Street interchange to access areas to the north and south.

In Exhibit 7, each bar of the graph represents the total amount of traffic on the street at the selected location (both directions) during the a.m. peak hour. The bar is then split to show how much of the total traffic would be local traffic and how much would be SR 520 traffic. Showing traffic this way illustrates how changes to SR 520 affects traffic in the Montlake interchange area.

The key points in Exhibit 7 are:

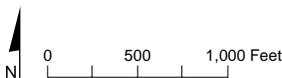
- With the original 6-Lane Alternative, traffic volumes on the local streets would increase slightly compared with the No Build Alternative. For example, total traffic volumes on Northeast Pacific Street would increase from 2,425 with the No Build Alternative to the 2,460 with the original 6-Lane Alternative. Of these total volumes, approximately 1,490 vehicle trips would be associated with local trips and approximately 935 trips would be associated with freeway trips. This ratio of local trips to freeway trips would stay the same with the original 6-Lane Alternative (approximately 1,500 local trips and 960 freeway trips).
- The changes in total traffic volumes and local versus freeway trip ratios would be similar for the No Build Alternative, the original 6-Lane Alternative, and the Second Montlake Bridge option.
- Total traffic volumes would increase slightly with the Second Montlake Bridge option because of the increased capacity across the Montlake Cut.





**LEGEND**

- Local Traffic
- SR 520 Traffic



**Exhibit 7. Year 2030 Local vs Freeway Volumes – During the AM Peak Hour**  
 SR 520 Bridge Replacement and HOV Project

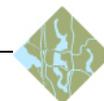
- Total traffic volumes on Northeast Pacific Street and Montlake Boulevard would increase more substantially with the Pacific Street Interchange option because of the increased capacity on Montlake Boulevard and the new roadway connecting the new interchange and the Northeast Pacific Street/Montlake Boulevard intersection.
- South of the Montlake Cut, there would be a substantial change in total traffic volumes and the local versus freeway trip ratio with the Pacific Street Interchange option. Traffic traveling to and from SR 520 would shift from Montlake Boulevard to the new Union Bay Bridge.

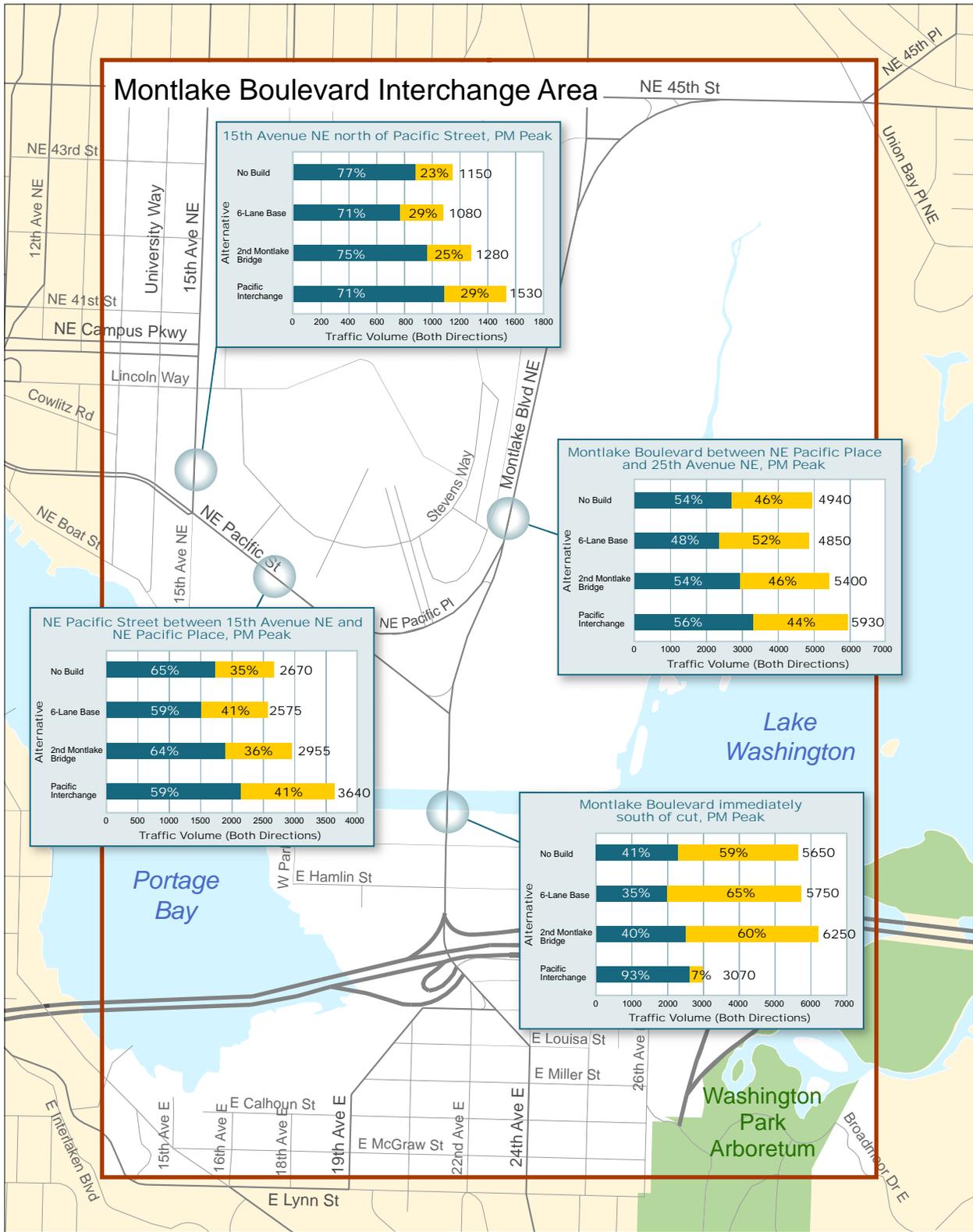
Exhibit 8 is the same as Exhibit 7 except that it shows p.m. peak hour traffic volumes. The key points (which apply to the original 6-Lane Alternative and all options) in Exhibit 8 are:

- Generally, total traffic volumes would be higher in the p.m. peak hour than in the a.m. peak hour.
- The p.m. peak hour changes in traffic volumes and local versus freeway ratios would not be substantially different from those described for the a.m. peak hour.

The changes in traffic volumes associated with the original 6-Lane Alternative and the Second Montlake Bridge and Pacific Street Interchange options are discussed in more detail in Chapter 3: Freeway and Local Traffic Forecasts of the Addendum to the Transportation Discipline Report. Additional forecasted traffic volumes for the original 6-Lane Alternative and the Second Montlake Bridge and Pacific Street Interchange options are also shown in exhibits in the *Local Travel Demand Forecasts Results* section of this report.

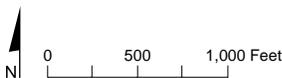
SR 520 traffic engineers determined that the South Kirkland Park-and-Ride Transit Access – 108th Avenue Northeast option would not substantially affect freeway travel demand forecasts over those for the original 6-Lane Alternative; therefore, local traffic demand forecasts would not change.





**LEGEND**

- Local Traffic
- SR 520 Traffic



**Exhibit 8. Year 2030 Local vs Freeway Volumes – During the PM Peak Hour**  
 SR 520 Bridge Replacement and HOV Project

## What are the cumulative effects of the options and other planned development and transportation projects?

Under the cumulative scenario, redistribution of development in the study area with any of the options would be the same as the original 6-Lane Alternative. The difference in development redistribution between the No Build Alternative and the original 6-Lane Alternative would be minimal. As shown in Exhibit 9, the amount of redistribution at the FAZ level would range from an increase of less than 1 percent to a decrease of 0.75 percent.

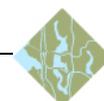
The cumulative scenario differs from the indirect scenario in that the cumulative scenario takes into account the reasonably foreseeable regional and high-priority local transportation projects.

As described for the original 6-Lane Alternative, because the forecasted population and employment redistribution is so small (less than a 1 percent increase), the difference in effect may not be discernable when compared to the No Build Alternative on the following resources:

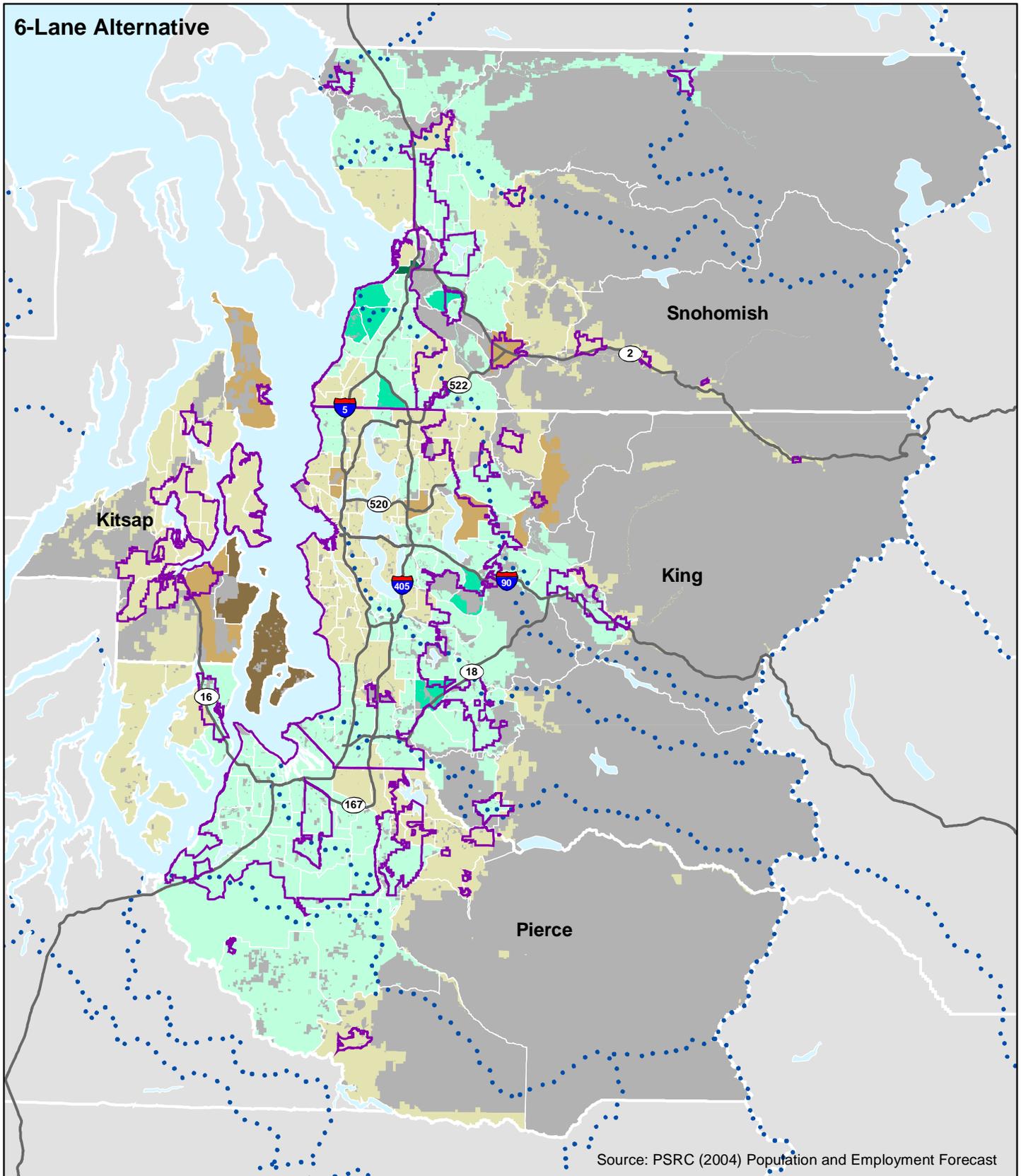
- Social (including Recreation, Public Services and Utilities)
- Visual Quality and Aesthetics
- Cultural Resources
- Water Resources
- Wetlands
- Fish Resources
- Wildlife and Habitat
- Geology and Soils
- Air Quality

See the *Indirect and Cumulative Effects Discipline Report* for a more detailed discussion about the effects from the redistribution of population and employment.

The only differences would occur with respect to Land Use and Economics and Transportation.

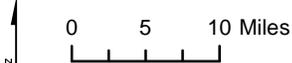
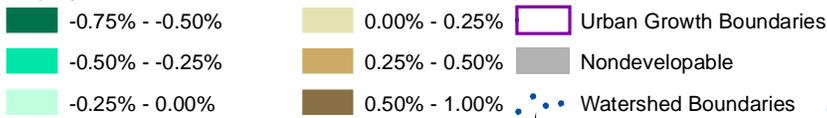


# 6-Lane Alternative



Source: PSRC (2004) Population and Employment Forecast

## Average Percent Change in Population and Employment from No Build Alternative



**Exhibit 9. Weighted Average Percent Change of 2030 Population and Employment by FAZ from No Build to 6-Lane Alternative — Cumulative Scenario**  
 SR 520 Bridge Replacement and HOV Project

## Land Use and Economics

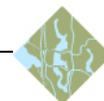
Cumulative effects would differ between the original 6-Lane Alternative and the 6 Lanes with Pacific Street Interchange option. First, the Pacific Street Interchange option could avoid the potential cumulative effect of eliminating the commercial uses adjacent to the current Montlake interchange. This potential cumulative effect was identified in the *Indirect and Cumulative Effects Discipline Report* and would result from commercial displacements by Sound Transit's proposed North Link Light Rail project for the construction of a vent shaft (Sound Transit is working with the Montlake neighborhood) and the displacement of the gas and service station (by the reconstruction of the Montlake interchange as part of the original 6-Lane Alternative). The 6 Lanes with Pacific Street Interchange option would not displace the gas and service station.

Second, a potential cumulative effect on land use could occur from the cumulative construction effects of the proposed North Link light rail station and the Pacific Street/Montlake Boulevard intersection. Because parts of the two projects will be built in the same vicinity, coordination and adjustments would be necessary to allow both projects to be constructed simultaneously and to minimize conflict and unnecessary reconstruction.

## Transportation

As discussed in the *Indirect and Cumulative Effects Discipline Report*, the proposed North Link Light Rail project and the proposed project would have a cumulative effect on transit service. The proposed North Link Light Rail project would provide light rail service between downtown Seattle and Northgate. The light rail station in the vicinity of Husky Stadium (Exhibit 10) would be the closest station to the Montlake freeway transit stop on SR 520. The proposed North Link facilities have been identified by the Sound Transit Board as the preferred route and station location for North Link (July 2005).

Currently, buses stopping at the Montlake freeway transit stop continue west or east on SR 520 between I-5 and SR 520 and serve other destinations such as downtown Seattle or Northgate. With construction of the proposed North Link Light Rail project, the continuation of bus service from the Montlake transit stop to or from downtown Seattle and Northgate may not be cost-effective to operate. SR 520 transit riders may need to transfer to the proposed North Link light rail. Currently,



transit riders who disembark at the Montlake transit stop en route to the University of Washington must either transfer to another bus on Montlake Boulevard or walk. The walk from Montlake Boulevard to Husky Stadium is approximately 1/3 mile.

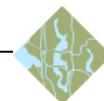
The Pacific Street Interchange option would differ from the original 6-Lane Alternative in its potential cumulative effect on transit users at the Montlake freeway transit stop. With construction of the Pacific Street Interchange option, the Montlake freeway transit stops would be removed, but transit would have a more direct route to the proposed North Link light rail station and the University of Washington via the Union Bay Bridge.

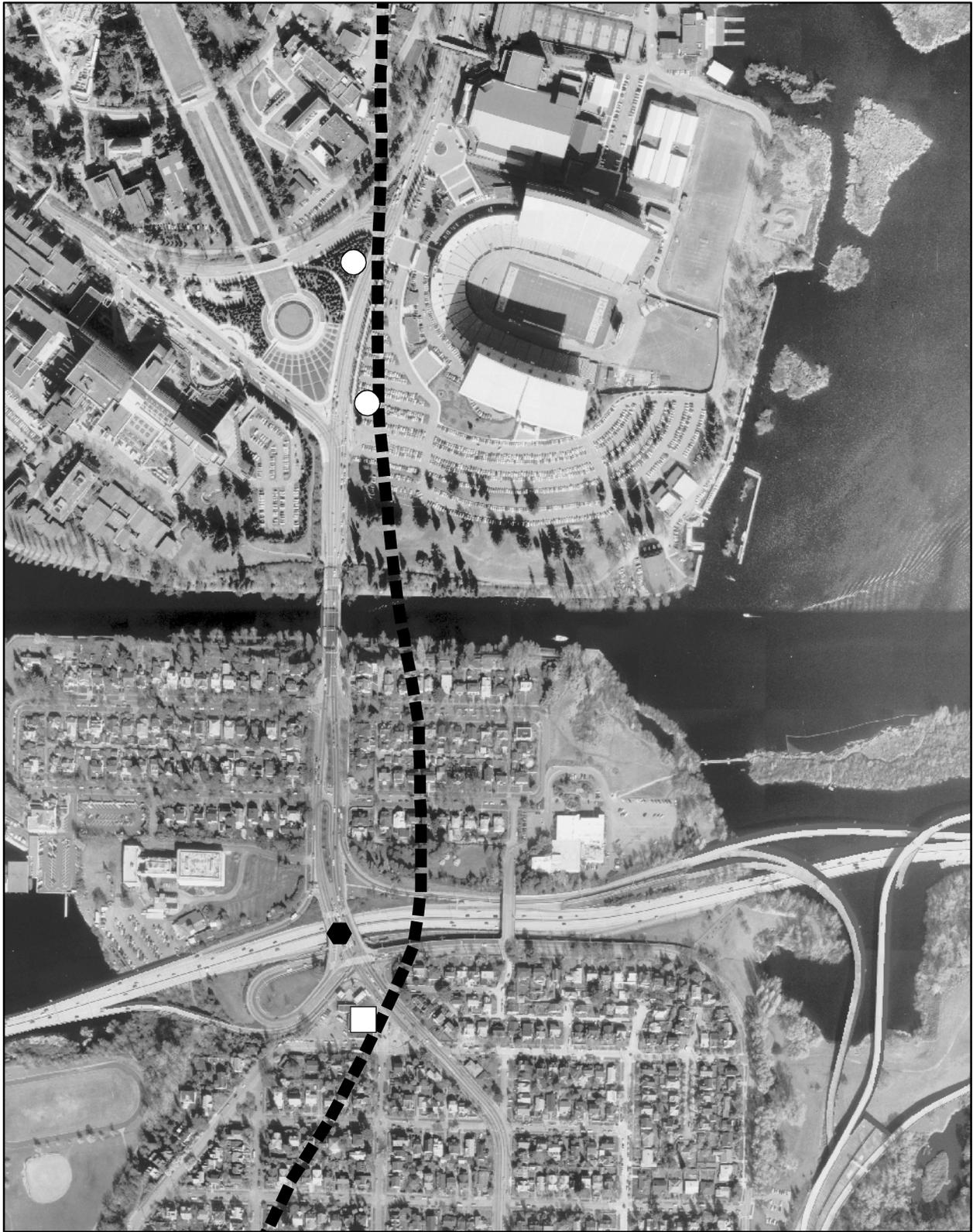
The cumulative effects of the project on transportation are described in detail in Chapter 10 of the *Transportation Discipline Report* (Appendix R of the Draft EIS). The effects described for the original 6-Lane Alternative would be the same for the options. In general, with implementation of a regional set of transportation projects and local high-priority projects, a considerable shift from general purpose to HOV/transit on SR 520 would occur with the proposed project compared to the No Build Alternative. Internal circulation on the Eastside would improve and more trips would be likely to remain on the Eastside due to capacity improvements along regional corridors such as I-405, SR 167, and SR 522, rather than across Lake Washington.

In addition, an increase in longer-distance, north-south through trips is expected to occur in the I-405 corridor due to the additional capacity along I-405 and SR 167, with a corresponding decrease in longer-distance north-south through trips on the west side of Lake Washington.

The construction schedules for the various capacity improvements along I-405, SR 167, and SR 522 have not been firmly established. If more than one of these projects, including the SR 520 Bridge Replacement and HOV Project, are under construction at the same time, the potential for traffic congestion and delays would increase. WSDOT would work internally or with project sponsors to minimize the potential for delays.

The SR 520 design team also determined that the staging scenario for the Pacific Street Interchange option would work whether the proposed North Link Light Rail project is constructed before, after, or in conjunction with the Pacific Street intersection improvements.





-  Approximate Location of North Link Emergency Vent Shaft
-  Approximate Locations of North Link Stadium Station Entrances
-  Approximate Location of new SR 520/Montlake Blvd Interchange
-  Approximate Location of North Link Tunnel



0 250 500 Feet



**Exhibit 10. Relationship between SR 520 and North Link Project Elements**

SR 520 Bridge Replacement and HOV Project

However, coordination with Sound Transit would be necessary to minimize conflict and unnecessary reconstruction.

All other cumulative effects would be the same as described for the original 6-Lane Alternative.





# References

Blaine, Larry. Puget Sound Regional Council. January 2006 – personal communication about the need to prepare new DRAM/EMPAL model forecasts.

CH2M HILL. 2005. *Indirect and Cumulative Effects Discipline Report*. Appendix J to the *Draft SR 520 Bridge Replacement and HOV Project*. Prepared for Washington State Department of Transportation. May 3, 2005.

City of Seattle. 2006a. *Issued Building Permit Stats*. <http://www.seattle.gov/dpd/permitdesk/permitinfo/search.asp> accessed on February 2006. City of Seattle Department of Planning and Development.

City of Seattle. 2006b. *Land Use Information Bulletin*. <http://web1.seattle.gov/dpd/luib/Bulletins.aspx>, accessed February 2006. City of Seattle Department of Planning and Development.

PSRC. 2004. *Regional Forecast Analysis Zone (FAZ) Boundary Files*. <http://www.psrc.org/datapubs/maps/index.htm>, accessed April 2004. Puget Sound Regional Council.

University of Washington. 2006. *University of Washington Master Plan Seattle Campus Semi-Annual Report*. University of Washington, Regional Affairs, Seattle, Washington. January 2006.

