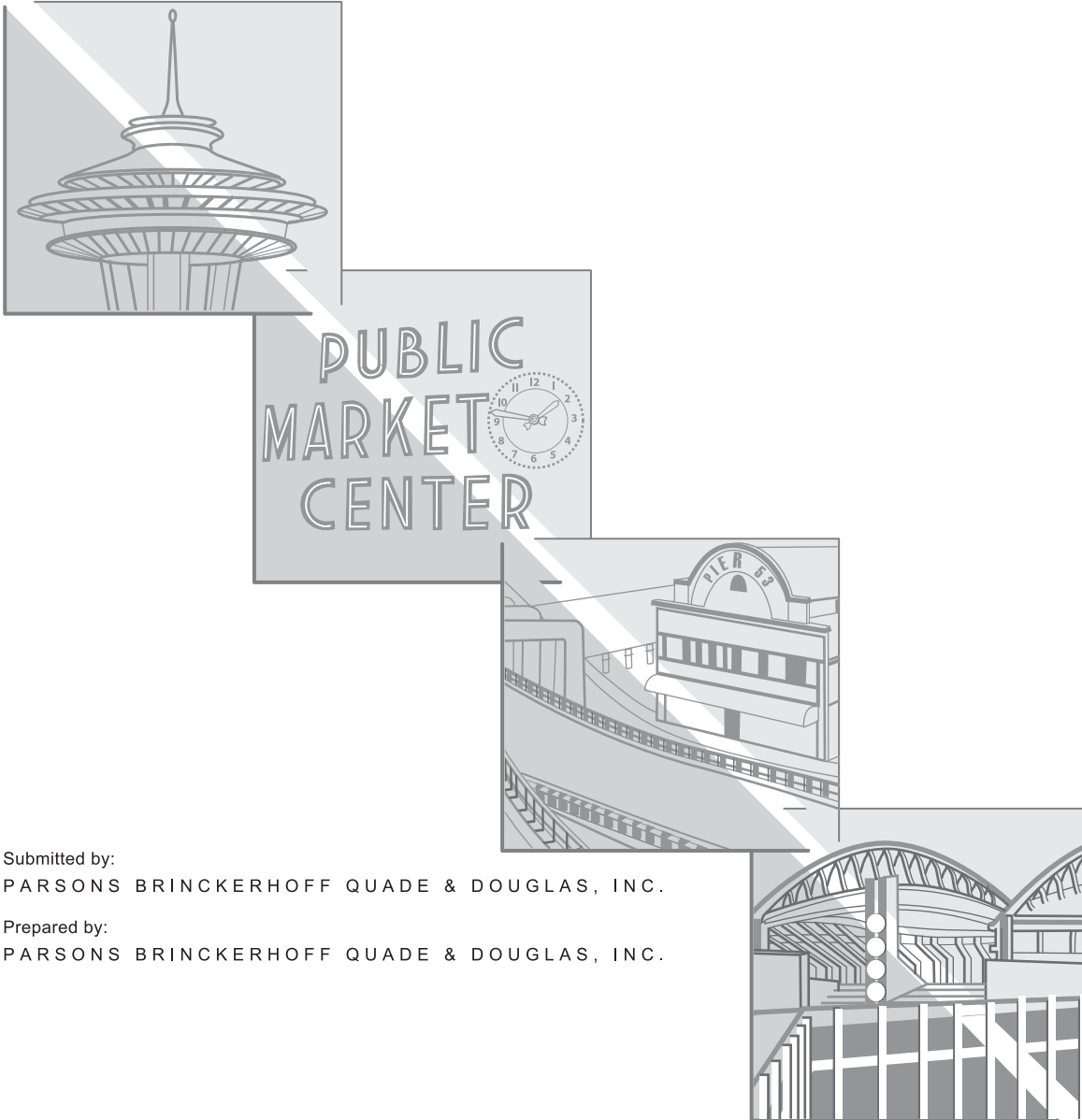


SR 99: ALASKAN WAY VIADUCT & SEAWALL REPLACEMENT PROJECT

Supplemental Draft Environmental Impact Statement

APPENDIX G

Land Use and Shorelines Technical Memorandum



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SR 99: ALASKAN WAY VIADUCT & SEAWALL REPLACEMENT PROJECT

Supplemental Draft EIS Land Use and Shorelines Technical Memorandum AGREEMENT No. Y-7888 FHWA-WA-EIS-04-01-DS

Submitted to:

Washington State Department of Transportation

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ACRONYMS

AWV	Alaskan Way Viaduct
BNSF	Burlington Northern and Santa Fe Railroad Company
City	City of Seattle
EIS	Environmental Impact Statement
I-5	Interstate 5
I-90	Interstate 90
SR	State Route
WSF	Washington State Ferries

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PREFACE

The technical appendices present the detailed analyses of existing conditions and predicted effects of each alternative. The results of these analyses are summarized and presented in the main text of the Supplemental Draft Environmental Impact Statement (EIS).

The Supplemental Draft EIS appendices are intended to add new information and updated analyses to those provided in the Draft EIS, published in March 2004. Information that has not changed since then is not repeated in these appendices. Therefore, to get a complete understanding of the project area conditions and projected effects, you may wish to refer to the appendices that were published with the Draft EIS. These are included on a CD in the Supplemental Draft EIS. To make it easier to understand where there is new information or analyses, the supplemental appendices present information in the same order as it was presented in the Draft EIS appendices.

The Supplemental Draft EIS and the technical appendices evaluate the effects of three construction plans: the shorter plan, the intermediate plan, and the longer plan. These plans vary in how long SR 99 would be completely closed, in how long the periodic closures may be, and in the total construction duration. For the purposes of the analyses in the technical appendices, two construction plans are evaluated with the Tunnel Alternative and one plan is evaluated with the Elevated Structure Alternative. However, each alternative could be built with any of the three plans. The construction durations and the sequencing would not be the same for a particular construction plan if paired with a different alternative; however, the effects would be within the ranges presented by the analyses.

There are several differences in how the information is presented between the main text of the Supplemental Draft EIS and how it is presented in these appendices. The Supplemental Draft EIS text refers to possible variations within the alternatives as “choices” while these appendices use the term “options.” (For example, Reconfigured Whatcom Railyard versus Relocated Whatcom Railyard is referred to as a design choice in the Supplemental Draft EIS and as an option in the appendices.) In either case, the intent is to describe the various configurations that could be selected and the effects for each design.

One design choice in particular is handled very differently between the Supplemental Draft EIS text and the technical appendices. For the Tunnel Alternative in the central waterfront area, there is a choice between a stacked tunnel alignment and a side-by-side tunnel alignment. In the appendices, to simplify the discussion, these two alignments, as well as the Elevated Structure Alternative, are each paired with a different set of options throughout the corridor and presented as complete sets that are evaluated separately. The Supplemental Draft EIS text communicates this information

differently by describing one Tunnel Alternative and one Elevated Structure Alternative and evaluating the effects of the different design choices (or mix-and-match components) separately. While it may appear that there are three alternatives analyzed in the appendices and two in the Supplemental Draft EIS text, there are in fact only two alternatives. Each alternative has many potential components or design choices that can be made throughout the corridor.

The organization of the analysis of the alternatives is also a little different between the main body of the Supplemental Draft EIS and the appendices. In the Supplemental Draft EIS text, we identify two alternatives: a Tunnel Alternative and an Elevated Structure Alternative. The Supplemental Draft EIS text compares these alternatives directly by comparing effects (for example, the effects of both alternatives on water quality are presented together). The appendices present the effects of each alternative separately (for example, all of the effects of the Tunnel Alternative are presented first, followed by all of the effects of the Elevated Structure Alternative). The substance of both discussions is the same. The organization of the Supplemental Draft EIS technical appendices mirrors that of the Draft EIS appendices, allowing you to more easily find comparable information in the Draft EIS appendices.

Chapter 1 SUMMARY

This Land Use and Shorelines Technical Memorandum describes the land uses, land use zones, and shoreline environments present along the alignment of the proposed Alaskan Way Viaduct and Seawall Replacement (AWV) Project and the impacts the project alternatives may have on these uses. It also discusses the project's consistency with state, regional, and local plans and policies. This report is a supplement to the Alaskan Way Viaduct and Seawall Replacement Project Draft Environmental Impact Statement (EIS) (WSDOT et al. 2004) and updates information presented in that document. The current project alternatives and options are described in detail in the 2006 Supplemental Draft EIS Appendix B, Alternatives Description and Construction Methods Technical Memorandum.

For discussion purposes, the project has been broken into the following sections:

- South – S. Spokane Street to S. Dearborn Street
- Central – S. Dearborn Street to the south portal of the Battery Street Tunnel
- North Waterfront – Pine Street to Broad Street
- North – Battery Street Tunnel to approximately Comstock Street
- Seawall – S. Washington Street to Broad Street

1.1 Methodology

The methodology is the same as that used in the Draft EIS Appendix G, Land Use and Shorelines Technical Memorandum prepared in March 2004.

1.2 Affected Environment

The proposed project's northern boundary has been extended to Comstock Street. Land uses in the project area in this location include multifamily residential and commercial uses. Land uses in the southern and central portions of the proposed project area remain as described in the 2004 Draft EIS Appendix G, Land Use and Shorelines Technical Memorandum.

1.3 Alternatives and Options

The Draft EIS evaluated five Build Alternatives plus the No Build Alternative. In late 2004, the lead agencies narrowed the five alternatives down to two— Tunnel and Rebuild. In December 2004, the project proponents identified the Tunnel Alternative as the Preferred Alternative and carried the Rebuild Alternative forward for analysis as well. Since that time, engineering and design has been updated and refined for the Tunnel and Rebuild Alternatives.

Due to the magnitude of the changes in the design of the Rebuild Alternative, it has been renamed the Elevated Structure Alternative.

In the south, two options are being considered for both the Tunnel and Elevated Structure Alternatives where State Route (SR) 99 crosses the Whatcom Railyard's lead track:

- The Reconfigured Whatcom Railyard Option would retain the existing SR 99 in its current alignment between the Burlington Northern Santa Fe Railway Company (BNSF) Seattle International Gateway (SIG) Railyard on the east and the Whatcom Railyard to the west. A short bridge would carry SR 99 over the new tail track and connection between the railyards. This option is part of the preferred alignment.
- The Relocated Whatcom Railyard Option would place SR 99 at-grade adjacent to E. Marginal Way and relocate the tracks to the east.

The updated Tunnel Alternative has two potential tunnel alignments:

- The stacked tunnel alignment (the preferred alignment)
- The side-by-side tunnel alignment

In the central section, two options are being considered for the Tunnel Alternative at Elliott and Western Avenues:

- SR 99 could pass under Elliott and Western Avenues (part of the preferred alignment). This option includes the construction of a large cut on the slope below the existing viaduct.
- SR 99 could extend over Elliott and Western Avenues.

The AWW project team combined elements of the Aerial and Rebuild Alternatives evaluated in the Draft EIS into the new Elevated Structure Alternative. In the central waterfront section, the Elevated Structure Alternative would be wider than the Rebuild Alternative evaluated in the Draft EIS, but not quite as wide as the Aerial Alternative. The Elevated Structure Alternative does not include the option to go under Elliott and Western Avenues.

The alternatives in the Draft EIS considered only a fire and life safety upgrade of the Battery Street Tunnel. The updated Tunnel and Elevated Structure Alternatives include increasing the vertical clearance to 16.5 feet throughout the Battery Street Tunnel. The Tunnel Alternative also includes an option to widen the north and south portals of the Battery Street Tunnel.

The revised project alignment now includes an extension of the northern limit of the project. The north area of the project now extends to about Comstock Street, about 0.8 mile north of the Battery Street Tunnel. With the Partially

Lowered Aurora Option (part of the preferred alignment, but also paired with the Elevated Structure Alternative), Aurora Avenue N. would be lowered between the north portal of the Battery Street Tunnel and Republican Street, with roadway improvements and widening up to Aloha Street. Thomas and Harrison Streets would be reconnected with bridges crossing over Aurora Avenue N., while Mercer Street would cross under Aurora Avenue N.

The Lowered Aurora Option was included in the Draft EIS Aerial Alternative. This option has been revised to further widen SR 99 and extend improvements almost to Comstock Street. SR 99 would be lowered below grade with retaining walls on either side, allowing Thomas, Harrison, Republican, and Roy Streets to pass at grade over SR 99. Mercer Street would be widened more than was considered in the Draft EIS and would cross over SR 99 on a new bridge structure.

Two construction plans are evaluated for the Tunnel Alternative:

- The intermediate plan would close SR 99 to north-south traffic for no less than 18 months and up to 27 months (or longer). The plan assumes periods where either the northbound or southbound lanes are closed. For the stacked tunnel alignment, the overall construction duration for the intermediate plan would be 8.75 years. The side-by-side tunnel alignment's approximate construction duration would be 8 years.
- The shorter plan would fully close SR 99 to north-south traffic for a minimum of 42 months (3.5 years). In the shorter plan, most construction work would occur with the corridor closed, with the exception of the initial utility relocations. The duration of construction with the shorter plan would be approximately 7 years for either tunnel alignment.

Only one construction plan is being evaluated for the Elevated Structure Alternative:

- The longer plan would maintain two lanes on SR 99 open in each direction except when SR 99 would be closed to all traffic for about 3 months. The construction would last approximately 10 years.

1.4 Impacts

1.4.1 Consistency with Plans and Policies

The proposed project would remain largely consistent with regional and local plans and policies. Changes in downtown planning and other nearby project areas have occurred; however, in most instances the proposed project would continue to support new goals and policies. A new zoning designation,

Seattle Mixed (SM), has been applied to some parcels in the north project area. These parcels may be converted to roadway use by the proposed project and would be unavailable for uses under this new designation. The project would be consistent with many of the recently proposed transportation policies for the South Lake Union Neighborhood Plan. Where industrial land would be converted for roadway use, it would continue to conflict with goals for preserving industrial land in the city. Additionally, only the Tunnel Alternative (the Preferred Alternative) would be consistent with the concepts presented in the *Draft Seattle's Central Waterfront Concept Plan* (Seattle DPD 2006a).

1.4.2 Tunnel Alternative (Preferred Alternative)

The proposed AWW Project would result in the acquisition of new land area from parcels that would be needed to construct the roadway and associated improvements. Where land is acquired, parcels would be converted from existing uses to roadway or right-of-way use. Since the Draft EIS was issued, the project design has been narrowed to the Tunnel and Elevated Structure Alternatives considered in this document. The design for these alternatives has been refined since the Draft EIS. The estimates of land areas affected by these alternatives now include both full and partial acquisition amounts. The assumption in the Draft EIS that all affected parcels would be acquired in full has been dropped.

These changes make it difficult to provide a direct comparison between land amounts described in the Draft EIS and land amounts presented in this report. Generally, the Draft EIS analysis indicated that the Rebuild Alternative would require conversion of approximately 24 acres of land and the Tunnel Alternative would require the conversion of approximately 26 acres to roadway use. Analysis in this report indicates that the Elevated Structure Alternative would require the conversion of 29 to 35 acres of land and the Tunnel Alternative would require conversion of approximately 28 to 40 acres of land in the project area.

The amount of land conversion that would occur may vary, however, depending on the final alternative selected, overall size of affected parcels, and the exact amount of land acquired for the proposed project. The 2006 Appendix K, Relocations Technical Memorandum, for this project provides additional information on parcel acquisitions in the project area.

In the south project section, the updated Tunnel Alternative could result in the loss of less industrially zoned property than indicated in the Draft EIS. Both options for the Whatcom Railyard would allow existing railway uses to be maintained.

In the central project area, the updated Tunnel Alternative would result in conversion of property primarily under downtown zoning classifications. Fewer adjacent land uses may be affected by each tunnel option than were identified in the Draft EIS, with the lowest potential impact resulting from the narrower stacked tunnel alignment.

In the north project area, changes in the ramp configurations and potential pedestrian lid construction near Elliott and Western Avenues could encourage residential and pedestrian-friendly land uses in this area. North of the Battery Street Tunnel, more parcels would be affected by the proposed Lowered Aurora and Partially Lowered Aurora Options than were potentially affected in the Draft EIS analysis. These options could result in the conversion of a number of parcels currently used for commercial and residential uses to be for roadway use.

Impacts to land uses associated with the seawall replacement would remain largely the same as described in the Draft EIS.

Under the Tunnel Alternative, the construction period could take approximately 7 to 8.75 years. Construction impacts would be similar to those described in the Draft EIS. Over 1,900 short-term and long-term parking spaces would be lost, which may affect nearby land uses. Traffic congestion during construction also would affect access to and from local land uses. This impact is expected to be greatest during the middle phases of construction.

1.4.3 Elevated Structure Alternative

The Elevated Structure Alternative would result in different amounts of land acquisition depending on the alternative selected. The Reconfigured Whatcom Railyard Option would require less land acquisition and conversion than the Relocated Whatcom Railyard. In the south project area, this alternative would affect approximately the same amount of industrial land as the Tunnel Alternative. In the central project area, the Elevated Structure Alternative would be wider than the footprint analyzed in the Draft EIS. Therefore, this alternative would affect more adjacent properties through the central downtown and waterfront area.

In the central section, new lid options would provide pedestrian connections to the central waterfront. In the north, pedestrian access would remain largely the same as it currently is, with no new improvements to Elliott and Western Avenues. The Partially Lowered Aurora Option would have the same impacts for the Elevated Structure Alternative as for the Tunnel Alternative.

Impacts of the seawall replacement would be largely the same as described in the Draft EIS.

Under the Elevated Structure Alternative, the construction period would be approximately 10 years. Construction impacts would remain similar to those described in the Draft EIS. Over 2,800 short-term and long-term parking spaces would be lost under this alternative. Nearby land uses may be affected by loss of parking and traffic congestion during construction activities.

1.5 Primary Changes in the Analysis Since the Draft EIS

Primary changes between the analysis in the Draft EIS and that provided for the Supplemental Draft EIS in this document include the following:

- The updated Tunnel and Elevated Structure Alternatives are reviewed for consistency with updated land use plans.
- The updated Tunnel and Elevated Structure Alternatives are analyzed and revised land use impacts are identified. Estimated land areas affected under zoning classifications have been updated to reflect amounts that include both partial and full parcel acquisition, consistent with the revised 2006 Appendix K, Relocations Technical Memorandum.
- Impacts associated with the Partially Lowered Aurora Option in the north project area are presented.
- New traffic and parking impacts are summarized in Chapter 6, Construction Impacts.

Chapter 2 METHODOLOGY

There was no change in the methodology followed for preparation of this report from that used for the Draft EIS. Please see Chapter 2 in the 2004 Draft EIS Appendix G, Land Use and Shorelines Technical Memorandum. Updated project alignment drawings for the alternatives being considered in the Supplemental Draft EIS were used in determining potential land use impacts described in this report.

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Chapter 3 STUDIES AND COORDINATION

Information sources for this report remain the same as those identified in Chapter 3 of the 2004 Draft EIS Appendix G, Land Use and Shorelines Technical Memorandum.

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Chapter 4 AFFECTED ENVIRONMENT

Existing land uses in the project area remain the same as described in Chapter 4 of the 2004 Draft EIS Appendix G, Land Use and Shorelines Technical Memorandum. The project area in the north has been extended three blocks farther north from Ward Street to Comstock Street. Land uses in this area are a mix of multifamily residential consisting of apartments, duplexes, and condominiums, with some retail services also located along the east side of Aurora Avenue N. (SR 99). Plans and policies remain largely the same as those identified in the Draft EIS, with the following exceptions.

4.1 Seattle Comprehensive Plan

In 2004, the City of Seattle (City) completed the 10-year update of its Comprehensive Plan as required by the Growth Management Act. The new plan continues with many of the concepts first introduced in the 1994 Comprehensive Plan. Key changes in the plan include (1) the addition of a new Urban Village Element that provides goals and policies directing growth in urban village areas; (2) new goals and policies for environmentally critical areas, new policies for historic preservation, and limitations in building height and density for structures outside urban villages and centers in the Land Use Element; and (3) new goals to limit the number of single-occupant vehicle trips within each urban center under the Transportation Element.

In the annual update to the Comprehensive Plan, new amendments were added to the plan in 2005. Changes potentially related to the AWV Project area include:

- Modification of size-of-use limits in Commercial zones for more consistent maximum size limits.
- Modification of policies to consider local conditions and planning objectives for parking requirements in the urban center.
- Removal of language that refers to minimum parking requirements downtown.
- Clarification of the relationship between the Transportation Strategic Plan and the Comprehensive Plan.

The amendments were adopted by the City Council in October 2005 (Seattle DPD 2005a). The Comprehensive Plan will be reviewed and updated again during the 2006 amendment cycle.

4.2 Downtown Development

In May 2005, the City presented a proposal for changes to downtown height and density limits in the Land Use Code. The proposal encourages more housing adjacent to the downtown core and affects the Commercial Core, Denny Triangle neighborhood planning areas, and portions of the Belltown neighborhood. These changes are consistent with the City's overall Center City Strategy, an approach that promotes locating new jobs and affordable housing within the downtown neighborhoods.

4.3 Waterfront Planning

Since the Draft EIS was issued, the City has continued with its Central Waterfront Planning process. In February 2006, the City issued the Draft *Seattle's Central Waterfront Concept Plan* presenting existing conditions and conceptual plans and policies for the central waterfront area. Framework principles have been identified to guide these efforts, with an overall principle that stresses the need to balance and integrate multiple uses, and in some cases competing uses, for the waterfront area. The plan is being developed in anticipation of the removal of the Alaskan Way Viaduct and states that "The preferred tunnel alternative is the basis for the City of Seattle's planning effort for the waterfront" (Seattle DPD 2006a). The Concept Plan includes specific recommendations for three waterfront areas: the North Waterfront, Central Waterfront, and Colman Dock/South Waterfront. The plan also proposes creation of a Historic Piers District for Piers 54 through 59, which may include local or national historic designation for this area.

The Concept Plan includes a number of recommendations intended to form a design program for the planning area. The Draft Concept Plan includes the following recommendations:

- Acknowledge the past, present, and future theme within the plan.
- Develop a visual sequence of icons and public spaces along the length of the waterfront.
- Incorporate green design in the redevelopment of the waterfront.
- Enhance habitat in shallow shoreline areas and integrate habitat into the seawall design.
- Create public spaces and integrate with shoreline habitat along the seawall.
- Reinforce east-west connections between the waterfront and Center City for pedestrians and vehicles.
- Develop east-west connections that improve pedestrian movement between the Center City and waterfront destinations.
- Manage the flow of traffic on Alaskan Way for pedestrian, freight, and vehicle movement through the corridor.

- Adjust regulations to allow building entrances and facades along the east edge of Alaskan Way.
- Maintain Terminal 46 as a container facility while recognizing its potential for long-term development.

The Concept Plan also includes provisions for establishment of a special shoreline review process in the Downtown Harborfront (DH1 and DH2) zones. The proposed process would allow the Seattle Design Commission to review public projects by State, County, and Port agencies in these zones to “consider the unique shoreline and upland architectural character of the area” (Seattle DPD 2006a). These measures would be consistent with the City’s Shoreline Master Program.

4.4 South Downtown Planning

In June 2005, the City began studies for developing a new plan for the South Downtown area intended to stimulate housing and development in the area. The plan will evaluate issues and opportunities related to future growth in South Downtown. Generally, the plan will consider five subareas:

- Pioneer Square
- Chinatown/International District west of Interstate 5 (I-5)
- Chinatown/International District east of I-5 to Rainier Avenue S. (also referred to as Little Saigon)
- The predominantly industrial vicinity south of Chinatown, west of I-5, and north of I-90
- The mostly industrial “stadium transition area” along First Avenue S. to S. Holgate Street

Goals of the plan include stimulating housing and jobs, respecting existing neighborhood character, promoting an integrated mix of land uses, supporting quality connections between neighborhoods and downtown, encouraging economic vitality and environmental sustainability, and accommodating regional services while ensuring that they respect goals of the community.

As part of this planning effort, the City is studying proposed zoning changes in the Pioneer Square neighborhood for the area between Alaskan Way, First Avenue S., S. King Street, and S. Royal Brougham Way. The proposed changes would provide for design review of future development there and would effectively extend the Pioneer Square Preservation District to this area. A background report was issued in January 2006 (Seattle DPD 2006b), and recommendations (including potential zoning changes) will be prepared in spring 2006.

4.5 South Lake Union Planning

In April 2005, the City Council passed rezoning measures for the South Lake Union neighborhood. The new measures included changing the name of the Seattle Cascade Mixed (SCM) zone to Seattle Mixed (SM) and rezoning some commercial zones within the planning area to the new Seattle Mixed classification. This included parcels adjacent to Aurora Avenue N. between Denny Way and Galer Street.

These changes were proposed to encourage housing and job opportunities in the South Lake Union neighborhood. The new Seattle Mixed zone allows residential uses and permits commercial and manufacturing uses as well. The provision for commercial uses was intended in part to support biotechnology uses and biotech research and development laboratories. Previously, the Seattle Land Use Code did not fully recognize unique features of these buildings and therefore created a competitive disadvantage when compared to office and other uses. The new Seattle Mixed zoning classification helps correct this concern.

In November 2005, the City presented draft goals and policies for inclusion in the updated South Lake Union Neighborhood Plan/Urban Center Plan. The draft proposal includes the following transportation goals (Seattle DPD 2005b):

- Provide transit service to and through the South Lake Union area.
- Provide safe convenient access to businesses and residences in the neighborhood.
- Explore transportation improvements to link South Lake Union with surrounding neighborhoods.
- Create a street network that enhances local circulation and access for all modes of travel, balancing the need to move people and freight through the neighborhood with the need for increased accessibility and safety for pedestrians and bicyclists.
- Encourage improvements to Mercer and Valley Streets that support development of South Lake Union Park, improve neighborhood circulation, and promote efficient movement of people and freight in this corridor.

Chapter 5 OPERATIONAL IMPACTS AND BENEFITS

5.1 Consistency with Plans and Policies

Although there have been plan updates as discussed in Chapter 4, the proposed project's relationship to state and local plans and policies remains largely the same as described in the Draft EIS. Please see Chapter 5 of the 2004 Appendix G, Land Use and Shorelines Technical Memorandum. As indicated above, some plans and policies have changed since preparation of the Draft EIS. The proposed project would continue to be consistent with much of the direction provided by these changes.

The proposed project would continue to be an important connection for travel to and around the downtown area. As such, the project's relationship to the new goals and policies in the City's Comprehensive Plan, intended to direct development to the downtown core, would not change. The project would continue to provide a component of the necessary infrastructure serving downtown workers and residents. It may also provide new opportunities for revitalization of nearby areas, which could be used to provide housing and employment opportunities envisioned by new growth targets within the plan.

The proposed project also may indirectly support goals in the plan related to alternative modes of transportation and parking downtown. As clarified in the 2005 Comprehensive Plan Amendments, the City's Transportation Strategic Plan is the functional plan to implement Comprehensive Plan policies. Included in the Strategic Plan are elements of the City Center Access Strategy, which indicates that it is important to the future of the city to reduce reliance on automobiles for travel downtown (Seattle DPD 2005a).

The new roadway would provide access for transit and accommodate trips that bypass the downtown area. In support of goals to promote transit use downtown, it is likely that not all parking spaces lost as a result of the proposed project would be replaced entirely. Because the City is considering changes to encourage less automobile travel downtown, not all parking losses would be inconsistent with plans for downtown. The project also would provide opportunities for new open space and connections between the downtown core and the waterfront. Thus, the project would contribute toward facilitating the change to a more transit-friendly and pedestrian-oriented downtown and waterfront as envisioned by recent planning efforts.

As noted in the Draft EIS, although somewhat limited, each of the proposed project alternatives would provide opportunities for revitalization in the project area. The draft Waterfront Concept Plan identifies development opportunities in the central waterfront. Included among these potential

development areas are the south tunnel portal, Pier 48, Colman Dock, Union Street, the north portal, and the Battery Street Tunnel. Because this plan is based on provision of an underground facility, development opportunities presented in the plan would be related to selection of either the stacked tunnel alignment or the side-by-side tunnel alignment. Thus, only the Tunnel Alternative (the Preferred Alternative) would be consistent with these planning efforts. Selection of the Elevated Structure Alternative would require formulation of new goals and policies to define the future of the central waterfront if an aboveground structure is constructed to replace the current facility.

Although the current draft Waterfront Concept Plan does not envision continuance of an aboveground structure for SR 99, the Elevated Structure Alternative could also provide some opportunity for revitalization. A new surface structure could help reshape the relationship between the roadway and the waterfront and may provide some redevelopment potential along the project corridor. Specific opportunities for new development under the Elevated Structure Alternative have not been identified in the current Waterfront Concept Plan, which is based upon the Tunnel Alternative. It is expected that a new elevated structure could result in more limited potential for changes in the relationship between the downtown core and the waterfront than would occur through its removal.

The Comprehensive Plan also contains new policies intended to achieve a balance between housing and jobs in urban centers and elsewhere within the city. Because many of the users of the Alaskan Way Viaduct are traveling to more distant destinations, the proposed project would also continue to meet these goals by providing a connection to areas beyond downtown.

New height and density limitations for downtown, as described in the Comprehensive Plan, may apply to land area that could be redeveloped as a result of replacement of the viaduct. The Tunnel Alternative would likely attract interest in new development opportunities along the waterfront and could help support goals for increased density and new living space downtown.

Industrial land policies remain an area of potential concern. In August 2005, the City released its most recent study of industrial lands, providing an overview of current industrial land zoning and usage (Seattle OED 2005). This report indicates that 77 percent of the city's industrial land is within the Duwamish Manufacturing and Industrial Center. The southern part of the AWV project area passes through this industrial center. The study discusses conversion pressures on industrial lands and indicates that the demand for industrial land is increasing in the Puget Sound region. It notes that

continued economic recovery in Seattle is expected to increase the future demand for industrial land in the city. The 2005 Industrial Lands Study is presented as a starting point for creation of an industrial lands strategy to further define City policies “for protecting industrial land for industrial uses” (Seattle OED 2005).

While industrial policies in the Comprehensive Plan remain largely the same, under the current Build Alternatives, up to 10 acres of industrial land could still be converted to roadway use. Although this amount is approximately 5 acres less than that identified in the Draft EIS, such conversions would not be consistent with goals to protect the city’s industrial land base and increase the usefulness of industrial properties. Although this part of the AWV Project would not meet industrial land goals, other industrial policies related to freight movement to and from industrial areas would be well served by the continued and enhanced mobility provided by the proposed improvements. Ultimately, most of the industrial land surrounding the proposed project corridor would be expected to benefit from these improvements. These benefits would help offset the potential impact that may be associated with the direct conversion of industrial land affected by the new viaduct facilities.

Under the Tunnel and Elevated Structure Alternatives, new connections to SR 519 are proposed in the south project area. Thus, the project would continue to provide access there and would potentially support growth in the South Downtown area. As goals and policies are formulated as a result of the newly proposed studies for this area, the project’s relationship to these plans will be better defined.

The viaduct replacement would provide a connection between future land uses in this area and the general downtown core. It would also contribute to long-term economic vitality by replacing an important component of the local infrastructure, facilitating the movement of freight and goods in and around downtown. These are two of the initial goals identified for the proposed South Downtown planning efforts. By providing improved connections between Pioneer Square and the waterfront, the project would likely promote access between these areas. Improving this connection also may potentially reinforce zoning changes being considered for Pioneer Square under South Downtown planning.

With regard to the zoning changes made in the South Lake Union neighborhood, the proposed project could affect up to 17 parcels under the new Seattle Mixed zoning classification. Some of these parcels contain uses that would likely remain, as was intended by the new classification provisions. Some, however, are currently vacant or underutilized (such as for

surface parking) and may have the potential to redevelop under the Seattle Mixed zone provisions.

Most of these parcels are along Aurora Avenue N. and located away from the immediate South Lake Union area. These parcels are not likely to convert to the kinds of biotechnology or housing opportunities intended for the immediate South Lake Union area. It is assumed that because they qualified for the recent rezoning, they may have some potential for new uses envisioned by the Seattle Mixed zone. To the extent these parcels are converted to roadway use by the proposed project, they would be unavailable for uses under this new zoning classification.

Under proposed improvements associated with the lowering of Aurora Avenue N., the proposed project would help reconnect Seattle Center with the South Lake Union area. This would support the transportation goals in the proposed additions to the South Lake Union Neighborhood Plan, including the provisions for access, links between neighborhoods, safe and efficient circulation, and movement of people and freight through the neighborhood.

5.2 Affected Zoning Classifications

The updated alternatives and options considered for the Supplemental Draft EIS would result in different impacts on local land uses than those presented in the Draft EIS. The amount of land potentially affected by both the Tunnel Alternative and the Elevated Structure Alternative, under each of the options being considered in the Supplemental Draft EIS, is identified in Exhibit 5-1.

Exhibit 5-1 includes the total estimated area of acquisition within each affected zoning classification. In a change from information presented in the Draft EIS, this total includes both full parcel acquisitions and estimated areas for partial acquisitions. Previously, it had been assumed that where parcel impacts would occur, all parcels would be acquired in full. This approach was revised in the 2006 Appendix K, Relocations Technical Memorandum, and the results of that report are carried forward to the information in this document.

As indicated in the Draft EIS, the project may also require acquisition of property from Terminal 46. Terminal 46 is an 88-acre container terminal comprising several parcels, and it is likely that portions of this site would be needed for both the Tunnel and Elevated Structure Alternatives. Because of its size, Terminal 46 had been treated separately from total parcel impacts in the past. With new analysis providing estimated partial acquisition amounts, Terminal 46 impacts are now included in the amounts shown in Exhibit 5-1 and discussed within the text of this document.

Exhibit 5-1. Affected Parcel Areas (in Acres) by Zoning Classification

Zoning Classification	Tunnel: Stacked ¹	Tunnel: Side- by- Side ¹	Elevated Structure ²	Elevated Structure ³
Industrial Commercial (IC)	3.7	7.7	3.7	3.7
General Industrial (IG1)/(IG2)	5.3	5.6	6.2	12.8
Downtown Mixed Commercial (DMC)	0.8	1.9	0.8	0.8
Downtown Mixed Residential (DMR)	1.0	1.1	0.9	0.4
Downtown Harborfront (DH1 and DH2)	11.0	11.0	11.0	11.0
Pioneer Square Mixed (PSM)	0.0	0.1	0.0	0.0
Pike Market Mixed (PMM)	0.8	1.1	0.8	0.8
Seattle Mixed (SM 65 and SM 85)	4.8	7.6	4.8	4.8
Neighborhood Commercial (NC3)	0.9	1.3	0.9	0.9
Commercial (C1)	0.1	2.3	0.1	0.1
Multifamily Lowrise 3 Residential Commercial (L3RC)	0.0	0.1	0.0	0.0
Total	28.4	39.8	29.2	35.3

¹ In this table, the stacked tunnel alignment is combined with the Reconfigured Whatcom Railyard Option and the side-by-side tunnel alignment is combined with the Relocated Whatcom Railyard Option. See text below for a discussion of the different options for Whatcom Railyard and their impacts on land area affected by the proposed project.

² Elevated Structure Alternative with the Reconfigured Whatcom Railyard Option.

³ Elevated Structure Alternative with the Relocated Whatcom Railyard Option.

Ferry queuing areas may also be relocated to a presently undetermined location east of the viaduct. It is likely that new holding locations would be chosen that would not result in displacing existing buildings or substantially affecting land uses nearby; therefore, impacts associated with this use are not expected to greatly change adjacent land uses. Some differences in travel patterns may result around these areas. The 2006 Appendix C, Transportation Discipline Report, for this project discusses traffic changes associated with the proposed project. The proposed project is being coordinated with Washington State Ferries (WSF) staff to ensure that potential ferry queuing areas will meet WSF needs.

In this report, affected land use areas are estimates that are useful in describing potential impacts on adjacent lands. Just as numbers in the Draft EIS were based on designs and assumptions that were valid at that time, current estimates are based on similar, but not identical, alignment designs and assumptions. As indicated above, this includes the new information provided in the 2006 Appendix K, Relocations Technical Memorandum,

concerning the calculation of land amounts for partial acquisitions. The Draft EIS indicated land use impacts ranging in area between 24 to 26 acres for the Rebuild and Tunnel Alternatives. This analysis in support of the Supplemental Draft EIS estimates that the new alignments could affect a larger range than shown in the Draft EIS, from approximately 28 to 40 acres of land throughout the project area.

The primary reason for these differences results from changes in the design. New estimates of potentially affected land areas have also been influenced by assumptions regarding how tunnel construction may occur that were not yet defined in the Draft EIS. For example, in addition to new details in the south project area, this analysis includes the consideration of new tunnel widths in the central area and new design for the reconstructed Battery Street Tunnel in the north area. For the Elevated Structure Alternative, the analysis includes such considerations as new foundation construction footprints and new shoulder plus “shy area” (area reserved for additional right-of-way) amounts in the central project area. Also, under both the Tunnel and Rebuild Alternatives, the parcels north of the Battery Street Tunnel, comprising approximately 23 acres of land area, were not fully identified as part of the Lowered Aurora Option in the Draft EIS. The Partially Lowered Aurora Option also has not been evaluated previously. As the alignment designs are refined, additional changes may be expected in the future.

While some land use impacts presented in this report may not be exactly comparable to those in the Draft EIS, the following observations are useful in describing potential land use changes between the two documents:

- For the updated Tunnel and Elevated Structure Alternatives, if the Reconfigured Whatcom Railyard Option, which avoids Terminal 30, is chosen, up to 10 acres of Industrial Commercial and General Industrial property could be converted to roadway or right-of-way use. In the Draft EIS, the Tunnel and Rebuild Alternatives identified that approximately 15 acres of land in these zones would be needed.
- For the updated Tunnel and Elevated Structure Alternatives, up to approximately 14 acres of downtown zones (Downtown Harborfront 1 and 2, plus Downtown Mixed Residential and Downtown Mixed Commercial) could be converted, whereas the Draft EIS identified approximately 9 to 10 acres affected in the same zones.
- The updated Tunnel and Elevated Structure Alternatives could affect approximately 2 to 4 acres of property zoned for commercial/residential uses (Neighborhood Commercial 3, Commercial 1, and Lowrise 3 Residential Commercial), whereas the Draft EIS indicated only one-half (0.5) acre of land area affected in these zones.

- For the updated Tunnel and Elevated Structure Alternatives, approximately 1 acre of Pioneer Square Mixed and Pike Market Mixed zones would be affected. The Draft EIS identified small amounts, ranging from 0.1 to 0.7 acre, in these zones affected by both the Tunnel and Rebuild Alternatives.

5.3 Tunnel Alternative (Preferred Alternative)

Potential land use impacts under each Build Alternative being considered in the Supplemental Draft EIS, beginning with the south project area and ending in the project area north of the Battery Street Tunnel, are discussed below in this section and Section 5.4. The No Build Alternative identified in the Draft EIS has not changed and continues to be used as a basis for environmental analysis. For evaluation of land use impacts related to the No Build Alternative, please see the 2004 Draft EIS Appendix G, Land Use and Shorelines Technical Memorandum.

5.3.1 South – S. Spokane Street to S. Dearborn Street

Reconfigured Whatcom Railyard

In the south project area, the Tunnel Alternative would use land currently zoned for other purposes. The land converted to roadway use would affect the following land use zoning classifications: Industrial Commercial, General Industrial, Downtown Harborfront 1, and Downtown Mixed Commercial. The stacked tunnel alignment would result in the loss of less commercial and industrial land in the south project area than was identified for the Tunnel Alternative evaluated in the Draft EIS. The side-by-side tunnel alignment would result in the loss of slightly more land in these zones than the Tunnel Alternative considered in the Draft EIS. As indicated earlier, the City has expressed the desire to protect remaining industrial properties; therefore, additional conversion of this land would not be consistent with this land use objective. In most instances, the proposed connections and mobility provided by the AWV Project would support industrial land uses now occurring in the south project area.

SR 99 would be at-grade in the south end up to nearly S. Holgate Street, and from S. Atlantic to S. Dearborn Streets. The Reconfigured Whatcom Railyard would have a short bridge over the lead track between S. Holgate Street and S. Atlantic Street to the Whatcom Railyard. Both the stacked and side-by-side tunnel alignments can be combined with the Reconfigured Whatcom Railyard. Depending on which option is selected for Whatcom Railyard, different amounts of land area may be affected under each alternative. Under the current alignments, less land area would be affected in the south project

area with the Reconfigured Whatcom Railyard than with the Relocated Whatcom Railyard. Only one parcel would be affected with the bridge over the lead track. This parcel is a BNSF property, approximately 1.3 acres in size. Ultimately, improvements in mobility resulting from the proposed project would be expected to benefit Whatcom Railyard and other remaining land uses in all areas of the project route.

Port of Seattle property in the south project area would be affected under all project alternatives. Property acquisition would occur at both Terminal 46 and Terminal 30. Partial acquisition of Terminal 46 land would be needed for the Tunnel Alternative. Land along the property's eastern boundary would be converted to roadway use. The conversion would affect approximately 3 percent of the overall parcel area and is not expected to disrupt terminal operations. Terminal 30 would not be affected by the Reconfigured Whatcom Railyard; however, the side-by-side tunnel alignment would require property acquisition. Similar to the impacts described for Terminal 46, land along the eastern boundary of Terminal 30 would be converted to roadway use. This acquisition would affect approximately 5 percent of the overall parcel area of Terminal 30 and is not expected to disrupt terminal operations.

The Port of Seattle has expressed concern for potential impacts to Port facilities related to proposed AWV improvements. The lead agencies for the AWV Project will work with the Port to mitigate potential impacts on Port property.

Option: Relocated Whatcom Railyard

Both the stacked and side-by-side tunnel alignments can be combined with the Relocated Whatcom Railyard. This option would shift the railyard east and place SR 99 at-grade between E. Marginal Way and the railyard.

This option would increase the proximity of the roadway in relation to existing land uses and would affect four more parcels than the Reconfigured Whatcom Railyard. The Relocated Whatcom Railyard Option would require acquisition of property from Terminal 30, as described above.

Other impacts would be similar to those identified in the Draft EIS for the Aerial Alternative. Although some changes would occur in the design for the South of Downtown (SODO) Ramps, this option would continue to provide access to SR 519, which would continue to serve the needs of industrial and commercial land uses in this area. After project construction, rail uses now occurring at Whatcom Railyard would remain.

Given that existing land uses are industrial and commercial, the new roadway is not expected to influence land uses in this area, other than the potential need to move the railway operations associated with Whatcom Railyard.

Moving these functions to the east of the proposed project would not greatly affect land uses that are presently served by, or that use, rail lines. Traffic would continue to have access to SR 519 and other local roadways.

5.3.2 Central – S. Dearborn Street to Battery Street Tunnel

In the central project area, the proposed project would result in the conversion of parcels currently under the following land use zones: Downtown Mixed Commercial, Downtown Mixed Residential, Pike Market Mixed, Downtown Harborfront, and Industrial Commercial. The stacked tunnel alignment would affect approximately 11 acres of land in the central project area, and the side-by-side tunnel alignment would affect approximately 11.6 acres of land there. Both tunnel alignments would continue to provide opportunities for new land uses and open space in the central project area, as discussed in the Draft EIS.

The Tunnel Alternative new design would provide bicycle and pedestrian access along both sides of Alaskan Way, rather than along the eastern side only as considered in the Draft EIS. This design would potentially be more favorable to adjacent land uses on both sides of the roadway where direct pedestrian/bicycle access would be provided.

Both tunnel alignments would provide off-ramps from SR 99 either over or under Elliott and Western Avenues. Potential ramps near Pine Street identified in the Draft EIS would no longer be constructed. Additionally, two options for lid structures between Pine Street and near Lenora Avenue are proposed. One option, the Steinbrueck Park Walkway, would begin as a pedestrian walkway north of Victor Steinbrueck Park to Pine Street. The walkway would widen to a lid covering SR 99 from Pine Street to near Union Street. The other option, the Steinbrueck Park Lid, would cover SR 99 from Union Street to the north end of Victor Steinbrueck Park. Both lid options would provide pedestrian connections to the waterfront.

The lid structures would not directly affect land use in this area; however, an enhanced connection to the waterfront would be an amenity for nearby land uses. This connection could have an influence on future land uses in the immediate area, which may reinforce residential uses and perhaps attract pedestrian-friendly business uses in this area.

Stacked Tunnel Alignment

This alignment would be approximately 67 feet narrower than the tunnel design considered in the Draft EIS. This reduction in width would potentially make this design less disturbing to adjacent land uses than either the design evaluated in the Draft EIS or the side-by-side tunnel alignment now being

considered. This could also result in a greater potential enlargement in land area that may be available within the project corridor after construction than would occur under the side-by-side tunnel alignment.

Side-by-Side Tunnel Alignment

The side-by-side tunnel alignment would be approximately 24 feet narrower than the tunnel design considered in the Draft EIS. This design could result in fewer indirect impacts on properties in the central project area than identified in the Draft EIS, which may allow it to be somewhat more compatible with adjacent land uses than the previous design. The overall construction footprint associated with this design may result in less encroachment on adjacent land uses than the tunnel design considered in the Draft EIS. As indicated in the Draft EIS analysis, the Tunnel Alternative could result in making new land area available for development and/or open space within the project corridor. A narrower tunnel may result in increasing the remaining land area available for other uses. As noted above, the side-by-side tunnel alignment would result in the conversion of a little over one-half acre more land in the central project area than would the stacked tunnel alignment.

5.3.3 North Waterfront – Pine Street to Broad Street

In the north waterfront area, no new land use impacts are expected other than property acquisitions for the Pier 62/63 parcels, as indicated in the 2006 Appendix K, Relocations Technical Memorandum.

5.3.4 North – Battery Street Tunnel to Comstock Street

The primary change in the north project area would be in the proposed connection to the Battery Street Tunnel. The Tunnel Alternative includes a retained cut to lower Aurora Avenue N. north of the Battery Street Tunnel. A somewhat similar design was discussed in the Draft EIS as an option under the Aerial Alternative. There are two options being considered for Aurora Avenue N., as discussed below.

Partially Lowered Aurora

The Partially Lowered Aurora Option would narrow the amount of right-of-way needed along the corridor where the lower grade would occur. New bridges would be needed at Harrison Street and Thomas Street to cross the lowered roadway and reconnect the existing street grid. The proposed changes would end near Aloha Street, one block south of the northern project limits identified in the Draft EIS. The Lowered Aurora Option considered in the Draft EIS was less developed, and potential impacts on north section land uses related to that option were not as fully evaluated as the current design. With the former design, less than 1 acre of Neighborhood Commercial 3

zoned land was identified for conversion in the north project section. Broad Street would be closed between Fifth Avenue N. and Ninth Avenue N. and backfilled to reconnect the current street grid. When the project is completed, portions of the former Broad Street right-of-way could provide opportunities for new development in the north project area. The City would likely vacate the filled-in portion of Broad Street, and development of remaining parcels could occur in the future consistent with zoning designations in place at that time.

With this option, 24 parcels would be affected. Approximately 9 acres of land in the Commercial 1, Neighborhood Commercial, Seattle Mixed, Downtown Harborfront, Downtown Mixed Residential, and Pike Market Mixed zones would be converted to roadway use in the north project area. Access to and from most existing land uses would be preserved, and with the proposed roadway connections, circulation to and from surrounding land uses would continue similar to current patterns.

Option: Lowered Aurora

Under this option, the new roadway would be approximately 30 feet lower than the existing street grade, and the roadway would be widened to the west. The widening and access changes along this portion of Aurora Avenue N. would require the acquisition of properties north of the Battery Street Tunnel that were not identified in the Draft EIS. In addition, as indicated in Chapter 4, the proposed project route would be extended approximately three blocks farther north than considered in the Draft EIS.

Under the Lowered Aurora Option, Broad Street also would be closed between Fifth Avenue N. and Ninth Avenue N. and backfilled to reconnect the current street grid. When the project is completed, portions of the former Broad Street right-of-way could provide opportunities for new development in the north project area. The City would likely vacate the filled-in portion of Broad Street, and development of remaining parcels could occur in the future consistent with zoning designations in place at that time. These changes would result in disruptions to existing land uses and the conversion of property to roadway use in the north project area. Land under the following zoning classifications would be affected: Lowrise 3 Residential Commercial, Neighborhood Commercial, Commercial 1, Downtown Mixed Commercial, Downtown Mixed Residential, Downtown Harborfront, Pike Market Mixed, and Seattle Mixed. The new roadway would occupy a greater area than the existing roadway; however, it would be much lower than the current grade, which would create a greater separation between land uses and the roadway footprint. In the north section, cul de sacs are proposed for John, Valley, and Aloha Streets.

This option would affect 44 parcels and require approximately 16 acres of land to be converted to roadway use in the zones noted above. As a result of these changes, some existing land uses along Aurora Avenue N. would not be affected by the new optional alignment, but may no longer be directly accessible from the new roadway. Existing access to many of these uses is provided by side streets.

Potential parcel displacements and relocations are discussed in the 2006 Appendix K, Relocations Technical Memorandum. The residential neighborhoods in the north would lose some ease of mobility associated with the present connections to Aurora Avenue N.; however, this may be offset by the benefit of a greater separation between neighborhoods and the heavily used state route.

As indicated in the Draft EIS, the existing street grid would be reconnected with overpasses at Thomas, Harrison, Republican, Mercer, and Roy Streets. Thomas Street, however, would be widened to four lanes between Sixth Avenue N. and Dexter Avenue N., which would increase the number of parcels potentially affected by this option. The primary impact this change would have on local uses would be during construction, which is discussed in Chapter 6. The few additional parcels affected by the proposed widening of Thomas Street would result in only a slight increase in the amount of residential and commercial land converted to roadway use in the north project area. As with other land uses in the north, land uses near Thomas Street would benefit from the reconnected street grid after the proposed improvements are in place.

5.3.5 Seawall – S. Washington Street to Broad Street

Replacement of the seawall would now end at Broad Street, approximately two blocks farther south than identified in the Draft EIS. This would slightly decrease the potential impacts from extending the seawall farther north, but it would not greatly change seawall impacts identified in the Draft EIS. Seawall construction would now require soil improvements in front of Pier 66, whereas impacts in this area were not identified in the Draft EIS. Impacts from construction are discussed in Chapter 6, Construction Impacts.

5.4 Elevated Structure Alternative

The Elevated Structure Alternative would result in new conversions of land uses along the proposed project route. The relative amount of land area affected under the Elevated Structure Alternative with either the Reconfigured or Relocated Whatcom Railyard Option is shown in Exhibit 5-1. As indicated by this table, the Elevated Structure Alternative with the

Reconfigured Whatcom Railyard Option would potentially affect a smaller amount of adjacent land uses than the Relocated Whatcom Railyard Option. The Elevated Structure Alternative would affect similar amounts of industrial land as the Tunnel Alternative. It would result in converting the same amount of land area in downtown zones to roadway use as the stacked tunnel alignment, and approximately 1 acre less than the side-by side-tunnel alignment.

5.4.1 South – S. Spokane Street to S. Dearborn Street

In the south project area, the Elevated Structure Alternative would be similar to the Aerial Alternative in the Draft EIS, and impacts would be similar to those described in that document. Whatcom Railyard would be reconfigured or relocated, as described for the Tunnel Alternative above in Section 5.3.1. The potential conversion of industrial land to roadway use would be approximately 5 acres less than was identified in the Draft EIS under Reconfigured Whatcom Railyard. For the Relocated Whatcom Railyard, approximately 1 acre more industrial land would be needed than was stated in the Draft EIS.

5.4.2 Central – S. Dearborn Street to Battery Street Tunnel

The Elevated Structure Alternative would be much wider through the central project area than the Rebuild Alternative evaluated in the Draft EIS. It would have a footprint similar to that of the Aerial Alternative in the Draft EIS. This wider area could potentially require more conversion of existing land uses to roadway use than considered in the Draft EIS and would result in greater encroachment of the roadway on remaining land uses in this area. Land use zones affected would include Downtown Mixed Commercial, Downtown Mixed Residential, Pike Market Mixed, Downtown Harborfront, and Industrial Commercial. Much of this would occur within the existing right-of-way to minimize direct impacts to adjacent properties.

The new viaduct would create waterfront barrier type impacts similar to those of the existing viaduct. The wider footprint for the Elevated Structure Alternative would reinforce the existing separation between waterfront and downtown land uses.

The existing Elliott Avenue and Western Avenue ramp configuration would remain with the newly reconstructed roadway. Pedestrian connections to the waterfront via the existing Lenora Street pedestrian bridge would remain. Proposed lid structures are not included for the Elevated Structure Alternative. Impacts associated with this alternative would remain as described in the 2004 Draft EIS Appendix G, Land Use and Shorelines Technical Memorandum.

5.4.3 North Waterfront – Pine Street to Broad Street

In the north waterfront area, no new land use impacts are expected other than property acquisitions for the Pier 62/63 parcels, as indicated in the 2006 Appendix K, Relocations Technical Memorandum.

5.4.4 North – Battery Street Tunnel to Comstock Street

The proposed Lowered Aurora Option was not considered for the Rebuild Alternative in the Draft EIS. The Elevated Structure Alternative includes the Partially Lowered Aurora Option. Under this option, impacts on land uses for the Elevated Structure Alternative would be the same in the north project area as those described for this option under the Tunnel Alternative in Section 5.3.4. Potential redevelopment opportunities associated with the closing of Broad Street would be the same as identified for the Tunnel Alternative in Section 5.3.4.

5.4.5 Seawall – S. Washington Street to Broad Street

Impacts would be largely the same as those for the seawall replacement identified in the Tunnel Alternative discussion in Section 5.3.5. This alternative would also require soil improvements at Pier 48 in addition to the soil improvements at Pier 66 identified above. Impacts from construction are discussed in Chapter 6.

Chapter 6 CONSTRUCTION IMPACTS

6.1 Impacts Common to Both Alternatives

During construction, property would be used for construction staging areas. This would likely mean the loss of land uses on these parcels for several years. In most instances, staging areas would involve parcels that are vacant or that do not have associated buildings, such as parking lots. These parcels are among those already expected to be acquired for roadway use or project right-of-way and are included in the land areas discussed in this document. Zoning classifications on parcels to be used for staging areas include Downtown Harborfront, Industrial Commercial, Seattle Mixed, Downtown Mixed Commercial, and Downtown Mixed Residential. Parcels potentially affected by construction staging are also considered in the parcel acquisitions discussed in the 2006 Appendix K, Relocations Technical Memorandum.

Changes in traffic movement during construction would affect travel to and from destinations in the project area. Impacts would vary during each stage of construction. The stages with complete closure of SR 99 would have the greatest impact on capacity and access. It is expected that roadway closures would result in redistributing traffic to other nearby streets throughout the project area. Businesses and other land uses would likely be affected by congestion, slower travel times, and detours. These impacts may be felt in the south, central, and north project areas at different times during the various construction stages.

Construction activities, especially along the central waterfront, would likely interfere with access to businesses and properties adjacent to the project on either side of the right-of-way. A primary goal of construction planning is to maintain adequate access to all businesses so they can continue to operate. As construction phasing and staging is refined in the coming months, it may be determined on a case-by-case basis that it is neither reasonable nor feasible to maintain access to some businesses. If adequate access cannot be maintained, impacts to affected businesses will be mitigated under policies to be identified in the project's Business Mitigation Plan. If provisions of the Uniform Relocation Act are met, then relocation assistance would be provided. Mitigation strategies are being developed to address both traffic and parking impacts, and these strategies will be presented in the Construction Transportation Management Plan for this project.

As discussed in the Draft EIS, existing parking spaces would be affected by the proposed project. Under both the Tunnel and Elevated Structure Alternatives, parking spaces would be displaced beneath the viaduct and on

adjacent parcels. Both on-street parking and off-street parking (in garages or surface lots) would be affected. There are approximately 3,703 parking spaces located within the project's construction limits. Construction of the Tunnel Alternative would remove over 1,900 of these spaces. Construction of the Elevated Alternative would remove over 2,800 spaces. Removal of parking spaces would affect local businesses and land uses. In addition, parking spaces along detour routes outside of the project's construction limits would be removed. It is also likely that parking on city streets such as First, Second, and Fourth Avenues would also be removed during construction. The number of parking spaces required for the project has increased compared to the Draft EIS due to the proposed improvements north of Battery Street Tunnel, project design changes, and updated parking counts. Parking changes are discussed in more detail in the 2006 Appendix C, Transportation Discipline Report.

6.2 Tunnel Alternative (Preferred Alternative)

The Seattle Land Use Code, which includes both general zoning regulations and the City's Shoreline Master Program, does not specifically address tunnels. If the viaduct is replaced with a tunnel, it would most likely be categorized as "street" or similar use, with the west wall also serving the purpose of "shoreline protective structure." The new tunnel would also be subject to the pertinent use regulations. It would be located in two shoreline environments, Urban Harborfront (UH) and Urban Industrial (UI). The Urban Harborfront environment prohibits landfill that creates dry land. In the Urban Industrial environment, landfill creating dry land can be permitted as a "special use," which can be granted by the Seattle Department of Planning and Development if certain standards are met; an appeal to the State Shoreline Hearings Board is also possible. The AWV Project anticipates preparing suggested code amendments to fully clarify the construction of the tunnel design as currently proposed.

Under the proposed Tunnel Alternative, two construction plans are being evaluated: the shorter plan and the intermediate plan. Impacts associated with these plans are discussed below.

6.2.1 Intermediate Plan

Under the intermediate plan, the project corridor would be closed for no less than 18 months and extending up to approximately 27 months (or longer). Northbound and southbound travel lanes would be subject to closure at different times throughout project construction. The overall duration for construction is estimated to be 8 to 8.75 years under this approach.

The intermediate plan would affect land uses in the project area. Access to and from land uses adjacent to the project route would be limited, and traffic delays would affect travel times in the area. Utility relocations would take an estimated 30 months, approximately 1 year longer than indicated in the Draft EIS.

Stacked Tunnel Alignment

Construction activities would affect adjacent land uses in a similar manner to that described in the Draft EIS. Because of the increase in duration for utilities relocations, potential disruptions on land uses associated with these activities would occur over a longer period than previously identified. This option would have a greater impact on adjacent land uses in the central project area by increasing the amount of time when full closure of the viaduct would be needed. During construction, adjacent land uses could be affected by noise, air emissions from construction vehicles and equipment, dust, traffic delays, and congestion. Separate technical reports on noise, air quality, and traffic evaluate specific impacts associated with these elements. Businesses would also be affected, and these impacts are described in the 2006 Supplemental Draft EIS Appendix P, Economics Technical Memorandum.

Side-by-Side Tunnel Alignment

The side-by-side tunnel alignment would affect SR 99 southbound traffic for a shorter period than the stacked tunnel alignment. It would also require full closure of the viaduct for a shorter period than the stacked tunnel alignment, therefore affecting properties in the central project area for a shorter period. Other impacts would be the same as those of the stacked tunnel alignment and would be expected to include noise, air emissions from construction vehicles and equipment, dust, and traffic congestion affecting nearby land uses.

6.2.2 Shorter Plan

Under the shorter plan, the project corridor would be completely closed for approximately 42 months (3.5 years). Most construction activities would occur with the corridor completely closed, and the duration for construction is estimated to be approximately 7 years. This approach would reduce the overall time needed for construction by approximately 1 year as compared to the intermediate plan.

No differences would occur for the stacked or side-by-side tunnel alignments. Because of the shorter overall construction time, land uses would be less affected by construction impacts than if periodic closures would occur over a longer duration. While this reduction might hasten the time before more typical land uses would resume in the project area, it is uncertain whether this

would greatly reduce the impacts on local land uses. This is due to the overall duration of time needed for construction for a project of this scale. Generally, however, the shorter the period when land uses are being affected, the less influence construction activities would have on activities taking place nearby.

Seawall replacement under both tunnel alignments would end at Broad Street rather than extending farther north to Myrtle Edwards Park as considered in the Draft EIS. This change reduces the area in which construction impacts would occur, and therefore would not affect adjacent land uses between Broad Street and the park. This proposed revision also would require soil improvements in front of Pier 66, whereas no replacement in that area was identified in the Draft EIS. This may affect land uses near the project corridor from approximately north of Virginia Street to Battery Street. Adjacent land uses in that area are primarily a mix of residential and retail properties. Construction impacts such as noise, air emissions and dust, and traffic congestion may be associated with this work and could cause temporary impacts similar to other construction activities for the project.

6.3 Elevated Structure Alternative

Under the proposed Elevated Structure Alternative, one construction plan is being evaluated: the longer plan. Impacts associated with this plan are discussed below.

6.3.1 Longer Plan

The longer plan evaluated with the Elevated Structure Alternative has two lanes of traffic on SR 99 would be kept open in each direction at all times except during a 3-month complete closure. The construction would last approximately 10 years.

Impacts on adjacent land uses would be similar to those described for the Draft EIS. The increased time needed for utility relocations would potentially affect land uses in the project area for a greater period than was identified in the Draft EIS. During construction, impacts on adjacent land uses may include increased noise, air emissions and dust, and traffic congestion. Traffic circulation and parking would be affected as described in Section 6.1 above. Specific impacts associated with these elements are identified in separate technical reports. Businesses operating in the project area would also be affected, and these impacts are described in the 2006 Appendix P, Economics Technical Memorandum. Construction impacts on adjacent land uses related to the seawall replacement would be the same under the Elevated Structure Alternative as were described under the Tunnel Alternative in Section 6.2.2, except that soil improvements may also be needed in front of Pier 48 as well as in front of Pier 66.

Chapter 7 SECONDARY AND CUMULATIVE IMPACTS

Secondary and cumulative impacts would be similar to those described in Chapter 7 of the 2004 Draft EIS Appendix G, Land Use and Shorelines Technical Memorandum.

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Chapter 8 OPERATIONAL MITIGATION

Mitigation measures would be the same as described in Chapter 8 of the 2004 Draft EIS Appendix G, Land Use and Shorelines Technical Memorandum. Additional mitigation measures that may be related to land use impacts are identified in the 2006 Appendix K, Relocations Technical Memorandum, and Appendix P, Economics Technical Memorandum.

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Chapter 9 CONSTRUCTION MITIGATION

Mitigation measures would be the same as described in Chapter 9 of the 2004 Draft EIS Appendix G, Land Use and Shorelines Technical Memorandum. Additional mitigation measures that may be related to land use impacts are identified in the 2006 Appendix K, Relocations Technical Memorandum, and Appendix P, Economics Technical Memorandum. Additionally, a business mitigation plan will be prepared to address impacts on businesses that are not directly displaced by the proposed project alignments. Many of the measures in this plan are expected to be applicable to residential and other land uses adjacent to the proposed project corridor.

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Chapter 10 REFERENCES

See the 2004 Appendix G, Land Use and Shorelines Technical Memorandum. In addition, the following references contributed to updated information presented in this report:

Seattle DPD (Department of Planning and Development). 2005a. 2005 Comprehensive Plan Amendments. Department of Planning and Development. November 2005. Seattle, Washington.

Seattle DPD (Department of Planning and Development). 2005b. Draft South Lake Union Neighborhood Plan Goals and Policies. November 2005. Department of Planning and Development, Seattle, Washington.

Seattle DPD (Department of Planning and Development). 2006a. Draft Seattle's Central Waterfront Concept Plan. February 2006. Seattle City Planning and City Design, Department of Planning and Development, Seattle, Washington.

Seattle DPD (Department of Planning and Development). 2006b. Livable South Downtown Background Report. January 2006. Department of Planning and Development, Seattle, Washington.

Seattle OED (Office of Economic Development). 2005. City of Seattle Industrial Land Study. August 1, 2005. Office of Economic Development, Seattle, Washington.

WSDOT (Washington State Department of Transportation), City of Seattle, and U.S. Department of Transportation, Federal Highway Administration. 2004. SR 99: Alaskan Way Viaduct & Seawall Replacement Project Draft Environmental Impact Statement. Washington State Department of Transportation, Urban Corridors Office, Seattle, Washington.

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