U.S. Department
of Transportation
**Federal Transit
Administration**

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May 8, 2002



Joni Earl
Executive Director
Sound Transit
401 S. Jackson Street
Seattle, Washington 98104

Re: Central Link (Initial Segment) Light Rail Project
Amended Record of Decision

Dear Ms. Earl:

The Federal Transit Administration (FTA) having carefully considered the environmental record for the Initial Segment of the Central Link Light Rail Project which includes the Draft and Final Environmental Impact Statements (EIS) (December, 1998 and November, 1999, respectively), Tukwila Freeway Route Draft and Final Supplemental EISs (October 2000 and November 2001, respectively), and Initial Segment Environmental Assessment (EA) (February 2002), which are the detailed statements required by National Environmental Policy Act and by 49 U.S.C. Section 5324(b), hereby issues an Amended Record of Decision (Amended ROD) dated May 8, 2002, a copy of which is enclosed with this transmittal. In transmitting this Amended ROD, FTA would like to highlight a few significant issues:

1. This Amended ROD supercedes the Record of Decision of January 5, 2000, which, by the issuance of this Amended ROD, is NULL AND VOID;

2. This Amended ROD provides for a project that is described in the aforementioned environmental documents as the "Initial Segment", a light rail alignment that starts at the Convention Place Station, as the northern rail terminus (the northern passenger terminus being the Westlake Station) in the existing Downtown Seattle Transit Tunnel and proceeds south to the 154$^{th}$ Street Station in the City of Tukwila with shuttle bus service from the 154$^{th}$ Street Station to Sea Tac International Airport;

3. Incorporated in the Amended ROD is a finding of no significance on the changes to the project that were evaluated in the Initial Segment EA;

4. Reference is made to Attachment E, a summary of the required mitigation measures, including a mitigation monitoring program, the implementation of which are material conditions of the Amended ROD and will be required of Sound Transit upon the issuance of any funding from FTA for the construction of the project;

5. Please transmit a copy of this Amended ROD and the Attachments thereto to all affected public agencies and to all parties who submitted either written or oral comments on the Initial Segment EA; and

6. Please make available for reviewing at Sound Transit and at a few other convenient public locations (e.g., libraries or local government offices) along the alignment this Amended ROD, the Attachments thereto and all comments received by Sound Transit on the Initial Segment EA.

Finally, please have deposited in the mail or otherwise delivered the Amended ROD as provided in item 5, above, prior to any public notice or announcement of this Amended ROD.

Thank you for your attention to these matters. FTA looks forward to continually working with you and your staff on this project.

Sincerely,

Blas M. Uribe

Blas M. Uribe
Acting Regional Administrator

SOUNDTRANSIT

May 8, 2002

Dear Recipient:

Please find enclosed a copy the Federal Transit Administration (FTA) Amended Record of Decision (ROD) for the Initial Segment of Sound Transit's Central Link Light Rail Transit Project. The Amended ROD finds that the requirements of National Environmental Policy Act (NEPA) have been satisfied for the construction and operation of the Initial Segment by Sound Transit. The Amended ROD also concludes and incorporates a finding of no significant impact for the Initial Segment Environmental Assessment (EA) issued on February 5, 2002.

To respond to the comments received on the EA, comments were consolidated into representative comments and responses prepared for each. The consolidated comments and responses are attached to the Amended ROD (see ROD Attachment F). A separate EA Response to Comments document has also been prepared that includes the individual letters and testimonies annotated to identify specific comments. Copies of the separate EA Response to Comments document are available for review at the Sound Transit Information Center (Union Station, 401 South Jackson St., Seattle) and will also be available at Seattle Public libraries and King County libraries.

***Errata:***

*ROD Attachment F, Contents (page 2), under Section 1, names an Exhibit 2 – List of EA Commentors. This exhibit is not included in Attachment F. A list of commentors is provided in the EA Response to Comments document reference index.*

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# AMENDED RECORD OF DECISION

## FOR
## CENTRAL PUGET SOUND REGIONAL TRANSIT AUTHORITY'S
## (SOUND TRANSIT)
## INITIAL SEGMENT OF THE
## CENTRAL LINK LIGHT RAIL TRANSIT PROJECT
## KING COUNTY, WASHINGTON

The Federal Transit Administration (FTA), pursuant to 23 Code of Federal Regulations (CFR) Section 771.127 and by an environmental Record of Decision (ROD) dated January 5, 2000, found that the requirements of the National Environmental Policy Act (NEPA) had been satisfied for the construction of a light rail system known as the Central Link Light Rail Transit Project (Central Link) by the Central Puget Sound Transit Authority (Sound Transit). The locally preferred alternative (LPA) for this 23.4-mile light rail line project connected the Northgate Urban Center, the University District, Capitol Hill, downtown Seattle, southeast Seattle, and the cities of Tukwila and SeaTac in the Puget Sound region of Washington state. Pursuant to request by Sound Transit, a Notice of Intent (NOI) was published in the Federal Register on October 22, 2001 that provided notice of Sound Transit's evaluation of alternative alignments for that section of Central Link from downtown Seattle proceeding north. Further, by action taken on November 29, 2001, Sound Transit Board preliminarily incorporated changes to the LPA for that portion of the LPA from downtown Seattle to S. 154$^{th}$ Street in the City of Sea Tac. These changes included, but are not limited to, the selection of new north and south termini, joint bus-rail operations in the Downtown Seattle Bus Tunnel, extending the construction period approximately two years, the Beacon Hill station build-out, certain design refinements, and the Tukwila Freeway Route. These changes effectively altered the LPA, for Federal record of decision-making purposes under NEPA, to a project and alignment what is now referred to as the "Initial Segment" (hereinafter sometimes referred to as "Amended LPA"). This Initial Segment or Amended LPA constitutes the Federal project for which this Amended Record of Decision (Amended ROD) applies. To evaluate the potential environmental impacts of the Amended LPA, an Environmental Assessment (EA) (and the necessary NEPA required procedures incumbent with the issuance of an EA) was performed and issued in February 2002 addressing the changes to the LPA from downtown Seattle to the S. 154$^{th}$ Station in the City of Tukwila, and a Supplemental Final Environmental Impact Statement (and the necessary NEPA required procedures incumbent with the issuance of a supplemental environmental impact statement) on the portion of the LPA running from the Boeing Access Road station through the City of Tukwila to S. 154$^{th}$ Station (Tukwila Freeway Supplemental EIS) was performed and issued in November 2001, both conducted and intended to supplement the Central Link Final EIS of November 1999. (FTA recognizes that Sound Transit considers its overall Central Link project alignment to continue to consist of that alignment from

Northgate to S. 200th Street in the City of SeaTac and may seek additional Federal funds for the completion of Central Link to Northgate and to S. 200th Street.) This Amended LPA, and to which this Amended ROD applies, is the 14-mile light rail line connecting downtown Seattle, southeast Seattle and the City of Tukwila.

FTA, pursuant to 23 CFR Section 771.127, hereby issues this Amended ROD finding that the requirements of NEPA have been satisfied for the construction and operation of the Amended LPA alignment by Sound Transit. This Amended ROD supercedes the ROD of January 5, 2000, which, by the issuance of this Amended ROD, is NULL AND VOID. This Amended ROD is based on the close monitoring of the process followed by Sound Transit in setting forth and considering the effects of the project and the available alternatives. This process included the preparation of a draft and final Environmental Impact Statement (EIS) in 1998 and 1999, respectively, the draft and final Tukwila Freeway Route Supplemental EIS dated October 2000 and November 2001, respectively, and the Initial Segment Environmental Assessment (EA) dated February 2002 and the determinations made herein. (Within this Amended ROD, FTA specifically concludes and incorporates a finding of no significant impact for the Initial Segment EA, as discussed below.)

This Amended ROD provides a summary description of the project or amended LPA, background of the project's development, alternatives considered, the public opportunity to comment, the public comments and responses to comments, the basis for the decision and mitigation measures required. However, this summary does not supercede or negate any of the information, descriptions, or evaluations provided in the Central Link Final EIS, Initial Segment EA , the Tukwila Freeway Route Final Supplemental EIS, and the Section 106 Programmatic Agreement (December 1999) and the Amendment to the Programmatic Agreement (February 2002). These documents, together with their associated published Drafts, constitute the FTA environmental record for the project and are incorporated herein by reference. The summary descriptions are provided in this Amended ROD to provide a summary of the basis of the record of decision.

## AMENDED LOCALLY PREFERRED ALTERNATIVE

Electric light rail technology was chosen for the Initial Segment of the Central Link Light Rail Project because of its versatility to operate at-grade (on surface) with mixed traffic, on elevated tracks, or in tunnels. Because of the varied geographic conditions along the proposed corridor, the project combines all three profiles. At grade operation is preferred, although each profile type has benefits and disadvantages. (See Section S.4 of the Final EIS for the discussion of the suitability of the three operational configurations.) (See also the Amended ROD Attachment A for general route profile characteristics.)

Standard features of the stations include boarding platforms that would be approximately 400 feet long to accommodate four-car trains. Platforms may be

on either side of the track or in the center with tracks on both sides. Where stations are elevated or in tunnels, escalators, elevators and stairs would be provided as appropriate. Bus transfer facilities would be provided at most light rail stations and existing on-street transfer locations would continue in downtown Seattle. Transfers to Sounder commuter rail service are proposed at the International District Station. Transfers to Amtrak could occur at the International District Station. Park-and-ride facilities would be provided at the S. 154th Station.

The project or Amended LPA (and to which this Amended ROD applies) is more particularly described in: (1) Section S.3 of the Final EIS as that part of Segment B from the Convention Place Station (CPS) and proceeding south, Segment C, Segment D, Segment E, and that part of Segment F up to and including S.154th Street; and (2) Section S.4.2 of the Tukwila Freeway Route Final Supplemental EIS; and S.1 of the Initial Segment EA. (See Attachment B for a map of the Amended LPA.) This project or Amended LPA consists of a light rail line that begins at the north end of the existing downtown Seattle transit tunnel (DSTT). The DSTT will be converted from bus to joint use by buses and trains. The rail track in the DSTT will start under Pine Street near the current location of CPS. (Segment B in the FEIS, CPS and south.) Light rail passenger stations in the DSTT will be located at Westlake (the northern light rail passenger terminus although buses and bus passengers would still access the tunnel via Convention Place Station), University Street, Pioneer Square and the International District. Light rail trains and buses will jointly operate in the DSTT until train headways decrease to the level where joint operation is no longer desirable or feasible.

After leaving the DSTT, the route will be at-grade along the east side of the E3 Busway (also known as the Metro busway) with bus and rail operations separated. A station at Royal Brougham Way (full build-out of this station is currently deferred) will serve the new sports stadiums and a station at South Lander Street will serve the industrial employment centers in south downtown Seattle. The line then turns east, crosses Airport Way S. elevated, and tunnels under I-5 and Beacon Hill, with a mined Beacon Hill station. It would transition to an elevated profile approaching the McClellan Station. (Segment C in the FEIS, Westlake to McClellan.)

The route turns south traveling at-grade on Martin Luther King (MLK) Jr. Way South in the Rainier Valley with stations at McClellan, Edmunds-Graham (currently deferred), Othello and Henderson streets. New signalized intersections and nine pedestrian-only signalized crossings will be added to MLK Jr. Way S. (Segment D in the FEIS, South McClellan Street to Boeing Access Road.)

From Rainier Valley the route travels elevated at Boeing Access Road, crossing over Interstate-5 (I-5), then turns south along the west side of East Marginal Way, State Route (SR) 599, and I-5, turning westward onto the north side of SR 518 to S. 154th Street in Tukwila, across SR 99 (International Boulevard) turning south. A station and park-and-ride at Boeing Access Road is currently deferred. An elevated station and park-and-ride will be located at S. 154th Street and International Boulevard. (Segment E in the FEIS and in the Tukwila SEIS.) A new signalized intersection will be added at the driveway to the

S. 154th Street Station park-and-ride. A new westbound right turn lane will be provided at S. 154th Street/Tukwila International Boulevard to further improve traffic operations. A continuous sidewalk along the south side of S. 154th Street between Tukwila International Blvd. and 40th Avenue S. will be provided to improve pedestrian access to and from the proposed station. Scheduled shuttle buses will take passengers from this park-and-ride to the SeaTac Airport.

A maintenance and operations base shall be constructed at the former site of the Rainier Brewery (known as the Rainier Brewery/Roadway Express site) between South Forest Street, Airport Way South, south of South Hinds Street and Seventh Avenue South.

## BACKGROUND

The Central Link Light Rail Project is a major element of the ten-year Regional Transit System Plan called *Sound Move* completed in 1993. This ten-year plan was the product of decades of mass transit planning in the Puget Sound region. In 1996, the voters in the Central Puget Sound area which includes King, Pierce and Snohomish Counties, approved local financing for Sound Move including increases of 0.4 percent sales tax and 0.3 percent motor vehicle excise tax. In May, 1997, the Major Investment Study for the *Sound Move* plan was completed and was approved by the metropolitan planning organization, Puget Sound Regional Council.

## ALTERNATIVES CONSIDERED

### Route and Maintenance Base Alternatives

Light rail alternative routes and station plans are provided in Appendix H of the Final EIS (excluding, for the purposes of this Amended ROD, those sections north of the DSTT and south of S. 154th St.), Appendix K of the Tukwila Freeway Route Final Supplemental EIS, and in the Initial Segment EA which are all incorporated herein by reference. The alternatives were planned and evaluated in five geographic segments. The segments are:

- Segment B: Only that section from Pine Street to Westlake Station
- Segment C: Westlake Station to South McClellan Street
- Segment D: S. McClellan Street to Boeing Access Road
- Segment E: Tukwila
- Segment F: Only up to the S. 154th St. Park-and-Ride and Station in Tukwila

Segment alternatives were evaluated first to ensure that route and station locations proposed would fit within the whole system and any future expansions and second to compare advantages and disadvantages of route alternatives. These criteria included community compatibility, cost, environmental impacts, political and community acceptance, ridership, and transportation impacts. On

May 14, 1998, the Sound Transit Board approved the route and station location alternatives for study in the Draft EIS.

In response to public and agency comments and new information, several new or modified alternatives or options were added in the Final EIS. Many new or modified alternatives were developed specifically to reduce potential impacts, such as Alternatives D1.1e and D1.1f. Public and agency comments just prior to and after the release of the Draft EIS led to the development of an all tunnel option for the entire length of Rainier Valley. This option study is contained in the Rainier Valley Tunnel Environmental Technical Report issued February 1, 1999 for public and agency review. The report is also included in the Final EIS in Appendix Q. Evaluation of the Rainier Valley Tunnel alternative indicates that it is not a reasonable alternative.

After issuance of the Draft EIS and consideration of extensive public and agency comment, the Sound Transit Board identified a preliminary locally preferred alternative on February 25, 1999 in Segments B through F. This preliminary LPA was evaluated in the Final EIS. The Final EIS also evaluated four to eight route alternatives and numerous station options within each segment. Seven maintenance base site alternatives were also considered. In response to public and agency comments on the Draft EIS, additional maintenance base and station sites were evaluated in an Environmental Assessment of August 1999, which was circulated for public review and comment. That analysis and responses to comments were included in the Final EIS. Some of the maintenance base sites are possible only with specific route and length alternatives while others could be matched with multiple route and length alternatives. A maintenance base would provide for running repairs, heavy maintenance and storage of light rail vehicles. The site should be industrial zoned, from 21 to 30 acres in size, adequate to accommodate storage of a fleet of at least 100 vehicles and located centrally within the light rail corridor. (See Attachment D for a more detailed description of the maintenance base site criteria.)

An alternative route through Tukwila (Tukwila Freeway Route - Alternative E4) was proposed by the City of Tukwila and the Sound Transit Board directed preparation of a Supplemental EIS. The Draft Supplemental EIS was issued October 20, 2000. On February 8, 2001 the Sound Transit Board identified the Tukwila Freeway Route as its preliminary LPA for that segment of the Central Link. Responses to comments on the Draft Supplemental EIS and analysis of the Tukwila Freeway Route were included in the Final Supplemental EIS, which was issued November 16, 2001. The November 29, 2001 Sound Transit Board action to adopt the Initial Segment also selected the Tukwila Freeway Route as part of the preferred alternative.

Other changes and refinements to the LPA and MOS related to the Initial Segment were evaluated in the Environmental Assessment (EA), issued February 5, 2002.

Attachment C to this Amended ROD provides: (1) a summary of track length, segment travel time and the number of proposed stations for each route alternative; (2) a depiction of routes and station locations by segment (each route alternative is defined according to its horizontal route and vertical profile – that is, whether the tracks are at the street level, elevated, or in a tunnel); and (3) a summary of the alternatives (other than the Locally Preferred Alternative).

**No-Build and System Length Alternatives**

The Final EIS, Tukwila Freeway Route Final Supplemental EIS, and Initial Segment EA also evaluated the No-build Alternative and different system length alternatives for the proposed light rail line.

- **No-build Alternative.** The No-build Alternative represents the current transportation system plus projects in the region's 20-year Metropolitan Transportation Plan, including Sound Transit Sounder commuter rail and regional express bus service.

**The length alternatives evaluated were:**

- **Northgate to SeaTac.** The Northgate to SeaTac (full-length) light rail alternatives extend approximately 24 to 29 miles (covering Segments A through F) from 103rd Avenue Northeast in Northgate to South 200th Street in SeaTac and include all the potential route alternatives and station options in the segments.

- **University District to SeaTac.** The 45th St. to SeaTac alternatives are 3.4 miles shorter, extending from Northeast 45th Street to South 200th Street and include all the route alternatives and station options in Segments B through F, including the original locally preferred alternative.

- **Minimum Operating Segments (MOS).** Four minimum operable segments are also evaluated in the Final EIS and Initial Segment EA: MOS A, from Northeast 45th Street to S. McClellan Street (Segments B and C); MOS B from Capitol Hill to S. Henderson Street (part of Segments B and D, and all of Segment C); and MOS C from N.E. 45th Street to S. Lander Street (Segment B and part of Segment C). The Initial Segment MOS extends from the DSTT to the S. 154th Station and includes joint bus-rail operation in the DSTT and the Tukwila Freeway Route.

Each of the length alternatives evaluated involved different selections of one or both terminus stations, although all stations would have been designed to allow future extensions. The potential terminus stations were at Northgate, Northeast 45th Street, Capitol Hill, Westlake, South Lander Street, South McClellan Street, South Henderson Street, South 154th Street, or South 200th Street. Park-and-rides or significantly increased bus activity would not occur with any of the terminus stations except Northgate, South 154th Street and South 200th Street.

## PUBLIC OPPORTUNITY TO COMMENT

Public participation in the development and implementation of *Sound Move* and Link started with the Forward Thrust Plan in the 1960s. This public participation included the use of an advisory panel of civic leaders to provide overall guidance; review and input from subregional groups of elected officials; subarea forums; community and business meetings; and roundtable sessions to gather local input and help develop the plan.

### EIS Scoping Process

From November 1997 to February 1998, Sound Transit distributed a Scoping Information Report to approximately 4,500 households along the proposed corridor, held seven public meetings, and collected over 400 written comments on the environmental analysis and altematives proposed. In March 1998, comments were described in a Scoping Summary Report.

Between February and June 1998, Sound Transit solicited input from citizens, organizations, and agencies to help define the route alternatives to be included in the Draft EIS. Sound Transit distributed material describing the route options to approximately 8,000 households along the corridor. To allow community leaders to experience rapid transit systems, Sound Transit sponsored ten field trips to Portland, Oregon and Vancouver, British Columbia, Canada. Eleven community workshops and several walking tours of the proposed routes were sponsored by Sound Transit to engage citizens in exploring the route options and evaluation criteria. The City of SeaTac, Port of Seattle, City of Tukwila, City of Seattle, and King County Metro were involved through special briefing sessions, council presentations, and ongoing coordination meetings. Two formal public hearings served as the final events in the process.

The Draft EIS was circulated to affected local jurisdictions; regional, state, and federal agencies; community organizations; environmental and other interest groups; and interested individuals. The Draft EIS was publicly available on December 4, 1998 and notification of its issuance was published in the Federal Register on December 11, 1998. Over 1,500 Draft EISs were distributed. A 60-day comment period was provided to the public, agencies, and jurisdictions to allow the opportunity to comment on the Draft EIS to Sound Transit and the FTA. Five public hearings were held during the comment period at various locations along the project corridor to take oral testimony. Sound Transit received more than 900 comment letters or public hearing testimonies. These comments, and responses, are included in the Final EIS, Volumes 3, 4, and 5. Other outreach efforts during the EIS process are described in the Final EIS.

The Tukwila Freeway Route Supplemental EIS process provided additional opportunities for public comment and involvement in the development process. An open house on the project was held on March 22, 2000 and an agency scoping meeting was held August 10, 2000. The Tukwila Freeway Route Draft Supplemental EIS was issued on October 20, 2000. A 45-day comment period was provided, with a public hearing held on November 15, 2000. A total of 31 comment letters and oral testimonies were received during the comment period.

The comments and responses are included in the Tukwila Freeway Route Final Supplemental EIS. Other outreach efforts during the Supplemental EIS process are described in the Final Supplemental EIS.

The Initial Segment EA process also included extensive public outreach and participation throughout 2001 leading up to the Sound Transit Board decision in November 2001 and the EA publication on February 5, 2002. A 30-day comment period was provided after issuance of the Initial Segment EA. A public hearing was held on February 21, 2002. A total of approximately 139 comment letters and oral testimonies were received on the EA and a response to comments package has been prepared to summarize and address comments. The summary of comments and response to comments are attached hereto as Attachment F. (Copies of the full text of the comments will be available for review at the Sound Transit offices and public libraries.) Other outreach efforts related to the Initial Segment MOS are described in the EA.

## BASIS FOR DECISION

### PURPOSE AND NEED

The Federal Transit Administration in consultation with Sound Transit (the Central Puget Sound Regional Transit Authority) has determined that the Amended LPA as put forth in the Final EIS, Tukwila Freeway Route Final Supplemental EIS and the Initial Segment EA and as described herein meets the purpose and need for the project and the goals established for the project as described and evaluated in each of these documents. The segment alternatives selected for the Amended LPA are preferred for the following summarized reasons:

- **Downtown Transit Tunnel.** Sound Transit will jointly use the downtown transit tunnel in conjunction with King County Metro. The tunnel will initially be converted for joint bus and rail operation, as studies have determined that until the system is expanded joint operations will allow the most efficient use of the DSTT and minimize congestion on downtown surface streets. Light rail trains and buses will jointly operate in the DSTT until train headways decrease to the level where joint operation is no longer desirable or feasible. The existing Convention Place station cannot be used for light rail service. Direct bus access to and from the I-5 express lanes at this location will be maintained.

- **South Forest Street Beacon Hill Tunnel.** The Beacon Hill tunnel route will avoid major business displacements and traffic impacts at the junction of Rainier Avenue S., Boren Avenue, Jackson Street and Dearborn Avenue, avoid impacts to Eastside bus riders and carpool users, and serve a North Duwamish light rail vehicle maintenance base. It creates the opportunity to serve the south downtown Seattle industrial area and to provide stations for the two stadiums and Beacon Hill.

- **MLK Jr. Way South At-Grade Route.** The preferred at-grade alignment has been reduced from an initial design of 104' right-of-way between stations to 93' in order to minimize property acquisition impacts. Other alternatives would have similar or greater impacts as the preferred alternative. Signalized intersections and pedestrian crossings added to the preferred alternative will improve access and circulation compared to other build alternatives. The at-grade alignment on MLK Jr. Way South supports the City of Seattle's Comprehensive Plan and associated Neighborhood Plans. In cooperation with the city and others, it is expected to provide economic and community development opportunities.

- **Tukwila Freeway Route**. The Tukwila Freeway Route is entirely in exclusive right-of-way with approximately 75 percent of the alignment elevated and the remainder located in retained cut-fill. The effects on the built environment are less, in part because the Tukwila Freeway Route is in less densely developed areas. There would be fewer property acquisitions, and there are fewer traffic congestion impacts than the Pac Highway-Highway 99 alternative selected in the original LPA. The route would serve Boeing workers at plants near Boeing Field with the Boeing Access Road Station, although this station has been deferred in the Initial Segment. The S. 154$^{th}$ St. Station would serve the residents and businesses along International Boulevard in SeaTac and Tukwila, as well as Burien to the west and Tukwila and Renton to the east. Conceptual engineering analysis indicates the route would accommodate future extensions east to Southcenter and beyond. Serving Southcenter in the initial segment would have substantially greater costs and increase travel time between 1.4 to 5.0 minutes. The increased travel time would reduce ridership to SeaTac and offset most of the ridership gains within the City of Tukwila. The Tukwila Freeway Route would avoid many of the City's land use and planning concerns about the Highway 99 route and the City of Tukwila supports the Tukwila Freeway Route. Public comments also indicate many in the local community support the Tukwila Freeway Route.

- **Rainier Brewery/Roadway Express Maintenance Base Site (M1-D).** This location serves the Initial Segment MOS, impacts the least number of businesses and has the second lowest job impacts of all sites studied.

The evaluation of the alternatives including the maintenance base alternatives and the light rail system as a whole are evaluated in Section 6 of the Final EIS.

**Initial Segment Environmental Assessment**

Following the Sound Transit Board's decision in November 2001 to select the Initial Segment for initial construction and operation, the Intial Segment EA was approved and published on February 5, 2002. Specifically, the Initial Segment EA described and evaluated the potential environmental impacts of changes and design refinements to the Central Link Project (as described in the FEIS and ROD) in the selection of the Initial Segment. It was not the intent nor the

requirement that the Initial Segment EA redo the FEIS for the Central Link Project or redo the FEIS for that segment of the Central Link Project that is made up of the Initial Segment. Rather, the Initial Segment EA evaluates whether the changes made to the Central Link Project by Initial Segment and the design refinements would result in substantial adverse impacts not evaluated in existing environmental documents (FEIS and Tukwila Freeway Route Final Supplemental EIS).

The changes and design refinements evaluated include the following (see Section 2, Intial Segment EA):

- A revised systems operations plan, including a different initial year of operation;
- A revised construction period;
- A northern terminus for rail near CPS;
- A northern terminus for rail passengers at the Westlake Station;
- A southern terminus at the S. 154th St. Station with shuttle bus service to Sea-Tac Airport;
- Joint bus/rail operations in the DSTT;
- The Tukwila Freeway Route, evaluated in the Tukwila Freeway Route Supplemental EIS;
- Light rail station build out at Beacon Hill and deferral of Boeing Access Road Station; and
- Minor changes in design of stations and facilities between Beacon Hill Station and Henderson Station. (See Initial Segment EA, Section 2 for full description of changes including system-wide changes and changes specific to different areas of the corridor.)

Alternatives Considered for the Initial Segment.

Prior to identifying the Initial Segment, the Sound Transit Board reviewed a range of other potential length alternatives and interim terminus options.

- Unversity Link. The original MOS and part of the original LPA extending from N.E. 45th Street to the maintenance base. Due to the higher estimated costs for this segment and a desire to review other route alternatives to Capitol Hill, it was removed from consideration for the Initial Segment.
- Convention Place Station to Henderson Station. A route similar to the Initial Segment, but not extending through Tukwila to the City of SeaTac.

It was removed from consideration because it had lower ridership than the Initial Segment.

- Convention Place Station to S. 200th Street. Longer, but largely the same as the Intitial Segment, this route extends beyond the SeaTac Airport to S. 200th Street. It was removed from consideration to allow reconsideration of a wider range of options in the airport area to accommodate newly changing airport development plans by the Port of Seattle.

- Capitol Hill Station to Henderson Station. Part of the original LPA from Capitol Hill Station to the Henderson Station. As with the University Link, this alternative was removed from consideration to allow reconsideration of a wider range of alternatives to extend Link north to the University District and Northgate.

- Royal Brougham Station to S. 154th Street. This alternative would not provide rail through downtown and would instead provide a rail/bus transfer terminal at Royal Brougham station with shuttle buses running through the DSTT. This alternative was removed from consideration due to low ridership.

(For the DSTT operations alternatives considered, see Initial Segment EA, Section 2.6.2. and Attachment C.)

Finding.

FTA has considered the Initial Segment EA and the public and agency comments on it generated during the 30-day comment period and public hearing (see Comment Section below). FTA finds that the Initial Segment EA, incorporated herein by reference, identified similar or less adverse environmental impacts and no new significant adverse environmental effects that result from the changes to the project's construction or operation as identified in the Initial Segment EA and that were not already evaluated in the FEIS and Tukwila Freeway Route Final Supplemental EIS. The potential impacts include those as might be found in the following areas: Transportation; Land Use and Economics, Environmental Justice, Neighborhoods and Populations; Noise and Vibration; Visual Resources and Aesthetics; Air Quality; Ecosystems; Water Resources; Energy; Geology and Soils; Hazardous Materials; Electromagnetic Fields; Public Services; Utilities; Cultural Resources and Historic Properties; Parklands; Construction; Cumulative Effects; and System-wide Impacts. After carefully considering the Initial Segment EA, its supporting documents, and the public comments and responses, and the mitigation measures, FTA finds, under 23 CFR 771.121 and 771.130, that the proposed changes to the project, with the mitigation to which Sound Transit has committed, will have no new significant adverse impacts on the environment beyond those previously evaluated in the FEIS and the Tukwila Freeway Route Final Supplemental EIS. The record provides sufficient evidence and analysis for determining that another supplemental EIS is not necessary.

## COMMENTS TO THE FINAL EIS, TUKWILA FREEWAY ROUTE FINAL SUPPLEMENTAL EIS, AND INITIAL SEGMENT EA, AND RESPONSES

The FTA and Sound Transit received a comment letter from the U.S. Environmental Protection Agency (EPA) on the Final EIS. In that letter, the EPA mentions that the Final EIS "demonstrates that, without appropriate mitigation measures, impacts to [the minority and low income] community would be considerably greater than the impacts to any other individual segment of the project" and that the EIS should make that clear to the decision makers and the public. The EPA, however, goes on to find that it is a fair discussion for the EIS to argue that the mitigation measures and project benefits offered offset the impacts. They conclude by recommending that the mitigation measures referenced in the Final EIS be incorporated within the ROD as required commitments.

The FTA has read the Final EIS to clearly state that the impacts of the project may be greater on the minority and low-income community without the mitigation measures included. (See, for example, pages S-51-52.) The changes to the project as discussed in the Initial Segment EA do not change that conclusion. (See Initial Segment EA, Appendix F.) The FTA also notes that Department of Transportation Order 5680.1 on Environmental Justice, Section 8, requires that in making a determination whether there are disproportionately high and adverse impacts on the minority and low-income populations, mitigation and enhancement measures and all offsetting benefits to the affected minority and low-income populations may be taken into account. Under this mandate, the FTA considered the mitigation measures and design changes offered in the Final EIS, Tukwila Freeway Route Final Supplemental EIS and Initial Segment EA and the benefits to the affected communities in order to determine whether there existed disproportionately high and adverse impacts on those communities. In concluding that disproportionately high and adverse impacts do not exist, the FTA has included all mitigation measures referenced in the Final EIS, Tukwila Freeway Route Final Supplemental EIS and Initial Segment EA in this Amended ROD as material conditions to be implemented by Sound Transit.

Sound Transit received comment letters from three other parties on the Final EIS. One letter alleged certain inaccuracies and omissions in the Final EIS. One expressed opposition to the expense of tunneling and argued that the use of a monorail system was not adequately evaluated. One letter expressed concern that the safety issue was not adequately addressed in Segment E. Sound Transit provided adequate individual written responses to each comment submitter and those responses are on file with Sound Transit.

Sound Transit has not received any comments on the Tukwila Freeway Route Final Supplemental EIS (although several comments received on the EA pertained to the Tukwila Freeway Route).

Sound Transit received approximately 116 comment letters on the Initial Segment EA. In addition, 23 people spoke at the public hearing on the EA. A report containing all the comment letters and hearing testimony is available at

Sound Transit. Responses to the comments and issues raised are attached to this Amended ROD as Attachment F.

## MITIGATION MEASURES TO MINIMIZE HARM

Attachment E, which is incorporated herein by reference, establishes the mitigation measures that are required of Sound Transit under this Amended ROD. These mitigation commitments identified are based on the mitigation measures identified in the Final EIS, Tukwila Freeway Route Final Supplemental EIS, and Initial Segement EA. Implementation of these mitigation measures including those summarized in Attachment E are material conditions of this Amended ROD and will be incorporated in any grant agreement that the FTA may award Sound Transit for the construction of Central Link.

The Federal Transit Administration finds that with the accomplishment of these mitigation commitments Sound Transit will have taken all reasonable, prudent and feasible means to avoid or minimize impacts from the preferred alternative.

In addition, Sound Transit shall establish a mitigation-monitoring program, which will be approved by FTA, which will track, monitor and report the status of the environmental mitigation actions identified in this Amended ROD (see the Link Light Rail Project Management Plan). The mitigation-monitoring program may, upon approval of FTA, be revised as necessary during the permitting process in order to facilitate implementation of those measures during final design and construction. Under this program, Sound Transit's Link Environmental Manager will conduct regular audits and reviews for compliance with environmental mitigation commitment with corrective actions as may be required.

On a quarterly basis, Sound Transit will submit a Link Environmental Mitigation Program Status Report describing the status of the mitigation-monitoring program to the FTA. Implementation of identified mitigation measures during final design and construction will be the responsibility of Link's Environmental Manager.

## DETERMINATIONS AND FINDINGS

### Environmental Findings

The environmental record for the Initial Segment of the Central Link Light Rail Project includes the previously referenced Draft and Final Environmental Impact Statements (December, 1998 and November, 1999, respectively), Tukwila Freeway Route Draft and Final Supplemental EISs (October 2000 and November 2001, respectively), and Initial Segment EA (February 2002). These documents, all incorporated herein by reference, represent the detailed statements required by NEPA and by 49 U.S.C. Section 5324(b) on:

The environmental impacts of the proposed project;

The adverse environmental effects which cannot be avoided should the proposed project be implemented;

Alternatives to the proposed project; and

Irreversible and irretrievable impacts on the environment which may be involved in the project should it be implemented.

Having carefully considered the environmental record noted above, the mitigation measures as required herein and the written and oral comments offered by other agencies and the public on this record, the FTA has determined that adequate opportunity was afforded for the presentation of views by all parties with a significant economic, social, or environmental interest, and fair consideration has between given to the preservation and enhancement of the environment and to the interest of the community in which the project is located; and all reasonable steps have been taken to minimize adverse environmental effects off the proposed project and, where adverse environmental effects remain, there exits no feasible and prudent alternative to avoid or further mitigate such effects.

**Endangered Species Act (ESA) Consultation with Resource Agencies**

The ESA of 1973, as amended, provides a means to conserve the ecosystems that threatened and endangered species depend on and to provide a program to conserve such species. The ESA requires a federal agency to ensure that any action authorized, funded or carried out by them is not likely to jeopardize the continued existence of any listed species or result in direct mortality or destruction or adverse modification of critical habitat of listed species. This requirement is fulfilled by consultation and review of the proposed actions and mitigation with the appropriate agency responsible for the conservation of the affected species.

The ESA consultation requirements were implemented for the Link light rail project by the FTA in consultation with the National Marine Fisheries Service (NMFS) and U.S. Fish and Wildlife Service (USFWS). NMFS indicated that the project's effects on Chinook salmon (*Oncorhynchus tshawytscha*), a threatened species, should be evaluated in a Biological Assessment (BA). Also present in the project area is coho salmon (*Oncorhynchus kisutch*), a candidate species which does not require analysis. However, Sound Transit and the FTA chose to evaluate impacts to coho in case this species becomes listed in the future. NMFS identified three species of listed marine mammals potentially occurring in Puget Sound: the endangered humpback whale (*Magaptera novaeangliae*), leatherback sea turtle (*Dermochelys coriacea*), and the threatened Stellar sea lion (*Eumetopias jubatus*). While these three listed marine mammals are not expected to use or occur in the light rail project area, they are discussed in the BA that was prepared for Chinook and coho salmon.

USFWS identified the bald eagle as a listed threatened species, the peregrine falcon as listed endangered species, and the bull trout as proposed threatened species. Bull trout were subsequently listed as threatened species and peregrine falcons were delisted. A BA for these three species was also prepared.

During the preparation of the BAs, regular informal consultations occurred between NMFS, USFWS, FTA, Sound Transit, and biologists working on the BAs, including briefing sessions, telephone updates, and periodic review drafts. The BA's were submitted by the FTA to the NMFS and to the USFWS on December 2, 1999. Additionally, BA's for the Tukwila Freeway Route were submitted by the FTA to the NMFS and to USFWS in November 2001.

FTA received letters of concurrence for the Central Link project from both the USFWS dated April 24, 2000 and the NMFS dated May 24, 2000. Letters of concurrence for the Tukwila Freeway Route were received December 10, 2001 from NMFS and January 25, 2002 from USFWS. On April 3, 2002, FTA forwarded to NMFS and USFWS documentation that was intended to supplement the BA's showing that the changes as reflected in the Initial Segment EA had no effect on the concurrence letters issued by those resource agencies for the Central Link project. That documentation provides reasonable assurances that all requirements of ESA can be met. Therefore, this Amended ROD is subject to compliance by Sound Transit with any reasonable and prudent measures, alternatives or mitigation actions as might be included in any concurrence letters or other ESA compliance documentation that NMFS and/or USFWS may provide on the Initial Segment project.

**Section 106 Compliance**

Section 106 of the National Historic Preservation Act of 1966, as amended, requires that federal agencies identify and assess the effects of federally assisted undertakings on historic resources, archaeological sites, and traditional cultural properties, and to consult with interested parties to find acceptable ways to avoid or mitigate adverse effects.

The preferred alternative would place an elevated route across Cheasty Boulevard, an area eligible for nomination to the National Register of Historic Places, and pass along the base of a hill south of Boeing Access Road that is a property of potential cultural interest for the Muckleshoot and Duwamish Tribes. The preferred alternative would also cross the Ray-Carrossino Farmstead, which is eligible for the National Register of Historic Places.

To comply with Section 106 regulations, the FTA has consulted with the State Historic Preservation Officer (SHPO) and the Advisory Council on Historic Preservation (ACHP) to determine the project's adverse effects and agreed to appropriate mitigation measures. Consultations were also conducted with interested parties, including the Suquamish, Muckleshoot, and Duwamish Tribes, Friends of Seattle's Olmsted Parks, the City of Seattle Historic Preservation Program (Department of Neighborhoods), and the City of Tukwila. FTA, SHPO

and ACHP have entered into a Programmatic Agreement (PA) and an amendment to the PA, copies of which are attached hereto, that stipulate design standards, a specific review process, and procedures to address project changes. A draft Archaeological Resources Treatment and Monitoring Plan is attached to the PA, stipulating that if potentially significant archaeological resources are discovered during construction, additional work would be required to evaluate their significance and to determine if mitigation measures would be required. The draft of the PA was circulated in the Final EIS and EA and a draft amendment to the PA was circulated in the Tukwila Freeway Route Draft and Final Supplemental EIS to allow the public to comment to the consulting parties.

**Section 4(f) Finding**

Section 4(f) of the Department of Transportation (DOT) Act of 1966, 49 U.S.C. 303(c) requires that use of land from a significant publicly owned park, recreation area, wildlife and waterfowl refuge, or historic site, be approved and constructed only if: 1) There is no feasible and prudent alternative to the use of the land; and 2) The project includes all possible planning to minimize harm to the site. A 4(f) evaluation must be prepared that describes the affected resources, discusses the direct impacts and the proximity impacts that would substantially impair the use of these resources, and identifies and evaluates alternatives that avoid such impacts and measures to minimize or mitigate for unavoidable adverse effects. FTA included 4(f) evaluations in Appendix E of the Final EIS and Appendix S of the Tukwila Freeway Route Final Supplemental EIS. These evaluations have been provided to the Department of the Interior which has found that appropriate consultation with state and local agencies has occurred and that it has no objection to the approval of the project under Section 4(f).

FTA finds that there are no feasible or prudent alternatives to the use of Cheasty Boulevard, which is both a park facility and historic 4(f) resource that would be affected by the locally preferred light rail project. FTA finds that all possible measures to minimize harm to this resource are included in the project, or will be addressed through the previously described PA. Regarding the Ray-Carrosino Farmstead, FTA finds that the use of the 4(f) resource provides benefits to and protection of the resource and that other alternatives would allow continued deterioration and possibly the loss of the resource and eventual redevelopment to industrial or commercial use.

**Environmental Justice**

Executive Order 12898, "Federal Actions to Address Environmental Justice in Minority and Low-Income Populations" (February 11, 1994), provides that "each Federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority and low-income populations." The Department of Transportation Order (No. 5680.1) to Address Environmental Justice in Minority Populations and Low-

Income Populations requires agencies to 1) explicitly consider human health and environmental effects related to transit projects that may have a disproportionately high and adverse effect on minority and low-income populations; and 2) implement procedures to provide "meaningful opportunities for public involvement" by members of these populations during project planning and development. Specifically, the DOT Order states, in part:

8.b. In making determinations regarding disproportionately high and adverse effects on minority and low-income populations, mitigation and enhancements measures that will be taken and all offsetting benefits to the affected minority and low-income populations may be taken into account, as well as the design and comparative impacts and the relevant number of similar existing system elements in non-minority and non-low-income areas.

8.c. The Operating Administrators and other responsible DOT officials will ensure that any of their respective programs, policies or activities that will have a disproportionately high and adverse effect on minority populations or low-income populations will only be carried out if further mitigation measures or alternatives that would avoid or reduce the disproportionately high and adverse effect are not practicable. In determining whether a mitigation measure or an alternative is "practicable," the social, economic (including costs) and environmental effects of avoiding or mitigating the adverse effects will be taken into account.

FTA's analysis finds that the project or Amended LPA would not have disproportionately high and adverse effects on the minority or low-income populations of the Sound Transit District, as provided under the DOT Order on Environmental Justice, particularly in light of the offsetting benefits to minority and low-income populations and the mitigation measures that will be employed. Further, the preferred alternative or Amended LPA would provide improved access to transit, reduced travel time, improved accessibility to employment, health care, recreation, shopping, and other amenities, as well as community improvements and potential economic development. Appendix G of the Final EIS, Appendix I of the Tukwila Freeway Route Final Supplemental EIS, and Appendix F of the Initial Segment EA discuss these determinations. The mitigation measures that address this and other environmental effects required under this ROD are discussed in Appendix E. Additionally, it should be noted that many potential impacts associated with the locally preferred alternative would be eliminated or minimized under revisions to the design of the alignment. For example, realignment of the preferred route in Segment D reduces the number of properties that will have to be taken. (While this is included in the design aspect of the alignment, it could also be termed a "mitigation" measure in response to minimizing adverse impacts.)

As part of the public project planning process through completion of the Final EIS, Tukwila Freeway Route Final Supplemental EIS, and Initial Segment EA, Sound Transit implemented meaningful outreach to minority and low-income communities to assure their active participation. In addition to outreach described above under "Public Opportunity to Comment", outreach efforts included establishing hotlines in six languages, translation of project information materials, distribution of translated materials and presentations at community events and

meetings, and establishing a field office in the Rainier Valley, an area with relatively high numbers of minority and low-income residents.

**Conformity with Air Quality Plans**

The Central Link light rail project, in general, and the Initial Segment, in particular, is subject to conformity requirements imposed by the federal Clean Air Act (CAA). The federal CAA (42 U.S.C. 7506(c)) requires that transportation projects conform with the State Implementation Plan (SIP). Conformity to a SIP means that transportation activities will not produce new air quality violations, worsen existing violations, or delay timely attainment of the National Ambient Air Quality Standards (NAAQS). Conformity also means that the LPA and amended LPA must be included in a conforming Regional Transportation Plan (RTP) and Transportation Improvement Program (TIP).

Analyses discussed in the Final EIS, Tukwila Freeway Route Final Supplemental EIS, and Initial Segment EA and the determination of RTP and TIP conformity by the Puget Sound Regional Council demonstrate that the project meets these conformity requirements. For carbon monoxide, concentrations analyses at eight specific intersections show that the project would not create a new violation of the NAAQS and would not worsen an existing violation. For the project, these intersections still represent "worst case" conditions, and no violations of air standards are predicted. For particulate matter, a qualitative analysis concluded that industrial sources, not vehicle-related emissions, were the main cause of elevated particulate levels in the small particulate matter maintenance area south of downtown Seattle. For volatile organic compounds, an emission burden analysis indicated that all of the alternatives would result in slight reductions in daily emissions as compared to the No-build Alternative.

The proposed project is included in the Puget Sound Regional Council's (PSRC) most recent Metropolitan Transportation Plan for the Central Puget Sound Region, "Destination 2030", which PSRC approved in May 2001 and TIP amendment (RTA-3B 02-01) adopted by PSRC in January 2002. Based on analyses done, PSRC has found both to meet conformity tests as identified by Federal regulations. In particular, the project has been found to not affect the positive conformity determination of particulate matter, carbon monoxide and ozone described in the Final EIS, would not change the conditions described in the Washington SIP and to conform to the Washington SIP for carbon monoxide, particulate matter and ozone.

**Floodplains**

Pursuant to Executive Order 11988 Floodplain Management issued May 24, 1977 floodplains were assessed within the 100-year floodplains and floodways defined by the Federal Emergency Management Agency (FEMA) as well as for locations with reported flooding problems or within locally managed floodplains. The preferred alternative includes all practicle measures to avoid and minimize encroachment on floodplains and would result in very low (24 cubic yards)

amounts of fill in local floodplains. New impervious surface (approximately 1, 500,000 square feet) would be created for station areas, park-and-ride lots, and a new maintenance base facility. FTA is requiring, as part of the mitigation measures under this Amended ROD, to incorporate appropriate compensatory storage in the project during the final design process and other mitigation measures during construction. (See Attachment E.)

**Wetlands**

Three major federal laws apply to wetland resources: the National Environmental Policy Act (NEPA), the Clean Water Act, and the Rivers and Harbors Act. NEPA establishes the process for evaluating the environmental impacts of projects such as the Central Link. This Amended ROD concludes the NEPA process, which included the publication of Draft and Final EISs by FTA. The Clean Water Act, administered by the U.S. Army Corps of Engineers and the U.S. Environmental Protection Agency (EPA), includes two sections applicable to the Link light rail project: Section 404 regulates placement of dredge or fill material into the waters of the U.S. including wetlands. Section 401 ensures that federally permitted projects are consistent with state water quality standards, certification for which is administered by the Washington Department of Ecology. The Rivers and Harbors Act's Section 10 applies to activities in, over, and affecting navigable waters to preserve the navigability of U.S waters. The Corps of Engineers administers the permit process.

FTA prepared a wetland report for the Central Link light rail project consistent with U.S Army Corps of Engineers guidance for conducting wetland determinations and delineations, as described in the Corps of Engineers Wetlands Delineation Manual, referred to as the 1987 manual (Environmental Laboratory 1987). Seven wetlands are potentially impacted by the preferred alternative, by filling wetlands and buffer areas, removing trees and other vegetation, shading of wetland vegetation by elevated structures, and/or temporary construction impacts. The total acreage that could be subject to fill by the preferred alternative is 2.33 acres of wetlands and 5.10 acres of buffer area. Most of the affected wetland area is located near Boeing Access Road. A total of 7.43 acres of wetland and buffer area may be required as replacement. The Boeing Access Road Station and park-and-ride construction has been deferred, which could delay the filling 2.0 acres of wetland and 1.8 acres of wetland buffer. FTA shall require Sound Transit to mitigate impacts to these wetlands and wildlife habitat on a project-wide basis in accordance with applicable federal, state and local regulations. The final mitigation package will be developed during final design and through the appropriate permitting processes in compliance with the requirements of and in coordination with the U.S. Army Corps of Engineers, U.S. EPA, Washington Department of Ecology, and local jurisdictions as may be required.

**Coastal Zone Management Act**

Coastal Zone Management (CZM) certification is required for all federally licensed development including Army Corps of Engineers, Section 10 and

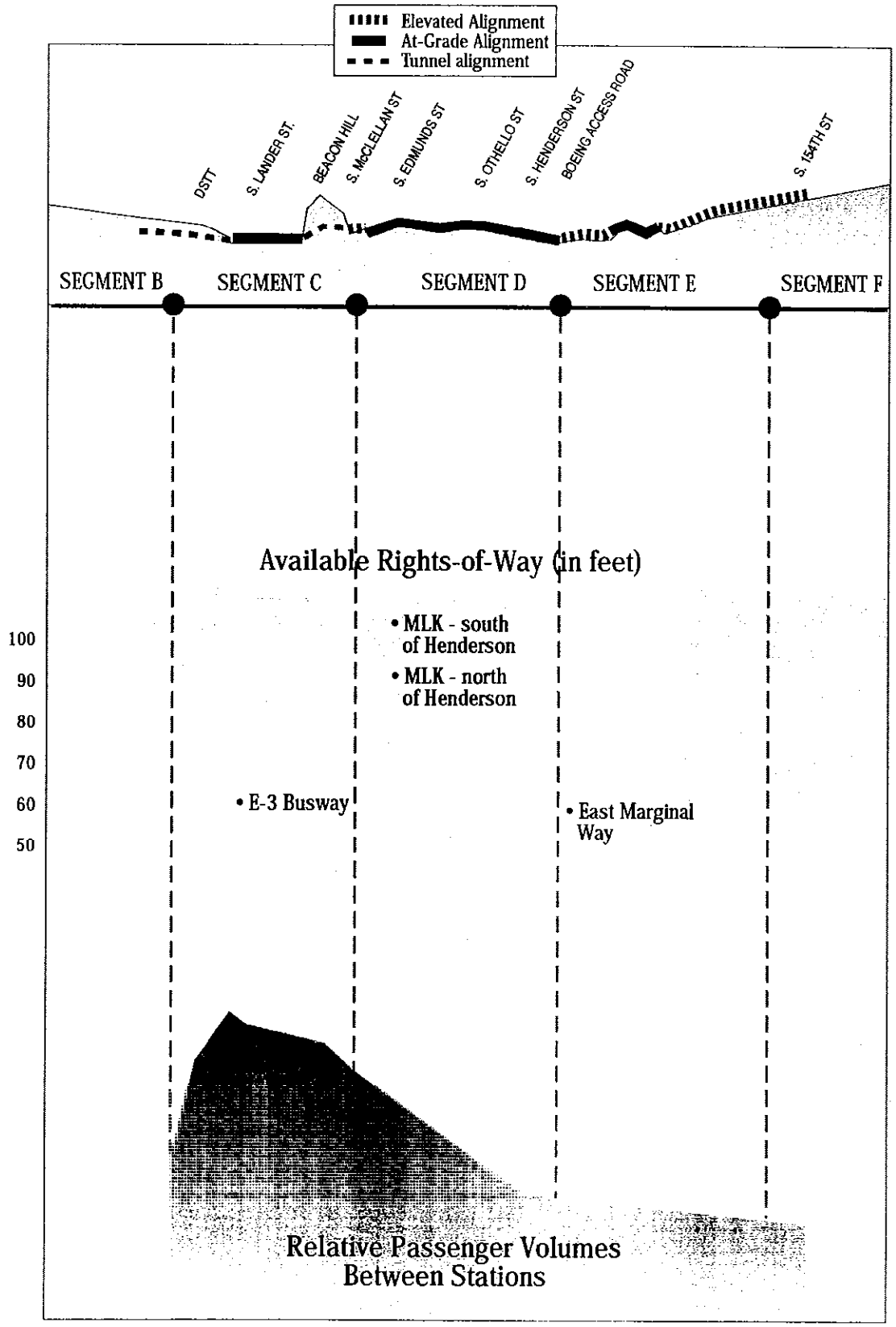
Section 404 permits, and U.S. Coast Guard Bridge permits. In Washington State, the project proponents prepare the Coast Zone Certification and submit it to the Washington State Department of Ecology (WDOE) to review. WDOE reviews the information based on state environmental and shoreline requirements. Before WDFOE issues CZM certification, they require approved water quality certification (which is done by WDOE) and shoreline permits from the local jurisdictions. Consistency with CZM will be demonstrated no later than ninety days before the start of the proposed project. Sound Transit is required to comply with all CZM requirements.

Date May 8, 2002

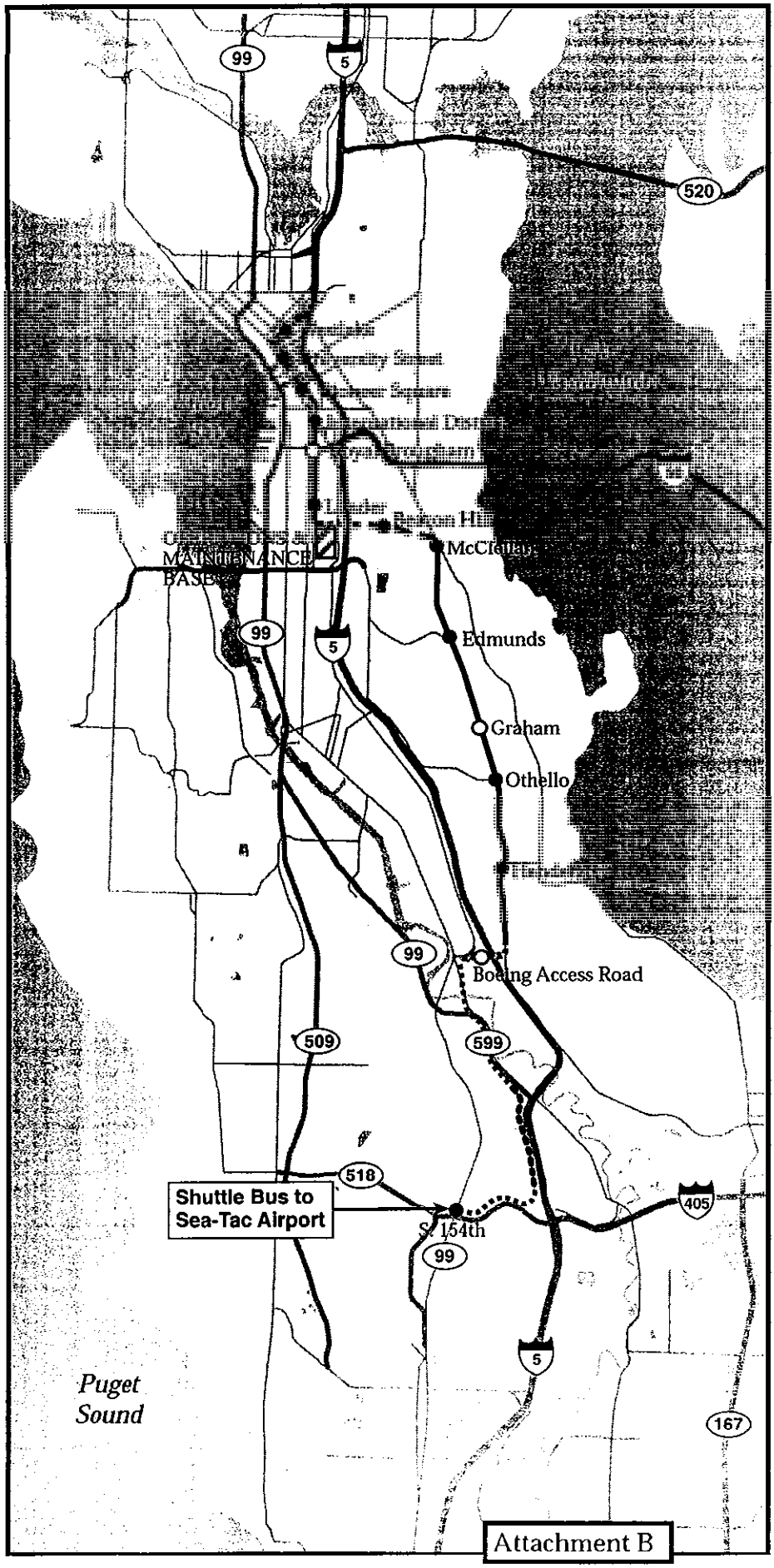
Acting
Regional Administrator
Region X
Federal Transit Administration

# ATTACHMENT A
## *Route Profile Characteristics*

## Preferred Alignment Profile



# ATTACHMENT B
## *Map of Locally Preferred Alternative*




**SOUNDTRANSIT**

**Preferred Alternative for Central Link Light Rail Initial Segment (Minimum Operable Segment)**

*Light Rail Stations*

Name

Westlake
University Street
Pioneer Square
International District[2]
Royal Brougham[3]
Lander
Beacon Hill
McClellan
Edmunds
Graham[3]
Othello
Henderson
Boeing Access Road[1,2,3]
South 154th[1]

[1] Includes New Park-and-Ride

[2] Light Rail/Commuter Rail Transfer

[3] Deferred

Tunnel
Elevated
At Grade
Retained Cut-Fill
Station
Deferred Station

0 1 2
MILES

# ATTACHMENT C
## *Alternatives Considered*

# Alternatives Considered

The alternatives considered are summarized here, and their characteristics are provided in Table S.8-1.

**Segment A (Northgate to University District)**

None of the Segment A alternatives were included in the preferred alternative. Segment A alternatives (Figure S-3) would all start on an elevated guideway near Northgate Mall and transition to a retained cut (a terrace cut into the hillside) along the east side of I-5 within the freeway right-of-way. The four alternatives take different routes just north of Lake City Way, to continue south through the Maple Leaf and Roosevelt neighborhoods to the northwest corner of the University of Washington campus; all routes would finish in a tunnel at N.E. 45th Street and 15th Avenue N.E. Each route would have a station on the Northgate park-and-ride lot (three station options) and one in the Roosevelt area. The four alternatives considered include:

- A1.1 (12th Avenue N.E. Tunnel), which would enter a tunnel just north of Lake City Way near N.E. 76th Street and continue to a tunnel station under 12th Avenue N.E. at N.E. 65th Street.
- A1.2 (Roosevelt Avenue N.E. Tunnel), which would be similar to A1.1, but the tunnel station would be primarily under Roosevelt Avenue N.E. at N.E. 65th Street.
- A2.1 (Eighth Avenue N.E. short elevated), which would emerge from a tunnel under the Lake City Way ramps and parallel I-5 on the east to an elevated station at N.E. 65th Street; next, it would cross over Ravenna Boulevard, then tunnel southeast to 15th Avenue N.E.
- A2.2 (Eighth Avenue N.E. elevated), which would have the same route and station as A2.1, except it would be elevated over (instead of tunneling under) the I-5/Lake City Way ramps.

**Segment B (University District to Westlake Station)**

Segment B routes (Figure S-4) would all start under N.E. 45th Street and 15th Avenue N.E. in the University District and cross under Portage Bay or over the Ship Canal, connecting to the DSTT. The alternatives below were considered. Within Segment B, only the portion of Alternative B1a north of Westlake Station and approximately 650 feet of new tunnel under Pine Street are included in the preferred alternative.:

- B1a (Capitol Hill Tunnel) would begin with an underground N.E. 45th Street/15th Avenue N.E. terminus, then would tunnel under Portage Bay, Capitol Hill, and First Hill to the Downtown Seattle Transit Tunnel (DSTT). In the University District, there would be underground stations south of N.E. 45th Street at 15th Avenue N.E. (with options for siting the station east or west of 15th), and at N.E. Pacific Street to the west side of 15th Avenue N.E. (Option B). On Capitol Hill, the underground station would be at Broadway south of E. John Street (with several options involving construction and siting). On First Hill, there are two options for an underground station near E. Madison Street and Summit Avenue E. There would not be a station at Convention Place.
- B1b (Capitol Hill Tunnel with potential Roy/Aloha Station) would follow the same route asAlternative B1a, but have a deeper profile under Capitol Hill and different design options for the N.E. 45th, Pacific, and Capitol Hill stations. It also includes a potential station at Roy and Aloha, and has options for the Convention Place Station to be relocated and used by rail and bus, or rail only.
- B2.1 (Seattle Center via high-level bridge) would follow under 15th Avenue N.E., turn west under Campus Parkway, climb to a high-level bridge turning south over the Ship Canal next to I-5, and enter a tunnel parallel to I-5 and Harvard Avenue E. Emerging from the tunnel near E. Yale Street, the route would turn west elevated along Mercer Street, enter a tunnel near Seattle Center, turn east along Denny Way, then turn south to connect with the DSTT. Stations would be at N.E. 45th Street, Campus Parkway, Eastlake, S. Lake Union, and Seattle Center, with an option to rebuild the Convention Place Station or close it.
- B2.2 (Seattle Center via Portage Bay Tunnel) would begin like B1, tunneling under 15th Avenue N.E. to Pacific, and under Portage Bay. Crossing under I-5 near SR 520, the route would be the same as

Alternative B2.1 along the south end of Lake Union. Stations would be at N.E. 45th Street, Pacific Street, Eastlake, S. Lake Union, Seattle Center, with an option to rebuild or close the station at Convention Place.

**Segment C (Westlake Station to S. McClellan Street)**

Segment C route alternatives (Figure S-5) would use the DSTT from Westlake Station to the International District. Light rail vehicles would operate in the DSTT either exclusively or jointly with buses. Tunnel stations would be at Westlake, University Street, Pioneer Square, and the International District. From the International District station, the alternatives would take different routes to a common endpoint at S. McClellan Street in the north end of Rainier Valley. The Segment C alternatives below were considered. Alternative C1.4 and joint use of the DSTT are the preferred alternative.

- C1.1 (At-grade center of Lander Street), would use the DSTT from Westlake Station to the International District Station. After leaving the DSTT, the route would be at-grade along the east side of the E3 Busway (also known as the Metro busway) to S. Lander Street. The alternative would be at-grade in the median of S. Lander Street. There it would turn east, cross Airport Way S. at-grade, and tunnel under I-5 and Beacon Hill. It would transition to an elevated profile approaching the McClellan Station. . Stations in the DSTT would be at Westlake, University Street, Pioneer Square, and the International District. At Westlake Station, there are station options involving new entrances on Pine Street at 5th Avenue. Stations south of the DSTT would be at Royal Brougham and at S. Lander Street, with a potential Beacon Hill Station.
- C1.2 (at-grade north of Lander Street), would be on the same route as the preferred alternative along the existing E3 Busway, turning east and following the north side of S. Lander Street, and tunneling under I-5 and Beacon Hill to S. McClellan Street. Stations south of the DSTT would be located at S. Royal Brougham Way, S. Lander Street, and the shell of a tunnel station would be provided at Beacon Hill.
- C1.3 (Elevated north of Lander), would have the same route and stations as Alternative C1.1 but would elevate light rail on a structure on the north side of S. Lander Street. The Lander Station would also be elevated.
- C1.4 (Forest Street), would have the same route as Alternative C1.1 to S. Lander Street and would then become elevated south of S. Lander Street before turning east at S. Forest Street, running on the south side of the street to the Beacon Hill Tunnel. It would have the same stations as in C1.1, C1.2, and C1.3, except for the Beacon Hill Station, which would be sited slightly south.
- C1.5 (Massachusetts and I-5 right-of-way), would head south on the E3 Busway to S. Massachusetts Street, then head east on the south side of the street to a railroad right-of-way adjacent to I-5. There it would turn south along the west side of I-5 before turning east to the Beacon Hill Tunnel, located in the same area as the other C1 alternatives and Lander Street. It would have all the same stations as the preferred alternative, except it would not have a Lander Station.
- C2.3 (West of Rainier Avenue S. Elevated), would travel east at-grade on the D2 roadway (HOV lanes parallel to I-90), turn southeast at street level in the median of Rainier Avenue S., and then travel elevated from S. Massachusetts Street south with the route one-half block west of Rainier Avenue S. The only station beyond the DSTT would be under I-90.
- C2.4 (Rainier Avenue S. Tunnel), would also follow the D2 roadway, entering a tunnel before I-90 and running under Rainier Avenue S. to S. McClellan Street. The only station south of the DSST would be located at Poplar Place.
- C3 (S. Massachusetts Street Tunnel), would travel south at-grade on the E3 Busway, east at S. Massachusetts Street, and tunnel under I-5 and Beacon Hill. It would emerge and become elevated approaching I-90 and S. Atlantic Street, then turn southeast on the same route as C2.3. Stations outside the DSTT would be at Royal Brougham and I-90 at S. Massachusetts Street.

**Segment D (S. McClellan Street to Boeing Access Road)**

Segment D routes (Figure S-6) would all begin at S. McClellan Street, and either follow Rainier Avenue S. or MLK Jr. Way S. until south of S. Graham Street. From there they all share the same at-grade route in the

median of MLK Jr. Way S. to just north of Boeing Access Road. The route alternatives evaluated include the following. Alternative D1.1e is the preferred alternative.

- D1.1c (MLK Jr. Way S., At-grade 4-lane, 104-ft typical cross section) would be located at-grade in the median of MLK Jr. Way S., with four traffic lanes throughout the segment. Stations would include McClellan, Alaska, Othello, and Henderson, with a potential station at Graham.
- D1.1d (MLK Jr. Way S. At-grade, 2-lane) would be at-grade in the median of MLK Jr. Way S., but the street would be narrowed to two traffic lanes (one in each direction in a 90-ft right-of-way). It would have the same stations at D1.1c.
- D1.1e (MLK Jr. Way S. At-grade 4-lane with 93-ft typical cross section) would be at-grade in the median of MLK Jr. Way S, with four lanes of traffic throughout the segment Stations would be at S. McClellan (elevated), Edmunds, Graham, Othello, and Henderson streets.
- D1.1f (MLK Jr. Way S. At-grade 2-lane with 93-ft typical cross section) would provide for rail, 2 lanes of traffic, a parking lane, and additional room that could accommodate room for bicycles within a 93-ft right-of-way. It would have the same stations as Alternative D1.1e.
- D1.3 (MLK Jr. Way S. Combined Profile) would be elevated in the median of MLK Jr. Way S. from S. McClellan Street to S. Holly Street. Stations would be elevated at McClellan, Alaska, and Graham (a potential station), and at-grade at Othello and Henderson.
- D3.3 (Alaska Street Crossover) would follow an at-grade route one-half block west of Rainier Avenue S. before turning west on S. Alaska Street, then south on to MLK Jr. Way S. It would then have the same route as the preferred alternative. Stations would be at McClellan, Genesee, Othello, and Henderson. Potential stations at Charlestown and Edmunds could be used instead of a Genesee Station. A potential Graham Station could also be added.
- D3.4 (37th Avenue S. Tunnel) would start the same as D3.3, but rather than turning on S. Alaska Street, it would continue south in a tunnel through Columbia City until reaching MLK Jr. Way S. just south of S. Graham Street. Stations would be at McClellan (elevated), Edmunds (underground), Othello, and Henderson, with potential Charlestown and Graham stations.

**Segment E (Tukwila)**

The Segment E routes (Figure S-7) would begin with an elevated guideway along MLK Jr. Way S. at Boeing Access Road and end near SR 518 and Tukwila International Boulevard. The following alternatives were evaluated.The preferred alternative is E4 – Tukwila Freeway Route.

- E1.1 (Tukwila International Boulevard at-grade) would be elevated at Boeing Access Road, crossing over I-5 and E. Marginal Way, before turning south along Tukwila International Boulevard (SR 99). The trackway would continue elevated over the Duwamish River, Riverton Creek, and SR 599. Light rail would descend to the median of Tukwila International Boulevard near S. 126th Street, continuing at-grade to near SR 518. It would provide a 102-ft right-of-way with four through lanes. Stations at Boeing Access Road (including a 300-stall park-and-ride serving both the light rail and a separately proposed commuter rail station) and S. 144th Street are proposed.
- E1.2 (Tukwila International Boulevard elevated) would follow the same route as Alternative E1.1, except that it would remain elevated along the median of Tukwila International Boulevard. Stations would be built at Boeing Access Road and at S. 144th Street.
- E2 (Interurban Avenue S.) would begin elevated, like E1.1 and E1.2, but would turn south just east of E. Marginal Way S. It would have elevated and at-grade sections along SR 599/Interurban Avenue S. It would turn east across the Duwamish River and follow the BNSF and UPSP mainlines south to I-405. Crossing under I-405 to Longacres, the route would travel elevated over the railroad and Green River, continue elevated through Southcenter adjacent to Baker Boulevard and I-405, over the I-5/I-405 interchange, and along the south side of SR 518 to Tukwila International Boulevard. Stations would be at Longacres and Baker Boulevard (Southcenter).
- E3 (MLK Jr. Way S.) would follow alongside MLK Jr. Way S. to about S. 129th Street, then the route would be a combination of tunnel, elevated, and at-grade, traveling south to the existing railroad tracks,

crossing under I-405 to Longacres like E2. The route would cross over the railroad and the Green River similar to E2, but it would follow Strander Boulevard through Southcenter to the I-5/I-405 interchange, then rejoin E2 along the south side of SR 518. Stations would be at Longacres and Strander Boulevard (Southcenter).

- E4 (Tukwila Freeway Route) is elevated the same as E1.1 along MLK Jr. Way S. and Boeing Access Road. From there it turns south to follow the west side of E. Marginal Way to SR 599. It then follows SR 599 to I-5, I-5 to SR 518, and SR 518 to a station at S. 154th Street and International Boulevard. Stations at Boeing Access Road (including a 300-stall park-and-ride serving both the light rail and a separately proposed commuter rail station) and S. 154th Street (with a 440 to 670 stall park-and-ride) are proposed. A potential park-and-ride station at S 133rd was also evaluated.

**Segment F (SeaTac)**

Segment F routes (Figure S-8) would begin near SR 518 and extend south to S. 200th Street, with a tail track extending to S. 204th Street. The alternatives differ in their location, profile, and stations, but all routes are along or generally parallel to International Boulevard. In all alternatives, the North SeaTac and South SeaTac stations include park-and-ride facilities. The North SeaTac Station would be at S. 160th or S. 154th Street, depending on the Segment E alternative chosen. The following alternatives were evaluated. The preferred alternative extension into Segment F includes only the S 154th Station, park-and-ride, and airport shuttle elements of the Tukwila Freeway Route (E4).

- F1 (International Boulevard in median) would travel at-grade in the median of International Boulevard to S. 200th Street. All stations would be on International Boulevard with a North SeaTac Station and park-and-ride lot at S. 154th or 160th Street, an at-grade North Central Station at S. 170th Street, and an at-grade South SeaTac Station and park-and-ride lot at S. 200th Street.
- F2.1 (Washington Memorial Park, City Center West) would follow the west edge of the cemetery to a North Central Station located at S. 170th Street. It would cross elevated over International Boulevard, then follow the east side of the boulevard to a South Central Station. It would continue south of the main airport terminal, cross back over International Boulevard, then follow Air Cargo Road/28th Avenue S. to S. 193rd Street before returning to grade.
- F2.2 (Washington Memorial Park, City Center East) would be similar to F2.1 except that after crossing International Boulevard, it would continue southeast for approximately one-fourth mile before turning south to a South Central Station along 32nd Avenue S. As the elevated trackway continues south, it would cross the north end of Bow Lake before traveling elevated over International Boulevard on its way east to join the F2.1 route along 28th Avenue S. to S. 200th Street. A North Central Station would be located at S. 170th Street.
- F2.3 (Washington Memorial Park, Elevated East of 28th Ave. S.) would be elevated along Tukwila International Boulevard from 152nd Street, continuing southwest to cross over SR 518, travel west of Washington Memorial Park, and connect to the Airport's proposed North End Airport Terminal (NEAT) or Intermodal Center (IMC). It would then continue elevated along the west side of International Boulevard, turn southwest to cross S. 188th Street, and continue elevated south along the east side of 28th Avenue S. to S. 200th Street. Three stations are proposed: North SeaTac (at S. 154th Street, with three options involving a 260-, 454-, or 670-stall park-and-ride), North Central SeaTac (at IMC), and South SeaTac (Options E or F at S. 200th Street with a 630-stall park-and-ride). The design also provides for a potential South Central SeaTac Station at S. 184th Street.
- F3.1 (West Side of International Boulevard, Grassy Knoll) and F3.2 (West Side of International Boulevard, Main Terminal) both would be elevated along the west side of International Boulevard to a North Central Station at S. 170th Street. F3.1 would connect to a South Central station east of the main airport terminal parking garage, then follow 28th Avenue S. to S. 200th Street. F3.2 would swing into a South Central station in the main terminal area, elevated over the airport drives, then continue south along 28th Avenue S. to S. 200th Street.
- F3.3 (West Side of International Boulevard, Intermodal Center) is at-grade in the median of International Boulevard, becomes elevated approaching S. 152nd Street, and moves to the west side of International

Boulevard at S. 154th Street. Near the 18000 block of International Boulevard, the route turns southwest toward Airport Cargo Road and follows the same route to S. 200th Street as Alternative F2.3.

- F4 (International Boulevard to 28th/24th) is at-grade in the median of International Boulevard, is elevated approaching S. 160th Street and elevated on the west side of International Boulevard to approximately the 18000 block, where it turns southwest to Airport Cargo Road and then along the same route to S. 200th Street as Alternative F2.3.
- E4 (Tukwila Freeway Route) extends into Segment F, including the S 154th Street Station and park-and-ride, continuing elevated over SR 518 and connecting to F2.3 north of the NEAT Station. If S 154th Station is an interim terminus it would include shuttle bus service to Sea-Tac airport.

### S.4.2 No-build Alternative, and Length Alternatives

The Final EIS evaluates the No-build Alternative and different length alternatives for the proposed light rail line. The No-build Alternative represents the current transportation system plus projects in the region's 20-year Metropolitan Transportation Plan. The Northgate to SeaTac (full-length) light rail alternative extends approximately 24 to 29 miles (covering Segments A through F) from 103rd Avenue N.E. in Northgate to S. 200th Street in SeaTac and include all the potential route alternatives and station options in the segments. The 45th to SeaTac alternatives would be 3.4 miles shorter, extending from N.E. 45th Street to S. 200th Street and includes all the route alternatives and station option in Segments B through F. The preferred alternatives also extends from N.E. 45th Street to S. 200th Street in SeaTac, but include only the routes and station options identified as prepared by the Sound Transit Board. Three minimum operable segments are also evaluated: MOS A, from N.E. 45th Street to S. McClellan Street (Segments B and C); MOS B from Capitol Hill to S. Henderson Street (part of Segments B and D, and all of Segment C); and MOS C from N.E. 45th Street to S. Lander Street (Segment B and part of Segment C). The MOSs consist of the same routes station options that are part of the preferred alternative.

On September 27, 2001, the Sound Transit Board identified an MOS, the Initial Segment, as the locally preferred alternative involving 14 miles of light rail from downtown Seattle to the city of SeaTac. With the Initial Segment, the DSTT would be the initial north end of Link. The rail tracks would end in a new tail track under Pine Street, near Convention Place Station, in the same location as Alternative B1a for extension north to First Hill/Capitol Hill. Westlake Station would be the last passenger station for rail service, although buses and bus passengers would still access the tunnel via Convention Place Station The Initial Segment extends to the S. 154th Station as the southern interim terminus. The Initial Segment would also have joint bus/rail operations through the DSTT, a maintenance and operations facility, the Tukwila Freeway Route, and shuttle bus service between the S. 154th Station and Sea-Tac Airport. The Initial Segment would complete construction of the Beacon Hill Station, but defer construction of the Boeing Access Road and Graham Stations.

*Terminus Station Options*

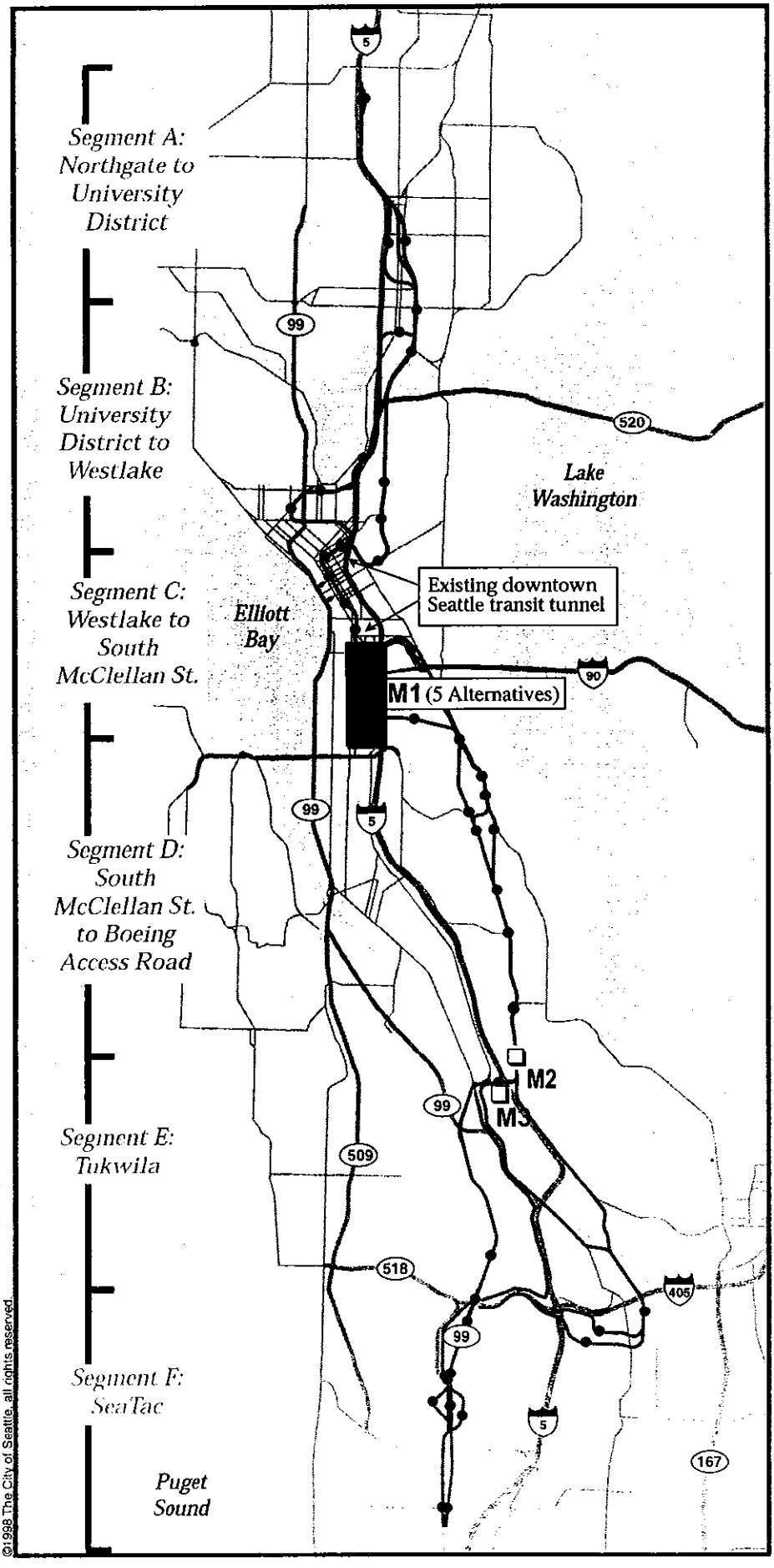
Each of the length alternatives would involve different selections of one or both terminus stations, although all stations would be designed to allow future extensions. The potential terminus stations would be at Northgate, N.E. 45th Street, Capitol Hill, Westlake Station, S. Lander Street, S. McClellan Street, S. Henderson Street, S. 154th Street, or S. 200th Street. Park-and-rides or significantly increased bus activity would not occur with any of the terminus stations except Northgate and S. 200th Street.

**Table S.8-1**
**Characteristics of Light Rail Route Alternatives**

| Route Alternatives and Options *(Preferred alternative italicized)* | One-way light rail track (mi.) | Segment travel time (min.) | Number of stations |
|---|---|---|---|
| **Segment A (Northgate to University District** | | | |
| A1.1—12th Avenue N.E. Tunnel | 3.12 | 5.3 | 2 |
| A1.2—Roosevelt Way N.E. Tunnel | 3.12 | 5.3 | 2 |
| A2.1—8th Avenue N.E. Short Elevated | 3.29 | 5.6 | 2 |
| A2.2—8th Avenue N.E. Elevated | 3.29 | 5.6 | 2 |
| **Segment B (University District to Westlake Station)** | | | |
| *B1a—Capitol Hill Tunnel* | 4.47 | 9.4 | 4 |
| B1b—Capitol Hill Tunnel (with Roy/Aloha Station) | 4.47 | 10.2-10.8 | 4-6[1] |
| B2.1—Seattle Center High-level Bridge | 5.28 | 12.2-12.8 | 5-6[1] |
| B2.2—Seattle Center Portage Bay Tunnel | 5.01 | 11.6-12.2 | 5-6[1] |
| **Segment C (Westlake Station to S. McClellan Street)** | | | |
| C1.1—At-grade center of Lander Street | 3.76 | 11.4-12.2 | 6-7[2] |
| C1.2—At-grade north of Lander Street | 3.75 | 11.5 | 7 |
| C1.3—Elevated north of Lander Street | 3.75 | 10.6-11.4 | 6-7[2] |
| *C1.4—Forest Street/S. Lander Street Tunnel* | 3.96 | 11.1-11.9 | 6-7[2] |
| C1.5—Massachusetts Street and I-5 right-of-way | 3.71 | 11.0-11.8 | 5-6[2] |
| C2.3—West of Rainier Avenue S. Elevated | 3.58 | 10.5 | 5 |
| C2.4—Rainier Avenue S. Tunnel | 3.6 | 10.6 | 5 |
| C3—S. Massachusetts Street Tunnel | 3.66 | 11.0 | 6 |
| **Segment D (S. McClellan Street to Boeing Access Road)** | | | |
| D1.1c—MLK Jr. Way S. At-grade, 4-lane (104' cross section) | 4.59 | 9.8-10.5 | 4-5[3] |
| D1.1d—MLK Jr. Way S. At-grade, 2-lane (90' cross section) | 4.59 | 9.8-10.5 | 4-5[3] |
| *D1.1e—MLK Jr. Way S. At-grade 4-lane (93' cross section)* | 4.59 | 10.5 | 5 |
| D1.1f—MLK Jr. Way S. At-grade 2-lane (93' cross section) | 4.59 | 10.5 | 5 |
| D1.3—MLK Jr. Way S. Combined Profile | 4.59 | 8.9-9.6 | 5 |
| D3.3—S. Alaska Street Crossover | 4.80 | 10.1-10.8 | 4-5[3] |
| D3.3—S. Alaska Street Crossover (with alternative stations) | 4.63 | 10.6-11.3 | 4-6[3] |
| D3.4—37th Avenue S. Tunnel | 4.63 | 10.2-11.4 | 4-6[3] |
| **Segment E (Tukwila)** | | | |
| E1.1—Tukwila International Blvd. At-grade | 4.37 | 7.6 | 2[4] |
| E1.2—Tukwila International Blvd. Elevated | 4.37 | 6.9 | 2[4] |
| E2—Interurban Avenue S. | 7.92 | 14.6 | 2[4] |
| E3—MLK Jr. Way S. | 7.28 | 11.0 | 2[4] |
| *E4—Tukwila Freeway Route*[7] | 5.5 | 9.6 | 2 |
| **Segment F (SeaTac)** | | | |
| F1—International Boulevard At-grade | 2.67 | 6.0-6.7 | 3-4 |
| F2.1—Washington Memorial Park, City Center West | 2.85 | 6.2 | 3 |
| F2.2—Washington Memorial Park, City Center East | 3.04 | 6.7 | 3 |
| *F2.3—Washington Memorial Park, Elevated east of 28th Ave. S.* | 2.77 | 5.1-5.9 | 3-4[5] |
| F3.1—West of International Blvd. Grassy Knoll | 2.68 | 5.7 | 3 |
| F3.2—West of International Blvd. Main terminal | 2.82 | 6.5-7.2 | 3-4[6] |
| F3.3—West side of International Blvd. | 2.63 | 4.8 | 3 |
| F4—International Blvd. to 28th/24th | 2.63 | 5.1 | 3 |

Source: Sound Transit, October 8, 1998, March 5, 1999, and July 8, 1999

Notes: Travel times prepared by PSTC are based on an incremental planning model.
[1] Convention Place Station may or may not be rebuilt for light rail operations
[2] Potential station at Beacon Hill
[3] Includes a potential station at S. Graham Street (D3.3 and D3.4 also include a potential station at Charlestown Street).
[4] The match point between Segments E and F at S. 160th Street was used to provide common distance and travel time comparisons. The actual match point could vary by 2,000 ft depending on the routes.
[5] Potential future station at S. 184th Street.
[6] Potential North SeaTac Station depending on the Segment E route chosen.
[7] Extends into Segment F for about ½ mile.




SOUNDTRANSIT

**Figure S-1.**
**Central Link Corridor Study Area**

*Proposed Light Rail Stations*

| Name | Segment |
|---|---|
| Northgate[1] | A |
| Roosevelt | A |
| NE 45th | B |
| Pacific | B |
| Campus Parkway | B |
| Roy/Aloha | B |
| Capitol Hill | B |
| First Hill | B |
| Eastlake | B |
| South Lake Union | B |
| Seattle Center | B |
| Convention Place | B |
| Westlake | C |
| University Street | C |
| Pioneer Square | C |
| International District[2] | C |
| Royal Brougham | C |
| Lander | C |
| Beacon Hill | C |
| Poplar Place | C |
| I-90 | C |
| McClellan | D |
| Charlestown | D |
| Genesee | D |
| Edmunds | D |
| Columbia City | D |
| Alaska | D |
| Graham | D |
| Othello | D |
| Henderson | D |
| Boeing Access Road[1,2] | E |
| South 144th | E |
| Longacres[1,2] | E |
| Southcenter | E |
| North SeaTac[1](South 154th) | F |
| North Central SeaTac | F |
| South Central SeaTac | F |
| South SeaTac[1] | F |

[1] Includes New Park-and-Ride

Potential Light Rail/ Commuter Rail Transfer

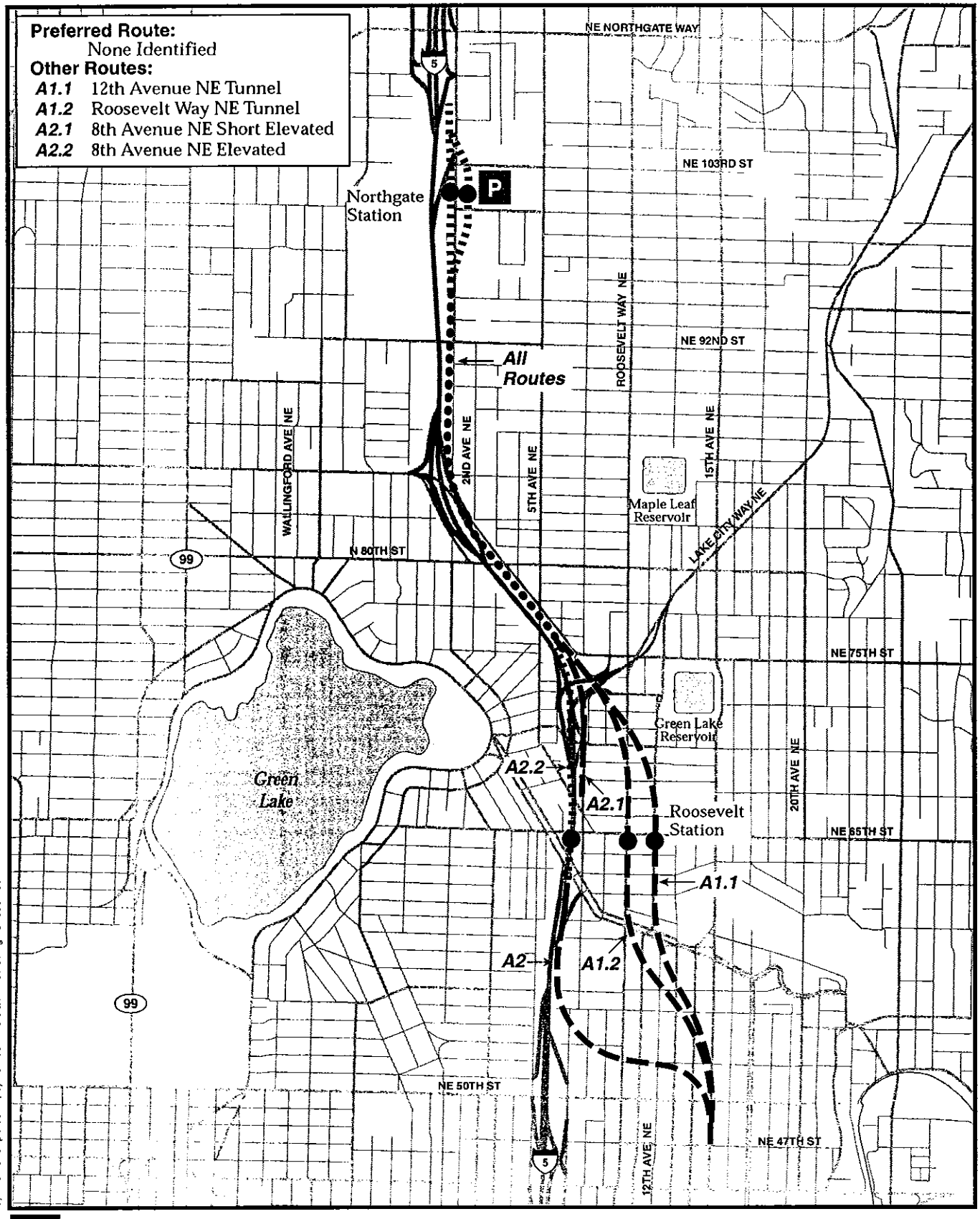
M2 Maintenance Base Alternatives

Route Alternative

Station

N

0 1 2
MILES






SOUNDTRANSIT

**Figure S-3 Segment A: Northgate to University District**

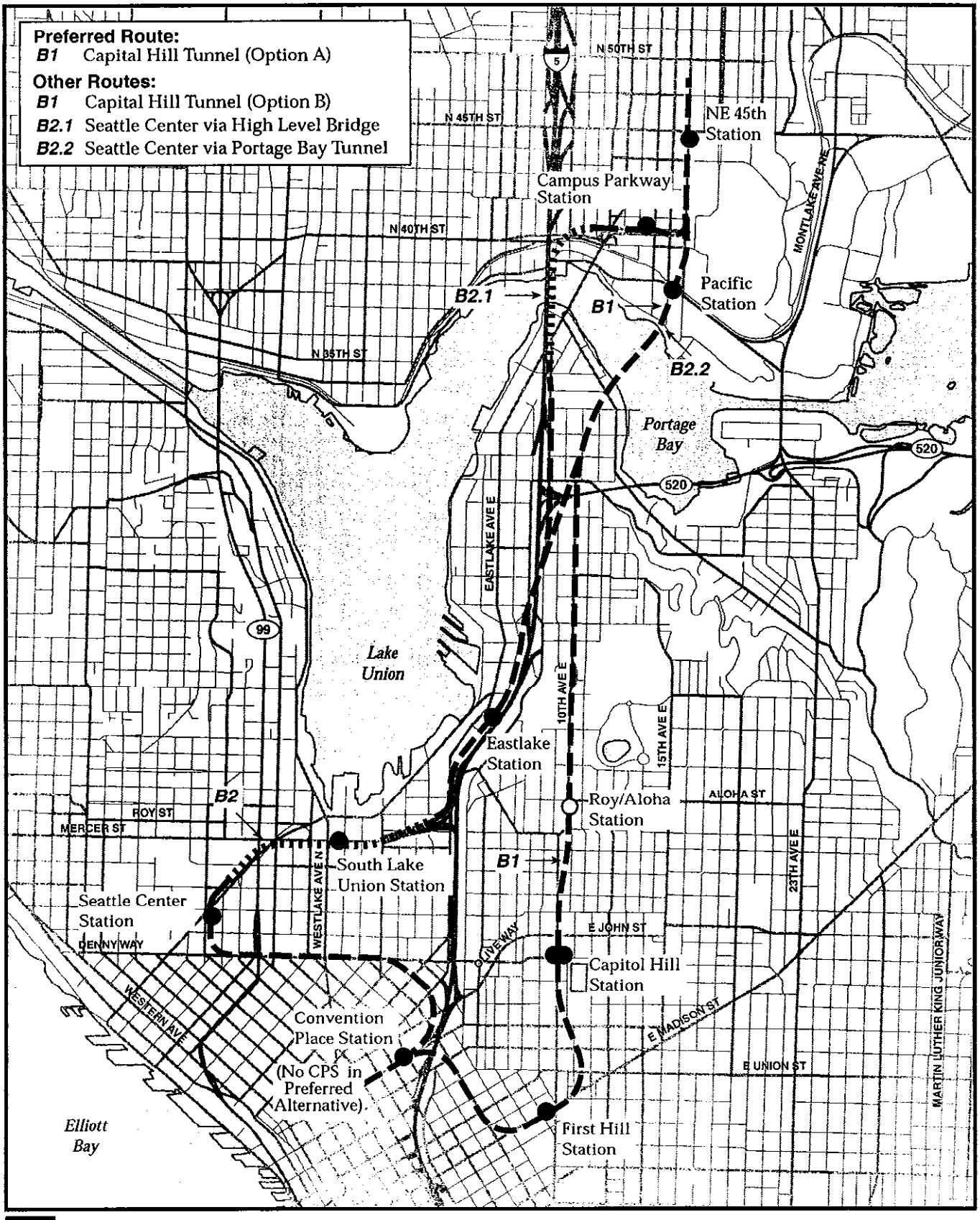
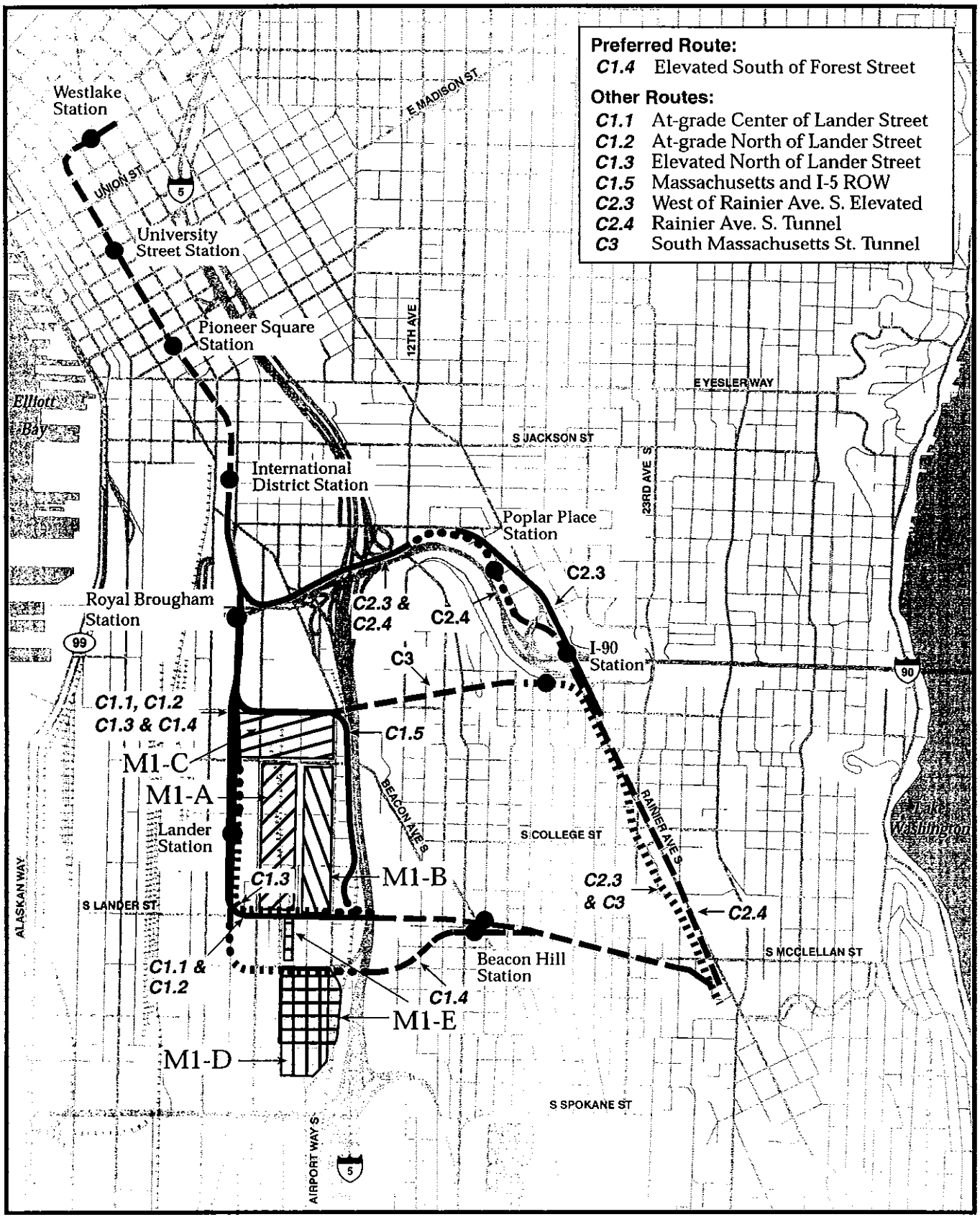





**Figure S-4 Segment B: University District to Westlake Station**






SOUNDTRANSIT

0 1,000 2,000
FEET

Tunnel
Elevated
At Grade
Retained Cut-Fill

Station
Potential Station
Potential Maintenance Base

**Figure S-5 Segment C: Westlake to S. McClellan Street**

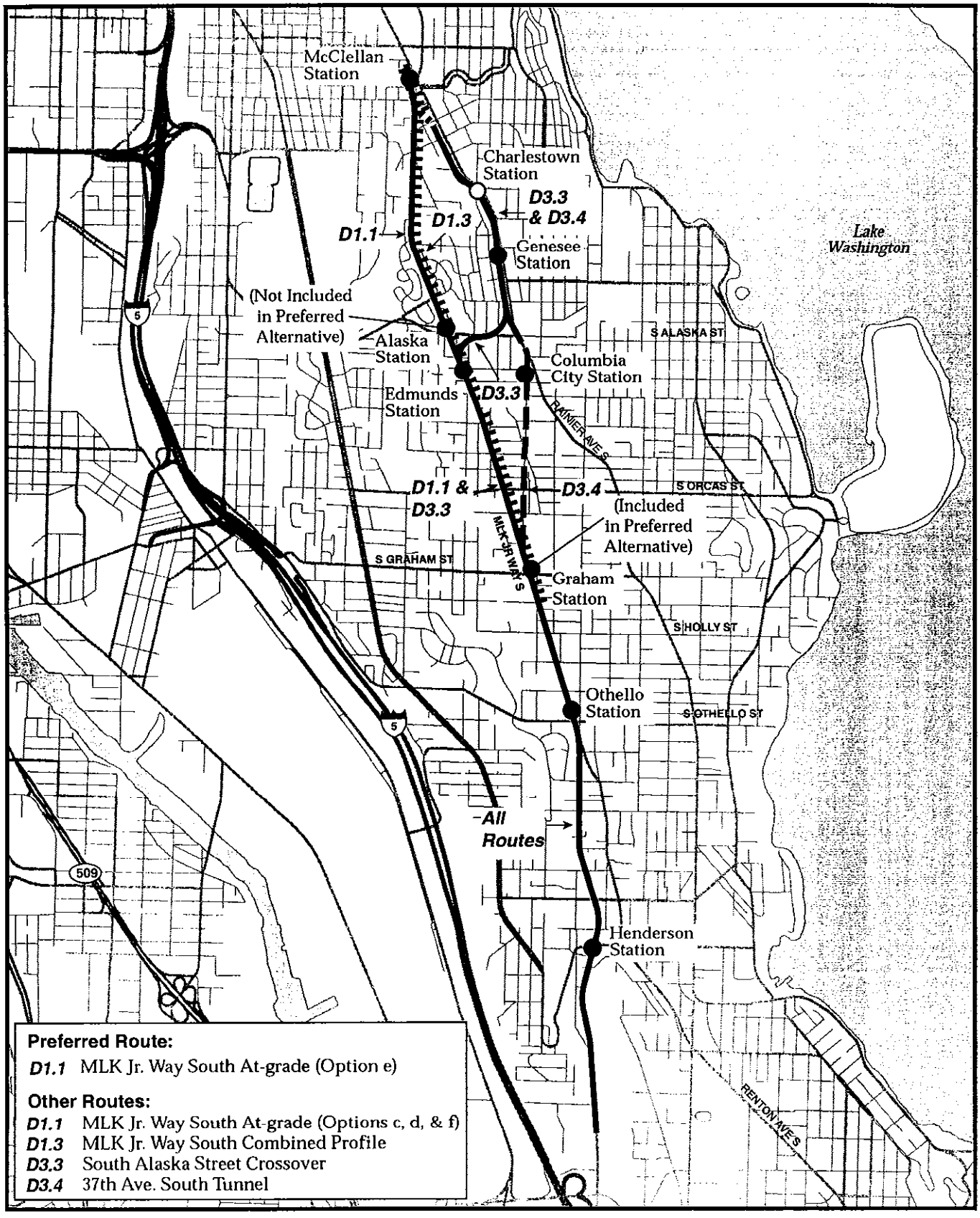
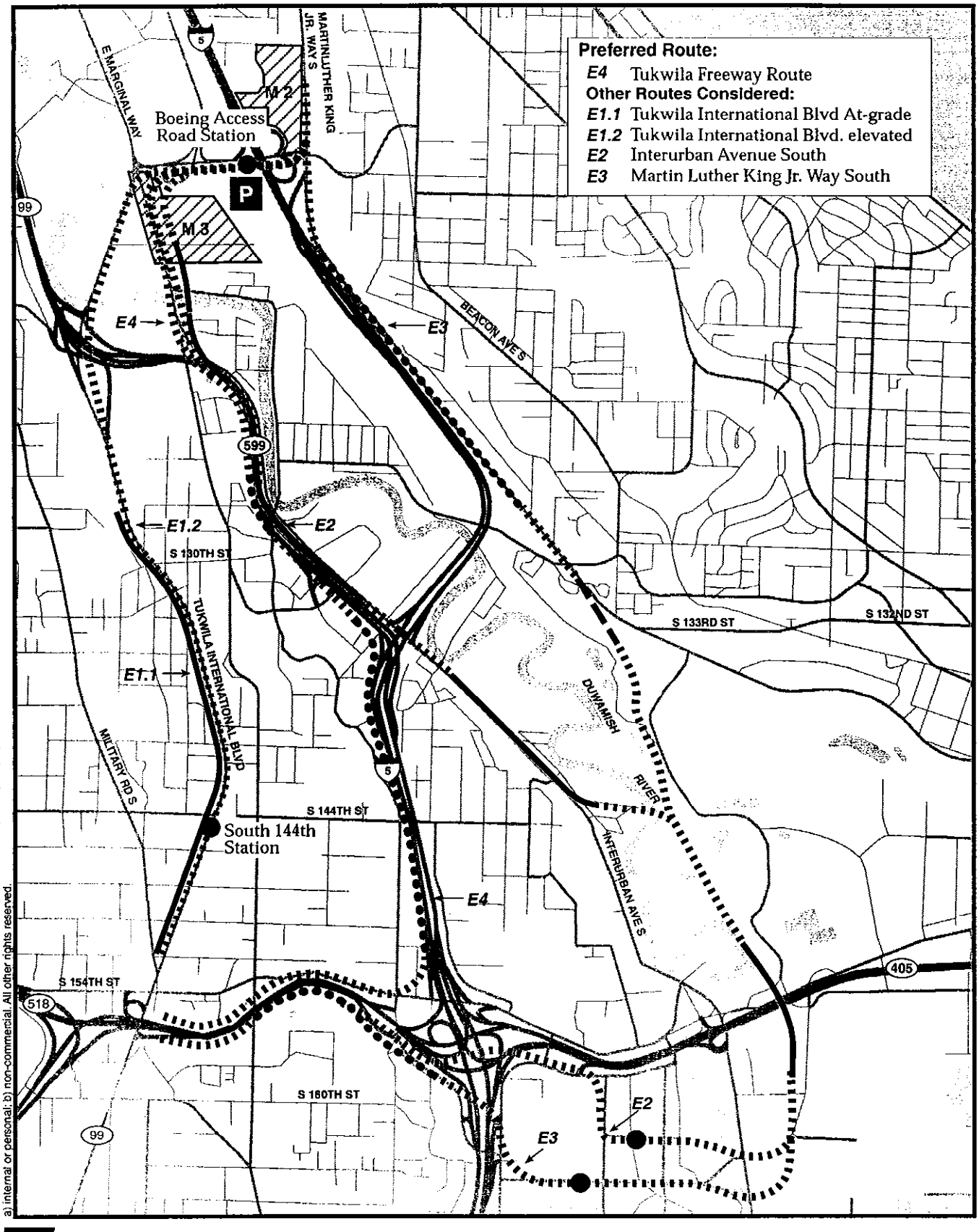





**Figure S-6 Segment D: McClellan Street to Boeing Access Road**





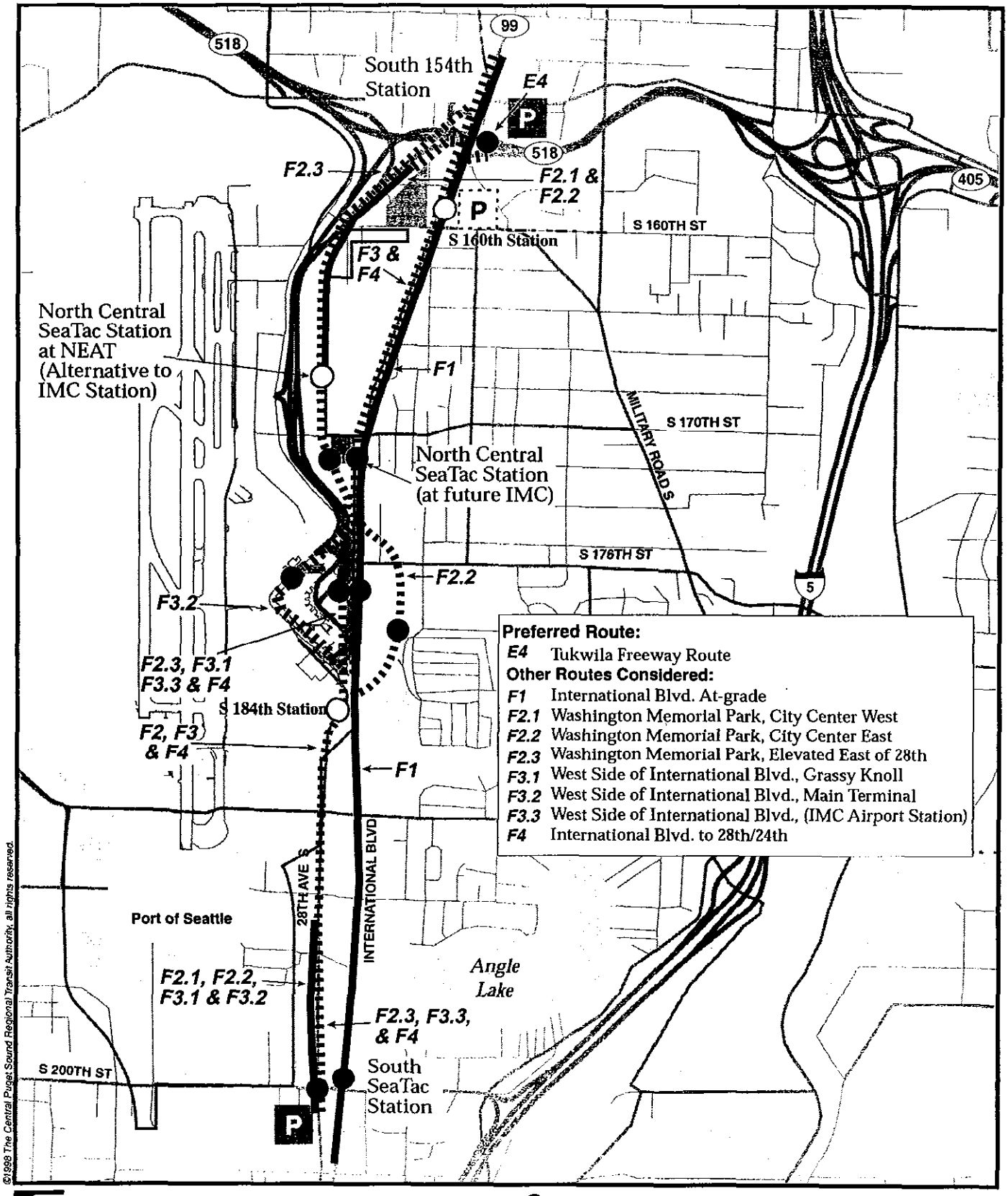

SOUNDTRANSIT

0 1,250 2,500
FEET

Tunnel
Elevated
At Grade
Retained Cut-Fill

Station
Park-and-Ride

**Figure S-7**
**Segment E: Tukwila**




SOUNDTRANSIT

Elevated
Retained Cut-Fill
At Grade
Station
Park and Ride

4/19/02

**Figure S-8**
**Segment F - SeaTac**

# 2. Alternatives Considered

## 2.1 ALTERNATIVES IN THIS FINAL SUPPLEMENTAL EIS

This Final Supplemental EIS evaluates a new route alternative for a portion of the Central Link light rail project. Following the completion of the Central Link Light Rail Transit Project Final EIS in November 1999, the Sound Transit Board selected the project route to be built for a 21-mile new light rail line between the University District in Seattle to the city of SeaTac. The FTA issued a Record of Decision in January 2000 for the project.

When the Board selected the project route in 1999, it requested that Sound Transit staff examine an alternative route suggested by the City of Tukwila for a portion of the project route. This alternative route, known as the "Tukwila Freeway Route," is evaluated in this Final Supplemental EIS and compares the environmental effects of the Tukwila Freeway Route to a "No-build" Alternative. Information on the effects of the 1999 adopted route in this area was provided in the Central Link Final EIS. A comparison of the Tukwila Freeway Route with the route adopted by the Board in 1999 is provided in Section S.4.3. Figures S-1 and S-2 show both routes.

The Central Link Final EIS considered the light rail alternatives in six geographic segments:

- Segment A – Northgate to the University District
- Segment B – University District to Westlake Station
- Segment C – Westlake Station to S. McClellan Street
- Segment D – S. McClellan Street to Boeing Access Road
- Segment E – Tukwila
- Segment F – SeaTac

The Tukwila Freeway Route encompasses all of Segment E and a portion of Segment F where it returns to the selected project route. Segment E starts just north of the Boeing Access Road, near I-5, and ends at the city lines of the City of Tukwila and the City of SeaTac. Segment F begins north of SR 518 and International Boulevard, and continues to S. 200th Street, south of Sea-Tac Airport. The Tukwila Freeway Route joins the project route in Segment F, just north of S. 160th Street (Figure 2-1).

On February 8, 2001, following issuance of a draft of this Supplemental EIS, the Sound Transit Board identified the Tukwila Freeway Route as its new preferred alternative for this portion of the light rail system. On September 27, 2001, the Sound Transit Board identified a Central Link preferred initial segment to construct and operate. This initial segment extends from Convention Place to S. 154th Station and includes the Tukwila Freeway Route and an interim southern terminus at S. 154th Station with shuttle service to Sea-Tac International Airport, and it defers construction of the station at Boeing Access Road. After issuance of this Final Supplemental EIS, the Sound Transit Board may make a final decision on the Tukwila Freeway Route.

### 2.1.1 Typical Features of the Link Light Rail Project

Light rail is a conventional term for urban rail systems that have the flexibility to operate in either street traffic or exclusive rights-of-way. Light rail uses electrically powered cars, in trains of up to four cars (approximately 360 ft long), running on steel rails. The operating plan for the Central Link project from Northgate to S. 200th Station would have peak-period trains every 10 minutes south of Henderson Station (including Tukwila) as described in the Central Link Final EIS (1999). If the preferred initial segment is constructed and operated, it would have peak-period trains every 6 minutes for its entire length (including Tukwila). Portions of the Central Link project will be grade-separated (crossing over or under major roadways or other barriers). The Central Link project has segments that will operate at-grade (on the surface), on elevated tracks, or in tunnels,

due to varied conditions along the project corridor. The factors that govern the choice of an appropriate operational profile throughout the Central Link project are: (1) topography, (2) physical barriers, (3) available surface right-of-way, (4) train frequency, (5) density, and (6) cost.

For the development of its alternatives and for the selection of the project route, Sound Transit has applied the following criteria for choosing the profiles:

**At-grade:** Light rail operating at-grade is best suited to areas where the grade is less than 5 to 6 percent, there is adequate room within reserved street right-of-way or off-street corridors, and levels of congestion are low to moderate. It works well with a moderate number of riders and with trains running approximately 4 minutes apart. The Institute of Transportation Engineers has published guidelines for light rail grade profile choices based on street operating conditions. When light rail is operating within a street, intersections must be controlled (often with a signal) to allow the train to have priority over general traffic. Signal prioritization can increase traffic delays on cross streets. It can also restrict left-turn movements and complicate adjacent property access. An at-grade profile includes the following benefits:

- Easy access for passengers.
- Flexibility to integrate the design of tracks and stations with community plans.
- Opportunity to revitalize streets with landscaping, sidewalks, lighting, and other improvements.
- Potential support for sustainable economic redevelopment.
- Opportunities to transform car-oriented arterials into pedestrian- and transit-friendly places.
- Greater safety and security resulting from a visible and easily accessible system.
- Lower construction costs.

**Elevated:** Light rail on elevated structures works well where the system must be grade-separated to cross over geographic or physical barriers, and where street or other rights-of-way are inadequate for rail. It is also appropriate for accommodating higher train frequencies where street or highway operating conditions would not allow at-grade rail (as in crossing a freeway or operating within a high-volume roadway). Maximum allowable grades are 5 to 6 percent. Elevated structures can add an undesirable visual element, restrict left turn movements (when within a street), and reduce access to adjacent properties; however, elevated light rail benefits include:

- Reduced interference with cross street traffic operations, compared to an at-grade profile.
- Higher train operating speeds because tracks are separated from street traffic.
- Ability to serve more riders by allowing trains to run more often.

**Tunnels:** Tunnels are best suited to situations where slopes are steep (more than 3 to 4 percent), right-of-way is inadequate for at-grade or elevated profiles, or the density of homes and businesses is high. It is also appropriate in congested areas where the combination of traffic, high ridership, and resulting high train frequencies would severely impact street-level operations. Tunnels are also appropriate where major ridership points cannot be directly served in another way. There are substantially greater costs and increased risks with building tunnels. Tunnel construction can be very disruptive where cut-and-cover construction methods are necessary. Light rail trains moving in tunnels:

- Travel through hills and under other barriers.
- Travel at higher speeds since tracks are separate from street traffic.
- Serve more riders by running trains more often.

### 2.1.2 Tukwila International Boulevard Route (1999 Adopted Project Route)

The adopted project route is not analyzed in this document, as its effects have already been identified in the Central Link Final EIS. However, details of the route are provided here for comparison with the Tukwila Freeway Route. The adopted route will be elevated from the Boeing Access Road Station across E. Marginal Way, along the east side of Tukwila International Boulevard, and over the Duwamish River, Riverton Creek, and SR 599. From SR 599 south to approximately S. 126$^{th}$ Street, the route will be elevated to the east and then in the median of Tukwila International Boulevard. The route will transition to grade in the median of

Tukwila International Boulevard at approximately S. 126th Street, then proceed at-grade in the median to approximately SR 518. A traction power substation will be needed near the intersection of Tukwila International Boulevard and S. 126th Street. Where the route is in the median of Tukwila International Boulevard, the project will reconstruct the highway within a 102-ft cross-section. The cross-section would widen at stations and signalized intersections. The project will also incorporate many of the City of Tukwila's proposed improvements to Tukwila International Boulevard, including improved sidewalks, landscaping, and lighting. New signalized intersections would be provided at S. 140th and S. 148th streets. The route will be elevated along International Boulevard from 152nd Street, continuing southwest to cross over SR 518 west of Washington Memorial Park. There will be three stations along this route:

- Boeing Access Road – An elevated station at Boeing Access Road with pedestrian connections to a Sounder commuter rail platform and a 300-stall park-and-ride facility. A traction power substation will be sited near the station. The park-and-ride was deferred as part of the adopted project. The entire station has been deferred for the preferred initial segment.
- S. 144th – An at-grade station at Tukwila International Boulevard, south of S. 144th Street.
- North SeaTac – an elevated station located north of S. 154th Street and west of International Boulevard, with a 670-stall park-and-ride facility southeast of the intersection (the Central Link Final EIS included three station options; Option F is the preferred option and is used here for comparison).

### 2.1.3 Tukwila Freeway Route (Preferred Alternative)

The Tukwila Freeway Route is based on a route identified by the City of Tukwila and refined through engineering study by Sound Transit. The route starts on an elevated structure in the area of the Boeing Access Road Station and then it turns southward at E. Marginal Way S, and follows elevated along the west side of E. Marginal Way, including a new bridge across the Duwamish River and a crossing over SR 599. The route would continue elevated on the south side of SR 599, with a short segment that would cut into an existing hill. It would stay elevated along SR 599 to cut-and-fill along SR 599 to I-5, and then it would be in a retained cut or fill along the west side of I-5. Near S. 151st Street, the route would become elevated and turn west along the SR 518 right-of-way, heading uphill on a structure that would be from 40 to 80 ft above ground along the north side of SR 518. An elevated S. 154th Station would be on the southeast corner of the International Boulevard/S. 154th Street intersection. The route would then turn slightly north, cross over International Boulevard, and then turn south over the SR 518/North Airport Access Freeway Interchange, joining the adopted route just north of S. 160th Street. In a future phase, an extension could be added from near the I-5 and SR 518 interchange traveling east to Southcenter, Renton, and the eastside, but structural provisions must be included now (with increased cost). Traction power substations would be located at Boeing Access Road Station and in existing highway rights-of-way (along SR 599) and would not require additional property acquisition.

Like the adopted project, this route would include a station to serve Boeing workers at plants near Boeing Field, and a station to serve the residents and businesses along International Boulevard in SeaTac and Tukwila, as well as Burien to the west and Tukwila and Renton to the east. The two stations included in the freeway alternative are:

- *Boeing Access Road Station.* A station at the same location and with the same features as the adopted project. The September 27, 2001 Sound Transit Board motion identifies this as a deferred station in the preferred initial segment.
- *S. 154th Station.* Located in the City of Tukwila on International Boulevard, the station will feature a platform on the east side of International Boulevard. It includes a 440- to 670-stall park-and-ride facility and bus transfers. See Appendix J for descriptions of the three S. 154th Station park-and-ride plans and Appendix K for conceptual design drawings of the plans.

The Final Supplemental EIS evaluates the potential deferral of the Boeing Access Road light rail and commuter rail station and/or S. 154th Station, which may be necessary to fund the Tukwila Freeway Route.

The freeway alternative also includes one route option, one potential future station, and an interim terminus option:

- *Marginal Way Option.* This alignment option would follow the east side of E. Marginal Way from Boeing Access Road, across the Duwamish River, to the south side of SR 599 where it would rejoin the route described above. Locating the guideway on the east side of E. Marginal Way would avoid impacts on the Ray-Carrossino Farmstead.
- *Future Potential S. 133rd Station.* Although not part of the Tukwila Freeway Route, a potential future station at S. 133rd Street is described in Appendix A.
- *S. 154th Station Interim Terminus.* This station option would add a crossover track to accommodate the station functioning as an interim southern terminus until the light rail line is completed to S. 200th Street. This station option includes a 440- to 670-stall park-and-ride facility with bus transfers. A shuttle bus to the airport could also be included at this interim terminus. See Appendix J for descriptions of the three S. 154th Station park-and-ride plans and Appendix K for conceptual design drawings of the plans. The September 27, 2001 Sound Transit Board motion identifies the S. 154th Station as an interim southern terminus for the preferred initial segment.

### 2.1.4 No-build Alternative

The No-build Alternative represents the transportation system as it would exist without the light rail project in 2020, and is provided here for the purposes of comparison. The No-build Alternative provides a baseline condition for comparing the impacts of a light rail alternative in 2020.

The 2020 No-build Alternative refers to the existing transportation system, plus all the transportation projects and programs included in Puget Sound Regional Council's adopted Metropolitan Transportation Plan. The Metropolitan Transportation Plan includes an interconnected system of freeway and arterial HOV lanes. In this area of the project, system improvements include Tukwila International Boulevard Revitalization Plan, Phase I and II; new arterial access to Sea-Tac Airport; the addition of a new third runway and north end terminal; HOV lane construction upgrading of some bridges and arterial routes; and implementation of Sound Transit's Sounder commuter rail service and Regional Express bus service. Transit system and fleet expansions of King County Metro, Pierce Transit, and Community Transit are also assumed.

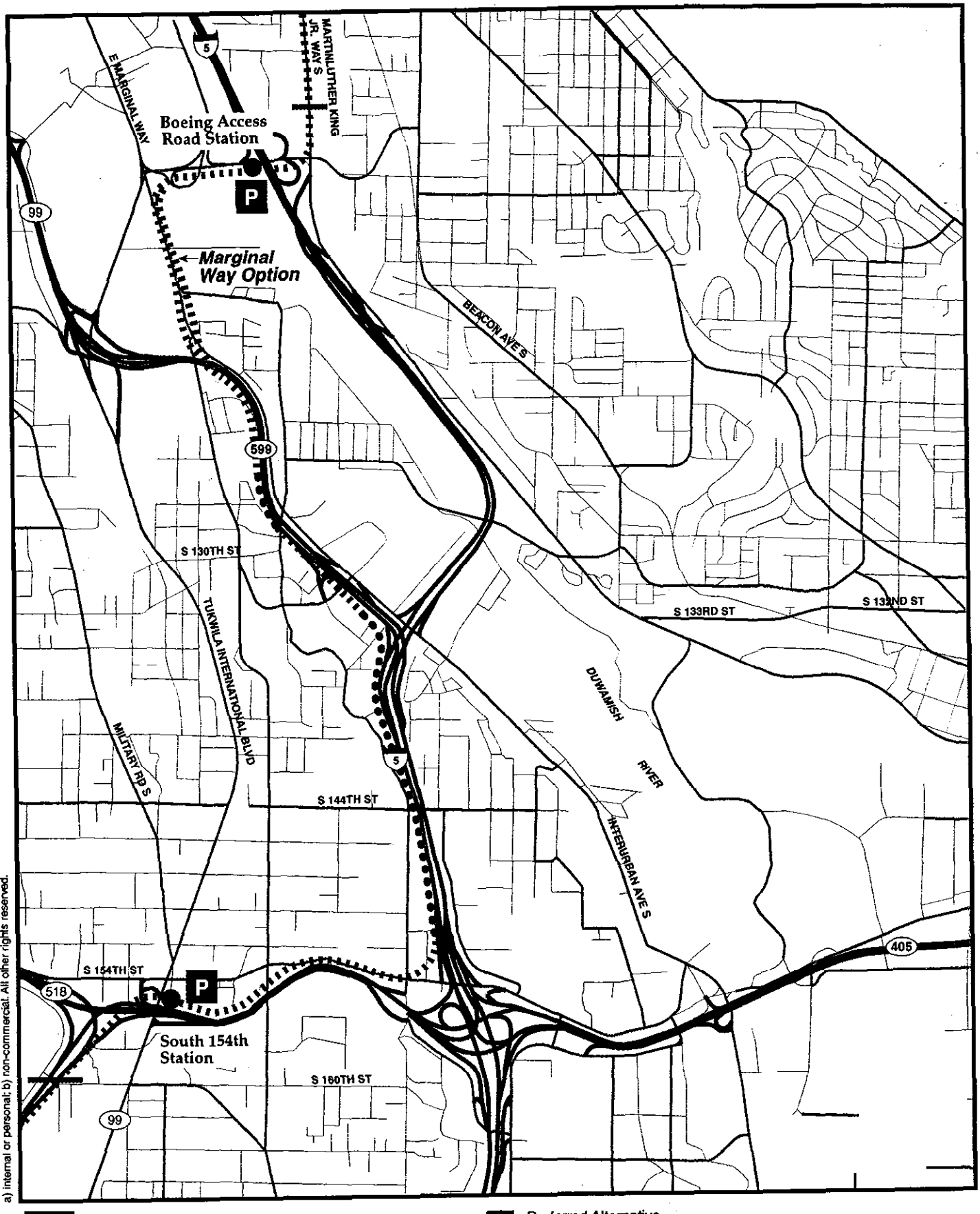
Under the No-build Alternative, the Tukwila International Boulevard Revitalization Plan proposes two phases of development within a 102-ft right-of-way. The planned improvements would include a restricted median and left-turn lanes, bus pullouts, continuous sidewalks, a traffic signal at S. 148th Street, and three pedestrian-only signals near S. 130th, S. 132nd, and S. 142nd streets. Numerous retaining walls will be needed due to side slopes.

The No-build Alternative also assumes planned changes in existing land use and their related population and employment forecasts. Additional details on the No-build Alternative are provided in this Final Supplemental EIS and the Central Link Final EIS.

## 2.2 EVALUATION AND SELECTION PROCESS

The evaluation and selection process for the Central Link light rail project is described in the Central Link Final EIS. The Tukwila Freeway Route is based on a route identified by the City of Tukwila and refined through engineering study by Sound Transit. The review and selection process for the Tukwila Freeway Route is described in Section S.9.

The benefits and disadvantages of reserving for some future time the implementation of the proposed project, as compared with possible approval at this time are essentially the same as discussed in the Central Link Final EIS.






SOUNDTRANSIT

0 1,250 2,500
FEET

Tunnel
Elevated
At Grade
Retained Cut-Fill
Preferred Alternative
Station
Park-and-Ride
Tukwila Freeway Route Limits

**Figure 2-1**
**Tukwila Freeway Route**

- Joint operation is viable at least as long as train headways remain at six minutes. The Initial Segment by itself could potentially run joint operations indefinitely. If the system is extended to Northgate, joint operations would be viable through about 2020. If other system expansion occurs prior to 2020, such as north past Northgate or east to Bellevue, joint operations could operate until the extensions are opened, which is not expected until at least 2016. These are minimum durations because if train headways need to be reduced to five minutes, joint operation may be viable, although the number of buses able to move through the tunnel would be reduced to approximately 30 in the peak hour instead of the 60 planned for the Initial Segment.
- In the long term, the most efficient use of the transit tunnel is rail only. As a rail-only tunnel, it can ultimately carry substantially more passengers than a bus-only tunnel.

KC Metro Transit and Sound Transit are currently renegotiating the DSTT Agreement. A draft agreement is anticipated for review by the King County Council and Sound Transit Board in May with approval by the two policy Boards expected by June 2002. Some of the issues being discussed include who will own and control the tunnel, methodologies for apportioning costs, assignment for risk and liability and the development of a joint operating plan.

### 2.2.2 Shared Features of Joint Operations Alternatives

As described in the *Evaluation of Joint Operations in the Downtown Seattle Transit Report*, Sound Transit conducted a series of technical studies to resolve previous concerns about joint operations. The two primary concerns were for safety and reliability. The technical studies have identified design solutions for the physical and operating facilities to provide for safe and reliable joint operations. Safety and reliability are also addressed in the transportation analysis section of this EA. Sound Transit conducted detailed operations assessments to ensure that joint operations could function reliably and safely while retaining adequate train frequencies and maximizing the number of buses that could use the tunnel. The factors examined included rail and bus service levels and schedules, arrival and dwell variables, trackwork, staging constraints, abnormal operations, and several north terminus configurations. All of the analysis assumed that buses and trains would operate separately as they moved through the tunnel. The major features of the DSTT joint operations are described below.

**Operation.** Trains would operate through the DSTT from the International District Station to a new tail track and a new crossover in a tunnel under Pine Street. Buses would enter the International District Station and Convention Place staging areas where they would line up to travel through the tunnel. A signal would hold the northbound buses in the International District staging area when the train is two minutes from arriving at the International District Station. When the train leaves the International District Station, the signal would turn green, allowing buses to proceed. At Convention Place Station, buses would proceed into the DSTT until trains are 30 seconds from leaving the tunnel under Pine Street. Light rail train speeds have been reduced to match the bus running times through the DSTT resulting in approximately one additional minute of travel time for trains.

Sound Transit and KC Metro Transit are currently developing a joint operations plan that will include a preliminary section on abnormal operations. It will address procedures for both bus and rail operations under various operating assumptions including when a bus or train breaks down in the tunnel.

**Bus/Train Separation and Signal Systems.** Buses would stage at Convention Place and at International District Station and then travel through the tunnel. A hybrid tunnel signal system would be required to maintain a safe distance between buses and trains, using elements of the existing bus signal system combined with rail control system technologies. Both trains and buses would remain under the control of on-board operators, who would receive information from the system, which would not allow trains and buses to operate in the same tunnel section or be in a station at the same

time. The system would also limit the number of buses that could be in the tunnel or in a particular segment or station at a given time. At points where buses merge onto or cross light rail tracks, railroad type flashers would signal the operator to hold when a light rail train is approaching. Some of the existing bus storage capacity for layover would be reduced at the International District Station due to the relocation of the westbound track in the current bus staging area. The lost bus layover area would be relocated south of the International District Station at KC Metro Transit's Atlantic/Central maintenance base complex as part of the expansion project for that facility. Environmental impacts of the bus layover relocation were addressed in the Final NEPA Categorical Exclusion Document prepared for the Atlantic Central Base Expansion Project (King County Metro 2001b).

**Trackwork and Roadway.** Joint operations require that the roadway be driveable and all trackway be imbedded in station areas, tunnel, International District staging area, and the E3 busway south to Royal Brougham. The original project requires a similar amount of reconstruction in the DSTT to accommodate rail-only operations.

**Stations.** The tunnel stations would involve the same changes under either rail only or joint bus/rail operations, except for Westlake Station. There the original project widened the platforms by nearly six feet to accommodate a future stairway.

The Initial Segment has deferred the widening until future extensions are built and joint use is no longer viable. With the platforms left as they are, buses will be able to pass without crossing over rail lines from the opposite direction. However, future construction of the widened platform couldrequire different operating procedures for the trains during the construction period.

**Communication System.** The existing communication system, which performs functions related to operations and fire/life/safety, would be upgraded for joint operations, and a new operations control center would be established.

**Fire/Life/Safety.** Joint operations requires a revision of the fire/life/safety plan for the DSTT. Sound Transit, KC Metro Transit, and the City of Seattle have been coordinating to address the fire/life/safety issues of joint operations. Elements of the final plan will include the signal system described above to ensure separation of trains and buses, as well as other details of the collision prevention system, evacuation, ventilation, fire suppression and hazard analysis.

**Ventilation.** The DSTT ventilation system would require some modification with or without joint operations. With rail only operations the existing ventilation system would remain as is with the exception that some dampers in the emergency fans would need to be replaced. Under joint operations and continued use of buses with diesel fuel (present with either technology option for the buses) new fire safety standards call for the station fans to be replaced, and the existing emergency fans upgraded. The modifications would require no physical change to the fan rooms or any surface modifications. The bus technology does not change the ventilation requirements that are necessary for joint operation.

**Deluge System.** A modified deluge system has also been designed for joint operations. The deluge system is a fire suppression system that is required if buses with diesel fuel continue to operate in the DSTT. The existing deluge system will be replaced with a new system consisting of valves and sprinklers on both sides of the tunnel.

**Power Substations and Vent Shafts.** Two traction power substations (TPSS) are required to accommodate light rail in the DSTT with the original project or for the Initial Segment with joint operations using hybrid diesel/electric buses. One TPSS would be located in the northernmost part of the tunnel in the mezzanine area under Pine Street, east of Convention Place Station within the newly constructed rail tunnel under Pine Street. The other would be located in the International District Station with a modification of the existing KC Metro Transit substation. If the dual power trolley bus

is used for joint operations, a total of three substations would be needed. The buses would use the existing KC Metro Transit substation and a new substation would be constructed in the same location for light rail. The location of the new underground TPSS is shown in Figure 2. Both the Initial Segment and original project require a vent shaft to be placed in the undeveloped Terry Street right-of-way between the south side of Pine Street and I-5.

### 2.2.3 Unique Characteristics of the Joint Operations Options

The type of bus fleet to be used for continued KC Metro Transit and Sound Transit Regional Express Bus service will affect some aspects of retrofitting of the tunnel to accommodate joint operations. In particular, different overhead power systems are typically used for light rail and dual power trolley buses. This EA evaluates the environmental impacts of the two options for developing the DSTT to accommodate buses under joint operations, based on options found feasible in the report entitled, *Evaluation of Joint Operations in the Downtown Seattle Transit Tunnel*, August 21, 2001.

Appendix J reviews in more detail the differences in the physical and operating features for the DSTT using the two bus technologies, and compares them to the rail only DSTT operations evaluated in the Final EIS.

**DSTT with hybrid diesel/electric bus operations (preferred).** The hybrid diesel/electric bus option would not require overhead power for buses in the DSTT, but it would instead develop the tunnel to accommodate buses with power systems drawing on either stored battery power or a combination of both battery power and limited diesel use. Tests performed to date indicate that the buses should be able to operate in the tunnel entirely on stored electrical energy. More testing will be needed to reflect the full range of variables that buses might encounter in the tunnel and the extent that diesel motor will be used, but the joint operations analysis assumes that diesel power will be used for health, fire, life and safety purposes and other factors. Hybrid diesel/electric bus technology has been in use for several years in New York. The specific type of coach required for use in the DSTT is not currently in revenue operation. However, Sound Transit and KC Metro Transit are working with a manufacturer to deliver the specified coaches in 2002. The coaches will have completed testing before the tunnel retrofit final design is completed, and they will have been in operation for several years before joint operations begins.

**DSTT with dual power trolley bus operations.** This option would configure the overhead power systems for special dual power trolley buses that are able to cross the light rail overhead contact lines. The existing overhead system for the trolleys would be removed and a new overhead system would be provided to accommodate both 750-volt trolley buses and 1500-volt light rail vehicles. Because the two types of vehicles operate at different voltages, Sound Transit in cooperation with KC Metro Transit has developed a track crossing solution that would allow both types of vehicles to operate normally, safely, and effectively in the DSTT. The "track crossing solution" reflects the ability of the light rail overhead power system (which is a single wire as opposed to the two-wire trolley power) to be laid out in non-continuous segments, including on one side of the tunnel ceiling or the other. As long as the train's pantograph (the connecting system) still achieves contact with at least one power line, power to the train will be maintained. At crossing locations, the light rail power will be arranged to provide an opening for the dual power trolley buses to enter without requiring a mechanical switch and without needing to cross the rail power line. To address the potential that a dual power trolley bus could dewire and its poles come in contact with the light rail overhead system, dual power trolley buses would need to be specified to include the use of non-conducting poles and extra insulation around the equipment at the ends of the poles and protection from overvoltage in the circuits located within the bus would need to be added. Buses with these specifications would most likely need to be custom built. Additional details are provided in the joint operations report, Page 35. An additional

TPSS would also be required specifically for the dual power trolley buses and would be in the International District Station south bus staging area as shown on Figure 2.

**Bus Fleet Replacement.** Regardless of the option assumed for DSTT joint operations, the current KC Metro Transit fleet plans call for replacing the 216 existing Breda dual-mode coaches by 2004, when they will have already exceeded their useful life of 12 years by one to two years. Similarly, Sound Transit will be replacing the Breda buses it operates for Regional Express routes that serve the tunnel. As noted above, KC Metro Transit and Sound Transit are currently evaluating the possibility of replacing the existing dual-mode buses with hybrid diesel-electric buses to meet the rising cost of diesel fuel as well as more rigid air quality standards. Whether dual power trolley or hybrid diesel/electric buses are used, KC Metro Transit would not need to increase its current fleet size to provide for joint bus/rail operations in the DSTT. Therefore, no additional storage or maintenance capacity would be required. Even under a no-build scenario or with rail only operations for a delayed original project, replacement of the Breda buses would still be required to continue use of the tunnel after 2004. They will have to be replaced with a bus that can run in the tunnel until 2007 when the tunnel closes for retrofit, on the surface while the tunnel is closed, and then again in the tunnel with trains in 2009 and beyond.

## 2.3 BEACON HILL

The Initial Segment includes a completed station on Beacon Hill, while the original project deferred the full construction and operation of the station on Beacon Hill (see Figure 2). Other project changes near the Beacon Hill Station since the Final EIS was published include a modified station plan with one station entrance, rather than the original project's two entrances, and minor changes to the tunnel alignment under Beacon Hill. The single station entrance would be located on the site of the eastern shaft under the original plan. The western station entrance would have been located on a site that was found to have extensive soil contamination. This change would also eliminate one of the two bored shafts included in the original station plan. The construction staging area has not changed, but it has been refined within the area disclosed in the Final EIS. One construction staging option would require short-term use of part of a parcel belonging to El Centro de la Raza, a private, non-profit community facility housed in an historic building. The other option would require displacing a number of residential and commercial properties.

## 2.4 MCCLELLAN STATION TO HENDERSON STATION

The overall route and stations from McClellan Street to Boeing Access Road are the same as in the original project (this constituted Segment D of the project in the Final EIS). However, revisions have been made to several of the stations and to some sections of the alignment during final design. These revisions are the result of the following:

- Alignment enhancements to improve operating efficiency and safety or to reduce environmental impacts
- Overall reduction of full property acquisition and displacements
- Additional design information
- Comments from City of Seattle and other agencies
- Provision of additional streetscape and sidewalk improvements

The changes to the alignment and stations in this segment are summarized in Figure 3. From north to south, the changes in detail are:

- **McClellan Station.** The station and elevated route approaching McClellan Station and descending to the median of Martin Luther King (MLK) Jr. Way S. would be up to 12 ft lower. This includes the bridge span over S. Winthrop (Cheasty Boulevard), where a support structure that was originally proposed mid-street would now be eliminated, improving the view corridor from S. Winthrop to Mt. Baker Boulevard. The bus layover facility would be located to the east side of Rainier Avenue S., instead of on the west side of the station, and this would revise the bus movements in the areas around the station and add a new bus stop on Rainier Avenue S. The changes in bus movements would also eliminate the need for a traffic signal mitigation at Hanford and Rainier Avenue S. Finally, a signal communications enclosure (about 10' x 16') previously to be located at McClellan Street and MLK Jr. Way S. would be relocated to Walden Street and MLK Jr. Way S.
- **Andover Street/MLK Jr. Way S.** A pedestrian-only signal crossing would be provided at this location instead of the full traffic signal included in the original project; emergency vehicle crossing would still be provided. This change is a result of revised access plans for the Rainier Vista development, with the signal change requested by the City of Seattle with agreement by the Seattle Housing Authority.
- **Edmunds Station.** A double-end loading platform would be provided at Edmunds Station, rather than the single-end platform in the original project. This would extend the median platform to allow passenger access to the station from either S. Alaska or S. Edmunds streets.
- **MLK Jr. Way S. Between S. Orcas Street and S. Brandon Street.** The alignment would shift up to 16 ft west to avoid impacts to properties on the east side of the roadway.
- **MLK Jr. Way S. Between Beacon Avenue S. and S. Norfolk Street.** The alignment on MLK Jr. Way S. would be realigned up to 12 ft to improve movements for trucks as well as general traffic. The shift tends to require less right-of-way on the east side of MLK Jr. Way S. than in the original project, and more right-of-way on the west side. The changes would add a truck turnaround on the west side of MLK Jr. Way S. at Merton Way S. and an additional northbound left turn lane. This would eliminate the need for a southbound turn lane at S. Norfolk Street that had been included in the original project.
- **Othello Station.** On-street bus facilities would be added near the Othello Station, including along MLK Jr. Way S., 39th Avenue S. and S. Myrtle Street. Minor street realignments and additional street and sidewalk improvements, including landscaping and median treatments, have also been developed.
- **Henderson Station.** Approaching the station, the alignment would be shifted up to five ft to the east to reduce impacts to utilities. Near the station, on-street bus loading facilities are proposed rather than the off-street bus facility sited on the southeast corner of MLK Jr. Way S./S. Henderson Street in the original project. This reduces property impacts in the station area. The resulting changes in bus circulation would also eliminate the need for a mitigation traffic signal at S. Henderson Street and Yukon Avenue S. Several streets would have the on-street bus facilities, including MLK Jr. Way S., S. Henderson Street, and S. Trenton Street. The roadways would be widened to accommodate curbs, gutters, sidewalks, and bus shelters, and S. Trenton would also be rebuilt.

## 2.5 TUKWILA FREEWAY ROUTE AND SOUTHERN TERMINUS

The Initial Segment route is the same as the original project along MLK Jr. Way S. until it reaches Boeing Access Road. There, the Initial Segment would follow the Tukwila Freeway Route, as

described and evaluated in the Tukwila Final SEIS. (The original project route in this segment connected to SR 99/Tukwila International Boulevard and then south to SeaTac.) The Tukwila Freeway Route starts on an elevated structure over Boeing Access Road (where a deferred station would be located) and then turns south to follow E. Marginal Way to SR 599. It then follows SR 599 to I-5, I-5 to SR 518, and SR 518 to a station at S. 154th Street and International Boulevard (Figure 4).

The interim southern terminus for the Initial Segment would be the S. 154th Station, which would be elevated on the southeast corner of the International Boulevard/S. 154th Street intersection in the city of Tukwila. The station would have a crossover on an elevated structure east of the passenger platform to accommodate the station functioning as an interim southern terminus. Access to this station is provided for pedestrians, passenger drop-off, buses, and a park-and-ride facility with 440 to 670 stalls.

A shuttle bus to the airport would also be included at this interim terminus. The shuttle bus would operate such that a bus would be ready and waiting with the arrival of each train at the S. 154th Station. The shuttle bus would drop-off and pick-up passengers at the Sea-Tac Airport Ground Transportation Center on the third floor of the existing parking garage. This is the same location as the shuttle bus stops for hotels, rental cars, and park-and-fly lots.

The impacts of the Tukwila Freeway Route, including using the S. 154th Station as a terminus, were fully evaluated in the Tukwila Final SEIS. Some differences between the Tukwila Freeway Route and the original project are that the Tukwila Freeway Route is mostly elevated, is 1.1 miles longer, does not include a station at S. 144th Street, has slightly lower ridership and slightly longer travel times, and costs about $50 million more in YOE$. The Initial Segment involves no changes to the Tukwila Freeway Route.

## 2.6 OTHER ALTERNATIVES CONSIDERED FOR THE INITIAL SEGMENT

Other alternatives to the Initial Segment have been considered, including alternatives previously considered as part of the Final EIS for the Central Link project. The array of alternatives include different lengths for the light rail project from N.E. 45th Street to S. 200th Street, as well as different options for DSTT operations.

### 2.6.1 Length Alternatives

Although a number of other length alternatives were previously considered in the Final EIS, most of these alternatives were not considered suitable for an Initial Segment given the need to reconsider the original project route to the north of downtown Seattle.

A shorter segment of the overall full-length light rail project is known in federal terms as a minimum operable segment (MOS). The MOS needs to be able to function independently if the other segments of the project are not constructed. The MOS must therefore include a maintenance facility, and the terminus points must have appropriate turnback capabilities for the light rail vehicles. A MOS is often considered to be an interim phase of the overall project, like the Initial Segment considered in this EA.

In the Final EIS, three MOS alternatives were considered. These included:

- MOS A: N.E. 45th Street to S. McClellan Street,
- MOS B: Capitol Hill to S. Henderson Street, and
- MOS C: N.E. 45th Street to S. Lander Street.

MOS A was adopted in 1999 by the Sound Transit Board as the MOS for federal funding. Prior to identifying the Initial Segment, the Sound Transit board reviewed a range of other potential length alternatives and interim terminus options. Four scenarios for an initial Link segment were considered:

- **University Link.** The original project from N.E. 45th Street in the University District to the maintenance base south of South Lander Street. Due to the higher estimated costs for this segment and a desire to review other route alternatives to the Capitol Hill tunnel, it was removed from consideration for the Initial Segment.
- **Convention Place Station to Henderson Station.** A route similar to the Initial Segment, but not extending to the City of SeaTac. It was removed from consideration because it had lower ridership than the Initial Segment.
- **Convention Place Station to S. 200th Street.** Longer but largely the same as the Initial Segment, this route extends beyond the Sea-Tac Airport to S. 200th Street. It was removed from consideration because of the need to reconsider route options in the airport area to accommodate newly changing airport development plans by the Port of Seattle.
- **Capitol Hill Station to Henderson Station (MOS B in the Final EIS).** The original project from Capitol Hill Station to the Henderson station. As with the University Link, this alternative was removed from consideration to allow reconsideration of a wider range of alternatives to extend Link north to the University District and Northgate.
- **Royal Brougham Station to S. 154th Street.** This alternative would not provide rail through downtown and would instead provide a rail/bus transfer terminal at Royal Brougham station, with shuttle buses running through the DSTT. The alternative was removed from consideration due to low ridership.

### 2.6.2 DSTT Operations Alternatives

A number of other DSTT operational scenarios, including north terminus options, were considered for the Initial Segment but were not carried further for one or more of the following reasons: lower ridership, higher impacts to downtown bus service and traffic, and/or higher costs. The alternatives removed from further consideration were:

- **Joint Use of DSTT with a Convention Place terminus.** Several variants of the alternative to terminate rail at Convention Place Station were considered,. The options with a Convention Place Station terminus were eliminated because they would require changing the original project route to the north, which is under study in a new supplemental EIS.
- **Rail only use of the DSTT with bus/rail transfer terminals at Convention Place, International District and Lander Street Station.** This alternative would require a forced transfer and travel time delay for a substantial number of bus riders in downtown.
- **Rail only Use of DSTT.** This alternative was not considered further due to increases in bus volumes on surface streets, in particular the high ridership bus routes from the University District that would not be replaced by rail service.
- **Royal Brougham Station terminus with bus rail intercept at Royal Brougham and shuttle bus in the DSTT.** This alternative was not carried forward primarily because of lower ridership, the forced transfer for rail riders into downtown, and the costs of operating a shuttle bus through the DSTT.

# ATTACHMENT D
## *Maintenance Base Alternatives*

### S.4.3 Maintenance Base Site Alternatives

The maintenance base would provide for heavy maintenance and storage of light rail vehicles. The Draft EIS considered three alternative maintenance base locations. Additional alternative base sites were then developed and evaluated in response to comments on the Draft EIS and an FTA request that each MOS be fully operational and include a maintenance base facility. These additional maintenance bases also allow the consideration of additional minimum operating segments (MOS). Maintenance base alternatives (see Figures S-4 – S-7) include:

- M1-A – S. Lander Street, bounded by S. Lander and S. Holgate streets, and Sixth and Eighth Avenues S.
- M1-B – S. Lander Street, bounded by S. Lander and S. Holgate streets, and Eighth Avenue and Airport Way S.
- M1-C – Atlantic/Central, bounded by the E3 Busway and Airport Way S., and Massachusetts and Holgate streets.
- M1-D – Rainier Brewery/Roadway Express, bounded by Seventh Avenue S., S. Airport Way and S. Forest Street, and south of S. Hinds Street.
- M1-E – Rainier Brewery/Airport Way, on a portion of the M1-D site above, but shifted to the east, realigning Airport Way S. eastbound. The southern boundary would be Horton Street. This site would also require 1 to 8 acres between S. Lander and S. Forest streets.
- M2 – Northeast of the Boeing Access Road, in a site bounded by Boeing Access Road, I-5/ 40$^{th}$ Avenue S., Norfolk Street, and MLK Jr. Way S.
- M3 – Southwest of the Boeing Access Road, in a site bounded by Boeing Access Road, E. Marginal Way, Duwamish power transmission line right-of-way, and the BNSF railroad.

# ATTACHMENT E
## *Summary of Required Mitigation Measures*

# Record of Decision

# ATTACHMENT E

## *Summary of Required Mitigation Measures*

For the Initial Segment of the
Central Link Light Rail Transit Project

May 2002

# Introduction

This attachment provides a summary of the mitigation commitments made by the Federal Transit Administration (FTA) and Sound Transit for the Initial Segment[1] of the planned Central Link Light Rail Project. This summary is provided in the Amended Record of Decision (Amended ROD) to facilitate the monitoring of the implementation of the mitigation measures and to give a sense of the nature of the mitigation actions and associated impacts. However, this summary does not supersede or negate any of the commitments for environmental mitigation established in the Central Link Final EIS (November 1999), the Tukwila Freeway Route Final Supplemental EIS (October 2001), the Initial Segment Environmental Assessment (February 2002), and the Section 106 Programmatic Agreement (December 1999) as amended. These documents, together with their associated published Drafts, constitute the FTA environmental record for the project.

The mitigation measures identified for the Initial Segment in the FTA environmental record for the project shall and must be implemented by Sound Transit if the project proceeds with FTA financial assistance. These mitigation measures are now incorporated into the definition of the project, and Sound Transit shall implement them, provide funding for their implementation, or ensure that other agencies fund and implement them (although this would not alleviate Sound Transit's overall responsibility for implementation). Sound Transit is prohibited from withdrawing or substantially changing any of the mitigation measures identified in the environmental record for the project without express written approval by FTA. In addition, any change to the project that may involve new or changed environmental or community impacts not yet considered in the existing environmental record must be reviewed in accordance with FTA environmental procedures (23 CFR Part 771) and approved by FTA.

Mitigation measures associated with the operation of the project are described first in Section 1 of this Attachment. Mitigation measures associated with the construction of the project are described second in Section 2. The program for monitoring the implementation of the mitigation measures is described at the end in Section 3.

# 1 Operational / Long-Term Mitigation

## 1.1 TRANSPORTATION

### 1.1.1 Common to all segments

**Mitigation Features of the Project**

To improve non-motorized access, Sound Transit will work with local public transportation agencies, communities and local governments to place and design transit facilities that fit with local community plans. These facilities will include improvements within one-half mile of each station for safe, easy pedestrian and bicycle access, consistent with existing Sound Transit policy recommendations. New sidewalks will be provided on or immediately adjacent to light rail station property. At a minimum, existing sidewalk widths will be maintained and any improvements will be sufficiently wide to accommodate pedestrian volumes from light rail and will be designed to conform to City standards. New

[1] The mitigation measures provided herein apply to the Initial Segment of the planned Central Link LRT System that is the subject of the ROD of April 2002 and runs from the Convention Place Station (CPS) to S. 154th Street. The unqualified term, "project," used in this Attachment refers to this Initial Segment. Whenever the longer Central Link Light Rail Project that includes more than the Initial Segment is the subject, the name of that larger Central Link LRT Project will be fully spelled out so that there is no ambiguity.

sidewalks will be constructed for the area within ½ mile of stations with respect to bicycles at all new stations/facilities, Sound Transit will:

- Design facilities at new stations to provide ample space for maneuvering bicycles in and through stations and on to vehicles.
- Provide a mix of storage lockers and racks.
- Provide storage areas open to circulation, on direct paths from access points, but not impeding pedestrian and vehicular traffic flows.
- Designate areas, where possible, for storage expansion to accommodate bicycle ridership increases.

In addition to the non-motorized facility improvements at stations, the following location-specific trail facility improvements are included in the project design:

- Development of a Class I trail facility adjacent to the E-3 Busway and light rail alignment in the North Duwamish area.
- Development of Chief Sealth Trail crossings of MLK Jr. Way S. and Henderson Street in the vicinity of Henderson Station.
- Development of a bicycle facility through the Rainier Valley parallel to the light rail corridor.
- Improved signage for an existing on-street bicycle route through the Rainier Valley.

Hide-and-ride parking impacts and mitigation refer to the potential for some light rail users to use unrestricted on-street parking in neighborhoods to access light rail stations. Hide-and-ride parking impacts will be mitigated through a number of locally appropriate measures including new or expanded residential parking zones (RPZs), hourly and day of week parking restrictions, parking meters, monitoring of use, enforcement and public education campaigns. RPZs are generally applicable on residential streets with greater than 75 percent parking utilization, while parking restriction signs and meters are more applicable in commercial business areas.

The potential for hide-and-ride and the best ways to mitigate the impact are unique to each individual station area. Sound Transit will conduct additional parking surveys of on-street unrestricted parking supply within 1/4-mile to 2,000 ft radius of most proposed station locations approximately six months or less prior to light rail system opening. All stations will be surveyed on two consecutive weekdays. The average of these two days will be used for the before/after parking survey comparison. Table 1.1-1 summarizes parking survey parameters by station.

Approximately six months after light rail system opening, Sound Transit will repeat the surveys described above for all locations and times. In cases where on-street parking utilization is greater than 90 percent, the surveys after system opening will focus on whether utilization is increasing in areas greater than 1/4-mile from that station. Parking surveys will be collected on two consecutive weekdays similar to the surveys conducted before the light rail system opens. The results of all surveys will be used to identify mitigation measures.

Mitigation measures will be identified on a case-by-case basis for all locations where parking surveys show that 50 percent or more of unutilized parking spaces prior to light rail implementation are utilized after light rail begins operation. For example, if a block face shows a parking utilization rate of 60 percent before light rail implementation and a utilization of 80 percent or greater after light rail implementation, Sound Transit will identify potential mitigation measures.

This increase threshold will be used for each block face to assess whether mitigation should be considered. For locations exceeding the parking utilization threshold, Sound Transit and the local jurisdiction will together determine the appropriate mitigation for each block face, if any.

For locations where the mitigation is accepted and approved by City staff and local community or neighborhood groups, Sound Transit will provide funding for direct start-up costs of mitigation proportional to the increase in parking related to the light rail project. In the case of residential parking zones, Sound Transit expects the affected city to recoup on-going monitoring, enforcement, education, and other operating costs from parking fines and permit fees.

The light rail system will include the following design features to enhance safety and minimize any risk or exposure to traffic accidents along at-grade routes where the track-way runs within a roadway:

- Signs and pavement markings to advise vehicle drivers not to encroach on to the trackway area;
- Lighting along the at-grade route;
- Lighting all corners of signalized intersections (auto and pedestrian signals) along the at-grade route;
- Clear delineation between the adjacent street and trackway that will be visual and tactile;
- Operating trains at speeds within the speed limit of the adjacent street on at-grade segments;
- Safe pedestrian crossing locations;
- Operating a high-intensity light on the train during all operating times;
- An active traffic control system that may consist of gates, signals, and audio warning devices to notify pedestrians and motorists of an oncoming train; and
- An intensive public information program to create awareness and discuss possible safety features.

Table 1.1-1. Summary of Project Parking Survey Parameters

| Station | Time of Day | Survey Radius[3] |
|---|---|---|
| Royal Brougham[2] | 9:30 A.M. - 3:30 P.M. | 0.25 mi. (1,320 ft) |
| S. Lander[2] | 9:30 A.M. - 3:30 P.M. | 0.25 mi. (1,320 ft) |
| Beacon Hill[2] | 9:30 A.M. - 3:30 P.M. | 0.25 mi. (1,320 ft) |
| McClellan[2] | 9:30 A.M. - 3:30 P.M. | 0.25 mi. (1,320 ft) |
| Edmunds[2] | 9:30 A.M. - 3:30 P.M. | 0.25 mi. (1,320 ft) |
| Graham[2] | 9:30 A.M. - 3:30 P.M. | 0.25 mi. (1,320 ft) |
| Othello[2] | 9:30 A.M. - 3:30 P.M. | 0.25 mi. (1,320 ft) |
| Henderson[2] | 9:30 A.M. - 3:30 P.M. | 0.25 mi. (1,320 ft) |
| Boeing Access Road | 9:30 A.M. - 3:30 P.M. | 0.25 mi. (1,320 ft) |
| North SeaTac (S. 154th) | 9:30 A.M. - 3:30 P.M. | 0.25 mi. (1,320 ft) |

Note: Station list may change with the Sound Transit Board decision in November 1999.

1 Surveys at these stations will be conducted for either the early morning or midday time period, but not both.

2 Early morning surveys will be conducted at these stations if the midday utilization is greater than 90%.

3 Survey radii will be 0.25 miles except in locations where parking utilization prior to Link implementation is 90% or greater.

### 1.1.2 Segment B -- Partial (Convention Place Station to Westlake Station)

**Mitigation Features of the Project**

There are no mitigation features of the project for this part of Segment B beyond those previously identified as common to all segments.

### 1.1.3 Segment C (Westlake Station to S. McClellan Street)

**Mitigation Features of the Project**

Many of the physical improvements in the downtown put into place during retrofit of the downtown transit tunnel will remain in place after construction completion and the start of operations of the Link light rail. After Link light rail operation begins, the "Monitor and Maintain" committee (established prior to the start of construction and includes members from Sound Transit, the City of Seattle, and King County and may be expanded to include participation by other transit agencies) will review the various transit surface mitigation measures that were put in place during construction to determine which improvements continue to benefit downtown operations. The committee shall then make recommendations to the appropriate local governing body as to which mitigation measures may be removed. It is acknowledged that the committee may not have jurisdiction over the implementation or removal of these traffic mitigation measures.

A new traffic signal will be placed at the Lander Street/Beacon Avenue S. intersection near the Beacon Hill Station, if the City of Seattle deems it warranted and required. This new signal will provide a protected pedestrian crossing to the station and allow buses to safely cross as well.

Sound Transit is working with King County Metro to mitigate for the possible loss of parking at Ryerson Base if the base is expanded. Options include providing temporary parking using WSDOT right-of-way with long-term parking being accommodated in new structured parking at Central Base or a new parking lot.

### 1.1.4 Segment D (S. McClellan Street to Boeing Access Road)

**Mitigation Features of the Project**

The recommended light rail signal priority system for the project in Segment D is a progression-based system on MLK Jr. Way S. This system relies on the predictability of light rail vehicle arrivals, eliminating the need for light rail vehicles to fully preempt traffic signals. This type of system minimizes or eliminates impacts to eastbound/westbound movements and northbound/southbound left-turn movements compared to a light rail signal preemption system. All existing and new signalized intersections will require timing and phasing revisions. Most of the LOS impacts at intersections from at-grade light rail system are eliminated with the progression-based signal system. However, there are six intersections where improvements have been included in the project design to improve LOS to better than No-build conditions and fully mitigate project impacts. These locations include:

- S. Columbian Way - add eastbound left-turn lane
- S. Graham Street - add eastbound right-turn lane
- S. Myrtle Street - add eastbound and westbound left-turn lanes
- S. Othello Street - add eastbound and westbound left-turn lanes and restripe the eastbound curb lane to an exclusive right-turn lane
- Renton Avenue S. - add westbound left-turn lane
- S. Cloverdale Street - add eastbound right-turn lane

All signalized intersections will require timing and phasing revisions. To mitigate impacts of eliminating left-turn access at unsignalized locations, additional signals with northbound and/or southbound left-turn lanes will be included at the following intersections:

- S. Dakota Street
- S. Edmunds Street
- S. Dawson Street
- S. Holly Street

Passenger vehicles will be allowed to make U-turns at these locations. Protected pedestrian crosswalks across MLK Jr. Way S. will also be provided. The following intersections will also be signalized; however, left-turn lanes will not be provided on MLK Jr. Way S. at these locations:

- S. Hanford Street
- S. Brandon Street/35th Avenue S.

A new traffic signal will also be added at the Rainier Avenue S./S. Forest Street intersection to improve vehicular and pedestrian access to the McClellan station if the currently proposed bus service integration plan is implemented by King County. If the plan is modified, the need for this signal will be re-evaluated. A new traffic signal and truck u-turn is also added at Merton Way S. to facilitate better truck circulation.

For additional crossing opportunities for pedestrians, pedestrian-only signals will be included on MLK Jr. Way S. with the project at the following intersections:

- S. Andover Street
- S. Genessee Street (realigned street)
- S. Hudson Street
- S. Raymond Street
- S. Morgan Street

- S. Willow Street
- S. Holden Street
- S. Elmgrove Street
- S. Thistle Street
- S. Trenton Street

These added pedestrian-only signals, in addition to the signalized intersections, will minimize the walking distance required to reach a protected crossing of MLK Jr. Way S. They will also enhance pedestrian safety by providing additional protected pedestrian crossing opportunities of MLK Jr. Way S.

Final design of the at-grade sections will include evaluation and implementation where determined to be appropriate of safety measures such as a visual element in the center of the tracks (42-inch high decorative fence, bollards and chain, or other similar feature) to discourage crossing the tracks except at legal crosswalks. Another measure to be evaluated is an area for pedestrians to stand between or on one or both sides of the rail tracks at legal crossing locations.

The project also includes a 6-ft sidewalk with 4.5-ft planting strip on MLK Jr. Way S. throughout the corridor. At station locations, the sidewalk width will be increased to 10 feet.

**Additional Mitigation Commitments**

Business/property owners will be directly compensated by Sound Transit when a portion of their property is acquired by Sound Transit. If a portion of the area purchased was used for parking, Sound Transit will work with the property owner on a case-by-case basis to replace lost parking.

### 1.1.5 Segment E (Tukwila)

**Mitigation Features of the Project**

Improve signal-timing adjustments at the Boeing Access Road/MLK Jr. Way S/Ryan Way intersection to mitigate traffic from the Boeing Access Road Station. Channelization and traffic signal modifications will occur at Boeing Access Road/I-5 southbound ramps intersection to add the new south leg accessing the Boeing Access Road Station and park-and-ride lot.

For the S. 154th Station, located at the intersection of International Boulevard (SR 99) and S. 154th Street, crossing opportunities will be limited to the intersections. Additional sidewalks on S. 154th Street will be provided on the south side from International Boulevard to 40th Avenue S. and along the north side from International Boulevard to the park-and-ride driveway entrance. It is anticipated that sidewalks along International Boulevard adjacent to the station will be provided by the City of SeaTac as part of their improvements along International Boulevard (scheduled for 2003) and/or as part of WSDOT widening of the SR 99/SR518 interchange.

With the Initial Segment, a shuttle bus operation will be included at the S. 154th Station to meet each train and provide a direct connection to the airport.

**Additional Mitigation Commitments**

A westbound right-turn lane will be added on S 154th Street at its intersection with International Boulevard.

A traffic signal will be provided at the driveway entrance to the S 154th Station park-and-ride if required by signal warrants in the Manual on Uniform Traffic Control Devices.

Driveway access impacts due to column placement for the elevated structure will be mitigated by driveway relocation or consolidation. Columns will be placed to minimize access impacts.

Sound Transit will mitigate clear zone impacts and potential future widening within freeway right-of-way by placing the light rail as far from highways as practical. (22-feet from the fog line of the road at a minimum) and providing appropriate safety barriers between the light rail and highways as agreed with WSDOT. Clear zone and safety barriers on local streets will be coordinated with local jurisdictions.

Business/property owners will be directly compensated when a portion of their property is acquired by Sound Transit. If a portion of the area purchased was used for parking, Sound Transit will work with each property owner on a case-by-case basis to replace or compensate for lost parking.

Link park-and-ride facilities within the City of Tukwila are not intended to replace paid parking for airport passengers, and special enforcement policies will be developed in conjunction with the City of Tukwila and Port of Seattle to allow park-and-ride facilities at the S. 154th Station to remain available for transit users. Enforcement policies to be considered and implemented where determined to be appropriate include time restrictions or permit requirements for park-and-ride users.

### 1.1.6 Maintenance Base Site M1-D (Rainier Brewery/Roadway Express)

**Mitigation Features of the Selected Maintenance Base Site**

The maintenance base site selected to be built is located at the former site of the Rainier Brewery between S. Forest Street, south of S. Hinds Street, Airport Way S., and Seventh Avenue S. The site (M1-D) requires the vacation of S. Hanford, S. Horton, and S. Hinds streets between Seventh Avenue S. and Airport Way S. All truck access to businesses located west of the maintenance base will be from Sixth Avenue.

**Local Access**

If the maintenance base vacates portions of public streets, creating a dead-end street, turn-arounds will be constructed where required to accommodate large trucks and fire apparatus.

## 1.2 LAND USE AND ECONOMICS

### 1.2.1 Common to all Segments

**Mitigation Features of the Project**

At each station area Sound Transit shall work with the local jurisdictions, as possible, during the Station Area Planning process to actively involve local businesses, neighborhood organizations, and local residents to plan for development of land uses that effectively serve and support the unique characteristics and needs of each station area.

Sound Transit shall to the extent not inconsistent with federal requirements, follow its adopted Guiding Principles for Employment and Contracting.

### 1.2.2 Segment D. (S. McClellan Street to Boeing Access Road)

The Final EIS recognizes that the light rail project may have adverse impacts on certain businesses located within the Rainier Valley and along Segment D. Sound Transit shall, therefore, implement a community reinvestment program funded at a level of $50 Million ("Community Reinvestment Fund"). This Community Reinvestment Fund shall be used and available to assist the community and the qualified local businesses, neighborhood organizations and community institutions within this area to mitigate and offset adverse economic impacts that they may suffer due to the Link light rail and its construction. The specific operational elements and program requirements of the Community

Reinvestment Fund shall be later established by Sound Transit in consultation with the City of Seattle and community business representatives. (This Community Reinvestment Fund, although a project requirement under this Amended ROD, is not considered part of the Link Light Rail Project funding and will not contain either United States Department of Transportation funds or Project local matching funds.)

## 1.3 ACQUISITIONS, DISPLACEMENTS AND RELOCATIONS

### 1.3.1 Common to all Segments

**Mitigation Features of the Project**

Sound Transit will contact all property owners whose property will be directly affected to answer questions and provide additional information about relocation assistance services, payments, and reimbursement eligibility. Sound Transit's relocation assistance advisory services will include, but not be limited to, measures, facilities, or services that may be necessary or appropriate to determine the relocation needs and preferences of each household, business, and nonprofit organization to be displaced. Sound Transit will provide current information on the availability, purchase prices, and rental costs of comparable replacement dwellings.

Sound Transit shall work closely and proactively with families and businesses to help them plan ahead for relocation, assist them to find new homes or sites, and help solve problems as they may occur. Interpreters will be used to assist those who do not feel comfortable speaking English to ensure understanding of their choices and options. While the ultimate choice of relocation site will be up to the affected family or business, Sound Transit will help with detailed investigation of possible locations. Every reasonable attempt will be made to assist those who wish to remain in their neighborhood in finding a new location close to their current site.

Sound Transit will compensate affected property owners according to the provisions specified in Sound Transit's adopted Real Estate Property Acquisition and Relocation Policy, Procedures, and Guidelines. These provisions are largely based on the federal Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 and Uniform Relocation Act Amendments of 1987 and on the State of Washington's relocation and property acquisition regulations (468-100 WAC). These benefits vary depending on the level of impact, available options, and other factors.

Property owners whose entire or partial property is acquired by Sound Transit will receive just compensation for their land and improvements. Just compensation is an amount paid to a property owner for property acquired for public purposes which is not less than the market value of the property acquired, including damages or benefits to the remaining property. Compensation will include any measurable loss in value to the remaining property as a result of a partial acquisition.

Sound Transit will pay for all normal expenses of sale, including escrow fees, title insurance, pre-payment penalties, mortgage release fees, recording fees, and all typical costs incurred incident to conveying title. The sale, however, will be exempt from real estate excise tax and no real estate commissions are involved. All funds remaining at the end of sale closing will be released to the seller.

Other benefits and compensation may include payment of residential moving expenses and replacement housing payments, nonresidential moving expenses, and reestablishment expenses. Sound Transit's Business Acquisition and Relocation Handbook and Residential Acquisition and Relocation Handbook outlines compensation and acquisition procedures in detail.

## 1.4 NEIGHBORHOODS

Specific mitigation for impacts to neighborhood quality of life, social interaction, safety and security, and social equity are described in detail in other sections of this mitigation plan (transportation, land use, displacements, visual resources, air quality, and noise).

## 1.5 VISUAL RESOURCES

### 1.5.1 Segment D (S. McClellan Street to Boeing Access Road)

**Mitigation Features of the Project**

The elevated portion of guideway south of S. McClellan Station (options B and C) will cross S. Winthrop Street, part of the Olmsted-planned Cheasty Boulevard system. The project will include landscaping, tree plantings and other streetscape improvements of Cheasty Boulevard along S. Winthrop Street that will enhance its visual quality.

The project will require the removal of mature street trees and specimen trees along the east frontage of the Rainier Vista housing development, a public landscape with high design quality that constitutes an important community visual resource. The associated visual impacts will be partially mitigated by replacement of the trees with new trees.

Streetscape improvements along MLK Jr. Way S. and S. Edmunds and S. Henderson streets will include new trees and new or repaired curb, gutter and sidewalks that will improve the visual quality of the area. To prevent possible land dereliction associated with the creation of remainder parcels difficult to redevelop, the project will replant such parcels with grass or simple landscaping after project construction, and pursue their redevelopment for land uses (including public open space) that are feasible and consistent with neighborhood plans.

### 1.5.2 Segment E (Tukwila)

**Mitigation Features of the Project**

The presence of the elevated trackway running along the hill on the south side of Boeing Access Road and removal of naturalized vegetation will have a low visual impact on an area which has potential traditional cultural value to local Indian Tribes. Restoration of affected areas with native plant species originally found on the site will reduce this impact.

Vegetative screening of the elevated guideway along the north side of SR 518 directly adjacent to residential properties west of 42$^{nd}$ Avenue S. and apartments along S. 154$^{th}$ Street will be provided, primarily consisting of coniferous trees, and where there no interference with the safe operations and maintenance of the light rail trains and guideway.

## 1.6 AIR QUALITY

No significant impacts have been identified during operation and no mitigation is necessary.

## 1.7 NOISE AND VIBRATION

### 1.7.1 Common to All Segments

The following sections describe the mitigation measures that will be used throughout the project. Utilizing the recommended noise and vibration mitigation measures, light rail and traffic noise impacts and light rail vibration impacts could be attenuated. During final design, project modifications could

eliminate some of the currently projected noise and vibration impacts. These modifications will be reviewed prior to finalizing mitigation needs.

**Mitigation Features of the Project**

There are several operational measures that can be taken to assure that noise and vibration levels related to light rail operation remain at the levels projected in the analysis. Table 1.7-1 provides a list of measures that Sound Transit will perform on a regular basis and the benefit that each of the measures will provide. In addition to the measures listed, Sound Transit will continue to research methods of maintaining low project-related noise and vibration levels during normal system operation. Purchasing quiet light rail vehicles is an important step in minimizing noise impacts. Sound Transit will use low-noise, current state-of-the-art vehicles.

Approaches to controlling wheel squeal will include one or more of the following:

- Use lubrication and friction modification. Apply lubrication on the flange side of the rail and friction modifiers on the running surface of the rail.
- Optimize rail and wheel profiles. It is often possible to reduce levels of wheel squeal through modifications to the rail and wheel profiles.
- Minimize contact with restraining rails.

**Table 1.7-1**
**Summary of Link Light Rail System-Wide Operational Mitigation Measures**

| Operational Measure | System Benefit |
|---|---|
| Rail Grinding and Replacement | As rails wear, both noise levels from light rail by-passes and vibration levels can increase. By grinding down or replacing worn rail noise and vibration levels will remain at the projected levels. Rail grinding or replacement is normally performed every three to five years |
| Wheel Truing and Replacement | Wheel truing is a method of grinding down flat spots (commonly called "wheel flats") on the light rail's wheels. Flat spots occur primarily because of hard braking. When flat spots occur they can cause increases in both the noise and vibration levels produced by the light rail vehicles. |
| Vehicle Maintenance | Vehicle maintenance includes performing scheduled and general maintenance on items such as air conditioning units, bearings, wheel skirts, and other mechanical units on the light rail vehicles. Keeping the mechanical system on the light rail vehicles in top condition will also help to maintain the projected levels of noise and vibration. |
| Operator Training | Operators will be trained to maintain light rail travel speeds at those speeds given in the operation plan that was used for the analysis and to avoid "hard-braking" whenever possible. As stated, "hard-braking" can cause wheel flats and may also damage track. Furthermore, by training operators to identify potential wheel flats and other mechanical problems with the trains, proper maintenance can be performed in a more timely manner. |

***Additional Mitigation Commitments***

### 1.7.1.1 Noise mitigation measures

Following is a summary of the types of noise mitigation measures that are recommended. Some combination of these recommendations will be used to eliminate all identified light rail and traffic noise impacts:

- Install sound walls. Sound walls are considered the most effective noise control measure, and are widely used to control traffic noise. In order to be effective, the walls must block the direct view of the noise source and must be solid with minimal openings. Sound walls will be used to mitigate any light rail noise impacts when the alignment is elevated on a structure. For the at-grade segments, a combination of sound walls and sound insulation (described below) can eliminate all noise impacts.
- Provide sound insulation. Insulating affected structures can reduce noise levels inside those structures, thereby eliminating any interior noise impact. This technique does not, however reduce exterior noise levels and is normally used for structures that have little or no outdoor use at the facility.

Sound walls were evaluated as the primary type of mitigation for light rail noise impacts in areas where the light rail alignment was elevated. The installation of four-foot sound walls on elevated trackway will eliminate all noise impacts for elevated sections. Six to eight foot sound walls adjacent to at-grade trackway, when not located in a roadway, or near receivers locations were also evaluated as mitigation measures. Sound walls for noise mitigation will occur in a few locations adjacent to receivers and will be constructed at the property owners' discretion. No sound walls are proposed adjacent to in-street trackway. Sound walls will be designed so the noise level at the affected structure will meet the appropriate criteria, either FTA, FHWA, or in some cases both criteria. All decisions to use at-grade sound walls will be coordinated with the affected property owner.

For those areas where sound walls are not a feasible and reasonable form of noise mitigation, building insulation will be used to mitigate remaining light rail noise impacts in accordance with FTA and

FHWA regulations. The sound insulation will use the Housing and Urban Development (HUD) interior 45 dBA Ldn as the reference value for noise reduction for light rail noise impacts, and the WSDOT 51 dBA peak hour Leq criteria for traffic noise impacts. For those locations where both light rail and traffic noise impacts are identified, the interior levels will be required to meet whichever criteria required the greatest level of noise reduction.

Finally, new development and redevelopment along the alignment can incorporate sound considerations into site planning and building design. The planned redevelopment of two large public housing projects in Segment D - Rainier Vista and Holly Park - provide opportunities to design these facilities to reduce noise impacts and enhance community character and access. Redevelopment options include creating a buffer zone between the road and new residences, incorporating a sound barrier or constructing new homes so that interior noise levels meet HUD criteria. This process will mitigate project noise impacts at both of these developments. Sound Transit will work with local jurisdictions and communities during the final design phase to further evaluate and develop appropriate mitigation.

#### 1.7.1.2 Vibration mitigation measures

All of the projected vibration impacts will be mitigated using one of the mitigation measures described below. The actual form of mitigation will be selected during final design.

- Ballast mat on top of a concrete pad in ballast and tie track;
- High resilience direct fixation fasteners;
- Resiliently supported ties;
- Spring-loaded switch frogs or ballast mats for areas where impacts may be caused by cross-overs and switches; and
- Alternating stiffness fasteners.

### 1.7.2 Segment B – Partial (Convention Place Station to Westlake Station)

No significant impacts have been identified during operation and no mitigation is necessary.

### 1.7.3 Segment D (S. McClellan Street to Boeing Access Road)

**Additional Mitigation Commitments**

The project is projected to have 52 moderate light rail noise impacts. The potential noise impacts will be primarily at front-line residences bordering MLK Jr. Way S. There will also be the potential for 231 traffic-related noise impacts. All of the 52 receptors with potential light rail noise impacts have traffic noise impacts because the roadway will be moved to accommodate the light rail. Most of the front-line receivers along MLK Jr. Way S. currently have existing noise levels that meet or exceed the traffic noise abatement criteria.

No potential vibration impacts are projected along MLK Jr. Way S.

#### 1.7.3.1 Noise Mitigation

Noise mitigation analysis in this segment was performed using a combination of building sound insulation and sound walls. Where proposed, sound walls will be located adjacent to the affected property. Noise impacts in this segment are divided into five separate sections for the purpose of performing the mitigation analysis. The five sections are as follows:

- McClellan Street Station to S. Alaska Street;
- S. Alaska Street (including Edmunds Station) to S. Graham Street;
- S. Graham Street to S. Kenyon Street (includes Holly Park);

- S. Kenyon Street to S. Henderson Street; and
- S. Henderson Street (including Henderson Station) to Boeing Access Road.

*McClellan Station to S. Alaska Street (including Edmunds Station):* There is one light rail and 40 traffic noise impacts projected in this section of Segment D. Twenty will use building sound insulation, although four of the impacts may be mitigated with sound walls or building insulation. The remaining 16 impacts are in the Rainier Vista residential housing complex which is planned for redevelopment. Mitigation of the remaining 16 impacts at Rainier Vista will be performed during the redevelopment by 2006. If the redevelopment is not completed prior to implementation of the light rail project, the noise-impacted units will be mitigated using building sound insulation.

*S. Alaska Street to S. Graham Street (including Graham Station):* This section of Segment D has 90 projected traffic noise impacts, 29 of which also have noise impacts related to light rail operations. Fifteen of the impacts will be mitigated using sound walls or building insulation. All other impacts will be mitigated using some form of building sound insulation. The walls will have a combined length of just over 850 ft and have a height of approximately 6 ft

*S. Graham Street to S. Kenyon Street (includes all of Holly Park):* There are 42 projected traffic noise impacts, with 18 of these impacts also having noise impacts due to light rail operations. All except six of the impacts will be mitigated using some form of building sound insulation. The remaining six impacts are located in Holly Park and will be mitigated as part of the planned redevelopment of this area by 2003. If the redevelopment does not occur prior to light rail implementation, the six units will be mitigated using building sound insulation.

*S. Kenyon Street to S. Henderson Street:* This section is projected to have 50 traffic noise impacts, with seven of these impacts also having noise impacts due to light rail operations. Building sound insulation or three sound walls totaling approximately 1,220 ft will be used to mitigate both the traffic noise and light rail noise impacts at 13 of these receivers. All other impacts will have some form of building sound insulation applied as mitigation.

*S. Henderson Street (including Henderson Station) to Boeing Access Road:* There are 25 traffic noise and 13 light rail noise impacts projected in this section of Segment D. All noise impacts in this section of Segment D can be mitigated. Thirteen of the impacts that both have light rail and traffic noise impacts will be mitigated with a sound wall or building insulation. All other impacts will be mitigated using building sound insulation.

### 1.7.4 Segment E (Tukwila)

**Additional Mitigation Commitments**

Thirty nine potential light rail-related noise impacts were projected in this segment and none are considered severe under FTA guidelines. There are also 8 projected vibration impacts in the segment.

#### *1.7.4.1 Noise Mitigation*

Noise mitigation will consist of sound walls, as previously described (see section 1.7.1, above), along elevated or retained/cut at-grade sections of the alignment. The installation of four-foot sound walls on elevated trackway will mitigate all noise impacts. The height and location of sound walls along retained/cut at-grade sections will be determined during final design.

#### *1.7.4.2 Vibration Mitigation*

All of the projected 8 vibration impacts will be mitigated using methods described in Section 1.7.1. The actual method will be determined during final design.

## 1.8 ECOSYSTEMS

Increased impervious surfaces will result in increased stormwater runoff and decreases in water quality. This impact can be mitigated with detention and treatment of stormwater runoff from new impervious surfaces, as discussed in the Water Resources of the Final EIS.

### 1.8.1 Segment B – Partial (Convention Place Station to Westlake Station)

No significant impacts have been identified during operation and no mitigation is necessary.

### 1.8.2 Segment C (Westlake Station to S. McClellan Street)

**Additional Mitigation Commitments**

The project will result in the loss of approximately 10,150 square feet of deciduous forest within city of Seattle designated greenbelts. Tree removal within a city greenbelt will require replacement planting. Portions of the greenbelts disturbed by construction will be required to be replanted at a ratio of 100 trees per acre and 1,600 shrubs per acre. A three-year maintenance plan is also required to provide survival of the plantings.

### 1.8.3 Segment D (S. McClellan Street to Boeing Access Road)

**Additional Mitigation Commitments**

The project will fill approximately 5,000 square feet of wetland (AR-3) and remove approximately 1,500 square feet of wetland buffer. The compensation/restoration ratio for these wetland impacts is 2:1, therefore approximately 10,000 square feet of wetland mitigation is required. Also, the compensation/restoration ratio for wetland buffer impacts is 1:1, therefore 1,500 square feet of buffer mitigation is required. Mitigation could be accomplished either on or offsite. Wetland AR-3 is located on Seattle City Light powerline right-of-way and private property. On-site opportunities to conduct wetland creation or restoration at this site may be limited by the requirements of Seattle City Light. The wetland currently consists primarily of mowed wetland grasses. With permission from Seattle City Light, this wetland could be enhanced by removing invasive shrubs and grasses and replanting the site with native wetland species. Potential for wetland restoration exists on privately owned land adjacent to wetland AR-3. Fill material could be removed to connect wetland AR-3 with another wetland located outside of the project limits. Dense blackberry thickets could be removed and replaced with native wetland tree species. Blackberries in the buffer area could also be removed and planted with native upland species to meet the buffer mitigation requirements. Offsite mitigation will also be pursued in the event that on-site opportunities are not preferred. The final mitigation will be developed in conjunction with the permitting agencies.

Several mature trees will be removed at the edges of deciduous forest patches. To minimize this impact, saved trees will be clearly marked and disturbed sites will be landscaped with native trees and shrubs.

### 1.8.4 Segment E (Tukwila)

**Additional Mitigation Commitments**

The Tukwila Freeway Route results in filling up to approximately 2.2 acres of wetland (AR-7, AR-8, AR-49, AR-50), and will remove up to approximately 4.6 acres of wetland buffer. The compensation/restoration ratio for these wetland impacts is 1.5:1, therefore approximately 3.3 acres of wetland mitigation is required. Also, the compensation/restoration ratio for wetland buffer impacts is 1:1, therefore approximately 4.6 acres of buffer mitigation is required. Mitigation could be accomplished on-

and/or off-site, although off-site mitigation will be located within the City of Tukwila where practical.. On-site mitigation options include:

1. Minimizing the footprint of the new construction through design modification, as practical, will minimize the total wetland impact.

2. Restoring and enhancing AR-7 to provide a portion of the wetland mitigation requirement. Wetland AR-7 is situated on three parcels of land that are owned by Burlington Northern Santa Fe railroad, Union Pacific railroad and WSDOT. Excavate fill material adjacent to AR-7 to create additional wetland area. Remove garbage (e.g. building structure, appliances, tires, bed frame) throughout the wetland and replace exotic invasive species with native wetland species to enhance wetland functions.

Off-site mitigation may be necessary to achieve the 3.3-acre required mitigation ratios. Off-site mitigation could occur in conjunction with fisheries habitat restoration. Off-site, mitigation could be accomplished at a different location within the Duwamish River drainage basin. Locations will be selected in coordination with permitting agencies and/or the Watershed Restoration Group.

Mitigation for impacts on threatened and candidate fish species associated with bridging the Duwamish River could be achieved by planting riparian trees on the river banks in the vicinity of the project area or by making in-stream habitat improvements such as anchoring large woody debris within the channel. Mitigation measures for the Duwamish River Bridge construction will include, but are not limited to the following: (1) Limiting in water construction to in-water work periods; (2) Spill control such as silt curtains and oil booms; (3) Sediment and erosion control, BMPs; (4) Maintain specific construction access points; (5) Limit clearing; and (6) Revegetate at least 500 ft of nearby banks of the Duwamish River with new trees and riparian shrubbery (assuming displacement of two 50-ft-wide swaths of existing bank vegetation and a 5:1 replacement ratio). The success of riparian vegetation will be monitored by Sound Transit for a period of no less than 5 years after installation. Specific monitoring locations will be identified in the future in collaboration with the permitting agencies. Mitigation for placement of Southgate Creek into a culvert will be achieved by stream channel habitat improvements downstream of this area according to applicable regulations. Relocating the Southgate Creek stream channel outside the alignment corridor will have less of an impact than placing it in a culvert, engineering considerations require that culverting be retained as an option. Relocation of the drainage ditch which conveys the northern unnamed tributary of Gilliam Creek (AR 50) will provide opportunity to mitigate fisheries impact through the improvement of stream quality. These improvements may include introducing sinuosity to this tributary, increasing complexity of habitat, and reduction in water temperature through associated riparian plantings. Additional off-site mitigation could be achieved, as needed, in the headwaters to Gilliam Creek located on the south side of SR 518. Mitigation for fisheries impacts will be provided according to applicable regulations.

Tree removal at Wetlands AR-48, AR-49, and AR-50 could be mitigated through on-site wetland enhancement. While trees could not be replanted at these locations, clearing could be limited and planting plans could be prepared to revegetate areas disturbed by construction and also remove exotic species and replace them with native shrubs and herb species. This type of mitigation may be difficult to accomplish at AR-49 and AR-50 due to the confined nature of the wetlands at these locations. Wetland AR-48 is located in a less confined area. If property can be purchased or an easement can be obtained at AR-48, mitigation for impacts on this wetland and AR-49, which is also in the Southgate Creek drainage basin, could be accomplished at this site. Wetland mitigation will be provided according to applicable regulations.

## 1.9 WATER RESOURCES

### 1.9.1 Common to all Segments

Stormwater control techniques can mitigate the effects of long- and short-term hydrologic changes. State and local regulations establish standards for detention, retention, and other methods of stormwater control. In general, post-development runoff rates are required to match existing discharge rates which can range from the 2-year up to the 100-yr design storm event, dependent upon the point of discharge. Mitigation is usually accomplished by reducing or attenuating peak runoff rates from a developed site, by either detention (store and release to surface waters) or retention (store and infiltrate or evapotranspirate runoff).

Water quality impacts are generally regulated by federal and state guidelines, usually through standards for receiving water quality and limitations on the generation and release of pollutants. Washington State's Department of Ecology (Ecology) has established regulations to protect water quality from point and non-point source pollution. A National Pollution Discharge Elimination System (NPDES) permit will be obtained for construction and operation of this project. If a general permit is obtained, specific discharge treatments, monitoring, and reporting requirements applicable to individual project sites will be included for park-and-ride and maintenance facilities and stations.

Source controls will be used on developed sites to prevent pollutants from entering stormwater. Source control Best Management Practices (BMPs) are intended to mitigate pollutants generated through normal operation and use of buildings, roadways, park-and-rides, and other urban facilities. Specific source control strategies have been developed for individual contaminants of concern and/or polluting activities. They include the following:

- Preserve natural vegetation
- Establish buffer zones
- Contain wash water or discharge to sewer system
- Maintain permanent seeding or planting on exposed soil
- Maintain spill and fume control at paint facilities
- Maintain oil/water separators

Non-point source pollutants are removed from stormwater when suspended sediments are deposited or trapped when plants uptake dissolved materials in stormwater. Non-point source pollutants are removed in conjunction with suspended solids, which can be accomplished by using wet ponds, constructed wetlands, or wet vaults. Nutrient pollutants (including phosphorus, nitrogen, and organics) and metals can also be removed through filtration and biological uptake facilities, such as constructed wetlands and biofiltration swales.

Additional mitigation or treatment will be used on a site-by-site basis to remove pollutants if appropriate. In general, estimates of pollutant loading and treatment system removal efficiencies indicate that mitigation could reduce the concentrations of pollutants (total suspended solids, chemical oxygen demand, metals, and nutrients) expected in runoff, relative to existing levels, on a long-term basis. Their effectiveness at specific sites will be determined using water quality models.

Additional stormwater detention and treatment is not necessary in Segments A, B, and C because new impervious surfaces in these areas are served by storm drains with adequate capacity.

### 1.9.2 Segment D (S. McClellan Street to Boeing Access Road)

**Mitigation Features of the Project**

Stormwater facilities such as detention ponds or vaults will be constructed if needed at the Henderson Street bus layover area to mitigate potential hydrologic impacts. The capacity required to meet City of Seattle regulations at this location is approximately 3,300, and will require approximately 3,600 ft2 of treatment.

Widening MLK Jr. Way S. between the tunnel portal and S. Norfolk Street will create new impervious surfaces. Runoff from this area generally drains to the City of Seattle's storm drainage system, except for areas between S. Hanford Street and S. Columbian Way, which drains to a combined sewer and between S. Trenton Street and Barton Avenue S, where it then drains to a CSO. A new storm water collection system will be constructed on MLK Jr. Way S. This collection system will convey storm runoff from the project area to the existing storm drain system (except at S. Henderson Street). Stormwater runoff along MLK Jr. Way S. will be separated from the existing CSO for approximately 4,000 ft between Hanford Street and Columbian Way, which will reduce CSO events and reduce existing impacts to receiving waters. The City of Seattle has indicated that the existing storm drainage conveyance system at the south end of MLK Jr. Way has inadequate capacity. The City hired a consultant to complete an analysis of the basin and preliminary findings.

The light rail project will require rebuilding MLK Jr. Way S. to include installation of a new storm drainage collection system. This system will be sized to accommodate the design flows established in the hydraulic study.

Construction of the light rail along MLK Jr. Way S. south of Beacon Avenue will result in a negligible increase in impervious surface area because most of the area adjacent to the existing roadway is either asphalt parking/shoulder or compacted gravel. At the time that the City hydraulic report is completed, Sound Transit will establish the level of its participation in the recommended program of storm drainage improvements, including detention and water quality facilities in the basin.

### 1.9.3 Segment E (Tukwila)

**Mitigation Features of the Project**

Stormwater detention facilities will be constructed to detain runoff from non-pollutant generating segments of track and detention and treatment facilities will be provided at the park-and-ride facilities to mitigate impacts of the increased polluting impervious surface, according to the King County Surface Water Design Manual Level 2 requirements. Detention facilities will be located within existing freeway right-of-way or property already required for acquisition. The detention facilities will be designed according to the King County Stormwater Manual (1998) King County Level 2 standards and will be used for the preliminary volume estimates at the Boeing Access Road facility because it will discharge to a wetland. According to Tukwila's Sensitive Areas Ordinance, stormwater discharge to this wetland will be allowed after a site review. The Boeing Access Road park-and-ride will add approximately 155,000 square feet of impervious surface area. Stormwater detention will be provided for the additional impervious area created by the project.

Water quality treatment such as oil/water separators and/or bioswales will also be provided at the Boeing Access Road park-and-ride facilities to remove conventional pollutants associated with automobile use. Bioswales were designed for each of these sites based on preliminary drawings. Bioswale calculations will be made using the method recommended in the King County Surface Water Design Manual (1998). Bioswales are assumed for water quality treatment because they will require the most surface area, and represent a worst-case scenario for feasibility evaluation.

Compared to existing conditions the park-and-ride facility at S. 154th Street will decrease total impervious surface area and runoff by adding landscaping to an area that currently has none. This site will also decrease total pollutant generating impervious surface. A bioswale or other treatment Best Management Practices (BMPs) will be constructed at this site to treat runoff in accordance with the King County Stormwater Design Manual.

None of the impervious surface generated by segments of track will be subject to vehicular use; therefore, runoff from these areas will not be a measurable source of pollutants. Detention will be provided for those sections of track that create new impervious surface area. The specific locations of detention facilities will be determined during final design but will be located in freeway right-of-way or property already acquired for the project.

Compared to existing conditions the park-and-ride facility at S. 154th Street will decrease total impervious surface area and runoff by adding landscaping to an area that currently has none. However, this site will increase total pollutant generating impervious surface and a bioswale (approximately 6,000 ft2) or other treatment Best Management Practices (BMPs) will be constructed at this site to treat runoff in accordance with the King County Stormwater Design Manual.

### 1.9.4 Maintenance Base Site

The maintenance base site reduces existing impervious surfaces. Stormwater runoff will be collected and conveyed to storm sewers. On-site water quality mitigation will include: bioswales or other treatment for runoff from parking lots, treating and recycling wash water, using filters and oil/water separators prior to discharge, requiring spill control in paint shops, and recycling grease.

## 1.10 ENERGY

### 1.10.1 Common to all Segments

**Mitigation Features of the Project**

Sound Transit will incorporate relevant City, County, and Washington State energy code requirements into all design aspects of the system, stations, maintenance facility, and parking areas. Sound Transit will also work with Seattle City Light and Puget Sound Energy to design facilities to conserve electricity.

## 1.11 GEOLOGY AND SOILS

### 1.11.1 Common to all Segments

**Mitigation Features of the Project**

Using the appropriate seismic parameters in the design of the system will reduce the impact of earthquake shaking on the proposed light rail system. Damage due to soil liquefaction will be reduced or eliminated by a number of methods. For at-grade alignments, the ground may be improved by densifying or replacing potentially liquefiable materials that may be present beneath the alignments. The liquefaction prone soils may be designed for by placing the light rail on a raft of non-liquefiable soils, by founding the rails on piles, and/or by planning a maintenance schedule to re-level or repair system components if settlement occurs. Elevated and tunnel alignments generally mitigate liquefaction potential by the design of the structure. The appropriate level of mitigation will depend upon the severity of the liquefaction hazard and the specific light rail components in those areas.

For existing steep slopes along the corridor, mitigation will be accomplished through the application of proper engineering and design.

## 1.12 HAZARDOUS MATERIALS

### 1.12.1 Common to all Segments

**Mitigation Features of the Project**

The project will implement standard operating procedures at the maintenance facility to address management of hazardous materials as part of system operation. These procedures involve development of a programmatic health and safety plan, worker training, materials use planning and tracking, documentation, and a waste management program, in compliance with local, state and Federal regulations and permitting requirements. Properties left with residual contamination will be clearly identified in documentation provided to the state Department of Ecology.

## 1.13 ELECTROMAGNETIC FIELDS

### 1.13.1 Common to all Segments

No known significant unavoidable adverse impacts associated with electromagnetic fields or electromagnetic interference are expected and, therefore, no mitigation is anticipated.

## 1.14 PUBLIC SERVICES

### 1.14.1 Common to all Segments

**Mitigation Features of the Project**

Sound Transit will incorporate the following mitigation measures to help ensure system safety and minimize the potential impacts of light rail operation on public services:

- Develop a system safety and security program that defines activities and management controls, plans, and monitoring processes to prevent patrons, personnel, and property from being exposed to hazards or unsafe conditions during light rail operation. The program will be developed in close coordination with local fire, police, and other public service agencies as part of Sound Transit's emergency management plan. The program will also:
  - Incorporate safety considerations, compatible with other system requirements into light rail facilities, equipment, plans, and procedures to minimize the potential for accidents during operation.
  - Identify and eliminate or minimize hazards associated with light rail and eliminate or minimize to ensure acceptable safety levels.
  - Implement a safety certification program that requires all elements of a safe transit system are present before revenue service begins.
  - Maintain a proactive safety philosophy that emphasizes preventive measures over corrective measures to eliminate unsafe conditions.
  - Analyze and use historical data generated by the newer transit properties with characteristics similar to light rail to support the system safety program.
  - Coordinate safety and fire/life safety considerations with reliability, maintainability, and identified testing activities.
- Design and operate stations to provide patron safety and station security through architectural configuration and station design; electronic monitoring, sensing, and communications; and manned surveillance, including the following: (Many of these concepts are designed for deep tunnel stations, but where feasible or deemed necessary will be applied to other stations.)

- Design stations to be open and spacious, well-lit, and uncluttered with open access and high ceilings.
- Minimize turns in public circulation areas, avoid or minimize interior columns, and avoid blind corners or nooks that are beyond a patron's or a security camera's field of vision.
- Provide clear and direct access from a station entry to a station platform by limiting the number of entry points and avoiding long corridors or walkways.
- Provide uniform lighting throughout the station area and place fare machines in one location per entrance.
- Install closed circuit television (CCTV) surveillance cameras at strategic locations to effectively cover public areas. CCTV will be located to provide adequate coverage of all entry points; fare machines, money changers, and bank machines; paths from entry to platform, including corridors, stairs, escalators, and entry points to elevators; in elevators of deep tunnel stations; platform areas; emergency telephone locations; and any vending and other self-service areas.
- Install a public address system to provide information to transit passengers. This system will be used in conjunction with CCTVs to address emergencies or antisocial behavior and will provide adequate coverage of all public areas in stations.
- Install passenger assistance telephones that provide direct contact with security or emergency response personnel. These phones will likely be located in fare collection and platform areas, near a CCTV camera, and will be prominently identified.
- Provide security personnel to rove between stations. These personnel will likely be contracted with local law enforcement or private agencies, but could also be provided directly by Sound Transit. More precise needs for manned surveillance will be determined as the safety and security program advances.

- Implement system security criteria at and around station sites that enhance patron security through: ensuring maximum visibility of the entrances and the facility from adjacent areas; planting vegetation that does not hinder fields of vision; providing adequate lighting and site accessibility; and provide clear lines of sight of parking lots, adequate illumination, and ease of access for surveillance.
- Provide radio communication capabilities for emergency train operations and police and fire emergencies; provide two-way communication capability from within elevator cabs between the patron and the light rail operations.
- Install and maintain an intrusion and alarm system to protect against unauthorized entry into security sensitive areas of the system such as fare vending machines, traction power substations, and money counting and storage rooms; lock or otherwise prevent access to tunnel and elevated sections when the light rail system is closed wherever possible.
- Develop an emergency management plan in close coordination with Seattle, Tukwila, SeaTac, King County, and Port of Seattle police and fire departments, transportation divisions, and others through Sound Transit's Fire-Life Safety Committee during preliminary and final design, and construction, and operation of the proposed facilities. This plan will provide that reliable emergency access is maintained, alternate plans or routes are developed to avoid delays in response times, and general emergency services are not compromised.
- Work with local police departments to implement crime prevention through environmental design (CPTED) principles when feasible. This will include design elements such as installing appropriate lighting around the station areas, tunnels, parking facilities, and other system facilities, and incorporating other design features to help deter crime.
- Work with local fire and police departments to address training necessary to teach personnel about the light rail system facilities (tunnels, elevated sections, at-grade crossings) and operations.

- Work with local school districts to educate school officials and children about the light rail system and safe street-crossing procedures, especially on at-grade sections.
- To reduce effects on response times, design at-grade tracks and curbs that will physically allow crossing by emergency vehicles if determined appropriate.
- Completion of hazard analysis for fire/life/safety issues in the joint operations of the downtown tunnel.

## 1.15 UTILITIES

### 1.15.1 Common to all Segments

**Mitigation Features of the Project**

Based on design measures and coordination with utility service providers, impacts to utilities during light rail operation will be minimal. Sound Transit will continue to work with utility providers to minimize any potential service interruptions and to conserve resources. The light rail project will include the following measures to prevent or minimize potential operational impacts on utilities:

- Coordinate with both municipal and private utilities to ensure acceptable and safe relocation of manholes and other access points for ongoing utility maintenance once light rail is in operation; adopt design standards for providing access for repair and maintenance of utilities.
- Design the system to reduce the effect of stray current, install devices to reduce the impact of stray current between the traction system and the utilities facilities, or replace particularly susceptible metallic utility infrastructure with nonmetallic materials.
- Coordinate with affected water utilities and local fire departments to ensure that access to fire hydrants and water use, especially at the maintenance facility, does not compromise flow required for fire protection.
- Comply with applicable utility policies and strategies as specified in the adopted operational Seattle, Tukwila and King County comprehensive plans (as applicable) including those provisions related to levels of service, conservation strategies, and coordination of service providers. Sound Transit will discuss the undergrounding of relocated aboveground utilities with the local jurisdictions.
- Incorporate and comply with Seattle, Tukwila, King County and the State of Washington (as applicable) energy, building and fire codes, design guidelines, and other requirements applicable to utilities into all design aspects of the system, stations, maintenance facility and parking areas.
- Use industry-standard methods to reduce the potential impacts of vibration on underground pipes and special infrastructure concerns such as lead joint pipes; closely coordinate with utility owners to determine appropriate measures to protect against potential elevated and at-grade Link facility settlement.

## 1.16 HISTORIC AND ARCHAEOLOGICAL RESOURCES

Mitigation measures for historic and archeological resources are described in the Programmatic Agreement, and its amendments, between the FTA, State Historic Preservation Officer (SHPO), and the Advisory Council for Historic Preservation (ACHP).

## 1.17 PARKLANDS

### 1.17.1 Segment D (S. McClellan Street to Boeing Access Road)

**Mitigation Features of the Project**

Improvements to Cheasty Boulevard will be prepared in consultation with the Seattle Parks Department. Improvements will include:

- New sidewalks, landscaping, lighting, and street trees along Cheasty Boulevard in the light rail station area in a manner compatible with the documented Olmsted design concepts for Seattle's boulevards.
- Reconnecting the Olmsted-designed Cheasty Boulevard and Mt. Baker Boulevard by providing at-grade pedestrian and bicycle access across Rainier Avenue S. and MLK Jr. Way S.

Minimizing to the extent practicable the physical encroachment into the right-of-way of Cheasty Boulevard.Minimizing to the extent practicable the obstruction of views from Cheasty Boulevard toward Mt. Baker Boulevard.

### 1.17.2 Segment E

The Tukwila Freeway Route will cross over the Duwamish/Green River Trail on an elevated structure. Support columns for the elevated trackway will be placed as far away from the trail as practical. The mitigation measures for the alignment crossing the Ray-Carrossino Farmstead is provided in the Amendment to the Programmatic Agreement between FTA and the SHPO and ACHP.

# 2 Construction / Short Term Mitigation

## 2.1 TRANSPORTATION

### 2.1.1 Common To All Segments

All mitigation measures will comply with local regulations governing construction traffic control and construction truck routing. Sound Transit will finalize detailed construction mitigation plans in close coordination with local jurisdictions, King County Metro, and other affected agencies and organizations. Mitigation measures for traffic and freight impacts due to light rail construction will include the following practices:

- Follow standard construction safety measures, such as installation of advance warning signs, highly visible construction barriers, and the use of flaggers.
- Post advance notice signs prior to construction in areas where surface construction activities will affect access to surrounding businesses.
- Provide regular updates to assist public school officials in providing advance and ongoing notice to students and parents concerning construction activity near schools.
- Coordinate street sweeping services in construction areas with construction activity, particularly areas with surrounding residential and retail development.
- Use lighted or reflective signage to direct drivers to truck haul routes, to provide visibility during nighttime work hours.
- As possible, schedule traffic lane closures during off-peak hours to minimize delays during periods of higher traffic volumes.
- Cover potholes and open trenches during non-construction hours where possible, and use temporary concrete or other protective barriers to protect drivers from trenches remaining open.
- Post advance warning and install temporary traffic cones and markings to provide that peripheral surface activities do not adversely affect pedestrian and bicycle traffic.
- Develop a multi-media public information program (e.g. print, radio, posted signs and electronic web page) to provide information regarding street closures, hours of construction, business access, and parking impacts.
- Provide temporary parking to mitigate loss due to construction staging or work activities, where practical.
- Work with King County Metro to post informative signage well before construction at existing transit stops that will be affected by construction activities, and to identify ways to relocate and/or close affected transit stops.
- Work with King County Metro to identify ways to relocate or modify trolley wires in coordination with in-street excavation and construction, to allow electric trolley buses to continue operating during construction.

These mitigation measures apply to all segments in the light rail corridor and all maintenance base options. Segment-specific construction mitigation measures have been identified for Segments B and C only, as described in the following sections.

### 2.1.2 Segment C (Westlake Station to S. McClellan Street)

Closure of the Downtown Seattle Transit Tunnel (DSTT) will be required for a period of up to 26 months, during which time downtown streets will need to accommodate the buses that currently operate in the DSTT. Surface street modifications necessary to maintain acceptable operating levels will be

completed before closing the DSTT. Construction of the pre-closure surface street improvements may require up to 12 months.

To mitigate impacts of the DSTT closure and improvements on both transit riders and automobile users Sound Transit shall form a committee with the City of Seattle, King County and Community Transit and may be expanded to include participation by other transit agencies. to provide adequate facilities and measures to assure that public transit can effectively serve the central business district and that other users' needs are accommodated. The committee will agree on performance and travel time standards for buses operating on surface streets. The committee will also establish a monitoring program and make recommendations on changes to downtown street operations necessary to meet and maintain those performance standards during project construction. The committee will also consult with and seek the input of downtown Seattle, Seattle neighborhood and suburban stakeholders. Improvements that have been identified include:

**Operational Improvements on North/South Streets**

- Bus routes that currently use the bus tunnel will be reassigned to 2nd, 3rd and 4th Avenues to group routes serving similar rider markets grouped together to provide higher service frequency, add rider convenience and simplify bus routes through downtown.
- Bus stops on 2nd, 3rd and 4th Avenues will be modified, expanded and/or relocated to optimize bus flow, traffic impacts and to balance passenger demand at stops.
- To help facilitate the movement of pedestrians, autos and buses at key intersections uniformed police officers will be used to direct traffic during the peak periods.
- During the construction period buses will be concentrated on 3rd Avenue with the following operational conditions:
  - Traffic circulation on 3rd Avenue will be allowed at all times but in the peak periods, autos will only be permitted to make right turns onto and off 3rd Avenue to provide opportunities for passenger pick-up, deliveries and circulation for vehicles entering and exiting side-street parking garages.
  - Through traffic on 3rd Avenue between Stewart Street and Yesler Way will be restricted to public transit buses charter buses, and emergency vehicles on weekdays from 6-9 a.m. and 3-6 p.m. Additional analysis will be performed to determine if the hours of restricted operation can be reduced.
  - Some bus stops will be modified, closed or new ones added. Buses will operate in a skip stop pattern.
  - When the modifications are first put in place, autos on 3rd Avenue will be allowed to make left turns during the midday. However, if the monitoring program finds that this movement results in impacts to transit travel time and reliability, midday left-turn restrictions will be instituted.

**Connections to I-5 in North Downtown**

Providing transit priority in the north downtown area will occur with the following improvements:

- Split the buses bound for I-5 in the afternoon between Pike Street, Olive Way and Virginia Street.
- Route Community Transit and Sound Transit buses on Pike Street. (Currently only trolley service operates on Pike Street.) Add a second bus stop and shelter on the south side of Pike Street east of Sixth Avenue.
- Add a transit-only contra-flow lane on Ninth Avenue between Olive Way and Stewart Street and reconstruct the intersection of Ninth Avenue and Olive Way to allow buses to enter and exit Convention Place Station (access for the I-5 reversible lanes).

- Add a peak period transit only lane on Olive Way between Fourth Avenue and Boren Avenue (eliminate westbound auto lane between Boren Avenue and Howell Street). Using the transit lane on Olive Way, operate buses in a skip-stop pattern.
-

**Connections in South Downtown**

To accommodate the volume of buses entering downtown from the south and I-90 and to reduce impacts of bus travel times, bus volumes will be split between Fourth Avenue S. and Fifth Avenue S. In addition, the following changes are recommended:

- Prefontaine Place will be a transit only street at all times.
- 3rd Avenue south of Yesler Street will be restricted to public transit buses, charter buses and emergency vehicles on weekdays from approximately 6-9 a.m. and 3-6 p.m.
- Establish a contraflow lane on 5th Avenue South between Jackson Street and Washington Street. Allow auto use of the 5th Avenue South contraflow lane between Jackson Street and Washington Street, but require autos to turn right at either Main Street or Washington Street. Monitor transit travel time and reliability to determine if the transit only contra flow lane should be extended north from Washington Street to Terrace Street, and to determine if auto use of the contraflow lane is affecting bus travel time.
- Provide transit priority on Royal Brougham Way, 6th Avenue South, and Airport Way between the E-3 busway and South Jackson Street.

Sound Transit will work with the Downtown Seattle Association and other interested parties to develop a campaign to promote the downtown area during the construction period.

Construction activities in Segment C will impact the Burlington Northern Santa Fe Railroad activity. Coordination with the railroad will be necessary to minimize impacts during construction.

## 2.2 LAND USE AND ECONOMICS

### 2.2.1 Common To All Segments

Mitigation measures that reduce impacts to local businesses during project construction include:

- Establish effective communication with residents and businesses; develop and implement a public relations plan that will provide that local residents and businesses are fully informed about potentially significant disruptions: such as temporary street closures; out of the ordinary construction noise, vibration, light, or glare; changes in transit service; and parking availability. Sound Transit will work with community and neighborhood groups prior to and through the construction process to identify types of impacts that will occur and to work on ways to reduce those impacts.
- Provide a community ombudsman.
- Minimize construction-related noise, vibration, dust and dirt impacts through appropriate construction methods to minimize impacts during periods of increased sensitivity. Maintain access to businesses during construction activities.
- Clearly identify and make accessible paths to and from major transportation facilities, such as designated pedestrian routes, bicycle lanes, bus routes and stops, designated truck routes, and tunnel entrances.
- Work with affected business owners, chambers of commerce, merchants associations and others to develop a business marketing program to minimize business losses during construction. The

program could include a shuttle bus and/or increased transit service to affected areas, additional signage, advertising and promotion, and incentives to attract and retain customers.

- Request the assistance of local ethnic community organizations to help tailor business marketing programs to the specific needs of ethnic business owners whose customers are mainly from a single ethnic group.
- Provide business cleaning services on a case-by-case basis.
- Work with Community Capital Development and/or similar organizations to assist affected businesses in gaining access to technical assistance and small business loans or grants.
- Develop a 24-hour monitoring center that provides telephone access for the public to get construction information and to make complaint and incident reports.
- Develop a mitigation commitment tracking system that will provide a computerized record of all mitigation commitments and a means to track progress toward meeting those commitments.

### 2.2.2 Segment D (S. McClellan Street to Boeing Access Road)

Mitigation measures as described at Section 1.2.2 shall apply here.

## 2.3 ACQUISITIONS, DISPLACEMENTS AND RELOCATIONS

Mitigation for acquisitions, displacements and relocations is described in Section 1.3.1.

## 2.4 NEIGHBORHOODS

### 2.4.1 Common To All Segments

Noise, vibration, visual, aesthetic, and traffic impacts during construction could temporarily affect neighborhood quality. Mitigation for these impacts is described in other sections of this attachment.

## 2.5 VISUAL RESOURCES

### 2.5.1 Common To All Segments

Temporary lighting will be necessary for nighttime construction of certain project elements or at tunnel portals and along surface or elevated sections in existing road or highway rights-of-way (to minimize disruption of daytime traffic). This temporary lighting could impact residential areas by exposing residents to uncomfortable glare from unshielded light sources, or by increasing ambient nighttime light levels. Temporary lighting impacts will be reduced by shielding light sources to block direct views from residential areas, and by aiming and shielding to reduce spillover lighting in such areas. The community ombudsman referenced in Section 2.2.1 shall work with the affected community to seek to minimize temporary lighting impacts.

## 2.6 AIR QUALITY

### 2.6.1 Common To All Segments

Construction activities primarily generate particulate matter ($PM_{10}$ and $PM_{2.5}$), as well as small amounts of CO and $NO_X$ from construction machinery exhaust and vehicular traffic delayed in construction zones. Specific sources of particulate will be dust from earth moving-excavation activities (termed fugitive dust) and diesel smoke and odors created during paving of station areas, parking lots, and roads.

The Puget Sound Clean Air Agency enforces air quality regulations in King County, including those for controlling fugitive dust (Regulation 1, Section 9.15). Contractors engaged in construction activities must comply with this regulation, which requires the use of best available control technology to control fugitive dust emissions. Controls used to meet this standard require the following actions:

- Use water spray as necessary to prevent visible dust emissions-particularly during demolition of brick or concrete buildings by mechanical or explosive methods.
- Minimize dust emissions during transport of fill material or soil by wetting down or by ensuring adequate freeboard on trucks.
- Promptly clean up spills of transported material on public roads by frequent use of a street sweeper machine.
- Cover loads of hot asphalt to minimize odors.
- Schedule work tasks to minimize disruption of the existing vehicle traffic on streets.
- Keep all construction machinery engines in good mechanical condition to minimize exhaust emissions.

## 2.7 NOISE AND VIBRATION

### 2.7.1 Common To All Segments

**Noise Mitigation**

Several methods of noise mitigation are available for the contractor to use that will help keep noise level increases and impacts to a minimum. Whenever feasible, noise barriers will be built between the construction site and nearby noise sensitive receiver locations. Operation of construction equipment during nighttime hours (10:00 P.M. to 7:00 A.M.) or on Sundays or legal holidays, will be restricted to the limits of the construction sites that have noise barrier walls. All engine-powered equipment will be required to have mufflers installed according to the manufacturer's specifications and all equipment will be required to comply with pertinent equipment noise standards of the U.S. EPA. During nighttime work, either smart backup alarms or spotters will be used to reduce noise from equipment operating in reverse gears. Sound Transit will limit the use of impact or impulse tools and activities that produce the highest noise levels to daytime hours of 8:00 A.M. to 5:00 P.M., or as specified in noise regulations and variances. As stated, maximum noise levels associated with pile driving could reach 105 dBA at distances of 50 ft. Mitigation of the noise associated with pile driving could include auguring piles, rather than driving piles, or limiting the time during which the activity can take place. Pile driving will be restricted to daytime hours of 8:00 A.M. to 5:00 P.M.

Truck haul routes will be selected to have the least adverse effect on noise sensitive receivers (e.g. residential) and will be subject to approval of the local jurisdiction.

Sound Transit will obtain noise variances to noise control regulations from the local government jurisdictions and the State of Washington where necessary to address conditions specific to the project.

**Vibration Mitigation**

The construction contract specifications will contain a section specific to vibration, and include, at a minimum, vibration monitoring of all activities that produce vibration levels near the U.S. DOT maximum recommended vibration level whenever there are structures located near the construction activity. This includes pile driving, vibratory sheet installation, soil compacting, and other construction activities that have the potential to cause high levels of vibration.

Vibration mitigation includes limiting the hours when the vibration producing equipment can be used near sensitive receivers. Mitigation for the tunnel-boring machine may not be necessary due to the geologic conditions and type of machine expected to be used for the project. Elimination of vibration related to pile driving is not feasible, however, the use of an augur to install piles instead of a pile driver will greatly reduce the noise and vibration levels. By restricting and monitoring vibration-producing activities, vibration impacts from construction will be kept to a minimum.

During high vibration-producing activities such as pile driving and shoring installation, there is a potential for settlement and small movements of nearby structures. Design and installation of suitable shoring systems and other mitigation will reduce the potential of settlement related damage. Other mitigation includes underpinning adjacent structures, installing recharge wells to reduce de-watering induced settlement, and/or re-leveling and repairing impacted areas following construction. In addition, pre-construction condition surveys and during-construction monitoring programs for neighboring structures will be conducted and repairs made as necessary.

The community ombudsman referenced in Section 2.2.1 shall work with the affected community to seek to minimize the impacts of noise and vibration.

### 2.7.2 Segment B – Partial (Convention Place Station to Westlake Station)

**Construction Noise**

*Convention Place Staging Area:* The Convention Place staging area is proposed as a construction staging area (but not applicable here for Capitol Hill construction no longer in the Initial Segment.) and cut-and-cover construction will take place on Pine Street that will require the partial closure of Pine Street from just east of Seventh Avenue to Interstate 5. Cut-and-cover construction on Pine Street could cause temporary re-routing and delays for public transit, emergency response, and vehicle travel times. It will also cause utility pipes, lines, cables and other infrastructure to be relocated. There are several noise sensitive land uses in the vicinity, including the Camlin Hotel and the Tower 801. Other sensitive uses include the Washington State Convention Center, the Paramount Theatre and miscellaneous retail and commercial use structures. Construction noise at the surface will be limited by City of Seattle noise ordinances, with such variances as will be negotiated with the City to allow the necessary limited night-time and weekend surface work activities required to support the underground construction. The Contract will require the Contractor to select equipment and working methods to meet the terms of the noise ordinance, as amended by variance, which may also require a continuous noise-wall around the perimeter of the station construction staging area.

Additional mitigation may include portable noise barriers and enclosures, and restrictions on haul truck speed.

**Construction Vibration**

*Convention Place Staging Area*: Vibration sensitive land use near the Convention Place staging area include residential and hotel, and potentially some theaters. Mitigation and monitoring of vibration producing activities, as described in Section 2.7.1 and above should be sufficient for vibration control in this area. If specific complaints are received, mitigation will include restricting some vibration producing activities during nighttime hours when the impacts have the greatest affect on the nearby sensitive land uses.

### 2.7.3 Segment C (Westlake Station to S. McClellan Street)

**Construction Noise**

Major noise sources associated with the construction of Segment C include haul trucks, loaders, cranes, excavators, and tunnel locomotives. Other noise producing sources such as compressors, conveyors, backhoes, generators, fans and blowers, and light duty vehicles will also be required. Current plans call for major construction staging areas to be located west of I-5 at the west portal, and at the Rainier Valley portal. An additional staging area will also be placed at the Beacon Hill Station. Mitigation for construction noise at these locations is the same given in Section 2.7.1 with the following addition:

*Beacon Hill Station and Tunnel Portals:* Land use around the Beacon Hill Station includes residents, churches and schools, and is considered an area with a high potential for construction noise impacts. Construction of the underground structures at this location will require 24-hour shifts , at times for 7-days a week. Construction noise at the surface will be limited by City of Seattle noise ordinances, with such variances as will be negotiated with the City to allow the necessary limited night-time and weekend surface work activities required to support the underground construction. The Contract will require the Contractor to select equipment and working methods to meet the terms of the noise ordinance, as amended by variance, which may also require a continuous noise-wall around the perimeter of the station construction staging area.

Land use at the Rainier Valley tunnel portal includes residential to the west, and commercial and retail to the south and east. Because the residential area to the west is up hill from the portals and construction staging areas, mitigation of noise from the staging areas may be difficult. Construction activities at this location will be required to meet the local noise control ordinance, however, at certain periods during construction, such as when the tunnel boring machine reaches the tunnel east portal after construction of the tunnels from the west, and during certain tunnel finishing operations, 24-hour shifts may be necessary for a short period. Land use around the west portal construction staging area is I-5 freeway, industrial uses and open space. This is the principal TBM tunnel construction staging area for Beacon Hill. This West Portal area will be used 24-hours a day 6-days a week throughout the tunnel construction, with all the tunnel materials and muck removal being trucked to and from here. For these 24-hour operations, a noise variance from the City of Seattle may be required. The Contract will require the Contractor to select equipment and working methods to meet the terms of the noise ordinance, as amended by variance. These mitigation measures, along with those given in Section 2.7.1, will mitigate noise impacts.

**Construction Vibration**

Major vibration producing activities and equipment likely to be used in Segment C include tunnel excavation using a boring machine, tunnel and shaft excavation by conventional methods, and possible soil compacting or pile driving. A construction vibration monitoring program along with public meetings and the vibration mitigation measures given in Section 2.1.2 are recommended in this area.

### 2.7.4 Segment D (S. McClellan Street to Boeing Access Road)

**Construction Noise**

Because the alignment is at-grade through this segment, construction noise levels are not expected to be as high as projected for the tunnel construction staging areas. As sections of track are finished, the construction activity will move away and begin working on other sections.

If nighttime construction activities are performed, mitigation measures may be necessary and could include temporary noise barriers and restriction of certain types of activities, such as excavation and demolition. The mitigation measures provided in Section 2.7.1, along with information provided here, should be sufficient to mitigate construction noise levels along Segment D.

**Construction Vibration**

The only major vibration producing activities expected in this segment are pavement demolition and soil compacting the track bed prior to track installation. The vibration mitigation measures provided in Section 2.7.1 should keep any vibration impacts to a minimum.

### 2.7.5 Segment E (Tukwila)

**Construction Noise and Vibration**

Construction of the elevated section of the alignment could involve the use of pile driving, which can cause noise levels in excess of 100 dBA at nearby noise sensitive receivers. Therefore, pile driving, if used, will be performed only during daytime hours. Otherwise, the mitigation measures provided in Section 2.7.1 should be sufficient to mitigate construction noise and vibration levels along the Tukwila Freeway Route.

### 2.7.6 Maintenance Base Site

No construction noise or vibrations impacts are expected at the maintenance base site.

## 2.8 ECOSYSTEMS

### 2.8.1 Common To All Segments

Mitigation for short-term ecosystem impacts will be based on a hierarchy of avoiding and minimizing impacts and compensating for unavoidable adverse impacts. The implementation of best management practices (BMPs) such as silt fencing, stabilizing exposed soils, landscaping with native plants, marking the limits of clearing, and collecting runoff during construction will minimize impacts on wetlands, wildlife, and fish. Minimization of the construction footprint will reduce new and existing impervious surface area. Additional mitigation measures are described below.

In many instances, construction timing can reduce or eliminate impacts on wetlands, fish habitat, and threatened and endangered species. Restricting construction in wetland areas to the drier summer months minimizes the impact on those wetlands that flood only during winter and early spring months and reduces wetland impacts caused by stormwater runoff. Staging areas will be located outside of wetlands or potential wildlife habitat.

Impacts on some fish species will be avoided by using methods to avoid or minimize in-water work. If in-water work is required, it will be conducted during construction windows established by the appropriate regulatory agencies, including the Washington Department of Fish and Wildlife. The hydraulic project approval permit (HPA) will specify construction periods. The project will comply with the conditions of the HPA and all other applicable permits. To avoid sediment runoff to the Duwamish River and its tributaries and adverse effects on salmonids and other fish species, a temporary erosion and sedimentation control plan and BMPs will be implemented (see Water Resources). At construction sites over or near the river and its tributaries, water quality will be measured regularly throughout the construction period to ensure control measures are in place and functioning properly. . Removing invasive riparian vegetation and re-vegetating and monitoring the disturbed areas will minimize the degradation of properly functioning stream channel conditions. Additionally, the light rail transit cars will be designed to prevent pollutant releases.

### 2.8.2 Segment C (Westlake Station to S. McClellan Street)

Potential impact of removal of tunnel spoils will be mitigated by implementation and strict of BMPs to control sediment runoff along the truck route and stockpile site.

### 2.8.2 Segment E (Tukwila)

Wetland impacts that could occur during construction in this segment include increased sediment and pollutants in runoff from exposed soils and construction equipment, and placement of temporary fill for construction access . The Boeing Access Road Station footprint is approximately 50 ft from a wetland and will temporarily impact less than 0.10 acre of the wetland buffer during construction. Mitigation for these impacts include the best management practices and timing restrictions identified at the beginning of this section.

Impacts on migrating chinook and coho salmon could occur due to increased turbidity in the Duwamish/Green River (AR-45, 46) resulting from bridge construction over the Duwamish/Green River and construction in the vicinity of Gilliam Creek (AR-52, 53, and 55) and the mainstem of Southgate Creek (AR-48). Impacts on listed fish can be minimized by performing in-water construction, between July 16 and October 31, when chinook salmon are not migrating through the project area and by implementing best management practices during construction.

## 2.9 WATER RESOURCES

### 2.9.1 Common To All Segments

Water quality degradation resulting from erosion and sedimentation and the release of pollutants during construction will be minimized through the use of BMPs. An NPDES permit will be obtained for construction activities associated with this project. The NPDES permit requires development of a Storm Water Pollution Prevention Plan (SWPPP) for erosion and sedimentation control and for control of pollutants other than sediment. The SWPPP documents all of the BMPs recommended for specific construction sites. Table 2.9-1 summarizes general BMPs that are recommended for construction sites.

**Table 2.9-1. Temporary Erosion and Sediment Control Best Management Practices**

| Category | Applicable BMPs |
|---|---|
| Preventative practices | Preservation of existing vegetation |
| | Identification and delineation of sensitive areas |
| | Buffers |
| Temporary cover practices | Temporary seeding |
| | Straw mulch |
| | Bonded fiber matrices |
| | Clear plastic covering |
| Structural erosion control BMPs | Stabilize construction entrance |
| | Tire wash |
| | Construction road stabilization |
| | Dust control |
| | Interceptor dike and swale |
| | Check dams |
| Sediment retention | Filter fence |
| | Storm drain inlet protection |
| | Sedimentation basins |

Further requirements will apply to specific construction sites limit in-water construction to designated construction periods. A variety of special BMPs are available to mitigate construction impacts at crossings or adjacent to streams or watercourses. In addition, temporary creek bypasses will be constructed to route creek water around work sites during pipe replacement or extension. Bypasses will be designed to handle high flows during storm events.

### 2.9.2 Segment C (Westlake Station to S. McClellan Street)

Dewatering of the tunnels could impact water quality at the discharge points. Construction water will be pre-treated prior to discharge to either the storm or sanitary sewer systems in accordance with permits and regulations.

### 2.9.3 Segment E (Tukwila)

BMPs for instream work and sediment and erosion control will be implemented during construction and fill activities near river and creek crossings and those activities associated with culvert extensions.

### 2.9.4 Maintenance Base Sites

With construction practices described in Section 2.9.1 maintenance facility construction is not expected to have any significant impacts to water resources.

## 2.9 GEOLOGY AND SOILS

### 2.10.1 Common To All Segments

To control erosion and sloughing during construction, contractors will employ BMPs within the construction limits. These BMPs will be consistent with Subsection K of Section 80 of the King County Sensitive Area Ordinance (King County, 1990), as amended, and other local ordinances, and will include one or more of the following:

- Minimize areas of exposure.
- Retain vegetation where possible, especially on steeper slopes.
- Seed or plant vegetation that is appropriate on exposed areas as soon as work is completed.
- Route surface water through temporary drainage channels around and away from disturbed soils or exposed slopes.
- Use silt fences, temporary sedimentation ponds or other suitable sedimentation control devices to collect and retain possible eroded material.
- Cover exposed soil stockpiles and exposed slopes with plastic sheeting, as appropriate.
- Use straw mulch and erosion control matting to stabilize graded areas and reduce erosion and runoff impacts to slopes.
- Intercept and drain water from any surface seeps if they are encountered.
- Incorporate contract provisions allowing temporary cessation of work under certain, limited circumstances, if weather conditions warrant.
- Install final retaining walls in front of cut-and-fill slopes as soon as scheduling permits.

Underground construction will generate large volumes of spoils. Potential impacts include erosion at stockpile and disposal sites. Erosion mitigation is discussed above.

For tunneling and mined stations, standard mitigation measures will minimize the erosion potential of the spoils and stockpiles. A closed-face, positive pressure tunnel boring machine could reduce the

need for dewatering during tunneling. Using the mitigation discussed for construction-induced vibrations and settlement will help to alleviate settlement-related impacts.

## 2.11 HAZARDOUS MATERIALS

### 2.11.1 Common To All Segments

A formalized health and safety plan and a contaminated soil and groundwater management plan will be required before construction work begins. Public health and safety measures will be implemented to minimize exposure through both airborne and direct contact routes. Increased setbacks, additional barriers to public access, and expeditious removal of contaminated materials may be required to limit contact by the public. The health and safety plan will also identify measures to ensure construction worker safety, outline emergency medical procedures, and specify reporting requirements.

The soil and groundwater management plan will specify methods and procedures for stockpiling, transportation, disposal, and treatment of contaminated soil, as well as groundwater removal, storage, treatment, discharge (to sewer), transportation, and disposal. Most encounters with hazardous materials are expected to involve petroleum products that will be managed using standardized approaches and in accordance with the Washington State Department of Ecology policies, procedures and requirements.

Throughout the construction process, encounters with hazardous materials will be documented and reported appropriately. Project planning will accommodate regulatory agency requirements as well as disposal or treatment facility requirements.

### 2.11.2Segment C (Westlake to McClellan Street)

Handling of contaminated material encountered during tunnel and station excavation and contaminated groundwater pumped during dewatering will be handled per techniques described in Section 2.11.1.

### 2.11.3 Segment E (Tukwila)

Impacts will be mitigated using the techniques described in 2.11.1

### 2.11.2.2.11.4 Maintenance Base Site M1-D (Rainier Brewery/Roadway Express)

The M1-D site has had two petroleum releases to soil. This maintenance base site is situated on top of a historic landfill with reported releases to groundwater. All impacts will be mitigated using techniques described in Section 2.11.1

## 2.10 2.12 ELECTROMAGNETIC FIELDS

There will be no electromagnetic impacts or mitigation during construction.

## 2.11 2.13 PUBLIC SERVICES

### 2.13.1 Common To All Segments

Sound Transit will continue to work with the cities of Seattle, Tukwila, SeaTac, King County, and Port of Seattle police and fire departments, transportation divisions, and others through Sound Transit's Fire-Life Safety Committee during project construction to ensure that reliable emergency access is maintained and that alternate plans or routes are developed to avoid significant delays in response times. Sound Transit will coordinate with local police departments to ensure adequate staffing during

construction for traffic and pedestrian movement control and other necessary policing efforts. Additional staffing requirements and financial responsibilities for police services required during construction will be determined in collaboration with the local police departments. Sound Transit will coordinate with fire departments and hospitals during water utility relocations (see Utilities) to prevent water supply disruptions to these facilities, and it will notify school districts of major construction activities that may affect bus routing during the upcoming school year. Alternative solid waste collection locations, modified collection times, or other elements to minimize potential impacts to solid waste collection operations will be developed in coordination with solid waste haulers. Mitigation for construction of a maintenance base will be similar to that described above.

## 2.14 UTILITIES

### 2.14.1 Common To All Segments

Primary measures to mitigate impacts to utilities during construction include identifying affected utilities, developing technical solutions to relocate or protect them, identifying funding sources, developing a work plan that minimizes impacts on both utility service and light rail construction, and minimizing potential interference between light rail and utility operation and maintenance functions. These measures include the following:

- Sound Transit will seek to establish formal agreements with local jurisdictions, including requesting enforcement of applicable provisions of existing franchise, license, and other utility agreements to allow light rail implementation.
- Sound Transit will provide utility relocation benefits associated with relocation of existing city-owned utilities in accordance with city code or charter provisions. Incremental costs of upgrades will be funded by the city.
- Compensation for relocation of private utilities in public rights-of-way will be funded by the utility, unless Sound Transit finds the relocation costs constitute an "extraordinary expense." This will unfairly burden the utility, in accordance with the agency's Real Property Acquisition and Relocation Policy, Procedures, and Guidelines and applicable state and federal law.
- If construction disrupts private utilities within the private utility's easement or on private property, Sound Transit will provide utility relocation benefits.
- General utility relocation and protection methods for crossings parallel and installations have been established.
- Sound Transit will use utility company base maps as the primary source of the utility information and conduct a limited program of field surveys and reconnaissance to check accuracy of utility locations before final design and construction. The agency will request that utility companies review the accuracy of the base maps.
- Sound Transit may complete design of private utility relocations in public rights-of-way in accordance with the utility's criteria and Sound Transit guidelines. If conflicts arise, the more restrictive provisions will govern.
- Utilities relocated or protected in conjunction with light rail will be turned over to the utility company to own, operate, and maintain.

In addition, the following measures are proposed:

- Continue to meet with and coordinate closely with both municipal and private utilities to ensure minimal impact to utilities during construction, including acceptable and safe relocation of manholes and other maintenance access points.
- Work with Seattle City Light and Puget Sound Energy to maintain energized electrical lines to provide continuous service to their customers during construction; and maintain clearances of

temporary and permanent overhead lines and poles according to Washington Administrative Code safety standards.

- Develop a contingency plan to address any potential utility service disruptions during construction and notify utility customers of planned disruptions, if any.
- Comply with city requirements and procedures for utility construction, inspection, and operation; coordinate relocations and large service connections with Seattle's Utility Coordinating Committee and similar entities.
- Use temporary pipe support, trench sheeting and shoring, and other precautionary measures during construction to minimize the potential for damage to exposed utilities.
- Mitigation for construction of a maintenance base will be similar to that described above.

### 2.15 HISTORIC AND ARCHAEOLOGICAL RESOURCES

Mitigation measures for historic and archaeological resources are described in the Programmatic Agreement, and its amendments, between the FTA, State Historic Preservation Officer, and Advisory Council on Historic Preservation. 2.15 PARKLANDS

Mitigation for the loss of vegetation in parks and greenbelts is discussed in Section 1.8.

### 2.15.1 Segment D (S. McClellan Street to Boeing Access Road)

Construction of the elevated structure across Cheasty Boulevard, and the McClellan Station (options B and C) immediately north of the boulevard, may require temporary street closures and impede access to the boulevard. To the extent feasible, closures will be minimized and temporary access will be provided. Construction activities will also generate noise, dust, and truck traffic that could have an adverse effect on the boulevard. Mitigation measures for these impacts are discussed in Section 2.1, 2.6, and 2.7.

### 2.15.2 Segment E (Tukwila)

The Tukwila Freeway Route will cross the river and the Duwamish/Green River Trail on a new bridge adjacent to the existing Interurban bridge – impacts will include construction noise and vibration from truck traffic and the use of heavy equipment for the placement of the structure foundation, and dust. The impacts will be mitigated by providing a temporary trail detour and restoring the site to pre-project construction conditions. Mitigation for the loss of vegetation in parks and greenbelts is discussed in Section 1.8. If necessary, trail detours will be developed during work across or above the trail. Dust will be mitigated through use of dust control measures.

# 3 Mitigation Monitoring Program

When a project is unusually complex and the FTA environmental record for it consists of multiple documents, FTA requires that a mitigation monitoring program be established during final design, construction, and start-up. The purpose of the mitigation monitoring program is: (1) to assist the transit agency in fulfilling its commitments set forth in the many environmental documents, and (2) to give FTA a means of checking that its mitigation requirements are, in fact, being met. The Initial Segment is such a project.

Therefore, Sound Transit will establish a program for monitoring the implementation of the mitigation measures identified for the project in the FTA environmental record. The Amended ROD provides

information on the monitoring program required. In addition, in broad terms, the monitoring program will consist of three activities:

1. The maintenance and updating of the list or database of mitigation commitments by Sound Transit.

This Amended ROD appendix, perhaps with added specificity in the mitigation descriptions, or with references to appropriate pages of the environmental documents where the added specificity may be found, should serve as an initial version of the mitigation database. As various required consultations are conducted, the mitigation actions resulting from those consultations would be added to the database. For example, the Section 106 Programmatic Agreement calls for consultation with SHPO on various design issues, and the mitigation of parking impacts requires consultation with local jurisdictions, etc. Additional updates may be needed as various Federal permits, such as NPDES or Section 404 permits, are received. Any conditions on those permits relating to mitigation of project impacts would be added to the database.

2. Tracking the status of implementation of the mitigation measures by Sound Transit.

Sound Transit would assign a party (e.g., a design or construction contractor or in-house department) responsible for implementing each measure, or the mechanism (a particular contract) for implementation would be stated. The current status of the implementation of each measure would be indicated.

3. Periodic review by Sound Transit and FTA.

Sound Transit will periodically review with FTA the status of the implementation of the mitigation actions. Normally, the Project Management Oversight quarterly review meetings would be the forum for this review, but other meetings focused primarily on this subject may also be used.

The mitigation monitoring program is intended to ensure that FTA and Sound Transit are fulfilling their responsibilities and living up to their commitments. If Sound Transit has existing procedures in place that will accomplish this end, new procedures are not needed.

# ATTACHMENT F
## *Initial Segment Environmental Assessment Comments and Responses*

# CENTRAL LINK LIGHT RAIL TRANSIT PROJECT
# INITIAL SEGMENT

## NEPA ENVIRONMENTAL ASSESSMENT
## RESPONSE TO COMMENTS

Prepared by the
U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL TRANSIT ADMINISTRATION
and
CENTRAL PUGET SOUND REGIONAL TRANSIT AUTHORITY
(Sound Transit)

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# Contents



Sections 2 and 3 are not attached to the Record of Decision. Copies of Section 2 - reference indices and Section 3 - individual annotated comment letters can be viewed at Sound Transit offices at Union Station, 401 S. Jackson Street, Seattle, Washington 98104. Please call Rebecca Withington, Librarian, at (206) 689-4977 during normal business hours. Copies are also available at Seattle Public libraries and King County libraries. Photocopies will be provided by Sound Transit at the cost of reproduction. Commentors can obtain a copy of their own letter free of charge.

# Central Link Light Rail Transit Project
# Initial Segment Environmental Assessment

## Summary

Sound Transit and the Federal Transit Administration (FTA) received 139 public and agency letters and spoken testimonies on the Initial Segment Environmental Assessment (EA) during the 30-day public comment period. The comment period began on February 5, 2002 and ended on March 7, 2002. A public hearing was held on February 21, 2002 from 6:00 P.M. to 8:00 P.M. at Union Station, 401 S. Jackson Street, Seattle, Washington.

The public hearing was attended by about 35 people from the public, and 23 people spoke. Of the speakers, 8 spoke in support and 15 spoke against the Initial Segment. The speakers in opposition included representatives from Sane Transit and Save Our Valley. Speakers in support of the Initial Segment included Rainier Valley Transportation Advisory Committee, People for Modern Transit, and business and labor representatives. Written comments received during the comment period were proportionately similar, with about two-thirds opposing the Initial Segment, and one-third supporting the project.

To respond to the comments received, FTA and Sound Transit consolidated comments into 112 representative comments and responded to each. The individual letters and testimonies were also annotated to identify specific comments. Indices were created to match each individual comment with the consolidated comment and response. Responses have generally been prepared only for those comments that raise issues relative to the information provided in the EA or that are relevant to the project's National Environmental Policy Act (NEPA) process. Opinions on the project or comments not relevant to the EA or NEPA process are generally not addressed.

The comments addressed a range of aspects of the project or the EA discussions of impacts. These included comments about the safety and effectiveness of operations in the Downtown Seattle Transit Tunnel (DSTT), costs and revenues of the Initial Segment and other extensions, impacts of at-grade operations in the Rainier Valley, environmental justice concerns, construction impacts, cumulative impacts, and transportation impacts. There were also a number of broader comments that questioned the value of the Initial Segment overall, given its impacts, lower ridership, and higher costs. Other comments suggested other transit system alternatives, or questioned aspects of the environmental process leading up to the Initial Segment EA.

As the responses show, the issues raised by the comments have been effectively addressed in the EA and in other documents supporting the EA or incorporated by reference. This includes the Central Link Final Environmental Impact Statement (FEIS), the Tukwila Freeway Route Final Supplemental EIS (SEIS), and the *Evaluation of Joint Operations in the Downtown Seattle Transit Tunnel* (2001). Some of the issues are also addressed by the 2001 Initial Segment New Starts Report to the FTA and FTA's Annual Report on New Starts, Proposed Allocations of Funds for Fiscal Year 2003.

While the responses to the comments provide additional background or explanation for the issues raised in the comments, they do not result in the identification of significant environmental impacts beyond those already addressed in the FEIS or Tukwila Freeway Route Final SEIS, or impacts that cannot be adequately mitigated.

The Response to Comments is provided in three sections. Section 1 contains the consolidated comments with responses and is attached here. Section 2 provides an index that indicates the appropriate response for the individual comments by letter; as an additional aid, Section 2 also includes a reverse index organized by consolidated comment, with a list all individual comments that are addressed by each consolidated comment response. Section 3 provides the individual comment letters or testimonies with annotation. Sections 2 and 3 are not attached to the Record of Decision. Copies of Section 2 - reference indices and Section 3 - individual annotated comment letters can be viewed at Sound Transit offices at Union Station, 401 S. Jackson Street, Seattle, Washington 98104. Please call Rebecca Withington, Librarian, at (206) 689-4977 during normal business hours. Copies are also available at Seattle Public libraries and King County libraries. Photocopies will be provided by Sound Transit at the cost of reproduction. Commentors can obtain a copy of their own letter free of charge.

# Listing and Index of Consolidated Comments

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# Acronyms

| | |
|---|---|
| AASHTO | American Association of State Highway and Transportation Officials |
| BNSF | Burlington Northern Santa Fe |
| CO | carbon monoxide |
| DSTT | Downtown Seattle Transit Tunnel |
| EA | Environmental Assessment |
| EIS | Environmental Impact Statement |
| FFGA | Full Funding Grant Agreement |
| FHWA | Federal Highway Administration |
| FONSI | Finding of No Significant Impact |
| FTA | Federal Transit Administration |
| FY | fiscal year |
| KC Metro Transit | King County Metro Transit |
| LOS | level of service |
| MLK | Martin Luther King |
| MOS | Minimum Operable Segment |
| NEPA | National Environmental Policy Act |
| O&M | Operation and Maintenance |
| PSRC | Puget Sound Regional Council |
| ROD | Record of Decision |
| RTPO | Regional Transportation Planning Organization |
| SEIS | Supplemental Environmental Impact Statement |
| USDOT | United States Department of Transportation |
| VHT | vehicle hours traveled |
| VMT | vehicle miles traveled |
| WSDOT | Washington State Department of Transportation |
| YOE | year of expenditure |

# Consolidated Comments and Responses

## Comment Group 1. Alternatives Considered/Choice of Technology

***1A Better regional transit alternatives exist and should be reconsidered since the Central Link light rail project is too costly and is not as effective as expected. An EIS is needed to reconsider other alternative regional transit strategies or technologies. Consider a bus transitway system, an all-bus system, monorail, free bus passes, or new communications technologies instead. Sound Transit's light rail will take money away from more cost-effective alternatives, or from future extensions to the east or south.***

A substantial history of planning and public decision-making has led to the selection of the original project alternatives for Central Link. This includes the original Regional Transit planning studies, which were part of the regional transportation planning program defined under the Metropolitan Transportation Plan. The publication of the FEIS for the project and the subsequent Record of Decision (ROD) issued by the FTA, as well as all of the post-FEIS legal decisions, have confirmed the decision-making process that led to the identification of Link Alternatives and the selection of the original project. The Initial Segment EA for the Central Link light rail project does not involve a reconsideration of other technologies, transportation modes, or demand management alternatives or strategies, and is instead focused on a limited set of modifications to the original project, as described in Section 2 of the EA.

All-bus, bus transitway, and monorail systems are not being considered for this project and were previously screened out early in the process prior to the 1999 project-level FEIS for Central Link. The FEIS specifically addressed similar comments on the Draft EIS. See FEIS Section 7, comment group 1, specifically comment 1.3.

Through its future long-range planning and in other business lines such as Regional Express, Sound Transit is participating in ongoing regional planning programs, and is working with other governments and agencies that are moving forward with many of the strategies and approaches that have been suggested in the comments. The Initial Segment does not preclude future funding for these projects, although most of them are not yet in the region's 3-year Transportation Improvement Plan, a key step in determining their eligibility for state and federal funding. Moreover, a substantial amount of the funding for the Initial Segment is provided by voter-approved revenues to implement *Sound Move*, and these funds are not available to other projects.

***1B The current proposal for light rail was not covered by the earlier Regional Transit Plan FEIS in 1993. Therefore, the earlier system-level comparisons to Central Link alternatives now needs to be included in an EIS for the Initial Segment, and other system alternatives such as a bus transitway or all-bus systems need to be reconsidered.***

In 1999, following issuance of the FEIS, Sound Transit adopted a 21-mile light rail project based on years of study and review, and FTA issued a ROD for that project in January 2000. The Sound Transit Board has now taken action to construct a 14-mile Initial Segment as a first step toward completing the full Phase 1 system, and the FTA is considering funding the Initial Segment. Other transit systems, including a bus transitway system, are not being considered by this project and were previously screened out early in the process prior to the 1999 FEIS.

The absence of a review of system alternatives in the light rail proposal presented to the voters and in the FEIS was raised by project opponents in a NEPA lawsuit filed in federal district court. Following a review of the administrative record in the case and written arguments by the parties, the court concluded that the environmental review conducted by Sound Transit and the FTA, its timing, and the scope of alternatives and impacts analyzed was reasonable and adequate under the applicable legal standard. See Friends of the Monorail v. United States, No. C00-852Z (March 30, 2001); see also Save Our Valley v. Sound Transit, No. C00-715R (July 13, 2001). See also response to comment 1A.

***1C King County Metro's Bus Rapid Transit program should be a part of the No-build scenario.***

King County (KC) Metro Transit currently has one bus rapid transit proposal for service between SeaTac and Southcenter in their proposed 6-year plan. This plan was not adopted when the EA analysis was conducted and therefore cannot be considered part of the baseline, or No-build, condition. However, this bus rapid transit route is considered to be part of the bus service restructuring that would take place around the Link project, and it has been included in the project Build scenario.

***1D This project will prevent any meaningful improvements to our current system of mass transit.***

See response to comment 1A. The Central Link light rail project constitutes a key element of the region's adopted plan to improving its transportation and mass transit systems, as included in the Metropolitan Transportation Plan (now Destination 2030) and in *Sound Move* itself. Based on these adopted plans, it is clear that the implementation of the Initial Segment does not preclude other committed or planned investments in regional transit or the transportation system. It adds capacity to system, and is in fact implementing a key element of the region's adopted strategy. The Link system provides significant new transit capacity in the region's most congested travel corridor.

## Comment Group 2. Project Changes, Project Purpose Not Met, Overall Level of Impacts or Benefits, Need for SEIS

***2A Since environmental impacts are the same as or greater than for the original project, and benefits have decreased, there should be no Finding of No Significant Impact (FONSI). With ridership one-third that of the original project, the environmental benefits are much less than voters expected. Yet the EA states that many of the Initial Segment's impacts are the same as the original project, including for noise, vibration, air pollution, energy consumption, property takings, and additional traffic congestion during the DSTT conversion.***

Sound Transit has represented that it fully intends to complete the project from the University District to SeaTac. The Initial Segment is the first section to be constructed and operated. The EA fully discloses how environmental effects of the Initial Segment may differ from those disclosed in the FEIS and Tukwila Freeway Route Final SEIS (see Table S-2, with details provided in Section 3). Specific impacts to noise, vibration, air quality, energy consumption, property acquisition, and traffic congestion are described, and no new significant impacts were identified. The EA also discusses changes in the project's benefits, including ridership, regional travel, and transit travel time (Section 3.1 of the EA). It offers mobility benefits to the population of the area, and also supports many land use and long-range growth goals. As with the original project, the Initial Segment offers benefits to regional transportation by helping to reduce the use of the automobile or providing an alternative to its use. The Initial Segment would have similar benefits and similar to reduced impacts as the comparable segment of the original project with the Tukwila Freeway Route, covering the project from the DSTT to S. 154$^{th}$ Station. Relative to the full original project from N.E. 45$^{th}$ Station to S. 200$^{th}$ Station, the Initial Segment will have fewer impacts and fewer benefits overall. See also response to comment 2J.

***2B The cost-effectiveness of the project has decreased and is not discussed in the EA.***

Costs and ridership, the key components of cost-effectiveness, are discussed in the EA; ridership is discussed in Table S-1 and Table 3.1-6, and costs are described in Section 4. In addition to the EA on the Initial Segment, FTA also considers the annual New Starts Report information. The quantitative measure of cost-effectiveness used by FTA is an incremental cost per new rider index. This method takes into account the useful life of the investments in structures, pavement, trackway, etc. and annualizes ridership, capital, and operating costs before dividing one into the other. In the FTA's 2003 New Starts Report, the cost per new rider index for the Initial Segment is $15.60. The comparable measure for the November 1999 original 21-mile project from N.E. 45$^{th}$ Street to S. 200$^{th}$ Street as reported to FTA in March 2000 was $8.08, but when the increase in the overall budget for the original project was included in early 2001, the cost per new rider was $11.95.

The FTA index is used to compare light rail projects across the country and has become an important part of FTA's review of major transit projects; in this context, the Initial Segment remains a competitive project nationally, and is recommended for funding by the FTA. However, measures of cost-effectiveness do not account for many of the project's other benefits. These benefits include the long-term reduction in public infrastructure costs and environmental benefits that would result from the more efficient land use patterns associated with light rail. There would be mobility improvements and travel time savings for all riders (the FTA index shows savings for new riders only). Qualitative criteria are also taken into account separate from

the cost index, since generally accepted methodologies for monetizing these and other benefits do not exist and these factors are excluded from the captured index.

***2C Voters did not approve the Initial Segment, and Sound Transit cannot spend Sound Move funds to build an unapproved project.***

This comment does not pertain to issues of environmental impact raised in the EA. Nonetheless, FTA can respond that the Initial Segment is an element of the project approved by the voters as part of *Sound Move*, and is not in replacement of the project. Sound Transit represents that it fully intends to complete the project from the University District to SeaTac as described in its *Sound Move* plan, financing for which was approved by the voters in 1996. Sound Transit's plans to continue with the Central Link project are defined by the Board motions and resolutions referenced in the EA Section 1.1. The Initial Segment is proposed as the first segment of the project that will be built and opened.

***2D The Initial Segment represents a new project that was not covered by previous environmental documents, particularly the FEIS.***

The previous environmental documents prepared for Central Link continue to apply to satisfy NEPA requirements for project approval. However, the Initial Segment is a Minimum Operable Segment (MOS), which is a stand-alone portion of the project that has independent utility. The EA discusses the reasons for considering a revised MOS consisting of the Initial Segment, but the Initial Segment falls within the range of alternatives and impacts evaluated in the FEIS and the Tukwila Freeway Route Final SEIS. The Initial Segment was not one of the length alternatives specifically considered in the FEIS, but it is within other length alternatives that were examined and this difference is disclosed and analyzed in the EA. Similarly, the termini for the Initial Segment are located at stations previously evaluated in the FEIS and in the Tukwila Freeway Route Final SEIS. The EA has incorporated and updated these analyses, and it discloses any changes in potential impacts from the construction and operation of the Initial Segment as an MOS.

***2E The Initial Segment stops short of the airport, and represents a much different project than the one approved by voters.***

As noted in response to comment 2C, the Initial Segment is proposed as the first segment of the Central Link light rail project to be built and operated, and Sound Transit represents that it is continuing its efforts to complete the project from the University District to SeaTac in accordance with the commitments of *Sound Move*. Section 2.5 of the EA states that a shuttle bus will provide the connection to the airport, and also notes that the S. 154$^{th}$ Station is the south interim terminus until the south segment to SeaTac is completed. When the Sound Transit board identified the Initial Segment, it also passed a motion authorizing continued efforts to work with the Port of Seattle to develop alternatives to serve the airport; the previously selected preferred alternative for that segment needed to be reconsidered in light of changes to the airport's expansion plans and to increased emphasis on airport security.

***2F Initial Segment is not a valid MOS, and it would be unacceptable if this is all that Sound Transit builds.***

As evidenced by the Sound Transit Board resolution identifying the Initial Segment (see Section 1.1. of the EA) and other accompanying resolutions, Sound Transit plans to complete the system identified in Sound Move, and the Initial Segment represents the first segment of the system to begin construction and operation. The FTA requirement of a MOS is an FTA policy, not a NEPA requirement. Nonetheless, the background on the identification of the Initial Segment as a MOS alternative is discussed in Section 1.1 of the EA, and the features of the Initial Segment are described in Section 2.1. A MOS is defined in terms of a project that can be built and operated independent of other extensions. This is consistent with 23 CFR Part 771.111(f), which states:

> In order to ensure meaningful evaluation of alternatives and to avoid commitments to transportation improvements before they are fully evaluated, the action evaluated in each EIS or FONSI shall: (1) Connect logical termini and be of sufficient length to address environmental matters on a broad scope; (2) Have independent utility or independent significance, i.e., be usable and be a reasonable expenditure even if no additional transportation improvements in the area are made; and (3) Not restrict consideration of alternatives for other reasonably foreseeable transportation improvements.

The Initial Segment meets these requirements. It connects logical termini (two of the region's designated activity centers), and it will have independent utility or independent significance because it contains all elements needed for light rail operation even if no additional transportation improvements in the area are made. It also does not restrict consideration of other reasonably foreseeable transportation improvements, including Link extensions to the north or south. The Initial Segment MOS is the only part of the project where federal funding is currently being requested. The EA was developed to assist FTA in examining project changes and the potential for environmental impacts greater than those disclosed in the previous FEIS and Tukwila Freeway Route Final SEIS. The EA concludes that the environmental impacts are the same as or less than the comparable segment of the original project with the Tukwila Freeway Route.

***2G Sound Transit should define the new schedule for developing the entire Central Link system and evaluate its impacts in an SEIS.***

The 1999 FEIS and its supplements are the project level EIS for the proposed Link project. Section 2 of the Initial Segment EA addresses the changes in the project schedule from 2006 to 2009. The Link system north of the Initial Segment is being reevaluated in a supplemental EIS and the new schedule associated with that portion of the project will be evaluated in that document. Similarly, any changes to the project and its schedule south of the Initial Segment would also be addressed in additional environmental review as appropriate prior to that segment of the project proceeding.

***2H Publish more bottom-line performance measures and make comparison with historic performance measures so that changes in the project's utility can be better understood. This would include measures such as cost per rider, cost per car removed from peak period traffic, number of new transit riders, cost per passenger mile, reductions in air quality, reductions in regional travel, or reductions in energy usage. For instance, Sound Transit once stated their system could replace twelve lanes of freeways. The current EA fails to compare how these performance measures have changed.***

The purpose of the NEPA process is to help public officials make decisions that are based on understanding the environmental consequences of an action; the EA is not required to justify the project. However, appropriate performance measures are reported in the FEIS and EA, including cost, ridership, regional vehicle miles traveled and vehicle hours traveled (VMT/VHT), transit travel time savings, air quality, and energy use. These measures are also important in that they directly relate to the analysis of project impacts. The EA updates these measures where necessary to provide a comparison against the same information for the original project as reported in the FEIS. Similarly, other environmental analysis findings were updated in direct comparison to the original project.

Although the EA focused primarily on changes in impacts for the Initial Segment compared to the original project, a wider range of measures of performance, beneficial effects, and cost effectiveness for the project are contained in other publicly available documents. This includes measures reported to the FTA in the 2001 New Starts Report for the Initial Segment, such as regional transit ridership, regional transit travel times, air quality, and energy use (all measures improved with the Initial Segment compared to No-build). Similar information was presented to the Sound Transit board prior to its adoption of the Initial Segment in November 2001. See response to comment 4B for a discussion of the cost per new rider measure for the Initial Segment.

*Sound Move* compared the capacity of a highway to a rail system. It estimated the capacity of an electric light rail line at 15,000 passengers per hour per direction (pp. 5 and 6 of *Sound Move*). With more detailed engineering information now available about the Central Link system, the *Evaluation of Joint Operations in the Downtown Seattle Transit Tunnel* (August 21, 2001) calculated the ultimate capacity of the light rail system in the DSTT (assumed to be the peak load point) to be 16,440 passengers per hour per direction.

Neither *Sound Move* nor the Joint Operations Report claimed the capacity of the light rail system would be reached with the first segment built. In fact, a major benefit of the rail system is that it can accommodate future ridership growth. This capacity for growth is also integral to regional land use plans, which call for concentrated development in urban centers like downtown Seattle with little remaining highway capacity.

***2I Sound Transit does not address current public opinion, and instead refers back to the 1996 vote as the source of their support. Public support has since eroded, and this is not considered in the environmental analysis. In addition, the EA should address lawsuits and Sound Transit's ability to get voter approval for taxes to finance future extensions to the system.***

Public comments and an agency response on substantive issues are considered and addressed in the NEPA process. And, to the extent that public opinion is included in the Sound Transit

decision-making process relevant to issues under the NEPA process, such information is incorporated in the NEPA process. Areas of public controversy are also relevant to NEPA and the EA, EA comments, and the response to the comments address the areas of controversy.

The EA addresses the Initial Segment, a MOS with independent utility; funding issues related to future extension of the system are not relevant to this NEPA environmental analysis and need not be addressed. Similarly, lawsuits also do not pertain to the EA's discussion of environmental impacts.

***2J The EA should discuss how the Initial Segment meets project goals as determined by the purpose and need. The EA must address not only the potentially negative impact for the environment, but also the positive impact to the area the project is intended to serve.***

Chapters 1 and 6 of the FEIS and Tukwila Freeway Route Final SEIS provide a detailed discussion of the project's purpose and need, goals and objectives, and how the various project alternatives meet the purpose, goals, and objectives. The EA summarizes this review in Section 1.2 on purpose and need. The route, stations, and other features of the Initial Segment are substantially the same as the alternatives evaluated in the previous EISs, and for this reason the EA continued to rely on the more detailed discussions and evaluations for the original project, as contained in the FEIS. Therefore, the discussion of the purpose and need and alternative evaluation relative to the correlating goals and objectives of the original project continue to apply.

The Initial Segment succeeds in fulfilling the project goals as described below. In some cases, the performance of the Initial Segment is lower than for the original project, such as in ridership, but the Initial Segment still meets the project goals.

**Transportation Goal: Enhance Mobility.** The primary measures for the transportation goal are ridership, reliability, and travel time, and the ability to support future expansion, match regional transportation goals, and improve mobility and access. The Initial Segment will provide substantial ridership on a highly reliable rail system that will also improve average transit travel time. The Initial Segment will allow completion of the project to the north and south, and also allow future phase extensions beyond the starter system. Like the original project, services and fare policies will be integrated with other local transit providers. The Initial Segment allows convenient connections to other modes including commuter rail, Amtrak, local and regional bus, park-and-ride, and the airport. It enhances transportation equity by providing service to the Rainier Valley, a highly diverse and transit dependent community. The new capacity provided by light rail allows the region to meet the challenges of growth in people and jobs.

**Environmental Goal: Preserve Environmental Quality.** As described in the EA, the Initial Segment maintains or reduces the degree of environmental affects relative to the same segment of the original project.

**Land Use Goal: Support Regional and Local Land Use Goals and Objectives.** The project and Initial Segment is consistent with the original goals and commitments for *Sound Move*, and with the regional comprehensive growth and transportation visions articulated in Vision 2020, and Destination 2030, the most recent Metropolitan Transportation Plan for the Puget Sound Region, adopted by Puget Sound Regional Council (PSRC) in May 2001. It is also consistent with the City of Seattle comprehensive plan. The Tukwila Freeway Route is more consistent

with the City of Tukwila's plans and avoids the City's land use and planning concerns about the original project route through Tukwila. The Initial Segment retains almost all of the same station locations as the original project and would also support pedestrian-friendly and transit-oriented development. The increased access, mobility, would continue to benefit neighborhoods along the corridor and impacts in neighborhoods have been mitigated.

**Financial Goal: Achieve Financial Feasibility.** Although the cost of the project exceeds *Sound Move*'s original budget, the Initial Segment can be built and operated within current revenue available to Sound Transit. The project segments north and south of the Initial Segment are being reevaluated, in part to reduce costs and develop a new financial plan to allow completion of the full project. The cost effectiveness of the Initial Segment using the FTA incremental cost per new rider is $15.60. This is about 30 percent greater than for the original project. The cost effectiveness of the Initial Segment is competitive with other light rail projects nation-wide, as the project has received a recommended rating for New Starts funding from FTA.

**Community Support Goal: Maximize Community Support.** Sound Transit has made extensive efforts to involve the community throughout the planning and environmental process for the light rail project. This outreach effort has continued through the Sound Transit consideration and decision-making process for the Initial Segment as documented in Appendix E of the EA.

***2K Sound Transit's light rail will not be in operation for years.***

The EA disclosed the proposed changes in the operation start date, which represents a delay from the schedule of the original project. The effects of the changes of the start of operation are included in the updated environmental analysis, including the transportation section, which examined the impact of the project in the new operating year, and the air quality section, which considered the related issues of air quality in the different operating years.

***2L What are the impacts of a partially built system if it cannot be finished? What are the impacts if only the Initial Segment is built or if the Initial Segment construction is started but not finished?***

The EA was developed specifically to identify the potential impacts that could occur if only the Initial Segment were built. The Initial Segment constitutes a MOS with independent utility (it can be effectively operated on its own) and logical termini. Although Sound Transit plans to continue development of segments to the North and South, with studies to the North currently underway, the EA identifies the impacts that could occur if the Initial Segment only is constructed.

The Initial Segment of the Central Link Light Rail Project as a MOS would fulfill federal requirements for funding a system that could be built and operated independent of other extensions; FTA policy requires MOS definitions in transit projects to prevent the risk that public investments would be made in systems that cannot effectively be built and operated. The Initial Segment meets these requirements for a system independent utility. However, this does not imply that Sound Transit cannot complete the *Sound Move* plan for the full project. If, in the unlikely event, construction of the Initial Segment is started but not completed the construction and other impacts would be within the range of those described in the project environmental documentation.

***2M The Initial Segment's headways will be longer than for the original project.***

The longer headways were described in the EA in Section 2.1 (System-Wide Changes), and were considered as part of the forecasts of ridership and in the evaluation of environmental impacts. Headways would be expected to decrease to the level planned for the original project as light rail is extended.

***2N Travel times are slower, both because of slower speeds through the DSTT during joint operation and a longer Tukwila Freeway Route, although one of the stations in this portion has been eliminated and one deferred.***

The travel time from Westlake Station to S. 154$^{th}$ Station for the original project was 31 minutes. Changes to the project in the Initial Segment, such as joint operation of the DSTT and the Tukwila Freeway Route increase the travel time to 33 minutes between the same two points. Both times assume the deferral of three stations—for the original project: Royal Brougham, Beacon Hill, and Graham; for the Initial Segment: Royal Brougham, Graham, and Boeing Access Road. Even with the longer travel time, the Initial Segment will provide travel time savings as disclosed in the EA in Table 3.1-3.

***2O The Initial Segment would produce higher levels of mobile source pollutant emissions in downtown Seattle compared to No-build, particularly when the increase in buses on downtown streets is considered. The EA also does not mention the new air quality standards adopted with the air quality forecasting for Destination 2030.***

Section 3.2 of the EA discussed the air quality conditions for the Initial Segment, with reference to the air quality analysis performed for the FEIS (see Section 4.5), along with updated regional air quality forecasts and updated traffic forecasts. Regional conformity is addressed directly in the EA in Section 3.2; the analysis directly referenced the Destination 2030 air quality forecasts of the Puget Sound Regional Council, as Central Link was included in the Destination 2030 forecast assumptions. Destination 2030 used EPA-approved Tier 2 gasoline/sulfur control factors to adjust emission factor data generated by the Mobile5 model, which subsequently lowered the level of emissions expected in the region; it did not lower the air quality standard for the region.

These EPA emission factors were developed so that preparation of emission inventories could take into account the affects of the federal rule for Tier 2 Motor Vehicle Emission Standards and Gasoline Sulfur Control Requirements, published February 10, 2000 (65 FR 6698). The unadjusted emission data from the Mobile5 model were used for the analysis included in the FEIS, according to guidance provided for performing a project level conformity analysis at that time. Revising the EA to use the adjusted emission factors for the project level analysis would have resulted in even lower modeled carbon monoxide (CO) concentrations; therefore, the conclusion would remain the same.

As with the FEIS, transportation impact information was used in the EA analysis to determine the potential for localized hotspots that could be created by increased traffic due to the project, including buses. None of the downtown intersections were found to be within the most congested or heavily used intersections in the corridor. As shown in Table 3.1-4 of the EA, with the Initial Segment, total buses on the surface in downtown in 2020 is forecast to be 526 in the

P.M. peak hour. Under the No-build scenario, total buses in downtown is forecast to be between 413 to 531 buses on the surface streets in the p.m. peak hour (see response to comment 6C). In each case, the number of buses on the surface is less than the 650 buses analyzed in the FEIS downtown traffic analysis and reviewed for potential hotspot impacts. As shown in EA Table 3.1-5, auto trips to downtown also decreased for the Initial Segment.

***2P Is voter approval legally needed for Sound Transit to build and fund the Initial Segment?***

This comment does not pertain to issues of environmental impact discussed in the EA. Nonetheless, as represented to FTA, Sound Transit fully intends to complete the project from the University District to SeaTac as described in its *Sound Move* plan, financing for which was approved by the voters in 1996. As a MOS, the Initial Segment is the first segment of the plan that will be built and opened. This is the same approach as that taken for the original project's preferred MOS, which ran from Lander Street south of downtown to the University District. The project segments north of downtown to the University District and south of S. 154th Street to the airport are being reevaluated. Completion of the south segment is dependent on airport plans. This approach is consistent with the *Sound Move* plan, which states that, "The Northgate to SeaTac (S. 200th Street) electric light-rail line will be built in three segments that will be developed in several stages. The preferred alignment for the first segment is from downtown through the Rainier Valley to SeaTac (S. 200th Street)." (*Sound Move* page 29).

***2Q The Initial Segment has lower cost-effectiveness, which indicates that the Initial Segment would not make sense if it is never expanded. Conversely, if the Initial Segment only makes sense if it is expanded, Sound Transit needs to have a credible adopted plan, including funding, for the remainder. Sound Transit does not address either issue in the EA.***

The EA describes the Initial Segment as a stand-alone MOS of the project, but it also has independent utility; the funding issues related to future extension of the system are not relevant to the EA and need not be addressed, as they are not required for the Initial Segment to have the benefits disclosed. Nevertheless, Sound Transit staff are currently working on a financial plan for extending the Initial Segment. Sound Transit staff are also exploring options for extending the system to Northgate, although *Sound Move* did not fund this portion of the project. See response 2B also.

## Comment Group 3. Regional Transportation, Traffic Congestion, and Travel Time Effects

***3A Light rail won't make a dent in the traffic problem, and will not entice enough people out of their cars to make the project worthwhile.***

Section 1.2 of the EA reviews the Central Link project's purpose and need, which includes the goals and objectives that have been established to weigh the performance of the project. One of the key goals is to provide a practical alternative to driving on congested roadways. Neither *Sound Move* nor the Central Link project has the goal of reducing congestion for automobile travelers. Just as with the original project, the Initial Segment is intended to improve mobility by providing the public with a reliable and expedient means to travel between urban centers and activity centers within the region. This is consistent with the original goals and commitments for *Sound Move*, and with the regional comprehensive growth and transportation visions articulated in Vision 2020 and Destination 2030, the region's Metropolitan Transportation Plan, all of which emphasize strategies that reduce dependence on drive-alone travel.

As opponents note, mass transit's share of total daily trips in a metro area will always be low and no system will relieve existing road congestion. Growth pressures ultimately lead to other cars filling the space left by people who choose to ride mass transit. However, the Initial Segment project is estimated to remove about 8,000 vehicles from the daily commute—equal to a more than 20-mile line of bumper-to-bumper vehicles taken off the road each day, most removed during the peak rush hours of traffic.

Light rail is an important part of providing transportation alternatives in the congested Interstate 5 (I-5) corridor. The project establishes new, dedicated right-of-way to move people efficiently through the area. With central Puget Sound expecting 50% more people, 40% more jobs, and 60% more trips by 2030 (PSRC 2001), the new capacity provided by light rail will allow the region to meet the challenges of growth in people and in jobs.

***3B The EA does not quantify the project's beneficial impact on traffic congestion, particularly for regional measures such as vehicle miles traveled or reduction in travel delay.***

The EA discusses regional transportation effects of vehicle miles traveled and vehicle delay directly as well as through reference to previous environmental documents. In most cases the information is consistent with the previous environmental documents for the project, and therefore minor changes in transportation conditions are reported. See Section 3.1.1 of the EA for a discussion of VMT/VHT effects; VMT is a measure of the extent of regional vehicle travel, while VHT measures how long it takes, incorporating delay. Although VMT/VHT is a typical measure of transportation projects, its regional nature makes it a very broad tool, and major changes in regional travel volumes or travel times would not be expected.

In addition, Section 3.1.3 identifies changes in station area impacts, which include congestion. The section refers directly to the findings of the FEIS, and finds that the ridership levels and other project modifications would not change the results in the FEIS; in fact, the FEIS used a worst-case analysis to predict local traffic impacts including intersection delay. Congestion relief is not one of the goals identified for the project. See also response to comment 2J.

***3C The EA does not show how much average travel time will be improved regionally.***

Table 3-13 of the EA provided average travel time savings for different areas along the project corridor compared to No-build and the original project. Moreover, the regional model incorporates regional travel times in its forecasts. Regional travel time decreases slightly overall, as described in the FEIS Section 3.2.2. The areas along the Initial Segment experience the greatest travel time savings, in several cases savings of 10 minutes or more are attained. See also the response to comment 2H.

***3D Information on year 2010 transportation conditions is not provided in the EA, as it was in the DEIS and FEIS. Also, it appears that the project will have little to no effect on VMT/VHT the year after it begins operation.***

All transportation analysis conducted since publication of the FEIS has been for the 2020 forecast year only, which is a reasonable worst-case analysis. A comparison of VMT and VHT for the year 2010 would likely yield similar conclusions to the results for the year 2020. If evaluated for the year 2010, the Initial Segment would likely show a slight improvement in VMT and VHT over No-build conditions but the improvement would be less significant than with the original project. The Central Link FEIS acknowledges the fact that the light rail system would not result in a significant difference in regional traffic volumes, but notes that it would provide needed additional capacity. The improvement in VMT and VHT with the light rail system in place would be expected to be even greater beyond the year 2020 as the region's travel demand increases, transportation facilities become more congested, and transit-supportive land uses develop in response to the light rail investment.

## Comment Group 4. Ridership

***4A The Initial Segment serves just existing bus riders, not new riders.***

The total number of transit riders for the Initial Segment was provided in the EA in Table 3.1.2, and this provides the basis for the impact analysis in the EA and previous environmental documents. Some transit riders on the system would be existing bus riders, but the Initial Segment attracts 16,000 new riders as reported in the 2003 New Starts Report. The Initial Segment also increases the capacity needed to serve long-term increases in growth in population and employment along the corridor.

***4B To provide a better comparison to the original project, the EA should state how many new riders are attracted to the system, and also provide the cost per new rider.***

The EA provides a clear comparison of ridership, costs, and impacts between the original project and the Initial Segment, beginning with Table S-2 and continuing in the environmental impact discussions in Section 3 and the financial discussions in Section 4.

New riders on a system are also an important measure of a project's benefits, and are considered in FTA's decisions on project funding (see response to comment 4A). The cost per new rider index is primarily used to determine a project's competitiveness against other projects nationally. In the FTA 2003 New Starts Report, a $15.60 incremental cost per new transit rider is estimated for the Initial Segment, reflecting the 16,000 new riders forecast for 2020. The Initial Segment's cost per new rider remains competitive nationally, and the project is recommended for funding by FTA. The FTA's 2003 New Starts report data were based on information contained in Sound Transit's October 2001 Link Light Rail New Starts Report as submitted to FTA along with an addendum sent November 15, 2001.

By comparison, Table S.13-1 of the FEIS reported an incremental cost per new transit rider of $10.40 for a Northgate to SeaTac light rail line. The cost per incremental rider in MOS C was $3.30 per new rider. Some of the comparisons between the original project and the Initial Segment are complicated by changes in the value of a dollar over time, and by changes that occurred to the original project's cost estimates after the FEIS was published. For instance, incremental costs per new transit rider for the Initial Segment project was reported to the FTA in the October 2001 Link New Starts Report as $15.60. The comparable measure for the November 1999 locally preferred alternative (original project) was reported to FTA in March 2000 as $8.08 per new rider. Using comparable calculations, the Initial Segment project is nearly half as cost-effective as the original 20-mile project. As noted in similar comments on the project's cost-effectiveness, the cost-effectiveness measure does not account for many of the project's other benefits. These benefits include the long-term reduction in public infrastructure costs, environmental benefits from more efficient land use patterns served by light rail, and the benefits of travel time savings and better reliability for transit users.

***4C The FEIS and EA understate or overstate ridership benefits.***

Forecasts for ridership for Central Link are based on accepted modeling practices and have continuously undergone refinement. Similar concerns were addressed in the FEIS response to comment 3.2 in Section 7. The underlying elements of the ridership forecasts are provided in the FEIS technical backup report for ridership.

***4D Sound Transit uses unrealistic assumptions to estimate ridership, and overstates ridership and mobility benefits of its project.***

Comments did not provide specific concerns about which element of the forecasting process may be inaccurate, so it is not possible to discuss all components of the modeling process. However, the FEIS responded to similar comments on the model in the FEIS Section 7, comment 3.2. In addition, the inputs to the model, including for travel times, other transit, transfers, etc. include information from other providers and must also be validated to existing conditions. The EA has provided the revised forecasts for the Initial Segment.

***4E The EA does not adequately disclose ridership and travel time changes to the original project, and also does not disclose how many people will need to transfer to buses, giving them longer wait times. Regional benefits and impacts are not clearly stated.***

Table 3.1-2 reports daily light rail boardings for each station along the Initial Segment and shows how each contributes to the total daily forecast of 42,500 boardings. Furthermore, Tables 3.1-6, 3.1-7, and 3.1-8 in the EA compare daily station boardings to previously forecasted ridership for the alternatives analyzed in the FEIS.

Together, the Initial Segment EA, Tukwila Freeway Route Final SEIS, and Central Link FEIS disclose the proportion of P.M. peak-hour LRT boardings/alightings that include transfers to or from buses. These data are consistently reported in the Station Area Impacts sections of the transportation chapters in each document. The EA refers to this material in reviewing the changes in potential traffic impacts with the Initial Segment in Section 3.1.3. Bus transfer trips do not generate additional vehicle trips and so do not contribute to local station area traffic impacts. The effects of changes in the rate of bus transfers on average transit travel times experienced by riders from the neighborhoods within the project corridor are taken into account and reported in Table 3.1-3 of the EA.

Regional travel and transit is discussed in Section 3.1.1 of the EA. As with the original project, the Initial Segment would result in a slight reduction in regional vehicle travel. Table 3.1-1 in the EA compares regional travel impacts of the Initial Segment, original project, and No-build Alternative. Transit ridership and transit travel time savings with the Initial Segment is less than the original project, but greater than with the No-build Alternative.

## Comment Group 5. Bus Routes, Transit Impacts

***5A The project will make current commutes longer and more difficult, and fewer people will be served.***

As described in section 3.1.1.2 and shown in Table 3.1-3 in the Initial Segment EA, the Initial Segment would provide an improvement in transit travel times compared to No-build in most cases. Regional forecasts also show that travel time and ridership are improved over No-build. Although in some locations the actual speeds of the light rail vehicles may not be faster than autos or buses, autos and buses are in general more subject to delays caused by congestion, accidents, breakdowns, and other incidents. The Central Link FEIS explains on page 3-9 that "Despite numerous system improvements and service modifications, bus operating speeds have steadily deteriorated in the corridor, as a result of ever growing traffic volumes and a lack of routing alternatives." Furthermore, "Light rail would be more reliable than buses because it would operate primarily in a separate right-of-way, which is a more controlled environment. Light rail is expected to operate in the 95 to 99 percent on-time range."

Several areas including Rainier Valley and Beacon Hill will experience substantial time savings. For example, the travel time for the Initial Segment from Westlake to Henderson is 24 minutes and there would be 10 trains per hour in the P.M. peak. The fastest bus route from near Westlake (Second and Pike) to Martin Luther King (MLK) and Henderson appears to be the #42 Express which takes approximately 36 minutes, over 50% slower than light rail and makes only 5 trips in the P.M. peak period (the local #42 takes 40 minutes). The #39 Express takes approximately 40 minutes and also only makes 5 trips in the P.M. peak period (the local #39 takes 51 minutes).

In addition, although many of the proposed Sound Transit rail and bus services will replace, in whole or in part, existing bus routes, transit agencies will then have the opportunity to redeploy resources that are currently used to operate those routes. Sound Transit services are meant to add to, rather than replace, the existing services provided by transit agencies in the region. KC Metro Transit's bus redeployment guidelines are based on the overall regional goal of improving mobility and increasing transit ridership and the commitment to providing the region's residents with a "seamless" regional transit system. Refer to response to comment 5D for a description of some of the principles identified to guide the use of redeployed resources.

***5B The SEIS should provide a realistic travel time comparison to No-build conditions, particularly where transfers are involved.***

Table 3.1-3 of the EA compares average transit travel time savings for the area around one or more related stations for the light rail project compared to No-build and to the original project. The comparisons reflect the weighted average time of all peak period transit trips (bus and rail) within each station analysis area and includes time in vehicles, waiting, walking/driving or transfers to or from the stop, and boarding. See response to 5A.

***5C The effectiveness of the Initial Segment should be compared to an all-bus system, particularly in terms of travel time benefits. Claims of travel time savings in EIS documents are not backed up by route-by-route comparisons.***

The comparison of travel times in Table 3.1-3 of the EA (p. 22) compares an all-bus "No-build" system in the Link corridor to the bus/light rail "Build" system alternatives in the Link corridor,

including the Initial Segment and FEIS alternatives. Both service networks assume full implementation of Sounder commuter rail and Regional Express bus service. The table provides travel times for the original project with rail-only use of the DSTT, for No-build, and for the Initial Segment with joint operations. All alternatives assume expanded use of the DSTT, with No-build assuming increased bus service running through the tunnel in the future. See response to 5A.

***5D The EA should discuss the impact of transfers due to bus route terminations and diversions, as the plan appears to introduce a large number of feeder bus to rail transfers. The EA needs to discuss whether this will result is an improvement for transit riders. The EA should also list bus routes that will be discontinued or rerouted, and discuss impacts.***

Transfer activities are reflected in Table 3.1-3 of the EA, which compares average transit travel time savings for the area around one or more related stations for the light rail project compared to the No-build and the original project. The comparisons reflect the weighted average time of all peak period transit trips (bus and rail) within each station analysis area and includes time in vehicles, waiting, walking/driving or transfers to or from the stop, and boarding. The table shows improved travel times in all stations, indicated that there would not be a travel time impact resulting from the transfers. The amount of transfer activity under the Initial Segment would be similar to that of the original project, considering comparable locations along the route. Transfers would be needed for riders to reach locations not served by the Initial Segment, but this would be similar to transfer activities under existing conditions. The Central Link FEIS (November 1999) addresses the fact that transfer rates could increase with light rail implementation, but also states on page 3-8 that "While the number of transfers would be expected to increase, overall travel times and the amount of transit service would substantially improve. For passengers transferring from bus to light rail, the wait times would be short. Transfer wait times from light rail to bus will sometimes be longer, particularly when bus frequency is less than light rail frequency, although bus route frequencies may increase with implementation of the light rail system. Due to the high reliability of rail service, riders may choose a light rail trip that will result in a short transfer wait for the bus, over a longer and potentially less reliable bus-only trip."

A bus service integration plan was prepared as input into the FEIS that identifies likely changes to bus service once the light rail updates to the plan have been made to address project changes related to the Initial Segment, particularly related to terminal stations. The service integration plan for the light rail system was developed by KC Metro Transit staff and assumes some level of bus connections to light rail stations. The decision to have a route feed a light rail station was based on the total travel time of a bus versus a bus to rail transfer. Please see FEIS Section 3.2 and Transportation Technical Back-up report.

The responsibility for making a final determination on the future bus route network for connecting passengers to Link light rail rests with KC Metro Transit. The Initial Segment of the Central Link light rail system is not expected to be fully operational until the year 2009, which gives KC Metro Transit several years to determine exactly how bus service should be changed. KC Metro Transit's typical service change process generally takes about a year from beginning to end, so detailed service change discussions with riders and public is not expected to begin for several years.

In the meantime, bus service redeployment guidelines have been established in a joint effort among all of the region's transit operators. These guidelines are based on the overall regional goal of improving mobility and increasing transit ridership and the commitment to providing the region's residents with a "seamless" regional transit system. Many of the proposed Sound Transit rail and bus services will replace, in whole or in part, existing bus routes. Transit agencies will then have the opportunity to redeploy resources that are currently used to operate those routes. There may not be a one-for-one replacement of service hours, but this confirms the assumption that Sound Transit services are meant to add to, rather than replace, the existing services provided by transit agencies in the region. Service planning and allocation decisions will involve community input, participation by affected jurisdictions, as well as current bus patrons.

Some general working principles identified to guide the use of redeployed resources include:

a. Maintain local service access in corridors where Sound Transit express services are provided, while avoiding duplicating services or competing for the same riders.

b. Provide high quality service choices to existing and potential riders, considering convenient access, travel time, service reliability, comfort and safety, and other factors important to attract and retain riders.

c. Improve local services that directly connect with Sound Transit light rail service, including increasing service frequencies, expanding hours of service, and/or providing new service connections.

d. Improve local services that do not directly connect with light rail to enhance public transit opportunities in communities not served by light rail. Improvements could include adding service to existing routes to promote or respond to ridership growth or operational problems, or providing service to areas not currently served.

***5E The EA does not disclose that regional transit capacity will be reduced when the DSTT bus capacity is reduced with joint operations. Total trip times will increase by regional express bus commuters who will have to transfer to light rail.***

While bus capacity in the downtown tunnel would be reduced, the regional transit capacity and ridership will be increased with the development of the Initial Segment, which also includes substantial new right-of-way for transit. Regional express buses and similar inter-region buses will not be forced to transfer, although some routes will be on the surface rather than in the tunnel. This potential impact is discussed in Sections 3.1.1 and 3.1.2 of the EA. While the bus capacity of the DSTT will be lowered, the overall person-carrying capacity of the tunnel will be increased with joint operations, and this will effectively maximize the ridership in the tunnel. Fewer buses will be re-routed to the surface compared to the original project. The transit ridership ranges forecast for the tunnel with joint operations is similar to or greater than the ridership predicted for the original project for 2020 (see the EA Table 3.1-7.). Regional transit forecasts reported by Sound Transit to FTA for the 2003 New Starts report also shows that regional transit ridership will increase and travel times will decrease with the Initial Segment, compared to No-build, further supporting the EA's conclusion that the Initial Segment would not result in adverse impacts to regional transit.

***5F The Initial Segment will displace bus routes between Rainier Valley, downtown, and the University District. These routes are faster than the light rail, and so there will be no benefits from the Initial Segment.***

As described in the response to comment 5D, service planning and allocation decisions will involve community input, participation by affected jurisdictions, as well as current bus patrons. Potential routes north of the Seattle downtown area are currently being evaluated as part of the North Link EIS process. However, the 1999 FEIS discussed impacts for routes that would be replaced with light rail implementation in Section 3.2. If existing routes are replaced by light rail in the future, transit agencies will then have the opportunity to redeploy resources that are currently used to operate those routes. See response to 5A.

***5G Mobility is not increased by the Initial Segment. The 1993 FEIS states that regional rail would produce increased mobility for those choosing transit. This is not true for MOS-1.***

One of the principle measures of mobility is travel time savings. The EA describes the travel time savings by neighborhood along the Initial Segment in Table 3.1-3. The Initial Segment improves travel time compared to No-build. Mobility improvements due to implementation of the Link project are also evaluated on an annual basis for the FTA as part of Sound Transit's New Starts Report. The New Starts Report considers travel time savings, service to low-income households, and the number of jobs within ½ mile of proposed stations to be mobility improvement measures. The most recent October 2001 report to FTA on the Initial Segment shows improved mobility to transit riders with the project. Approximately 9,480 hours of travel would be saved daily by existing transit users. For all other travelers combined there would be a total daily savings of 18,960 hours. Light rail service will be provided to approximately 2,600 low-income households and 169,300 jobs within ½ mile of proposed stations. See also responses to comments 3A, 5B, and 5C.

***5H The Initial Segment will not expand transit capacity within the region's most dense and congested corridor, contrary to the EA's claims.***

Building the light rail Initial Segment will increase transit capacity in the corridor by providing additional dedicated right of way and increasing person-carrying capacity along I-5, one of the region's most congested corridors. Existing bus service hours for trunk bus routes replaced by the light rail will be redirected into increased service on existing routes and new or restructured bus routes for an overall net gain in service. The Initial Segment will serve the Rainier Valley, an area of high bus ridership. Not only would travel times in the Rainier Valley improve, but the reliability and ultimate capacity of this light rail line is greater than what can be achieved with bus service in mixed traffic on city streets and freeways alone.

As discussed in the Executive Summary and Chapter 1 of the EA, the Initial Segment will serve downtown Seattle, south downtown, Beacon Hill, Rainier Valley, Tukwila, and Sea-Tac International Airport. Downtown Seattle is one of the most congested areas in the region and other Initial Segment stations are located along the highly congested I-5 corridor. Once completed, the light rail system plan to Northgate will further increase transit capacity in the I-5 corridor and serve additional dense, urban centers.

***5I The Initial Segment serves very little regional travel and an SEIS is needed to provide more information on rider origin/destination patterns, and to determine if the system meets goals for a regional transit project.***

See response to comment 2J on the project's ability to meet purpose and need, which includes the adopted measures and criteria used to evaluate the project as an element of the regional transit system. The context of the Initial Segment and indeed the larger Central Link project is also covered in the FEIS Section 1.2-1. Origin/destination patterns are an element of the regional transportation forecasting model, and the information is incorporated into the ridership forecasts provided in Section 3.1 of the EA.

## Comment Group 6. DSTT

***6A The DSTT joint operations plan has unanswered safety and operation questions. The EA does not discuss environmental impacts that will occur. The EA does not explain how the 1999 reservations about joint use of the DSTT have been resolved. The unprecedented mixing of electric trains and platoons of electric/diesel buses in the DSTT adds significantly to the risks of collisions and other hazardous mishaps during operation of the revised project. The safety and reliability of joint operations in the DSTT should be reassessed by independent experts, with real-world tests of whether it will work. There is no other place in the world where joint operations like this occur with trains in a tunnel directly under downtown buildings.***

Section 2.2.1 of the EA provides the background for how earlier concerns about joint use have been addressed, and subsequent sections on the environment discuss the potential impacts related to joint use. The EA describes the original concerns and then provides the new information or design solutions that have made joint operations more reasonable. Appendix L of the EA also includes Sound Transit and KC Metro Transit's report on the *Evaluation of Joint Operation in the Downtown Seattle Transit Tunnel*, published in August 2001. This document provides further information about other factors that have been considered in the decision about joint use of the tunnel, including: costs; transit travel times; ridership; short- and long-term operations and capacity; bus technology; and safety, fire, and emergency issues. The EA's review of joint operations in the tunnel appropriately focuses on the environmental effects of the action.

Although there may be no predecessors currently available for buses and trains in operation in the tunnel, the DSTT itself is already unique. Sound Transit is not aware of any other tunnel in the world that currently runs buses only through a tunnel that has stations. However, there are some places that run light rail trains and buses through a tunnel without stations (i.e., Pittsburgh), and there are numerous places where buses and trains mix within the same right-of-way (San Francisco, Portland). As described in Section 3.1.2.4 of the EA, "...the bus/light rail vehicle safety issue for joint operations has been addressed by the addition of the new signal system that would maintain a separation between light rail trains and buses. Trains will never operate in a tunnel section in the same direction and at the same time as buses, nor will trains and buses operating in the same direction occupy a station at the same time." Several mechanisms would also be in place in case the system fails; therefore, the potential for bus and rail vehicle collisions would remain very low. As described in the EA, bus to bus collisions per year is estimated to remain the same as existing conditions. There are more details in the Joint Operations Report of August 21, 2001, produced by Sound Transit and KC Metro Transit. The DSTT generally follows street right-of-way and is only under buildings at one location, and there will be no impacts to buildings from the retrofit.

A simulation model was used to demonstrate the feasibility of joint operations under a series of assumptions. However, its results were not the sole determining factor to approve joint operations. Since the Joint Operations Report was issued in August of 2001, King County and Sound Transit staff have continued to work together to refine the operating assumptions. For example, the 2 minutes of average passenger delay in the staging area has been reduced and the signal system refined. Live tests using a proxy for a light rail train may be considered in the future.

The safety of joint operations will be demonstrated before revenue service begins. The bus technology will be in place well before the tunnel closes for retrofit. The signal system will continue to be refined. During tunnel closure, extensive testing of light rail vehicles and buses both independently and in joint operations will be conducted before the tunnel is reopened for revenue service (see Page 27 of the EA).

***6B The DSTT calculations use incorrect figures of bus capacity to justify the joint use plan for DSTT. This provides an invalid basis for impacts analysis, particularly in comparison to an all-bus system. Other studies done by the County Council had different findings regarding the most effective use of the DSTT. The capacity calculations use incorrect assumptions on the load rate of buses, the rate of transit growth, and train headways. They also ignore the potential to revise bus routes to continue through and beyond the tunnel.***

Appendix L of the EA included the technical report *Evaluation of Joint Operation in the Downtown Seattle Transit Tunnel*, which documents the assumptions used for the load rate of buses, rate of transit growth, train headways, and other factors used to define the DSTT joint operations plan. As KC Metro Transit is the agency that operates the tunnel, and Sound Transit is the agency with jurisdiction over the development of the Central Link light rail line, their information provides the most reasonable basis for the analysis of potential impacts. The methodology used to calculate bus capacity is based on KC Metro Transit's current and planned use of the tunnel bus routes using the DSTT that either originate or terminate in the tunnel. For example, bus routes do not begin at some location south of the DSTT, pass through it, and continue the route north beyond the DSTT. KC Metro Transit does not intend to change this operating plan. Therefore, Figure 3.6 in the Joint Operations Report represents the one-way bus capacity. Under the Initial Segment, light rail would operate in a similar manner to the way KC Metro Transit operates today, but ultimately, rail would operate through the tunnel so the capacity shown in Figure 3.4 is valid.

The EA considers alternatives for rail-only or joint use for the DSTT, whereas many of the comments also requested review of whether the project should provide a bus-only system. The EA reviews the decision to provide joint operations in the DSTT for the Initial Segment, or to operate rail-only as in the original project. The all-bus capacity discussion in the Joint Operations Report provides background on capacity and mobility, but is not an alternative under consideration for the project.

Many of the comments also used capacity and usage figures that have been revised due to different rail operating assumptions. For example, the figure of 60 buses in each direction with joint operations, as identified in the August 2001 Joint Operations Report, is based on trains operating every 6 minutes. The 1999 study assumed trains would operate every 4 minutes, resulting in fewer buses. The EA uses the most current information.

The signal system being designed for the light rail system is capable of safely handling train headways of 90 seconds. It will be able to accommodate 2-minute scheduled train headways.

***6C The EA should include a No-build and MOS-1 comparison of the difference in growth for central business district bus volumes out to 2020.***

As shown in Table 3.1-4 of the EA, with the Initial Segment, total buses in downtown in 2020 is forecast to be 646 in the p.m. peak hour, with 120 operating in the DSTT under joint operations

and 526 on the surface. Under the No-build scenario, total buses in downtown is forecast to be 663 in the P.M. peak hour. Of this total, the number of buses operating on the surface and in the DSTT depends on the size of KC Metro Transit's bus fleet size for dual mode buses that can operate in the DSTT. If KC Metro Transit tunnel fleet remains similar to today's then about 132 buses would operate in the DSTT and 531 on the surface. As the DSTT technical report indicates, the maximum number of buses KC Metro Transit estimates could operate through the DSTT is 250 during the P.M. peak hour, which would leave 413 buses operating on the surface. This would require KC Metro Transit to significantly increase the size of their fleet of dual mode tunnel buses.

***6D The SEIS should revise estimates of central business district bus volumes out to 2020.***

See Table 3.1-4 of the EA. Forecasts used in the EA were developed by KC Metro Transit and other transit operators, and is the best information available.

***6E An SEIS is needed to define a new detailed plan for mitigation of surface bus operation under the joint operations plan and for a longer DSTT closure. The original mitigation plan is now outdated because it was based on a DSTT agreement that is now voided due to Sound Transit's changes in DSTT operations.***

The surface mitigation plan for buses is described in the 1999 FEIS and the resulting mitigation commitments. The construction period and surface impacts are the same or reduced with joint operation compared to the adopted project. The duration of the closure has not changed. The new DSTT agreement that is being negotiated includes all downtown surface mitigation measures that were included in the original agreement. The downtown surface mitigation measures that were included are still appropriate mitigation, and Sound Transit commits to implementing them as part of this project. Further, Section 3.1 of the EA provides updated bus volume information that indicates that the FEIS analysis and the earlier mitigation plan was based on a worst case scenario for bus volumes during construction, and the impacts under the Initial Segment would be less than for the original project.

***6F The SEIS should address all conditions contained in the County Council Tunnel Motion.***

Issues relevant to possible environmental impacts caused by changes resulting from the selection of the Initial Segment have been addressed in the EA and the Tukwila Freeway Route Final SEIS. The King County Council motion passed on 9/24/01 is advisory to the King County Executive. The King County Executive is responsible for negotiating a new tunnel transfer agreement based on the assumption of joint bus/rail operation in the DSTT. Many of the points raised in the motion will be addressed in the new agreement (liability, payment for use, etc.). Other points are policy issues that will need to be addressed by the Sound Transit Board, the King County Council, and the Seattle City Council.

***6G Sound Transit must complete tunnel safety studies before it can make a decision about joint operations. Only the joint operations alternatives are considered, although joint operations and rail-only operations should both be considered as alternatives, especially when it is not yet clear whether joint operations is feasible.***

Pages 26 and 27 of the EA outline the issues relevant to evaluating potential safety impacts and identify any necessary mitigation to assure safe operation of buses in the DSTT. Safety issues

will continue to be studied and addressed as the project moves through final design, construction, and operation, and will include 3 to 6 months of testing prior to the start of revenue service. Joint operations has been determined to be feasible (see response to comment 6A). Rail only operations for the DSTT with the Initial Segment was considered as an alternative, but was eliminated due to lower ridership and the effects of transfers and other increased delays for bus riders (see Section 2.6.2 of the EA).

***6H The EA should address the impact that short platforms in the DSTT and in the Rainier Valley will have on system capacity and operations. These limits are among the reasons light rail was rejected in 1993.***

This is not an accurate description of the project features for the Initial Segment, as there is no capacity constraint in the DSTT from short platforms, and impacts would not result. Section 2.2.2 of the EA discusses the width of the platform at Westlake, which would be needed if a new stairway to the platform is built, but this does not affect the length of the platform or the loading of trains. The station platforms in the DSTT will be 390 ft long and accommodate a 4-car train consistent with platforms at new stations outside the DSTT. Headways through the Rainier Valley will start at 6 minutes, but could go as low as 4 minutes. These 4-minute headways coupled with 4-minute headways on trains operating across Lake Washington would result in a 2-minute northbound headway through the DSTT. Future demand from the north could also result in a 2-minute southbound headway.

***6I The use of the tunnel can be maximized by running more buses rather than by running rail. The tunnel is currently underused.***

The report *Evaluation of Joint Operations in the Downtown Seattle Transit Tunnel* (Sound Transit and King County 2001) found that in the long term, the most efficient use of the transit tunnel is rail only. As a rail only tunnel, it can ultimately carry substantially more passengers than a bus only tunnel. Rail use of the tunnel was determined with the selection of the original project; the EA now proposes joint bus and rail use to maximize transit ridership until further extensions of the Central Link project begin operations. This is discussed in Section 3.1.2 of the EA. Bus-only use of the DSTT is not being considered for the project and would represent a substantial change in regional transit plans. Currently, KC Metro Transit does not have a large enough fleet of tunnel buses to increase the use of the DSTT over what it operates today. In addition an all-bus regional transit system or all-bus use of the tunnel is not being considered as part of the Central Link project, as such strategies were examined and eliminated as part of earlier system planning efforts. Regional transit system plans assume rail use of the tunnel for the long term, and the EA is examining the potential for joint bus and rail use for an interim period.

***6J Running diesel engines for buses in the DSTT will impact interior air quality and could harm human health.***

Extensive testing of a hybrid diesel/electric bus was started in the fall of 2001 and will continue through 2002 when King County will take delivery of a 60' low-floor hybrid diesel/electric bus. Testing will include the ability to operate the bus through the tunnel on stored energy. The testing will also include air quality testing for limited use of the diesel engine while idling. At a minimum the buses will be required to meet applicable air quality standards within the tunnel, and no significant air quality impacts would occur. King County will make a decision to

purchase hybrid diesel/electric buses based on this testing. Otherwise, KC Metro Transit will continue to use the dual-power trolley buses.

***6K The DSTT will be closed for a much longer period of time than discussed in the FEIS, and more buses will be routed back onto the surface.***

This is inaccurate. The tunnel construction period remains the same as identified in the FEIS. The updated KC Metro Transit forecasts disclosed in the EA indicated that surface bus volumes will be lower than estimated previously in the 1999 FEIS. Section 3.18.1 of the EA also provides the updated discussion of the volume of buses expected on surface streets during construction.

***6L The DSTT joint operations plan is likely to increase, not minimize downtown Seattle business disruption and surface traffic impacts.***

Section 3.1 of the EA discussed the effects of the Initial Segment during operation, including the joint operations plan, in terms of bus volumes, surface street congestion, vehicle trips, and other factors. When the Initial Segment opens with joint operation in 2009 bus volumes on downtown surface streets are forecast to be about what they are today. No impacts to surface conditions would result compared to No-build, in part because vehicle trips in 2020 are forecast to be lower than with the No-build Alternative. Also, many of the surface improvements in the downtown to mitigate increased buses on the surface streets during retrofit of the DSTT would remain in place after joint operation begins thus decreasing bus impacts over No-build conditions. Any increase in surface bus volumes after 2009 would be due to increased growth in bus transit and not the result of joint operation.

***6M The EA does not disclose that Metro will be required to replace its fleet of buses for the Initial Segment with joint operations. The cost to Metro is not disclosed.***

As part of Section 2.2.3, the EA states that current KC Metro Transit fleet plans call for replacing the 216 existing Breda dual-mode coaches by 2004. Appendix A, Agency Coordination, also provides a letter to that effect. Thus, even if the light rail project were not implemented, KC Metro Transit would incur costs to replace its current fleet of dual mode buses that use the tunnel. KC Metro Transit is also considering the use of hybrid buses regardless of joint operations considerations.

***6N The FEIS claimed that trolley buses could not pass trains in the DSTT, but the EA assumes that they can. What has changed?***

The two technology options being considered for use in the tunnel are both designed to resolve the earlier limitation on passing within the tunnel, which was due to the different overhead power systems that would be used for buses and trains. Section 2.2.3 of the EA describes both. The "track crossing solution" for trolley buses is based on reconfiguring the way that the light rail overhead power system is configured; the trolley buses would still need custom modifications to address accidental contact with the light rail power system. The hybrid diesel/electric buses would avoid the overhead power issue entirely, as they would operate on battery power.

***6O The DSTT report is an inadequate basis for deciding joint operations for the DSTT. It includes:***
***a. Unsubstantiated conclusions re: "most efficient use of the transit tunnel."***
***b. Different, non-comparable methodology used in capacity calculations taints the report.***
***c. Analysis of joint operations relies solely on computer modeling and ignores acceptability to tunnel transit users.***
***d. Data represented indicates joint operations plan is a grossly inefficient allocation of capital, and other measures of economic efficiency should be used.***
***e. Insufficient information on hazards introduced in DSTT by joint operations.***
***f. The report includes misstatements and other errors.***

a. The statement that "joint operations is the most efficient use of the tunnel," is based on the fact that joint operations provides the most flexibility for regional commuters who travel to downtown from the north, east, and south. These users can continue to use the tunnel until other segments of Central Link are completed. As shown in Table 3.1-7 of the EA, joint operations will maximize the ridership in the tunnel, compared to rail only operations. It would also maximize the tunnel's person-carrying capacity during the assumed time frame that the Initial Segment will be operating. The transit ridership ranges forecast for the tunnel with joint operations is similar to or greater than the ridership predicted for the original project for 2020. Joint operations also avoids some regional transit impacts related to the original project, as it provides the flexibility for commuters who travel to downtown from the north, east, and south to continue to use the tunnel until rail is extended. This is evidenced by the potential routes that could use the tunnel as shown in Tables 2.5 and 2.6 (Joint Operations Report, August 2001). In addition, joint operations will result in fewer buses on the street after the tunnel reopens than would have been the case with rail only operation (see pages 19-22). This finding is based on the analysis described in the Joint Operations Report, which is included as an appendix to the EA. It is true that under the original project, the passenger carrying capacity of the tunnel would be increased and this "would optimize use of the previous investment." However, in the interim joint operations results in the most efficient use of the tunnel until rail is extended in the future.

b. The methodology used to calculate bus capacity is based on KC Metro Transit's current and planned use of the tunnel. Buses only operate to and from the tunnel and not through. KC Metro Transit has no intention of changing this operating plan. Therefore, Figure 3.6 is the one-way bus capacity. Under the Initial Segment, light rail would operate in a similar manner to the way KC Metro Transit operates today, but ultimately, rail would operate through the tunnel so the capacity shown in Figure 3.4 is valid.

c. The simulation model was used to demonstrate the feasibility of joint operations under a series of assumptions, as discussed in Section 2.2.2 of the EA and further detailed in Appendix J. The model's results were not the sole determining factor to approve joint operations. Other factors considered included costs; transit travel times; ridership; bus technology; and safety, fire, and emergency issues. Since the Joint Operations Report was issued in August of 2001, King County and Sound Transit staff have continued to work together to refine the operating assumptions. For example, the 2 minutes of average passenger delay in the staging area has been reduced and the signal system refined. Live tests using a proxy for a light rail train may be considered in the future.

d. The purpose of the joint operations report was to review various operating plans and scenarios that would safely and reliably accommodate passenger service for both buses and light rail in the

tunnel. As stated in part a of this response, efficiency as used in the report is related to the fact that with joint operations buses serving all parts of the county can continue to operate with maximum ridership, travel time and reliability benefits in the tunnel until other segments of rail are extended.

e. Page 35 of the Joint Operation report (August 2001) discusses the impact and mitigation of trolley poles coming into contact with overhead wires. Please see comment 6A for more information.

f. Comments indicate instances where the report makes minor misstatements; however, none of the instances are critical to the findings of the report. For example, stating that passengers can board before others alight a train, using "assuming" instead of "assumed," do not change the analysis.

***6P The DSTT should be maintained for bus-only use, since very few people will benefit from rail use.***

Over 23,000 daily boardings are forecast for rail users in the DSTT stations. About one-third of these will be new transit riders. In general, rail users will experience more frequent and reliable service and improved travel time compared to bus users. In addition, EA Table 3.1-7 indicates that from 47,500 to 68,500 bus/train riders will use the DSTT daily under joint operations, indicating continued benefits to bus riders. See response to comments 1A and 6I.

## Comment Group 7. Beacon Hill

***7A The Beacon Hill Station is unnecessary because of its high cost and service to a neighborhood with adequate bus service and no plans for more development.***

The Beacon Hill station will serve a highly transit dependent population. Today, Route 36 to downtown Seattle operates with standing loads over much of the day. The scheduled travel time on Route 36 from Beacon Avenue and Lander Street (location of the new station) to Third and University is 23 minutes. The travel time on light rail will be only 10 minutes. While the station will be more expensive than the at-grade stations in the Rainier Valley, the ridership will be higher. The community organizations on Beacon Hill have voiced support for the station. The FEIS also reviewed consistency with land use plans and neighborhood plans (Sections 4.1.2 and 4.3.2) and no conflicts with plans or zoning designations were found.

***7B The redesign of the Beacon Hill deep tunnel station in the EA to a single entrance with all elevators in one shaft should be reanalyzed for safety.***

The Seattle Fire Department has reviewed the current design of the Beacon Hill Station and they concur with the single station entrance as evaluated in the EA. The station redesign incorporates a second shaft for emergency stair access as an additional safety measure, as shown in the station drawing in Appendix D. This is consistent with the analysis of safety impacts in the FEIS Section 4.13.2.1.

## Comment Group 8. Rainier Valley, At-Grade Impacts, Environmental Justice

***8A The impacts to the Rainier Valley will remain severe and disproportionate, particularly considering the reduced mobility benefits of the shorter segment. Noise, displacement, and other impacts do not appear to be proportionately reduced, and instead appear to be increasing.***

The Environmental Justice Technical Report (EJ Report) included as Appendix G to the FEIS specifically evaluated whether the original project would result in disproportionately high and adverse effects on minority or low-income populations, including residents of the Rainier Valley. The EJ Report concluded that no such impacts would result, noting that a number of project impacts had been eliminated, and that other project impacts were consistent with a project of Central Link's scope and would be effectively mitigated. Substantial project benefits for minority and low-income populations further supported the EJ Report's conclusions.

Appendix F to the Final SEIS for the Tukwila Freeway Route evaluated whether the incorporation of the Tukwila Freeway Route into the Central Link project would change the conclusions in the EJ Report. That Supplemental EJ Report concluded that the use of the Tukwila Freeway Route would not change the conclusions in the EJ Report. As detailed in Appendix G to the EA, the use of the Initial Segment likewise does not change the fact that: (1) project impacts will be avoided and/or effectively mitigated; and (2) minority and low-income populations will continue to achieve substantial benefits from the Central Link project. Implementation of the Initial Segment will not result in disproportionately high and adverse effects to minority or low-income populations.

By reducing the initial length of the Central Link project, the development of the Initial Segment does increase the proportion of the project's impacts occurring in the Rainier Valley relative to the overall project. For example, development of the Initial Segment will require fewer overall displacements than the full original project, as modified by the inclusion of the Tukwila Freeway Route, as a result of both the reduced length of the Initial Segment; and design and other changes (as noted in the EA, residential displacements in the Beacon Hill Station area have been reduced by 2 units, while the number of displacements in the Rainier Valley have been reduced by 9). However, development of the Initial Segment does not increase (and in some instances, will decrease) the number or severity of the displacement, noise, or other impacts that will occur in the Rainier Valley. It also does not change the fact that the impacts will be effectively mitigated. The increase in the proportion of project impacts in the Rainier Valley relative to the overall project is a result of the shorter length of the Initial Segment, but this does not increase the number or severity of the impacts in that area.

As one of the first communities served by Central Link, Rainier Valley residents will realize substantial transit benefits when the Initial Segment is constructed. Table 3.1-3 in the EA demonstrates, for example, that Rainier Valley residents who use transit will save, on average, seven minutes in door-to-door travel time for trips home in the P.M. peak hour. This is a 12% improvement compared to no-build and 40% of the travel time benefits associated with the development of the original project, which would serve more major destinations to the north. The time savings that will be experienced by riders of individual bus routes may be even greater. For example, a trip on Central Link from Westlake Station in downtown Seattle to the intersection of Martin Luther King Jr. Way and Henderson Street in the Rainier Valley will take 24 minutes; comparable bus service to this area currently requires 36 minutes, 50% longer. In

addition, Central Link will offer increased service and reliability when compared to bus passenger service.

Rainier Valley residents will also achieve other transit benefits. Like the original project, the Initial Segment will provide reliable service to the downtown Seattle, Duwamish, and Sea-Tac Airport areas, major employment centers. While reduced from the levels associated with the original project, the transit benefits associated with the implementation of the Initial Segment in the Rainier Valley remain substantial. Other benefits to the Rainer Valley remain unchanged by the decision to proceed with the Initial Segment. For example, the Rainer Valley will continue to benefit from the $50 million Community Development Fund and the substantial pedestrian and streetscape improvements that will be provided in the area. The benefits associated with the Initial Segment for Central Link continue to support the conclusion that no disproportionately high and adverse effects will result from the project.

Finally, FEIS (1999) provided a comprehensive analysis of the project's potential impacts and mitigation measures in the Rainier Valley. The Save Our Valley group filed a lawsuit challenging the adequacy of the FEIS and NEPA process. FTA and Sound Transit prevailed on all these issues. Impacts associated with the final design refinements to the Rainier Valley segment of the project are discussed in the EA and do not substantially change the impacts described in the FEIS. In fact, many impacts are reduced with the design modifications. The implementation of the Initial Segment will not result in disproportionately high and adverse effects under Executive Order 12898 and the U.S. Department of Transportation (USDOT) Order to Address Environmental Justice in Minority Populations and Low-Income Populations.

***8B The Environmental Justice analysis is inaccurate. Project changes include the elimination of the International Boulevard At-grade route, and the reduced extent of travel benefits to Rainier Valley residents. Still, the extent of construction impacts and displacements remain the same. Safety impacts of the at-grade alignment will fall exclusively on Rainier Valley residents. In addition, the Rainier Valley fund remains unallocated and unfunded and should not be considered an offsetting benefit or mitigation.***

See response to comment 8A regarding environmental justice, the project benefits that will be realized by Rainier Valley residents, and the continued avoidance and/or mitigation of project impacts. The elimination of the International Boulevard Route and adoption of the Tukwila Freeway Route does not affect the environmental justice conclusion for the Rainier Valley. In addition, the Initial Segment does not increase (and in some instances, will decrease) the number or severity of the displacement, noise, safety, or other impacts that will occur in the Rainier Valley. The area will also continue to achieve substantial travel and other benefits from the project, including the use of the community development fund, which is in the process of being implemented as committed to by the project; see response to comment 8I.

***8C The safety of at-grade alignments needs to be reassessed because light rail accidents nationwide are increasing.***

An independent safety analysis of at-grade operations, including for the Rainier Valley corridor, was conducted by Korve Engineering in June 1999. As part of this analysis, Korve Engineering referenced vehicle/light rail vehicle collisions that occurred as recently as 1998, and provided forecasts of future year 2020 accidents with at-grade light rail. Key findings from the safety analysis are described in Section 3.3.2.4 of the Central Link Light Rail FEIS, and Section 5.6.5

of the Transportation Technical Report. The increases in national accident statistics in recent years cited in the comments on the EA would be within the same range. Further, they do not appear to reflect a uniform increase in comparable systems, but instead reflect a national total which is in part a factor of the increased number of systems that are now in operation since 1999.

The Korve study also noted that the risk of accidents can be minimized by design approaches, appropriate signage, and public education. The findings of the Korve study helped determine many of the design and operating elements for the Central Link project in at-grade areas. Therefore, it is important to consider the wide range of other factors that are involved, including the number of light rail systems in operation in the U.S. (increasing), the hours of operation, public education, and a wide range of setting and operating characteristics.

Overall, the FEIS provided an extensive evaluation of safety issues related to the at-grade alignment, and the discussion of safety also included an evaluation of related impacts to public services, school routes, and emergency response. The alternatives considered in the DEIS were substantially modified to incorporate safety-related designs and additional mitigations, including signal-protected crossings and intersections. The EA disclosed the modifications to design that have occurred since the FEIS, which included only one revision to a crossing of MLK Jr. Way S., prompted by requests from a Seattle Housing Authority development project to modify its access plans.

Many of these same safety issues were raised by project opponents in two lawsuits, and they were considered and summarily rejected by the court. See Friends of the Monorail vs. United States, No. C00-852Z (March 30, 2001); See also Save our Valley vs. Sound Transit, No. C00-715R (July 13, 2001). The project also includes at-grade operation South of the DSTT along the eastside of the E3 busway. Safety issues relevant to this segment of the project were also fully evaluated in the FEIS, and the Initial Segment does not include changes to the project in this area.

***8D An at-grade system will displace people and businesses.***

The impacts of the at-grade sections of the project were disclosed in the FEIS in Section 4.2.1 and the levels of property impacts have not changed substantially for the portion of the original project that constitutes the Initial Segment. In Section 3.3.3, the EA disclosed the extent of properties that would be acquired and the residences and businesses that would be relocated. Both documents also described Sound Transit's process for property acquisitions and its mitigation commitments for relocations. The EA provided an updated accounting of the displacements for the Initial Segment, based on the most recently available design information for the project. Through design modifications, the number of full acquisitions that would lead to displacements of residences or businesses was reduced from the original project. Partial acquisitions increased in part to reduce the number of full acquisitions and also as a result of design changes to improve intersection operations and to provide sidewalks, bus stops, and station area amenities. Elevated and tunnel alignment profiles also displace people and businesses.

***8E The EA should provide the specific properties and whether they are full or partial takes so people and businesses can plan.***

As with previous environmental documents, Sound Transit has provided the addresses of potentially affected properties, and also estimated the level of full acquisitions and displacements by property type, based on the current level of design. It is important to note that this is a preliminary list and is not the final determination regarding property acquisition. Whether a property will be fully acquired or only partially acquired cannot always be determined until negotiating with individual property owners during the right-of-way acquisition process. Through these negotiations and through continued design, the actual number of full or partial property acquisitions may change. The determination of properties to be acquired will continue to be refined as the design becomes final and after negotiation with each property owner is completed. See Section 3.3 of the EA and Appendix H. The current list of affected parcels is attached. Impacts to businesses, public or community facilities, and other facilities are also identified where impacts are expected. Property owners are encouraged to contact the Sound Transit Real Estate Division to obtain additional information regarding specific properties. Sound Transit regrets the uncertainty that property owners may have experienced as a result of project delay.

***8F The EA does not adequately discuss Rainier Valley and Beacon Hill construction (including noise) and displacement impacts. Construction could result in a loss of business, based on media reports on the Tacoma Link project. Overall, there could be a long-term blight from the displacements and business failures along the alignment.***

Impacts from construction and displacements in the Rainier Valley and at the Beacon Hill station were addressed in the 1999 FEIS and updated in the EA. This includes economic impacts to businesses as a result of construction activities. The FEIS and ROD also describe Sound Transit's mitigation commitments to address these impacts. The indirect effects of the displacements and construction activities were also considered in the analysis of land use and economics and neighborhoods sections. Sound Transit does not have information that the Tacoma Link project construction activities are resulting in substantial losses of business at the levels cited in comments.

Project refinements in Rainier Valley and at Beacon Hill discussed in the EA generally reduce these impacts. As described in the EA, the number of full property acquisitions has been reduced, resulting in fewer displacements. The number of properties where a small portion would be acquired, but the owner or tenant would not be displaced, has increased but is still within the range of impacts disclosed in the FEIS. See EA Section 3.3.

***8G The EA claims that acquisitions and displacements have been reduced and that noise impacts have been appropriately identified and mitigated. This cannot be true when you have 60 more partial acquisitions and houses and businesses will be closer to traffic.***

Table S-2 of the EA stated that the Initial Segment would have 116 fully acquired properties, compared to the original project's 127 properties for segments between Convention Place and S. 154$^{th}$ Street. Residential acquisitions would decrease. Partial property acquisitions would increase from 235 to 276 parcels, primarily to decrease full acquisitions and to add sidewalk, streetscape and intersection improvements. As shown on page 31 of the EA, the level of acquisitions involved is within the range for alternatives evaluated in the FEIS and the Tukwila

Freeway Route Final SEIS (85 to 276 full acquisitions and 152 to 314 partial acquisitions). After the EA was published, additional design information became available, which resulted in a revised estimate of property impacts, and again the acquisitions remain within the ranges previously evaluated. The right-of-way table is Exhibit 1 to this document.

The response to comment 8J addresses concerns that residences will be closer to traffic with the increased partial displacements. This is generally not the case. The changes in property acquisitions for the Initial Segment resulted in a property-by-property reevaluation of the potential for increased light rail or traffic noise and vibration impacts. As noted on page 36 of the EA, the FEIS disclosed 231 noise impacts in the Rainier Valley for the original project; the EA disclosed impacts to 185 properties. The lower impacts for the Initial Segment resulted from the benefits of redevelopment at Holly Park and Rainier Vista, and on field reviews that showed that fewer properties with residential uses would be involved. In other cases, different properties were affected for the Initial Segment than for the original project; in all cases, significant impacts can be mitigated. The change in noise impacts were not because the traffic would be closer, but because a property had been assumed to be fully acquired with the original project, and with the Initial Segment it would instead be avoided or only partially acquired. The most recent changes in acquisitions involve small portions of properties, and would not involve a change in the level of noise or vibration impacts.

***8H Sound Transit will lose over 200 community businesses, residences, and cultural institutions.***

As described in Section 3.3.3 of the EA, the Initial Segment is estimated to displace 18 single-family homes, 24 apartment units, and 37 commercial/industrial properties. This is reduced from the number of displacements disclosed in the FEIS for the same segment of the original project. For instance, displacement of the Filipino Community Center, a cultural institution, has been avoided. A portion of that property will be acquired instead. Although there is an increase in the number of parcels that require partial acquisition, this will typically involve only a small portion of a property and does not displace the use. All displacements will be mitigated, including treatment under the Federal Uniform Relocation and Real Property Acquisition Policies Act.

***8I The Rainier Valley Community Reinvestment Fund is not being used.***

Sound Transit is working with the Rainier Valley Community to develop an Operating Plan to manage the distribution of the Community Investment Fund to qualifying applicants. Sound Transit is also working with the City of Seattle and King County on funding agreements to capitalize the fund. It is anticipated that all three agencies will have decisions before them on the Operating Plan and funding agreements by Spring, 2002 and that the fund will be implemented soon thereafter.

***8J The MLK Jr. Way S. alignment is now wider than previously disclosed, and increases the barrier that the Light Rail route will make upon the community. The at-grade curb widths will increase at least 18 ft from the current 54 to 72 ft for at least 40% of the route, and with the other 60% of the at-grade route even wider in station areas and where turn lanes are required. Curb-to-curb width will be 100 ft, and up to 120 ft in at least one station area. This will be a formidable barrier to the community and will divide it in half, and will make pedestrian crossings even more dangerous. It will also move rail and traffic closer to properties, increasing impacts.***

The MLK Jr. Way S. alignment for the Initial Segment is not substantially different than disclosed in the FEIS and station area right-of-way needs were depicted at about 100 to 120 ft wide. No additional safety, noise, or other impacts are expected from slightly wider alignments, as discussed in section 3.1.3 of the EA. In addition, multiple MLK alternatives were considered in the FEIS that had wider alignments than the original project alignment. As disclosed in Section 3.3.2.4 of the FEIS, and as the comments note, intersections and station areas are wider than the typical cross-section at mid-block. Design of the project since the FEIS has also evolved, including pedestrian landings at each pedestrian "z" crossing, which will enhance safety and comfort of pedestrians. The landings allow citizens to look towards oncoming traffic and provide them a place to stand/stop/pause in a safe place halfway across the street.

The EA discussions of displacements characterizes the reasons for the increased partial displacements to be a combination of factors, including additional sidewalks, bus zones, turn lanes or other revisions at intersections, etc. Properties that are identified as partial takes for the Initial Segment typically do not involve reduced setback from the street and would not move traffic closer to buildings than the original project. Still, if property owners believed that the partial acquisition would diminish their use and make them unexpandable and unmarketable, their concerns would be addressed through the process outlined by Sound Transit's commitments for property acquisition and displacement, as described in Section 4.2.3 of the FEIS and incorporated by reference in the EA. However, it is correct that some of the Initial Segment design modification requires partial acquisition of additional properties, which is disclosed in the EA. Further, these adjustments in the number of partial displacements are dispersed along the length of the at-grade segment and occur in station areas and at many locations that do not now afford signalized crossings of the street. Some of the partial acquisitions avoid full displacement of properties.

The issue of neighborhood barriers for at-grade sections was extensively covered in the FEIS in Section 4.3.2, and in Section 7, comment responses, comment 6.3. These sections provide a detailed discussion of the alternative modifications developed to reduce the potential for neighborhood division. The EA analysis determined that the design changes and resulting shifts in displacements would not be substantial and would not result in a barrier to the community, compared to the original project.

***8K There has been no public process in the selection of the at-grade route in the Rainier Valley.***

Community outreach has been part of the public process from the beginning of the Central Link project. The overall public process for the selection of the original project included public meetings, hearings, workshops, community presentations, newsletters, and many other outreach efforts. The statement revisits the validity of the decision made in the selection of the original

project, following the publication of the FEIS in November 1999 and the ROD in 2000, which included the at-grade route in the Rainier Valley. This comment has been previously made in legal challenges to the project and courts have ruled in Sound Transit's favor. Appendix B of the FEIS describes public involvement, and the EA provides an update on community outreach in Appendix E.

***8L The EA does not adequately explain the adverse effects light rail will have on automotive and pedestrian traffic along Rainier Valley due to signal preemption and cross route traffic.***

The potential impacts to transportation in the Rainier Valley were identified and addressed in the FEIS Section 3.3.2.4. The Initial Segment as proposed does not propose substantial changes to the project features affecting pedestrian or traffic circulation or safety in the Rainier Valley. The features include the light rail signal control plans, alignment configuration, the commitment to provide signalized intersections and signal controlled pedestrian crossings at all locations where cross traffic is authorized, as well as additional pedestrian and bicycle facilities, U-turn and truck turning facilities. Transportation information has been updated for the EA to reflect the revised year of operation and other localized design modifications. Section 3.1 of the EA revisits this discussion of impacts, with reference to the FEIS analysis previously conducted.

***8M An at-grade system will add to congestion.***

The traffic impacts of the at-grade portions of the Initial Segment were identified and addressed in the FEIS in Section 3.3.2.4, and this section also identified the appropriate mitigation measures to reduce impacts. The impacts were noted and the mitigation measures were also included in the FTA's ROD for the project. Section 3.1.3 of the EA for the Initial Segment found that the impacts from the at-grade alignment would be the same or less than for this portion of the original project. At several intersections, the Initial Segment has avoided traffic congestion impacts that would have required mitigation for the original project. Overall, no significant adverse impacts to transportation remain after mitigation for either the original project or the Initial Segment.

***8N The traffic control system for trains in the Rainier Valley is unclear, and other mitigation measures have changed. While the ROD Attachment E specified a progression-based signalization on MLK, page C-1 of the EA states a system of traffic priority will be provided for light rail trains using grade crossings. New signalization at Andover and Hanford intersections have been eliminated in the EA without any offsetting traffic circulation measures being added.***

The statements regarding progression, priority and preemption are still compatible as used in the EA, and the system, impacts and mitigation commitments remain as described in the FEIS (Section 3.3.2.4) and the ROD. A preemption system, which interrupts the normal signal cycle to allow trains to pass, will be used in the south downtown area, where the at-grade line involves intersections with major arterials; this area also has gated crossings. A progression-based transit priority system will still be used in the Rainier Valley to coordinate traffic signal operations with light rail operations, and not every signal would need to be pre-empted for every light rail arrival. An approaching train would typically result in either an extended green time or shortened red time along MLK Jr. Way S. at a given intersection. The system of priority and preemption described in the operating plan in Appendix C of the EA is consistent with that definition. The

system is designed to reduce the potential delay for traffic at the busiest intersections, with a higher priority for approaching light rail vehicles at lower volume intersections.

The EA described the reason for the changes to intersection signalization at S. Hanford Street, S. Andover Street, and other locations along the route. See Section 2.4 of the EA. Several of the changes were due to revised bus routing in station areas, eliminating traffic delays caused by bus movements and therefore no mitigation was required. Another change in mitigation was due to revised access plans at a Seattle Housing Authority project. Letters from the involved agencies are provided in Appendix A.

***8O The roadway widths of the MLK Jr. Way S. will not meet standards. The State of Washington's minimum design standards are being violated by the project, which provides 11-ft lanes instead of the 12-ft lanes in the LAG manual, and at least two if not all of the lanes should be considered outside lanes. The City of Seattle has agreed to this exemption from the standards. Sound Transit and the City of Seattle do not have the authority to amend these standards.***

The City of Seattle has been designated as a Certification Acceptance Agency. As such, the Federal Highway Administration (FHWA) and Washington State Department of Transportation (WSDOT) have delegated design deviation authority to the local agency. Specifically, the Local Agency Guidelines Manual states: "A certified agency is the approving authority for administering FHWA funded projects in the following project items: a. Location and design." Therefore, the City of Seattle does have the authority to approve a design deviation. Further, the table in the Local Agency Guidelines Manual that designates a 12-ft-wide outside lane also has a note that reads "May be reduced to minimum allowed by the American Association of State Highway and Transportation Officials (AASHTO)." The latest edition of AASHTO's Policy on Geometric Design of Highways and Streets, under the section titled Urban Arterials, reads in part: "Lane widths of 3.3 m [11 ft.] are used quite extensively for urban arterial street designs." The section goes on to say that for urban arterials under 45 mph, it is actually desirable to construct narrower lane widths.

***8P Traffic safety and emergency vehicle response impacts of at-grade operations in the Rainier Valley have not been addressed.***

These issues were addressed in FEIS Sections 3.3 and 4.13. The Initial Segment as proposed does not materially change the factors affecting safety, emergency response, and traffic circulation as discussed in Section 3.1.3 of the EA. In fact, the current project design incorporates the mitigation measures described in the FEIS and other features that have improved the safety and emergency response aspects of the project in Rainier Valley. Transportation information has been updated for the EA to reflect the revised year of operation. These issues were also raised by Save Our Valley in a NEPA lawsuit filed in federal district court, and the court ruled in FTA and Sound Transit's favor on all NEPA issues, concluding that these issues were adequately addressed in the FEIS.

***8Q What is the projection for headways through Rainier Valley and South Seattle 30 to 50 years from now? The EA should address the impact of high train frequencies when the corridor carries trains from Federal Way, Renton, and other points south.***

The long range plan for the light rail system indicates that four minute train headways is the shortest schedule headway for the in-street at-grade section of the system through Rainier Valley, including system extensions south to Federal Way and Tacoma. The I-405 corridor could be used for a line to connect SeaTac, Renton, Bellevue, and Lynnwood. Four-minute headways were evaluated in the 1999 FEIS and the system design in Rainier Valley accommodates this headway. The Initial Segment is planned to open with 6-minute headways.

***8R There will be a high cost to maintain Fire Department emergency response throughout the Rainier Valley with cross-streets blocked for MLK Jr. Way S.***

The impacts to emergency services were disclosed and minimization and mitigation measures were identified in FEIS Section 4.13. The primary concerns for emergency services have been for travel times, and increased costs were not identified as a substantial factor. There are no changes in the Initial Segment that would affect conditions from the original project. The evaluation process for the FEIS included consultations with fire and police departments, who assisted in the development of design solutions to maintain their ability to respond. See response to comment 8L.

***8S The discussion of vibration impacts in the Rainier Valley is confusing.***

Two missing words in the EA text made a literal reading of the discussion of vibration impacts somewhat unclear, but the conclusion that there would be no vibration impacts remains sound. Sound Transit did not mean to imply that the trains would not touch the tracks. There would be minimal vibration impacts in the Rainier Valley due to a number of factors, including the distance between properties and the tracks and train.

***8T The 4 miles of at-grade light rail is the only at-grade section in current design or future plans, and discriminates against the minority and low-income communities. The project violates Title VI of the Civil Rights Act, which prohibits racial discrimination, and it is in violation of Executive Order 12898.***

See response to comments 8A and 8B. The Initial Segment also includes a segment of at-grade light rail along the E3 busway south of the DSTT.

## Comment Group 9. Tukwila Freeway Route and S. 154th Station

***9A The EA does not discuss new impacts resulting from the route change for the Tukwila Freeway Route.***

The impacts related to the route change to the Tukwila Freeway Route were the subject of an SEIS on the alternative, with a Final SEIS published in November 2001. There were no additional changes to the route proposed as part of the Initial Segment, and therefore the Final SEIS information is incorporated into the EA by reference.

***9B The EA fails to justify the conclusion that total demand for park and ride capacity at the S. 154th Station will be reduced by nearly 1,000 spaces, particularly when other stations are deferred.***

Park-and-ride lots that are miles apart typically do not attract the same users. Although it is accurate that the range of proposed park and ride lot spaces that were analyzed in the Central Link FEIS for the three park-and-ride lots in the south part of the light rail system totals 1190 to 1600 spaces, it is important to note that the park and ride lots in question are located 2.7 to 8.0 miles apart and the respective areas from which users are drawn are largely independent of each other. Therefore, it would be inaccurate to assume that most of the previously estimated park-and-ride demand at the Boeing Access Road and S. 200th Street stations would shift to the S. 154th Station if construction of these other two stations is deferred.

The EA analysis estimates that the unconstrained demand for parking at S. 154th Station as a terminus and with Boeing Access Road station deferred would be 510 vehicles in 2010 and 640 vehicles in 2020. The EA evaluates a park-and-ride size of 440 to 670 parking stalls. If the actual parking supply is less than demand, there would be the potential for spill over parking on the surrounding streets, or "hide and ride" parking. The S. 154th Station park-and-ride is designed for 465 parking spaces but also includes onsite bus layover space to accommodate KC Metro Transit bus service. This station has been designed to maximize bus service to encourage transit use as opposed to maximizing automobile use at the facility. The Tukwila Freeway Route Final SEIS (Section 3.3.2) disclosed these impacts and provided appropriate mitigation options to address the potential spillover or hide and ride parking issues.

***9C Traffic and parking impact analysis is inaccurate for the S. 154th Street station area.***
***a. Traffic forecasts and impacts are understated compared to forecasts in a recent WSDOT study.***
***b. Bus volumes serving S. 154th Station have changed.***
***c. Traffic analysis for new driveway on S. 154th Street needs to be redone.***
***d. The S. 154th Street area needs updated transportation analyses.***

The analysis of traffic and parking impacts was based on the best available information, and is consistent with previously approved methods used in the FEIS and Tukwila Freeway Route Final SEIS. Sound Transit will continue to coordinate with WSDOT and local jurisdictions in the development of final design, and if there are substantial changes to the project or new information indicating new significant adverse impacts, Sound Transit will work with these agencies to develop an appropriate response.

a. Sound Transit compared traffic forecasts and growth rates for the S. 154th Street/Tukwila International Boulevard P.M. peak hour intersection to the forecasts provided in the WSDOT SR 518 Study, which involved a much higher rate of growth. The forecasts used by Sound Transit are appropriate for a project-level impact analysis, and the peak hour traffic growth rates used for the Sound Transit analysis for the S. 154th Street/ Tukwila International Boulevard intersection are consistent with historical growth in this location between 1994 and 1999. Over a 20-year period, the WSDOT forecasts estimate that total peak hour intersection volumes would increase by 72 percent. This high rate of growth would be considered unlikely, considering historic trends and the transportation network constraints that currently exist and would likely exist in the future, particularly during peak periods. Furthermore, the SR 518 analysis was conducted at a regional level, instead of at a project-specific level of analysis, and appears to have over-estimated the traffic growth in the S. 154th Street Station area. The Sound Transit analysis, on the other hand, was based on the assumption that traffic volumes at the S. 154th Street/Tukwila International Boulevard intersection would increase by approximately 16 percent (0.7 percent compounded annually) over a 21-year period for the No-build Alternative. To confirm this growth rate, an annual compounded growth rate at the S. 154th Street/Tukwila International Boulevard intersection was calculated based on actual P.M. peak hour turning movement counts conducted in the years 1994 and 1999. During this 5-year period, overall intersection traffic volumes increased by approximately 3.5 (0.69 percent per year) percent.

b. KC Metro Transit's updated bus routing plans were developed after publication of Sound Transit's Tukwila Freeway Route EIS. An updated analysis of the S. 154th Station area traffic impacts has taken these new bus routing assumptions into account. The resulting level of service (LOS) with and without the project at the S. 154th Street/Tukwila International Boulevard intersection remains the same as the LOS results published in the Tukwila Freeway Route Final SEIS and described in the Initial Segment EA.

c. The updated analysis of the S. 154th Station area traffic impacts also reflects current plans at the park-and-ride driveway on S. 154th Street. The LOS analysis assumed that the eastbound approach includes a through lane and right turn only lane, and that the westbound approach will include two through lanes. Current plans show that S. 154th Street will widen to two westbound lanes just east of the new driveway location. The northbound approach would consist of one exclusive left turn lane and an exclusive right turn lane. The traffic forecast methodology previously used will not change; however, year 2020 traffic volumes will increase to reflect current plans to provide just one driveway access to the park-and-ride lot, increases in forecast bus volumes, and slight changes to traffic distribution and assignment based on updated existing traffic count data. Based on this analysis, a traffic signal is warranted at the S. 154th Street/site driveway intersection and would operate at LOS C. This signal is included as project mitigation.

d. A traffic analysis of the S. 154th Station area, including the S. 154th Street/Tukwila International Boulevard, International Boulevard/SR 518 eastbound on-ramp, and S. 154th Street/Park-and-Ride driveway intersections has been conducted to reflect the following updates:

- Traffic forecasts based on the growth rates used in the previous analysis. These growth rates result in more reasonable year 2020 traffic volumes than do the forecasts used in the WSDOT SR 518 study.

- Year 1999 traffic count data, provided from the WSDOT SR 518 study were used for determining year 2020 traffic volumes. Traffic volume forecasts used in the previous analysis were based on year 1998 traffic count data.

- Current plans from KC Metro Transit to provide 60 buses to/from the station during the P.M. peak hour.

- The park-and-ride lot was assumed to have a capacity for 670 vehicles, which exceeds the forecast demand for 2020 both with and without deferral of the Boeing Access Road Station and with and without S. 154th Station as a terminus.

- Updated station access plans – including one driveway access to the park-and-ride. This driveway would serve kiss-and-ride, park-and-ride, airport shuttle, and bus transit trips to and from the station. The lane geometry described in the response to Part c of this comment was used for the analysis at this intersection.

The results of the analysis described above are shown in the following table:

| | Level of Service (Delay) | |
|---|---|---|
| **Intersection/Approach** | **Year 2020 No-build** | **Year 2020 W/ 670-Space P&R Lot** |
| S. 154th St./Tukwila International Blvd. | D (28.0) | D (39.2) |
| International Blvd./SR 518 EB On-Ramp | --- | B (12.9) |
| S. 154th St./Park-and-Ride Driveway (unsignalized) [1] | --- | F (313.6) |
| Northbound Approach | | A (0.3) |
| Westbound Left Turn | | |

( ) Average vehicle delay in seconds.

[1] As a signalized intersection, the S. 154th St./Park-and-Ride Driveway intersection would operate at LOS C with 18.3 seconds of delay per vehicle.

As shown in the Table, the S. 154th Street/Tukwila International Boulevard intersection would still be expected to operate at LOS D with the updated analysis assumptions. The International Boulevard/SR 518 eastbound on-ramp would also operate at acceptable LOS B conditions. The northbound approach of the S. 154th Street/Park-and-Ride driveway intersection, however, would operate at LOS F as an unsignalized intersection. A review of Signal Warrant 3 – Peak Hour from the Manual of Uniform Traffic Control Devices (MUTCD) indicates that a traffic signal would be warranted at the proposed park-and-ride driveway.

The remainder of the transportation analyses in this area, including for traffic circulation, bicycle, pedestrian, parking and transit, were thoroughly discussed in the Final SEIS and did not require updates in the Initial Segment EA.

Sound Transit has committed to providing a new westbound right turn lane at the S. 154th Street/Tukwila International Boulevard intersection, which would further improve traffic operations to LOS D and 35.9 seconds of delay per vehicle in the year 2020 with the 670-space park-and-ride lot. In addition, Sound Transit plans to provide a continuous sidewalk along the south side of S. 154th Street between Tukwila International Boulevard and 40th Avenue S. and the north side from International Boulevard to the park-and-ride driveway entrance. This would improve pedestrian access to and from the proposed station.

***9D Given the anticipated 200-stall shortage at the S. 154th Station, hide-and-ride is a likely impact and should be addressed in the EA.***

See response to comment 9B. The S. 154th Station park-and-ride is designed for 465 parking spaces but also includes onsite bus layover space to accommodate KC Metro Transit bus service. The approach to this station is to maximize bus service to encourage transit use as opposed to maximizing automobile use at the facility. The Tukwila Freeway Route Final SEIS clearly disclosed hide-and-ride impacts and provided appropriate mitigation options to address the potential spillover parking issue.

***9E Sidewalks within the City of SeaTac should be 8 ft in width and separated from vehicle lanes by 5-ft planting strips. Continuous sidewalks in the S. 154th Street station area should be provided within ¼ mile of the station, as well as bike lanes within ½ mile of the station. A grade-separated crossing of SR 99 is also needed.***

As noted in the Tukwila Freeway Route Final SEIS, 5-ft minimum sidewalks can accommodate the volume of pedestrians expected in the station area, although wider sidewalks can be constructed. The design and extent of sidewalks beyond those described in the Final SEIS will be developed through the final design and permitting process with the cities. Factors such as nearby pedestrian generators, volumes, and other conditions will be considered. Similarly, pedestrian volumes do not warrant the development of a grade-separated crossing, as the Tukwila Freeway route provides a station platform on the same side of the street and adjacent to the park-and-ride facility, which substantially reduces the number of pedestrians crossing International Boulevard. Sound Transit will work with the City of SeaTac to determine the appropriate application of HCT standards and other city land use provision to the project, consistent with state and local law. The Final SEIS also identified no significant impacts to pedestrian or bicycle safety in this area. See response to comment 9C(d).

***9F Kiss-and-ride access to the S. 154th Station should be provided for travel from all directions by: (1) designing the park-and-ride to facilitate passenger drop-offs and allowing vehicles to easily turn around and exit; and (2) providing pull-ins along S. 154th Street and/or International Boulevard.***

As described in Section 2.5 of the EA, kiss-and-ride access to the station will be provided within the station site to increase safety and to reduce conflicts with bus movements and street traffic; pull-ins will not be provided along the major streets or on International Boulevard. More detailed information on the S. 154th Street Station is also provided in the Tukwila Freeway Route Final SEIS, and was incorporated into the EA by reference.

***9G Safety barriers along International Boulevard should be determined in conjunction with the City of SeaTac, as well as WSDOT, for those segments managed by the City.***

As discussed in the Tukwila Freeway Route Final SEIS response to comments (letter LS012) and Section 3.3.2.4, the need for and design of safety barriers on the highway will be developed in coordination with WSDOT. The need for and design of safety barriers for light rail structures within city right-of-way will be coordinated with the City.

## Comment Group 10. North Link and Other Segment Decisions

***10A The rail turnback at the north end of the DSTT indicates that Sound Transit has already made the decision to tunnel to the north. If "a rail turnback will be constructed under Pine Street", this requires the complete reconstruction of CPS, which is only needed if the tunnel is to be extended under Capitol Hill and further north.***

The Initial Segment calls for the construction of a rail tunnel for a turnback track under Pine Street that would connect to the existing DSTT at Eighth Avenue. Construction of the Pine Street turnback track will have no effect on CPS, and buses would continue to operate through CPS. The potential effect of the north extension on the Initial Segment is addressed in Section 2.2 of the EA. The Pine Street tunnel could still be used for train storage or for other operation purposes if the original project route to Capitol Hill is not selected, and it does not predetermine the route choice for the North Segment.

***10B The delays and ongoing planning is causing economic uncertainty for communities with proposed stations.***

Sound Transit regrets that delays in the project have created uncertainty for property owners and tenants along the route. Construction impacts in the Capitol Hill area and along the project alignment have been addressed in Section 4.17 of the 1999 FEIS. Changes to construction impacts resulting from the Initial Segment have been addressed in Section 3.18 of the EA. The North Link extension planning studies are currently underway.

***10C The EA does not acknowledge a preference for building tunnels in the north, or the results of recent alternatives selected for the route north of downtown. This avoids the issue of disproportionate impacts.***

The EA evaluates potential impacts resulting from changes to the project related to the Initial Segment. The project north of the Initial Segment is not addressed, as it is not an element of the Initial Segment. The currently adopted project north of the Initial Segment is a tunnel alignment. For a discussion of the analysis of the proportion of impacts that result from the change, please see the response to comment 8A.

***10D Uncertainties about the route alignment north from downtown and the weighty unresolved implications that follow from these uncertainties have not been addressed in the EA.***

The EA evaluates potential impacts resulting from changes to the project related to the Initial Segment. The North Link project (north of the Initial Segment) is briefly described on page vii of the EA's Executive Summary and in Section 1.1, but is not within the scope of action evaluated in the EA. Issues related to North Link such as the reevaluation of the route and funding will be addressed in the North Link Supplemental EIS process that began fall 2001 and is planned to conclude late summer 2003. The North Link SEIS will evaluate several alternatives for the North Link segment from the Convention Place Station to Northgate. Construction to the north of downtown is planned to begin in 2006 and passenger service is expected to begin as early as 2012.

***10E The EA does not address the elimination of the Convention Place Station, or the potential that reconstruction may occur with the North Link segment. Closure of the station would have impacts to transit riders and to land use plans nearby.***

The 1999 FEIS fully evaluated the elimination of the Convention Place Station and also potentially constructing a new Convention Place Station for light rail. The Initial Segment retains the Convention Place Station as a bus-only station. This is described in Section 2.2 of the EA. Any changes to the Convention Place Station or additional construction impacts resulting from the North Link extension will be addressed in the North Link SEIS.

## Comment Group 11. Financial

***11A There are inconsistencies in the EA, FEIS, and New Starts Report regarding capital costs, operating costs, and incremental cost per rider.***

The cost information is not inconsistent although the costs in the FEIS were reported in different year dollars compared to the EA information. Section 5 of the FEIS reported cost estimates and revenue projections for the project alternatives. The original project was 20 miles, with 22 stations and an 83-car fleet (see Figure S-2, Tables 5.2-1 and 5.2-10). Capital costs, vehicle costs, and O&M (operations and maintenance) base costs were reported separately. Adding those up for the original project from Tables 5.2-1, 5.2-10, and 5.2-11, the total was estimated to be ~$2.1 billion in constant 1995 dollars. Annual operating costs were reported to be $42 million in 1995 dollars for the year 2020 (Table 5.2-14). The FEIS used 1995 dollars to enable a comparison to the *Sound Move* budget estimates; this approach was modified in subsequent documents to year of expenditure (YOE) to enable clearer reporting of costs and revenues over time.

Section 4 of the EA reports capital costs (including vehicles and the O&M facility) of ~$2.1 billion in YOE dollars for a 14-mile, 11-station, 31-car project (Table 4.1-1). Annual operating costs in Section 4.2.3 are estimated to be $52 million in YOE dollars for the year 2020, including a bus shuttle to the airport.

Several comments also noted the reported difference in system-wide bus capital and operating costs in the October 2001 New Starts report between the No-build and Build Alternatives reflects different future uses of the DSTT, and the effects of service integration in the rest of the project corridor. With Link in the Build Alternative, the DSTT would be used for joint bus/rail operations, and some trunk bus service would be restructured. These two factors diminish the need for large and also specialized bus vehicles. Under the No-build Alternative, it's assumed that KC Metro Transit would increase the number of buses operating through the DSTT and continue to focus improvements on trunk bus service, thus increasing the need for large and specialized buses. This is not a discrepancy—both scenarios were analyzed using the same cost factors and methods.

***11B The funding information provided is unreliable. For instance, the New Starts Report shows operating income of $18.6-29.9 million annually from FTA grants. There was only $18.8 million available locally in the competitive guideway transit part of this grant. The most Sound Transit could receive in that year was $4.5 million.***

In federal fiscal year (FY) 2002, the FTA distributed over $81 million in the Seattle/Everett Urbanized Area and over $12 million in the Tacoma Urbanized Area in Section 5307 Urbanized Area Formula Program and Section 5309 Fixed Guideway Modernization funding. These funds are apportioned to urbanized areas via formula, then distributed to local transit operators, including Sound Transit, through a regionally adopted distribution process. Since 1999, Sound Transit has received over $18 million of Section 5307 Formula and Section 5309 Fixed Guideway funds. Sound Transit has also received locally distributed Congestion Mitigation/Air Quality (CMAQ), Surface Transportation Program (STP), Railroad Crossing, and Transportation Enhancements funding since FY 1999.

Assumptions for what are termed "operating" grants from 2007 through 2021 in Appendix B are Sound Transit's estimates of annual, long-term apportionments of Section 5307 Urbanized Area Formula Program and Section 5309 Fixed Guideway Modernization funding. The estimates are conservative and were developed based on actual annual awards Sound Transit has received for Section 5307/5309 funding, with annual inflation factors consistent with historic trends.

### *11C Explain how much money or bonding capacity is available by subarea.*

The table below, from the January 2002 Financial Plan, shows the sources and uses of funds, by subarea, in Sound Transit's Phase 1 program. This table shows that the Sound Transit Board has approved the expenditure of $6.775 billion of the $7.359 billion in projected resources available for the 1997-2009 period. The remaining $584 million, termed "possible program adjustments," is additional capacity that could be used to extend the Initial Segment in North and South King or make other transit investments in the other subareas. This financial plan is consistent with all the financial policies in *Sound Move*, including subarea equity.

SOUNDTRANSIT

**2002 Financial Plan - Sources & Uses Summary for 1997-2009**

**Scenario:** January 2002 Update

**(Millions YOE$)**

| Sources of Funds | Snohomish | North King | South King | East King | Pierce | Regional Fund | Total |
|---|---|---|---|---|---|---|---|
| Taxes | 431 | 1,035 | 627 | 955 | 557 | - | 3,605 |
| 1 Federal Grants | 73 | 305 | 299 | 71 | 143 | - | 891 |
| 2 State Grants | - | 15 | - | - | - | - | 15 |
| 3 Local Grants | - | - | - | - | - | - | - |
| Bonds | 134 | 1,079 | 557 | 338 | 180 | - | 2,288 |
| Fares & Other Oper. Revenues | 33 | 2 | 24 | 57 | 65 | - | 181 |
| 4 Other Sources | 6 | 56 | 49 | 4 | 35 | 229 | 378 |
| Regional Fund Contributions | (21) | (51) | (31) | (47) | (28) | 178 | - |
| Adjustments | 6 | (31) | 4 | 15 | 6 | - | (0) |
| **Total Sources** | **662** | **2,410** | **1,530** | **1,392** | **958** | **407** | **7,359** |
| **Uses of Funds** | | | | | | | |
| Commuter Rail | 234 | - | 437 | - | 469 | - | 1,140 |
| Regional Express | 291 | - | 183 | 903 | 249 | - | 1,625 |
| Light Rail | - | 1,800 | 688 | - | 101 | - | 2,590 |
| Regional Fund Activities | - | - | - | - | - | 407 | 407 |
| Debt Service | 41 | 247 | 122 | 86 | 63 | - | 558 |
| GAN Repayments | - | - | - | - | - | - | - |
| Contributions to Reserves | 41 | 99 | 69 | 176 | 71 | - | 456 |
| **Sub-total** | **606** | **2,146** | **1,499** | **1,165** | **952** | **407** | **6,775** |
| 5 Possible Program Adjustments | 56 | 264 | 31 | 227 | 6 | - | 584 |
| **Total Uses** | **662** | **2,410** | **1,530** | **1,392** | **958** | **407** | **7,359** |
| 6 % Debt Capacity Used | 100% | 100% | 100% | 78% | 100% | - | 96% |
| 7 Phase 2 Capacity | 271 | 222 | 141 | 1,046 | 400 | - | 2,081 |

**Notes**

1 Federal government capital and operating grants received between 1997 and 2009 for all lines of business.
2 State government grants received in 2000 for the Northgate extension.
3 City and County government grants (CDF funds are contained in "other sources").
4 City and County contribution, sale of excess real estate, Sounder and REX other revenues; interest on cash balances for Regional Fund.
5 Unprogrammed financial plan placeholders or estimated program cuts.
6 Estimated debt capacity is limited by 1.3 net coverage requirement; significant difference of 5%.
7 Estimated as ending cash balance plus 50% of estimated debt capacity as of 2016, minus funds owed to other subareas as of 2006. Does not include any government grants, and assumes continuation of current tax rates.

***11D The Initial Segment does not benefit riders in the North King County subarea, yet the area is still providing funding for its development. This represents a major change of the policies in Sound Move, which was based on the equitable geographic distribution of benefits. This and other changes from the original plan should be highlighted. The Initial Segment would have a much different distribution of benefits and cost-effectiveness by subarea.***

This comment does not pertain to issues of environmental impact raised in the EA. However, FTA can respond, based on information from Sound Transit, that the Central Link project falls within and is funded by the North King and South King subareas of the Sound Transit District. Each of these two subareas funds only those portions of the project within its subarea. The border between the two subareas is near Boeing Access Road. The Initial Segment is also located within both subareas, such that the portion of the Initial Segment north of Boeing Access Road is funded by North King subarea and the portion south is funded by the South King subarea. No funding from the other 3 subareas in the Sound Transit district is being used for the light rail project.

The Initial Segment is the first phase of the Link project to be constructed and operated. The Sound Transit board has indicated its intent to complete the north and south extensions. These segments have been delayed while routes are reevaluated and funding identified. Phasing of the project with the Initial Segment is consistent with *Sound Move* (see page 38) "Build south first and evaluate the north". If only the Initial Segment is built, then the north corridor is not served. See also response to comment 11C.

***11E If the proposed Link program is extended from the airport to Northgate, it would put subarea equity at risk, particularly for the Eastside, and could jeopardize Phase II extensions to the Eastside. Borrowing money from other subareas is also structured questionably.***

This comment does not pertain to issues of environmental impact discussed in the EA. These issues will be addressed as part of the evaluation of extensions to the north and south. The Initial Segment is a stand-alone MOS of the project that has independent utility. Nevertheless, FTA has been advised that Sound Transit staff are currently working on a financial plan for extending the Initial Segment of Central Link to a N.E. 45$^{th}$ Street Station to the north and the S. 200$^{th}$ Street Station to the south. Sound Transit staff are also exploring options for extending the system to Northgate although *Sound Move* did not fund this portion of the project. As with previous decisions about Central Link, all of these issues will be considered by the Sound Transit Board in light of *Sound Move* commitments, including for subarea equity.

Eastside funds are not being used for the implementation of the Initial Segment. The response to comment 11C also provides a breakdown of funds by subarea and indicates their use. Comment 11F addresses audit and oversight activities that address concerns about use of other subarea funds. An outside auditor provides an annual review of the subarea equity, which provides assurance concerning Sound Transit's compliance with *Sound Move*.

***11F Sound Transit's financial projections are not transparent to the public. Outside verification and review the agencies finances are needed.***

Section 4 of the EA provides information on the project's finances, including costs and revenue estimates. As a public agency that collects taxes and accesses the bond market, Sound Transit is subject to the following audits and reviews by external firms and federal and state agencies.

State Auditor's Office
Annual audit examines three areas:

- Grant Compliance Audit (A-133).
- Financial Audit and compliance with Bond Resolution requirements.
- Compliance Audit – State law and Sound Transit policies.

Note: For part of their audit work, they place reliance on the work performed by Deloitte and Touche.

Deloitte and Touche (Current Contracted Auditor)

- Financial Audit – annual audit, report on financial condition and compliance with bond requirements.
- Grant (A-133) Compliance Audit – annual audit, report on compliance with grant provisions.
- Agreed Upon Services – annual review of the Subarea Equity, which addresses Sound Transit's compliance with *Sound Move*.
- Performance Auditing – a continuing process that is monitored by the Performance Audit Committee and the Citizen Oversight Panel. Management presents the Committee with a suggested list of areas to be audited and the Committee designates what will be audited and in what order. The Citizen Oversight Panel uses the results as one of the elements in consideration of an evaluation of Sound Transit.

U.S. Department of Transportation, Federal Transit Administration

- Ongoing Project Management Oversight Reviews of Sound Transit's management of project scope, schedule, cost, and quality for projects funded through Section 5309 New Starts Funding, with quarterly review meetings.
- Triennial Review for compliance with grant terms and conditions for projects funded through FTA grants.
- Periodic Procurement and Financial Management Oversight Reviews.

U.S. Department of Transportation, Office of Inspector General
The Office of the Inspector General determines the scope and schedule. Selection for an audit depends upon federal grant awards, funds expenditures, media exposure, and congressional concern.

Washington State Department of Revenue
Periodic audits to determine Sound Transit's compliance with Use Tax and Leasehold Tax provisions.

Washington State Department of Labor and Industries
Periodic audits to determine Sound Transit's compliance with Workmen's Compensation laws.
Washington State Department of Employment Security
Periodic audits to determine Sound Transit's compliance with Unemployment laws.

Office of the Insurance Commissioner and/or Insurance Companies
As Sound Transit institutes the Owner-Controlled Insurance Program, the Insurance Commissioner's office will monitor our activities. In addition, the insurance companies will perform policy audits to determine whether a risk management policy is in place and a premium paid for all of the risks to which they have been or will be exposed.

***11G The cost and ridership information is not clearly disclosed. Does ridership justify the cost?***

The financial section of the EA provides a discussion of the costs for building and operating the Initial Segment and also provides revenue sources. Ridership is provided in Table 3.1.2 of the EA. Cost-effectiveness is addressed in comment 2B, which includes ridership factors.

***11H Who will pay for cost overruns?***

Sound Transit is responsible for any cost overruns. Sound Transit's capital budget for the Initial Segment construction between Convention Place and S. 154$^{th}$ Street contains multiple levels of contingencies put in place in part to address cost overruns. In addition to contingencies included in the capital budget, the Sound Transit financial plan provides for a project reserve of $128 million for unforeseen events and conditions. Projected Sound Transit revenues include additional funds of over $430 million that are not committed to specific projects and, if required, could be used to augment the construction of the Initial Segment. If required, Sound Transit's financial policies provide for a range of further interventions by the Sound Transit Board, including use of additional bonding capacity that has not yet been committed.

***11I The funding of the north segment remains uncertain, and the EA does not discuss how this will affect the Initial Segment.***

The EA Financial Section (4) shows that Sound Transit has the revenue to complete construction and operate the Initial Segment. The EA evaluates the Initial Segment as a project of independent utility, which means that its costs, impacts, and benefits are considered without assuming any extensions. Completing the project to N.E. 45$^{th}$ Station to the north and S. 200$^{th}$ Station to the south will need additional federal and/or local resources. This does not affect Sound Transit's ability to construct and operate the Initial Segment, which can operate and provide benefits independent of future extensions. See response to comment 2Q.

***11J Sound Transit has not explained why it cannot wait until other issues, particularly those related to the north expansion, are resolved before starting the Initial Segment.***

The Sound Transit Board has taken action to implement the Initial Segment as the first step in developing the project. The Initial Segment has been defined to enable it to be built and operated independent of future extensions or design decisions. There are no benefits to delaying federal action on the Initial Segment, as the project has been defined and evaluated, and funding is available for this stage of the project.

***11K Sound Transit's revenues are falling short and the agency will not have funds needed to complete the entire project.***

The revenues needed to construct the Initial Segment are described in Section 4 of the EA. The EA addresses the Initial Segment and funding issues related to future extension of the system are not relevant to the EA. Nevertheless, Sound Transit staff are currently working on a financial plan for extending the Initial Segment. See response to comment 11M.

***11L The EA does not respond to the USDOT Inspector General report that ordered federal funds for Central Link to be withheld. Sound Transit must obtain some form of tentative commitment from the FTA before any construction of the Initial Segment is initiated.***

This comment does not pertain to issues of environmental impact discussed in the EA. Issues raised in the USDOT Inspector General report will be addressed directly with the Inspector General through the appropriate forums. Construction of the Initial Segment will not commence without formal approval from the FTA.

***11M Additional sales tax will be needed to complete extensions.***

Although this comment does not directly pertain to issues of environmental impact, in addition to the 2002 Financial Plan, FTA understands that Sound Transit staff are currently working on a financial plan for extending the Initial Segment of Central Link to N.E. 45$^{th}$ Street in the University District and S. 200$^{th}$ Street in SeaTac. Extending the Initial Segment to the termini identified in the original project could require some combination of additional federal and local resources, since the additional capacity identified in the table shown in the response to comment 11C would not be sufficient to defray the cost of extending the alignment. Sound Transit staff are also exploring options for extending the project to Northgate in a Supplemental EIS process. See response to comment 11N.

***11N The Sound Transit Board should reconsider signing the Full Funding Grant Agreement (FFGA), which will bind taxpayers to complete the proposed Link light rail line from the University District, potentially forcing the region to divert funds away from other important transportation projects. It may also require Sound Transit to raise local taxes beyond what the voters approved for Sound Transit.***

This comment does not pertain to issues of environmental impacts raised in the EA. Nonetheless, FTA can respond that the FFGA would be for the Initial Segment, which goes from S. 154$^{th}$ Street Station to Convention Place, not to the University District. The FFGA for the Initial Segment will not apply to the extension to the University District to the north. FTA will

evaluate Sound Transit's financial capacity to carry out its program of projects as part of it's evaluation of a new FFGA. FTA evaluates all projects for FFGA funding through a rigorous process that includes review of the potential grantee's technical and financial capacity as well as the evaluation of potential environmental impacts of the proposed project under NEPA. Funding of the North Link extension to the University District and Northgate will be addressed in the financial plan developed concurrent with the North Link SEIS process.

Sound Transit indicates that it is not authorized to raise its local tax authority without a vote of the people. In addition, the funding for Central Link was authorized by the voter approval of *Sound Move*, and Sound Transit's financial analysis does not assume that other local or regional funds will be used. The Sound Transit Financial Plan indicates that the other *Sound Move* investments in the South King subarea are fully funded, given current tax revenue and grant forecasts; Link is the only investment in the North King subarea. Also, *Sound Move* funds cannot be used on projects not identified in *Sound Move*.

***11O The EA should examine Least Cost Planning as required by State law (RCW 47.80.030). Least Cost Planning does not appear to be used nor has the PSRC applied Least Cost Planning to Sound Transit's projects, and FTA should ensure compliance.***

The Washington statute reference in the comment (chapter 47.80 RCW) establishes the duties of Regional Transportation Planning Organizations (RTPOs). Sound Transit is not an RTPO and is not subject to the provisions of this chapter. Instead, the PSRC is the RTPO for the King, Kitsap, Pierce, and Snohomish County region. As required by state law, PSRC has developed and periodically updates its regional transportation plan. PSRC's most recent plan—Destination 2030—was adopted on May 24, 2001.

## Comment Group 12. Cumulative Impacts and Other EA Information

***12A The EA should consider cumulative/construction impacts of other proposed projects.***

Cumulative effects were discussed in detail in the FEIS, Section 4.18, covering short-term impacts from construction as well as long-term cumulative impacts. For the Initial Segment, long-term cumulative impacts would be similar to those described in the FEIS. The change in the initial years of operation for the Initial Segment would not substantially change environmental conditions from those disclosed in the FEIS. Since the FEIS was published, a number of other major transportation projects in the project area have begun or accelerated their development. These include the Elevated Transportation Company's Monorail Project, WSDOT's SR 520/ Trans-Lake Washington Project, Sound Transit's I-90 Two-Way Transit Operations Project, the WSDOT/City of Seattle Alaskan Way Viaduct/Seawall Project, and the WSDOT/City of Seattle SR 519 Project.

With the exception of Phase I of the SR 519 project, none of these projects had published a project-level EIS at the time of the Initial EA publication. Cumulative impacts for the SR 519 Phase I project were previously considered in the FEIS analysis. As the other projects have not yet issued draft or final EIS documents and their implementation depends on funding not yet committed, the level of analysis possible for cumulative effects is limited at this time, although a qualitative review is provided below.

In terms of long-term cumulative effects considering these other projects, there are limited effects involving the Initial Segment. Since improvements in transit tend to increase regional transit usage, the Elevated Transportation Company's monorail may increase ridership on the Initial Segment, particularly where the monorail would have stations near current DSTT stations. Still, the very low rate of vehicle trips to downtown DSTT stations would make increased station area impacts unlikely. Of the other projects in development, the Trans-Lake Washington project and the I-90 project may also increase the Initial Segment transit ridership as their alternatives propose improvements in regional HOV facilities and/or bus rapid transit. These actions could also increase bus volumes on downtown surface streets above the levels assumed for the Initial Segment, potentially resulting in increased congestion and delays, although vehicle trips to downtown could drop with the increased use of transit. The Alaskan Way, I-90, and SR 520 projects may increase vehicle trips to downtown, but the Initial Segment would not contribute to the cumulative impacts in this area as it slightly reduces vehicle trips to downtown over No-build (see Table 3.1-5 of the EA).

For short-term impacts, the EA disclosed that the construction period for the Initial Segment would begin several years later than the original project, and this changed some considerations for the cumulative impacts analysis. However, the level of cumulative impacts from construction would still be similar to those described in the FEIS, Section 4.18.3. The FEIS noted that other developments and activities could increase the cumulative intensity and duration of construction-related impacts, including in downtown, Royal Brougham, and the south industrial area, and along MLK Jr. Way S. The change in construction for Link has in a few instances altered the set of other individual projects considered for potential cumulative impacts. As noted above, a number of major transportation projects have begun planning, design, and construction efforts in the area.

As stated in the FEIS, cumulative construction impacts may result in increased traffic congestion and delays and additional temporary parking loss, increased temporary impacts to businesses and properties nearby, increased noise and vibration, etc. The FEIS recommended coordinating construction schedules and activities among the various project sponsors to help minimize cumulative construction impacts.

The EA notes that the construction period for the Initial Segment would occur from 2002 to 2009. The DSTT retrofit would occur from 2007 to 2009. As part of its coordination with other projects (particularly SR 519 with WSDOT/City of Seattle) and with the SODO Business Association, Sound Transit has scheduled its construction activities by segment to avoid or minimize the overlap of projects. For instance, construction would begin south of Massachusetts Street first (late 2002), and segment construction to the north of Massachusetts Street would not begin until mid 2004. This avoids conflicts with Phase I of the SR 519 project. The maintenance base would be constructed beginning in 2003, but activities would be largely contained to the site, with only limited effects to nearby streets.

**Coordination with Activities in South Downtown Industrial Area.** Sound Transit is actively coordinating with the SODO Business Association, the City of Seattle, WSDOT, and other parties with major activities in the area, including those that are involved in implementing or permitting construction activities for the projects identified in the comments. An approved construction activities mitigation plan is required for Initial Segment contractors, spelling out their mitigation commitments, including measures to minimize traffic delays and avoid other transportation impacts. Key elements of these plans have been developed and are undergoing refinement as part of area project coordination. They include such measures as: not allowing activities that would interfere with traffic during sporting events or other major community events; not closing lanes on major streets during peak hours; not closing adjacent intersections simultaneously; not allowing total closures or detours except in approved instances; and keeping driveway and pedestrian access open at all times except as agreed to by the contractor and property owners.

Of the projects identified as having activities in this area, the largest and nearest is the SR 519 Intermodal Access Project. Its activities and phasing are described below, and Sound Transit's Initial Segment phasing plan avoids overlap with SR 519's currently committed project activities. Other projects, including the Intelligent Transportation System and other projects, either do not affect the same locations as the Initial Segment, or their activities are very localized and impacts would be minimal.

For the SR 519 Intermodal Access Project by WSDOT and City of Seattle, construction on Phase I began in 2001, and will continue through 2004 with the construction of a new access route between Occidental and I-90, following the current alignment of South Atlantic Street. It will separate truck, car, and pedestrian traffic from the Burlington Northern Santa Fe (BNSF) rail lines near Safeco Field, improving safety and allowing for quicker freight movement. Phase II is now completing environmental documentation, but it will provide access between I-90 and First Avenue S. by building a grade-separated structure at Royal Brougham and closing the at-grade access. A number of surface street improvements are also included. Elements of the Phase II program may change based on information from the current WSDOT study of the Alaskan Way Viaduct. Depending upon funding, the earliest construction would be complete is 2006.

**Coordination with Activities in Downtown Seattle.** As of February 2002, when the EA was released, the Alaskan Way Viaduct project for WSDOT/City of Seattle and the Elevated Transportation Company's Monorail project had not yet evaluated the impacts of their projects in published EISs. The alternatives, operating scenarios, and construction phasing and are not yet defined at the same level as for the Initial Segment. Based on information currently available, however, both will involve substantial construction activities in the downtown area, and there is the potential that construction could occur during the same time period as the DSTT retrofit. The Alaskan Way Viaduct project currently anticipates design and permitting to be complete by mid 2005 to 2006, and based on funding availability, construction could begin by 2006. The monorail project is currently undergoing an environmental evaluation of route alternatives, and a public vote to implement a preferred alternative is anticipated in Fall 2002. Design efforts would likely last several more years, and depending on permitting and funding, construction could be underway as early as 2005 or 2006.

As stated in the Initial Segment EA, the DSTT retrofit activities would close the tunnel to transit use from 2007 to 2009, and buses would be rerouted to surface streets, with Second, Third, and Fourth Avenues handling north/south transit travel. Bus volumes are reported in Table 3.18-1, and the resulting levels of service on downtown streets during this period are reported in Table 3.18-2. The City of Seattle, KC Metro Transit, and Sound Transit have adopted a program of improvements, and the mitigation commitments were included in the ROD for the project. This includes a "Monitor and Maintain" committee to oversee efforts to minimize the potential for increased congestion on downtown streets during the retrofit.

Both the Alaskan Way Viaduct and several of the monorail alternatives appear likely to affect other north/south downtown corridors during their construction. In particular, monorail routes on Second Avenue through downtown or on Fourth Avenue would involve construction activities including lane closures, loss of parking, increased truck activity, and potential detours. The current timing for monorail construction is not determined, but restricted operations on Second Avenue and Fourth Avenue could conflict with Sound Transit, City of Seattle, and KC Metro Transit's plans to increase bus volumes on Second and Fourth Avenues during DSTT construction. Closure of the Alaskan Way Viaduct during construction may also increase traffic on other north/south corridors. The resulting congestion and delays on other surface streets could also be of greater intensity and of longer duration than for the Initial Segment's activities alone. The cumulative level of these impacts is not yet known, as they depend on the timing, location, and extent of construction for the monorail and the Alaskan Way Viaduct alternatives, and on the more detailed study of their effects that will occur with their project-level EISs. Some impacts could be avoided by varying the construction phasing for the viaduct and the monorail, by avoiding construction in peak periods, and by intensifying vehicle trip reduction strategies for downtown. Sound Transit will coordinate with these projects as they progress through alternatives development, environmental review, mitigation planning, funding, and construction.

***12B The EA does not put its information into perspective for such comparisons as air quality, VMT/VHT, energy, and others. This does not allow readers to understand if the project will have substantial impacts or benefits.***

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The EA compares the effects of the Initial Segment to the original project's effects as disclosed in the FEIS, using similar performance measures. This allowed the Initial Segment to utilize the findings for the original project (and the subsequent FTA ROD on the project) to serve as a benchmark comparison to determine if the effects were better or worse. A comparison to No-

build conditions is also provided either directly in the EA or by the EA with reference to the FEIS. Typically, the emphasis was on the potential for an increase in impacts, as this was one of the critical issues to be addressed in the EA, but changes were also often described as having "slightly" or "not substantially" changed from the original project. Overall comparison to No-build conditions for the region is typically fairly small, given the size of the region. However, for air quality and transportation, No-build conditions are also provided in the EA. For transportation, reduction in vehicle miles traveled between the Initial Segment and No-build conditions is shown in Section 3.1.1, Table 3.1-1 (also see the response to comment 2H). For air quality, the measurable benefit to regional emissions is shown in Appendix K of the EA; most reductions in emissions were under 1/10 of a percent of the region's total emissions. For energy, the change in energy consumption for the Initial Segment is characterized as minor and within the range of the alternatives discussed in the FEIS in Section 4.9. The FEIS notes that Link's consumption is a relatively small amount compared to the region's consumption, and difference in energy usage between alternatives were insubstantial.

***12C The Royal Brougham Station should not be deferred. The ridership potential of this station is tremendous during events at the sports arenas and Exposition Center.***

Sound Transit agrees with the benefits of the station and plans to build it when funds are available.

***12D Some of the Public Outreach Information is missing in Appendix E. There is no mention of events like King County Council hearings on the Link Initial Segment.***

Sound Transit's outreach activities have been extensive and not every activity is listed in Appendix E. However, King County Council hearings are not Sound Transit sponsored events although Sound Transit staff has testified at these hearings at times.

***12E The EA's signature page is missing.***

A signature page is not required for an EA, although FTA policy is to provide a signature page for its EAs. The initial printing of the document had the signature page hand inserted but not bound in to the document. Subsequent printings have the signature page bound in.

***12F The EA does not provide the criteria it uses to measure interior and exterior noise levels.***

The interior noise levels are the area of main concern; therefore, the analysis reflects the U.S. Department of Housing and Urban Development criteria that are commonly used for the interior noise level analysis on light rail projects. Also, as stated in the Central Link FEIS and the Noise and Vibration Technical Report, in areas where noise walls are not feasible or reasonable by WSDOT criteria, the Residential Sound Insulation Program would be used to mitigate noise impacts. Again, this type of mitigation is common on light rail projects throughout the country. The comment also does not take into consideration the reconfiguration of the roadway that the light rail project design provides. Maps indicating noise impacts are contained in the Final EIS technical reports.

Finally, both the Holly Park and Rainier Vista project are under redevelopment with the outdoor use protected from the roadway by the planned structures. In addition, the buildings are

constructed to meet HUD standards for exterior noise levels. There are full redevelopment documents available at Sound Transit.

***12G The statement that all noise impacts will be mitigated exposes Sound Transit and FTA to increased financial liability. A discussion of the mitigation criteria would tighten this statement.***

Sound Transit is committed to mitigating noise impacts along the project corridor, in accordance with FTA and FHWA guidelines, either with sound walls or residential sound insulation. This is a project wide commitment. There are no "cost criteria" given in the FTA manual, and, due to the high noise levels, and hours of operation of the LINK system, it is appropriate to provide mitigation wherever adverse impacts are identified. However, the costs for providing mitigation for noise is included in the cost estimate for the Initial Segment.

## Comment Group 13. Comments Not Requiring A Response

***13. Comments expressing support for or opposition to the project.***

Comment noted. The comment indicated either support for or opposition to the project but did not involve a question about the contents of the EA or the project; therefore, no response is required.

# EXHIBIT 1

## Right-Of-Way Impact Table

# Initial Segment EA Right-of-Way Impact Table

The table below shows property parcels that may be acquired in full or part for development of the Initial Segment. Project staff overlaid data from the King County Assessor ("extracts") onto maps also depicting existing right-of-way, proposed light rail routes, and station locations. The extracts included property legal descriptions, legal extracts, addresses, owner/taxpayer identification, property identification numbers, and other information. Project staff then identified properties that would fall within the proposed route right-of-ways or be encroached upon by proposed stations and recorded them as potential partial or full acquisitions. The extracts helped distinguish property types based on whether properties were commercial, residential, or vacant. This list is based on the current design and should not be interpreted as the final determination regarding property acquisition. The list will be continually updated as the design is further refined and modified and as additional information is obtained from field checks. Additional information regarding property acquisitions, displacements, and relocations may be obtained from the Central Link Final EIS, Initial Segment EA, and Sound Transit's Real Estate Division.

| R/W# | Parcel No. | Property Type | Site Address |
|---|---|---|---|
| CP001 | 0660001095 | Commercial | 900 Olive Way |
| CP002 | 0660000975 | Vacant | 919 Pine Street |
| CP003 | 0660001025 | Commercial | 906 Pine Street |
| DOT003 | NA | NA | No Site Address |
| DOT004 | NA | NA | No Site Address |
| DOT005 | IC#1-17-04770 | Airspace | No Site Address |
| MB1 | 1327300012 | Commercial | 3300 6th Avenue S. |
| MB2 | 7666203785 | Commercial | 3400 6th Avenue S. |
| MB3 | 7666203070 | Commercial | 3401 Airport Way S. |
| MB4 | 7666203076 | Commercial | 3200 8th Avenue S. |
| MB5 | 7666203770 | Commercial | 725 S. Hanford Street |
| MB6 | 7666203065 | Commercial | 3407 Airport Way S. |
| MB7 | 7666203100 | Commercial | 3211 Airport Way S. |
| MB8 | 7666203080 | Commercial | 3232 8th Avenue S. |
| MB9 | 7666203090 | Commercial | 3232 Airport Way S. |
| MB10 | 7666203110 | Commercial | 2901 Airport Way S. |
| BW1 | 7666203760 | Commercial | 2901 6th Avenue S. |
| BW2 | 7666204355 | Commercial | 500 S. Lander Street S. |
| BW3 | 7666204300 | Commercial | 2743 6th Avenue S. |
| BW3.1 | 7666204210 | Commercial | 2901 6th Avenue S. |
| BW4 | 7666203716 | Commercial | 2900 6th Avenue S. |
| BW6 | 7666203715 | Commercial | 2904 6th Avenue S. |
| BW7 | 7666203720 | Commercial | 2908 6th Avenue S. |

| R/W# | Parcel No. | Property Type | Site Address |
|---|---|---|---|
| BW9 | 7666204578 | R/W/Utility | East Side of E3 Busway, No Site Address |
| BW9.1 | 7666204531 | R/W/Utility | Utility, No Site Address |
| BW13 | 7666204447 | R/W/Utility | Walker Street |
| BW20 | 7666204306 | R/W/Utility | S. Forest, 5th Avenue S. |
| BW20.1 | 7666204182 | R/W/Utility | S. Forest, 5th Avenue S. |
| BW22 | 7666204668 | R/W/Utility | East Side of E3 Busway, No Site Address |
| BW23 | 7666204738 | Vacant | East Side of E3 Busway, No Site Address |
| BW25 | 7666204740 | Vacant | 1201 6th Avenue S. |
| BH006 | 7666203010 | Commercial | 918 S. Lander Street |
| BH007 | 7666203110 | Commercial | 2910 Airport Way S. |
| BH007.1 | NA | Vacant | WSDOT R/W, No Site Address |
| BH008 | 3076500175 | Vacant | BNSF R/W, No Site Address |
| BH002 | 3086003240 | Commercial | 2702 Beacon Avenue S. |
| BH002.2 | 3086003220 | Commercial | 2718 Beacon Avenue S. |
| BH002.1 | 3086003229 | Commercial | 2715 17th Avenue S. |
| BH0026.2 | 3086003235 | Commercial | 2704 Beacon Avenue S. |
| BH027 | 3086003245 | Residential | 1615 S. Lander Street |
| BH028 | 3086003246 | Vacant | No Site Address |
| BH029 | 3086003250 | Residential | 2709 17th Avenue S. |
| BH02.3 | 3086003255 | Residential | 2715 17th Avenue S. |
| BH02.4 | 3086003260 | Residential | 2721 17th Avenue S. |
| BH009 | 3085001995 | Vacant | 2450 S. McClellan Street |
| RV1 | 3085002065 | Commercial | 2809 26th Avenue S. |
| RV1.1 | 7138300015 | Commercial | 2600 S. Forest Street |
| RV1.3 | 3085002085 | Vacant | S. Stevens, 26th Avenue S. |
| RV3 | 0003600056 | Commercial | 2915 Rainier Avenue S. |
| RV3.1 | 7138800010 | Commercial | 2919 Rainier Avenue S. |
| RV3.4 | 7138800080 | Commercial | 3005 Rainier Avenue S. |
| RV4 | 7138800015 | Commercial | 2722 S. Winthrop Street |
| RV6 | 5058300070 | Commercial | 3101 Martin Luther King Jr. Way S. |
| RV7 | 5058300045 | Commercial | 3111 Martin Luther King Jr. Way S. |
| RV13 | 1944800005 | Vacant | S. Horton Street |
| RV15 | 1944800010 | Vacant | 3315 Martin Luther King Jr. Way S. |
| RV18 | 1944800020 | Vacant | 3321 Martin Luther King Jr. Way S. |
| RV20 | 1944800035 | Residential | 3329 Martin Luther King Jr. Way S. |
| RV23 | 1426300005 | Residential | 3405 Martin Luther King Jr. Way S. |

| R/W# | Parcel No. | Property Type | Site Address |
|---|---|---|---|
| RV25 | 1426300015 | Residential | 3407 Martin Luther King Jr. Way S. |
| RV29 | 1282301820 | Commercial | 3450 Martin Luther King Jr. Way S. |
| RV30 | 1426300050 | Vacant | Martin Luther King Jr. Way S. |
| RV1.2 | 7138300005 | Commercial | 2620 S. Forest Street |
| RV2 | 3085002100 | Commercial | 2901 27th Avenue S. |
| RV2.1 | 7138800025 | Commercial | 2700 S. Winthrop Street |
| RV10 | 8116100005 | Commercial | 3201 Martin Luther King Jr. Way S. |
| RV9 | 8116100015 | Commercial | 3211 Martin Luther King Jr. Way S. |
| RV11 | 8116100035 | Commercial | 3219 Martin Luther King Jr. Way S. |
| RV19 | 1944800040 | Residential | 2704 S. Hinds Street |
| RV27 | 1426300025 | Residential | 3417 Martin Luther King Jr. Way S. |
| RV28 | 1426300036 | Residential | 3425 Martin Luther King Jr. Way S. |
| RV3.2 | 0003600062 | Commercial | 2822 Rainier Avenue S. |
| RV3.3 | 0003600078 | Commercial | 2802 Rainier Avenue S. |
| RV32 | 1426300125 | Commercial | 3601 Martin Luther King Jr. Way S. |
| RV33 | 1426300170 | Vacant | 3760 Martin Luther King Jr. Way S. |
| RV34 | 1624049042 | Residential | 3611 Renton Avenue S. |
| RV40 | 1624049140 | Vacant | 3801 Martin Luther King Jr. Way S. |
| RV41 | 1624049141 | Vacant | 3807 Martin Luther King Jr. Way S. |
| RV42 | 1624049047 | Residential | 3801 Renton Avenue S. |
| RV43 | 1624049127 | Residential | 3817 Empire Way S. |
| RV44 | 1624049090 | Vacant | No Site Address |
| RV45 | 1624049069 | Residential | 3818 Empire Way S. |
| RV46 | 1624049092 | Residential | 3822 Empire Way S. |
| RV47 | 1523400005 | Residential | 3829 Martin Luther King Jr. Way S. |
| RV48 | 1624049068 | Vacant | 3824 Martin Luther King Jr. Way S. |
| RV49 | 2381700140 | Residential | 2713 S. Bradford Street |
| RV50 | 2539500060 | Residential | 3904 Martin Luther King Jr. Way S. |
| RV54 | 1624049101 | Residential | 4012 Empire Way S. |
| RV56.1 | 1624049158 | Vacant | Martin Luther King Jr. Way S. |
| RV55 | 1624049180 | Vacant | 4100 Martin Luther King Jr. Way S. |
| RV53 | 1624049209 | Residential | 4500 Martin Luther King Jr. Way S. |
| RV68 | 1624049147 | Commercial | 4561 Martin Luther King Jr. Way S. |
| RV63 | 1624049150 | Commercial | 3004 S. Alaska Street |
| RV64 | 1624049208 | Commercial | 3006 S. Alaska Street |
| RV70 | 5414100315 | Vacant | 4700 Martin Luther King Jr. Way S. |

| R/W# | Parcel No. | Property Type | Site Address |
|---|---|---|---|
| RV73 | 5295200005 | Commercial | 2855 S. Alaska Place |
| RV73.1 | 5414100325 | Vacant | No Site Address |
| RV74 | 5414100330 | Residential | 4705 30th Avenue S. |
| RV76.2 | 5414100340 | Vacant | No Site Address |
| RV76.3 | 5414100345 | Vacant | No Site Address |
| RV71 | 5414100170 | Residential | 4703 31st Avenue S. |
| RV72 | 5414100305 | Commercial | 4701 Martin Luther King Jr. Way S. |
| RV71.1 | 5414100180 | Residential | 4709 31st Avenue S. |
| RV71.2 | 5414100185 | Residential | 4711 31st Avenue S. |
| RV75 | 5414100295 | Vacant | 4716 30th Avenue S. |
| RV71.3 | 5414100190 | Residential | 4715 31st Avenue S. |
| RV77 | 5414100290 | Residential | 4718 30th Avenue S. |
| RV78 | 5414100285 | Residential | 4722 30th Avenue S. |
| RV78.1 | 5414100280 | Residential | 4726 30th Avenue S. |
| RV79 | 5414100205 | Residential | 4733 Martin Luther King Jr. Way S. |
| RV80 | 5414100110 | Residential | 4734 31st Avenue S. |
| RV81 | 5414100100 | Residential | 4736 31st Avenue S. |
| RV82 | 5414100220 | Residential | 4735 Martin Luther King Jr. Way S. |
| RV83 | 5414100230 | Residential | 4741 Martin Luther King Jr. Way S. |
| RV84 | 5414100095 | Residential | 4742 Martin Luther King Jr. Way S. |
| RV85 | 5414100090 | Residential | 4746 Martin Luther King Jr. Way S. |
| RV86 | 2124049279 | Residential | 3019 S. Angeline Street |
| RV87 | 2124049002 | Residential | 4804 Martin Luther King Jr. Way S. |
| RV87.1 | 2124049284 | Vacant | 32nd Avenue S. |
| RV88 | 2124049282 | Vacant | 4810 Martin Luther King Jr. Way S. |
| RV89 | 3457000015 | Vacant | No Site Address |
| RV90 | 3457000020 | Vacant | No Site Address |
| RV90.1 | 1703400510 | Residential | 3200 S. Edmunds Street |
| RV91 | 3457000010 | Residential | 4812 Martin Luther King Jr. Way S. |
| RV92 | 3457000005 | Residential | 4815 32nd Avenue S. |
| RV93 | 1756700015 | Residential | 4851 Martin Luther King Jr. Way S. |
| RV94 | 1756700010 | Residential | 4853 Martin Luther King Jr. Way S. |
| RV95 | 1756700005 | Residential | 4859 Martin Luther King Jr. Way S. |
| RV96 | 1756700110 | Residential | 4865 Martin Luther King Jr. Way S. |
| RV97 | 1756700120 | Residential | 3112 S. Ferdinand Street |
| RV97.1 | 1703400745 | Residential | 3200 S. Ferdinand Street |

| R/W# | Parcel No. | Property Type | Site Address |
|---|---|---|---|
| RV98 | 1059000065 | Residential | 3119 S. Ferdinand Street |
| RV98.1 | 1059000060 | Residential | 3117 S. Ferdinand Street |
| RV99 | 1703400990 | Residential | 3201 S. Ferdinand Street |
| RV100 | 1703401160 | Commercial | 3206 S. Hudson Street |
| RV101 | 2660500215 | Residential | 3203 S. Hudson Street |
| RV102 | 2660500195 | Commercial | 5000 Martin Luther King Jr. Way S. |
| RV103 | 2660500210 | Residential | 5008 32nd Avenue S. |
| RV104 | 2660500240 | Residential | 5012 32nd Avenue S. |
| RV105 | 2660500247 | Residential | 5022 Empire Way S. |
| RV106 | 2660500245 | Residential | 5018 32nd Avenue S. |
| RV107 | 2660500235 | Residential | 5022 32nd Avenue S. |
| RV108 | 2660500254 | Residential | 5026 Empire Way S. |
| RV109 | 2660500281 | Residential | 5031 Martin Luther King Jr. Way S. |
| RV110 | 2660500270 | Vacant | 5030 Martin Luther King Jr. Way S. |
| RV111 | 2660500265 | Vacant | 5042 Martin Luther King Jr. Way S. |
| RV112 | 2660500259 | Residential | 5042 Empire Way S. |
| RV113 | 2660500288 | Commercial | 5061 Martin Luther King Jr. Way S. |
| RV114 | 2660500296 | Residential | 5050 Martin Luther King Jr. Way S. |
| RV115.1 | 2660500297 | Residential | 5054 Martin Luther King Jr. Way S. |
| RV113.1 | 2660500285 | Commercial | 5061 Martin Luther King Jr. Way S. |
| RV115 | 2660500295 | Residential | 5058 Martin Luther King Jr. Way S. |
| RV118 | 2660500310 | Residential | 5203 35th Avenue S. |
| RV119 | 2660500315 | Residential | 5201 Martin Luther King Jr. Way S. |
| RV120 | 2660500300 | Commercial | 5213 Martin Luther King Jr. Way S. |
| RV121 | 2660500305 | Commercial | 5208 Martin Luther King Jr. Way S. |
| RV122 | 9459200135 | Commercial | 5223 Martin Luther King Jr. Way S. |
| RV123 | 9459200125 | Residential | 5227 Martin Luther King Jr. Way S. |
| RV124 | 9459200120 | Residential | 5233 Martin Luther King Jr. Way S. |
| RV125 | 9459200115 | Residential | 5237 Martin Luther King Jr. Way S. |
| RV126 | 6888900150 | Commercial | 5306 Martin Luther King Jr. Way S. |
| RV127 | 9459200110 | Residential | 5301 Martin Luther King Jr. Way S. |
| RV129 | 9459200105 | Residential | 5305 Martin Luther King Jr. Way S. |
| RV130 | 2341300600 | Commercial | 5518 Martin Luther King Jr. Way S. |
| RV131 | 1183300090 | Commercial | 5311 Martin Luther King Jr. Way S. |
| RV132.1 | 2341300490 | Vacant | 5400 Martin Luther King Jr. Way S. |
| RV133 | 2341300005 | Commercial | 5421 Martin Luther King Jr. Way S. |

| R/W# | Parcel No. | Property Type | Site Address |
|---|---|---|---|
| RV138 | 2341300015 | Commercial | 5503 Martin Luther King Jr. Way S. |
| RV139 | 2341300030 | Commercial | 5511 Martin Luther King Jr. Way S. |
| RV141 | 2341300080 | Commercial | 5601 Martin Luther King Jr. Way S. |
| RV142 | 2341300225 | Commercial | 5600 Martin Luther King Jr. Way S. |
| RV143 | 2341300070 | Commercial | 5619 Martin Luther King Jr. Way S. |
| RV144 | 2341300150 | Commercial | 5700 Martin Luther King Jr. Way S. |
| RV145 | 2341300145 | Residential | 5701 Martin Luther King Jr. Way S. |
| RV146 | 2341300135 | Commercial | 5707 Martin Luther King Jr. Way S. |
| RV147 | 2341300125 | Commercial | 5715 Martin Luther King Jr. Way S. |
| RV148 | 2224049022 | Residential | 5747 Martin Luther King Jr. Way S. |
| RV149 | 3426600005 | Commercial | 5718 Martin Luther King Jr. Way S. |
| RV150 | 3426600026 | Commercial | 5748 Martin Luther King Jr. Way S. |
| RV151 | 2224049028 | Commercial | 5907 Martin Luther King Jr. Way S. |
| RV152 | 2224049009 | Commercial | 5920 Martin Luther King Jr. Way S. |
| RV153 | 2224049046 | Residential | 5919 Martin Luther King Jr. Way S. |
| RV154 | 2224049030 | Residential | 5923 Martin Luther King Jr. Way S. |
| RV155 | 2224049029 | Residential | 5929 Martin Luther King Jr. Way S. |
| RV156 | 7186800120 | Residential | 5931 Martin Luther King Jr. Way S. |
| RV157 | 7186800125 | Commercial | 5940 Martin Luther King Jr. Way S. |
| RV158 | 7186800115 | Residential | 5937 Martin Luther King Jr. Way S. |
| RV159 | 7186800110 | Commercial | 5943 Martin Luther King Jr. Way S. |
| RV160 | 7186800105 | Residential | 5947 Martin Luther King Jr. Way S. |
| RV161.1 | 7186800100 | Residential | 5951 Martin Luther King Jr. Way S. |
| RV161 | 7186800095 | Residential | 5955 Martin Luther King Jr. Way S. |
| RV164 | 7186800090 | Residential | 5959 Martin Luther King Jr. Way S. |
| RV165 | 2224049026 | Commercial | 6007 Martin Luther King Jr. Way S. |
| RV167 | 8113100250 | Commercial | 6033 Martin Luther King Jr. Way S. |
| RV169 | 8113100330 | Commercial | 6061 Martin Luther King Jr. Way S. |
| RV170 | 8113100322 | Commercial | 6056 Martin Luther King Jr. Way S. |
| RV171 | 3333001695 | Commercial | 6305 Martin Luther King Jr. Way S. |
| RV171.1 | 3333001725 | Vacant | No Site Address |
| RV171.2 | 3333001730 | Residential | 3621 S. Graham Street |
| RV172 | 3333001680 | Commercial | 6310 Martin Luther King Jr. Way S. |
| RV173 | 3333001690 | Commercial | 6401 Martin Luther King Jr. Way S. |
| RV174 | 3333001495 | Residential | 3802 S. Angel Place |
| RV175.1 | 3333002080 | Commercial | 6419 Martin Luther King Jr. Way S. |

| R/W# | Parcel No. | Property Type | Site Address |
|---|---|---|---|
| RV176 | 3333001355 | Vacant | 3801 S. Angel Place |
| RV177 | 3333001375 | Commercial | 3810 S. Morgan Street |
| RV178 | 3333001255 | Commercial | 6501 Martin Luther King Jr. Way S. |
| RV177.1 | 3333001225 | Commercial | 6500 Martin Luther King Jr. Way S. |
| RV180 | 3333001280 | Residential | 6512 Martin Luther King Jr. Way S. |
| RV181 | 3333001115 | Commercial | 6609 Martin Luther King Jr. Way S. |
| RV182 | 3333001085 | Commercial | 6600 Martin Luther King Jr. Way S. |
| RV183 | 3333001160 | Commercial | 6633 Martin Luther King Jr. Way S. |
| RV185 | 1662500061 | Residential | 6701 Martin Luther King Jr. Way S. |
| RV186 | 3333002600 | Commercial | 6700 Martin Luther King Jr. Way S. |
| RV186.1 | 3333002610 | Vacant | No Site Address |
| RV188 | 1662500056 | Commercial | 6711 Martin Luther King Jr. Way S. |
| RV186.2 | 3333002620 | Commercial | 6718 Martin Luther King Jr. Way S. |
| RV187.1 | 1662500045 | Commercial | 6727 Martin Luther King Jr. Way S. |
| RV187 | 3333002630 | Vacant | Martin Luther King Jr. Way S. |
| RV192 | 3333002640 | Commercial | 6740 Martin Luther King Jr. Way S. |
| RV193 | 3333002641 | Commercial | 6745 Martin Luther King Jr. Way S. |
| RV193.1 | 3333002660 | Commercial | 6753 Martin Luther King Jr. Way S. |
| RV194 | 3333002651 | Commercial | 6754 Martin Luther King Jr. Way S. |
| RV196 | 3333002661 | Commercial | 6761 Martin Luther King Jr. Way S. |
| RV196.1 | 1662500020 | Residential | 3818 S. Willow Street |
| RV195 | 3333002960 | Commercial | 6901 Martin Luther King Jr. Way S. |
| RV199 | 3333002940 | Residential | 6908 Martin Luther King Jr. Way S. |
| RV200 | 3333002990 | Residential | 6927 Martin Luther King Jr. Way S. |
| RV201 | 3333002920 | Commercial | 6930 Martin Luther King Jr. Way S. |
| RV202 | 3333002910 | Residential | 6936 Martin Luther King Jr. Way S. |
| RV203 | 3333002891 | Vacant | 6960 Martin Luther King Jr. Way S. |
| RV204 | 3333002890 | Vacant | 6951 Martin Luther King Jr. Way S. |
| RV205 | 2724049105 | Commercial | 7101 Martin Luther King Jr. Way S. |
| RV206 | 7378600265 | Commercial | 3800 S. Othello Street |
| RV207 | 2724049128 | Commercial | 7100 Martin Luther King Jr. Way S. |
| RV208 | 2724049136 | Commercial | 7116 Martin Luther King Jr. Way S. |
| RV208.2 | 2724049121 | Commercial | 7126 Martin Luther King Jr. Way S. |
| RV208.3 | 2724049122 | Vacant | 7128 Martin Luther King Jr. Way S. |
| RV210 | 2724049130 | Commercial | 7130 Martin Luther King Jr. Way S. |
| RV208.1 | 2724049101 | Commercial | 7142 Martin Luther King Jr. Way S. |

| R/W# | Parcel No. | Property Type | Site Address |
|---|---|---|---|
| RV213 | 2724049018 | Commercial | 7144 Martin Luther King Jr. Way S. |
| RV215 | 2724049062 | Vacant | 7150 Martin Luther King Jr. Way S. |
| RV214 | 2724049015 | Vacant | 7100 Martin Luther King Jr. Way S. |
| RV218 | 8800000035 | Commercial | 4200 S. Othello Street |
| RV221 | 2724049158 | Residential | 4222 S. Othello Street |
| RV216 | 2724049017 | Commercial | 7153 Martin Luther King Jr. Way S. |
| RV217 | 2724049127 | Commercial | 3900 S. Othello Street |
| RV219 | 2724049058 | Vacant | 7340 Martin Luther King Jr. Way S. |
| RV222 | 1005000168 | Commercial | 7300 Martin Luther King Jr. Way S. |
| RV230 | 2724049211 | Residential | 7001 32nd Avenue S. |
| RV220 | 2724049085 | Commercial | 7301 Martin Luther King Jr. Way S. |
| RV223 | 2724049190 | Commercial | 7313 Empire Way S. |
| RV224 | 2724049048 | Commercial | 7321 Empire Way S. |
| RV225 | 1005000201 | Commercial | 7324 Martin Luther King Jr. Way S. |
| RV226 | 2724049081 | Commercial | 7343 Empire Way S. |
| RV227 | 2724049068 | Residential | 7349 Empire Way S. |
| RV228 | 2724049066 | Residential | 7353 Empire Way S. |
| RV230 | 2724049211 | Unknown | No Site Address |
| RV229 | 3904100260 | Commercial | 7500 Martin Luther King Jr. Way S. |
| RV231 | 3904100275 | Commercial | 7529 Renton Avenue S. |
| RV231.1 | 3904100290 | Residential | 7544 Martin Luther King Jr. Way S. |
| RV232 | 3904100305 | Commercial | 7550 Martin Luther King Jr. Way S. |
| RV232.1 | 3904100310 | Residential | 7700 Martin Luther King Jr. Way S. |
| RV233 | 3904100320 | Residential | 7712 Martin Luther King Jr. Way S. |
| RV234 | 3904100325 | Residential | 7714 Martin Luther King Jr. Way S. |
| RV235 | 3904100341 | Residential | 7718 Martin Luther King Jr. Way S. |
| RV236 | 3904100356 | Vacant | 7726 Martin Luther King Jr. Way S. |
| RV239 | 4281400125 | Residential | 3948 S. Bozeman Street |
| RV240 | 4281400299 | Residential | 7802 Martin Luther King Jr. Way S. |
| RV241 | 4281400190 | Vacant | 3945 S. Bozeman Street |
| RV242 | 4281400386 | Residential | 7850 Martin Luther King Jr. Way S. |
| RV243 | 4281400385 | Residential | 7860 Martin Luther King Jr. Way S. |
| RV244 | 4281400270 | Commercial | 3946 S. Kenyon Street |
| RV245 | 4281400551 | Residential | 4204 S. Kenyon Street |
| RV246 | 4006000319 | Residential | 4203 S. Kenyon Street |
| RV247 | 4006000322 | Residential | 7908 Empire Way S. |

| R/W# | Parcel No. | Property Type | Site Address |
|---|---|---|---|
| RV248 | 4006000312 | Residential | 7914 Empire Way S. |
| RV249 | 4006000309 | Residential | 7918 Empire Way S. |
| RV250 | 4006000320 | Residential | 7928 Empire Way S. |
| RV251 | 6882510090 | Residential | 4222 S. Elmgrove Street |
| RV252 | 6882510100 | Residential | 4218 S. Elmgrove Street |
| RV253 | 6882510110 | Residential | 4202 S. Elmgrove Street |
| RV254 | 6882510010 | Residential | 4203 S. Elmgrove Street |
| RV255 | 4006000273 | Residential | 7960 Martin Luther King Jr. Way S. |
| RV256 | 4006000272 | Residential | 7964 Martin Luther King Jr. Way S. |
| RV257 | 4006000284 | Residential | 7970 S. Rose Street |
| RV257.1 | 4006000275 | Vacant | No Site Address |
| RV258 | 4006000242 | Residential | 8325 Martin Luther King Jr. Way S. |
| RV259 | 6882520010 | Residential | 8301 42nd Place S. |
| RV260 | 6882520020 | Residential | 8305 42nd Place S. |
| RV261 | 6882520030 | Residential | 8309 42nd Place S. |
| RV262 | 4006000262 | Residential | 8324 Martin Luther King Jr. Way S. |
| RV262.1 | 4006000243 | Residential | 8331 Martin Luther King Jr. Way S. |
| RV262.2 | 4006000244 | Residential | 8337 Martin Luther King Jr. Way S. |
| RV263 | 4006000252 | Residential | 8343 Martin Luther King Jr. Way S. |
| RV264 | 4006000254 | Residential | 8334 Martin Luther King Jr. Way S. |
| RV265 | 4006000246 | Residential | 4254 S. Thistle Street |
| RV269 | 4006000231 | Residential | 8401 Martin Luther King Jr. Way S. |
| RV270 | 4006000226 | Residential | 8400 Martin Luther King Jr. Way S. |
| RV272 | 4006000230 | Vacant | No Site Address |
| RV274 | 4006000212 | Vacant | No Site Address |
| RV275 | 4006000614 | Residential | 8438 Martin Luther King Jr. Way S. |
| RV279 | 4006000613 | Residential | 8440 Martin Luther King Jr. Way S. |
| RV280 | 4006000612 | Residential | 8442 Martin Luther King Jr. Way S. |
| RV281 | 4006000611 | Residential | 8444 Martin Luther King Jr. Way S. |
| RV282 | 4006000211 | Residential | 8448 Martin Luther King Jr. Way S. |
| RV283 | 4006000245 | Vacant | No Site Address |
| RV284 | 4006000189 | Vacant | No Site Address |
| RV284.1 | 4006000195 | Vacant | No Site Address |
| RV285 | 4006000196 | Vacant | No Site Address |
| RV287 | 4006000182 | Vacant | No Site Address |
| RV288 | 4006000197 | Residential | 8625 44th Avenue S. |

| R/W# | Parcel No. | Property Type | Site Address |
|---|---|---|---|
| RV289 | 4006000161 | Residential | 8633 44th Avenue S. |
| RV290 | 4006000162 | Residential | 8639 44th Avenue S. |
| RV290.1 | 4006000160 | Residential | 4220 S. Trenton Street |
| RV292 | 2123700305 | Residential | 8815 Martin Luther King Jr. Way S. |
| RV293 | 3424049138 | Vacant | No Site Address |
| RV294 | 2123700320 | Vacant | No Site Address |
| RV295 | 2124700075 | Commercial | 8825 Martin Luther King Jr. Way S. |
| RV295.1 | 2124700093 | Vacant | 4212 S. Henderson Street |
| RV295.2 | 2124700095 | Residential | 2412 S. Henderson Street |
| RV295.3 | 2124700097 | Vacant | 2412 S. Henderson Street |
| RV296 | 2124700055 | Commercial | 8816 Martin Luther King Jr. Way S. |
| RV297 | 2124700350 | Commercial | 4309 S. Henderson Street |
| RV298 | 2124700105 | Vacant | 8824 42nd Avenue S. |
| RV300 | 2124700115 | Vacant | 9001 Martin Luther King Jr. Way S. |
| RV301 | 2124700125 | Commercial | 9013 Martin Luther King Jr. Way S. |
| RV303 | 2124700360 | Commercial | 9050 Martin Luther King Jr. Way S. |
| RV305 | 2124700165 | Residential | 9053 Martin Luther King Jr. Way S. |
| RV306 | 2124700175 | Commercial | 9059 Martin Luther King Jr. Way S. |
| RV307 | 2124700180 | Commercial | 9065 Martin Luther King Jr. Way S. |
| RV308 | 2124700269 | Commercial | 9106 Martin Luther King Jr. Way S. |
| RV309 | 2124700220 | Commercial | 9101 Martin Luther King Jr. Way S. |
| RV310 | 2124700270 | Commercial | 9116 Martin Luther King Jr. Way S. |
| RV311 | 8072000025 | Commercial | 9132 Martin Luther King Jr. Way S. |
| RV312 | 8072000047 | Commercial | 9224 Martin Luther King Jr. Way S. |
| RV313 | 8072000045 | Commercial | 9215 Martin Luther King Jr. Way S. |
| RV314 | 8072000049 | Commercial | 9228 Martin Luther King Jr. Way S. |
| RV315 | 8072000075 | Commercial | 9243 Martin Luther King Jr. Way S. |
| RV317 | 8072000076 | Commercial | 9242 Martin Luther King Jr. Way S. |
| RV318 | 8072000106 | Commercial | 9423 Martin Luther King Jr. Way S. |
| RV318.1 | 8072000087 | Commercial | 9250 Martin Luther King Jr. Way S. |
| RV319 | 8072000115 | Commercial | 9416 Martin Luther King Jr. Way S. |
| RV321 | 8072000116 | Commercial | 9600 Martin Luther King Jr. Way S. |
| RV321.1 | 8072000116 | Commercial | 9600 Martin Luther King Jr. Way S. |
| RV322 | 8072000145 | Residential | 9425 Merton Way S. |
| RV324 | 0323049081 | Residential | 9611 Martin Luther King Jr. Way S. |
| RV325 | 0323049139 | Commercial | 9620 Martin Luther King Jr. Way S. |

| R/W# | Parcel No. | Property Type | Site Address |
|---|---|---|---|
| RV326 | 0323049053 | Vacant | No Site Address |
| RV327 | 0323049054 | Commercial | 9650 Martin Luther King Jr. Way S. |
| RV328 | 323049069 | Residential | 9617 Martin Luther King Jr. Way S. |
| RV329 | 323049163 | Residential | 9639 Martin Luther King Jr. Way S. |
| RV330 | 323049077 | Commercial | 9737 Martin Luther King Jr. Way S. |
| RV331 | 0323049007 | Commercial | 9700 Martin Luther King Jr. Way S. |
| RV332 | 0323049146 | Commercial | 9747 Martin Luther King Jr. Way S. |
| RV335 | 0323049235 | Commercial | 9801 Empire Way S. |
| RV337 | 0323049107 | Vacant | Empire Way S. |
| RV339 | 0323049008 | Commercial | 9834 Martin Luther King Jr. Way S. |
| TFR1 | 0323049027 | Commercial | S. Boeing Access Road |
| TFR2 | 0323049236 | Commercial | 9845 Empire Way S. |
| TFR3 | 0323049008 | Commercial | 9834 Martin Luther King Jr. Way S. |
| TFR4 | 0323049106 | Commercial | Empire Way S. |
| TFR5 | 0323049237 | Commercial | 10013 Martin Luther King Jr. Way S. |
| TFR6 | 0323049141 | Commercial | 10020 Empire Way S. |
| TFR7 | 0323049238 | Commercial | 10023 Martin Luther King Jr. Way S. |
| TFR8 | 0323049060 | Commercial | Airport Way S. |
| TFR9 | 0323049026 | Commercial | 10400 Martin Luther King Jr. Way S. |
| TFR10 | 0323049215 | Commercial | S. Boeing Access Road |
| TFR11 | 3348401890 | Commercial | S. Boeing Access Road |
| TFR12 | 0323049164 | Commercial | 10850 E. Marginal Way S. |
| TFR13 | 0323049046 | Residential | 10802 E. Marginal Way S. |
| TFR35 | 0733000070 | Residential | *No Site Address* |
| TFR36 | 7340600421 | Commercial | 1200 E. Marginal Way S. – King County |
| TFR37 | 7340600480 | Commercial | 12400 E. Marginal Way S. – Group Health |
| TFR38 | 2613200006 | Commercial | 4522 S. 133rd Street |
| TFR40 | 2613200004 | Commercial | *No Site Address* |
| TFR42 | 2616600035 | Commercial | 4650 S. 134th Place |
| TFR43 | 2616600030 | Commercial | 4650 S. 134th Street |
| TFR43a | 2616600073 | Residential | 13346 47th Avenue S. |
| TFR44 | 2616600080 | Residential | 13365 48th Avenue S. |
| TFR45 | 5673000065 | Residential | 13370 48th Avenue S. |
| TFR46 | 5673000085 | Residential | 13374 48th Avenue S. |
| TFR47 | 5673000091 | Residential | *No Site Address* |
| TFR48 | 5673000180 | Residential | *No Site Address* |

| R/W# | Parcel No. | Property Type | Site Address |
|---|---|---|---|
| TFR48a | 5673000111 | Residential | 13404 48th Avenue S. |
| TFR49 | 5673000160 | Residential | 4842 S. 136th Street |
| TFR49a | 0003000018 | Residential | *No Site Address* |
| TFR49b | 0003000107 | Unknown | *No Site Address* |
| TFR49c | 0003000082 | Residential | 13718 Macadam Road S. |
| TFR50 | 0003000092 | Residential | 4822 S. 138th Street |
| TFR51 | 0003000104 | Residential | 4823 S. 138th Street |
| TFR52 | 1523049072 | Residential | *No Site Address* |
| TFR53 | 1523049069 | Residential | 14006 Macadam Road S. |
| TFR54 | 1523049048 | Residential | 14038 Macadam Road S. |
| TFR55 | 1523049032 | Residential | *No Site Address* |
| TFR56 | 1523049031 | Residential | *No Site Address* |
| TFR57 | 7999600135 | Residential | *No Site Address* |
| TFR58 | 7999600185 | Residential | 14454 51st Avenue S. |
| TFR59 | 7999600205 | Residential | *No Site Address* |
| TFR60 | 7999600195 | Residential | *No Site Address* |
| TFR60a | 7661600031 | Commercial | *No Site Address* |
| TFR60b | 7661600061 | Residential | 14902 151st Avenue S. |
| TFR60c | 7661600091 | Commercial | *No Site Address* |
| TFR60d | 7661600090 | Commercial | *No Site Address* |
| TFR60e | 7661600094 | Commercial | *No Site Address* |
| TFR61 | 7661600120 | Residential | 5136 S. 151st |
| TFR61a | 9844400015 | Commercial | 15200 52nd Avenue S. |
| TFR61b | 9844400005 | Commercial | 15200 52nd Avenue S. |
| TFR62 | 1157200010 | Commercial | 15200 52nd Avenue S. |
| TFR63 | 1157200019 | Commercial | 15208 52nd Avenue S. |
| TFR64 | 1157200013 | Commercial | 5200 Southcenter Boulevard S. |
| TFR65 | 1157200015 | Commercial | 5100 Southcenter Boulevard S. |
| TFR66 | 1157200012 | Commercial | 5100 Southcenter Boulevard S. |
| TFR67 | 0043000405 | Commercial | 3211 S. 154th Street |
| TFR68 | 0043000301 | Commercial | 3515 S. 154th Street |
| TFR69 | 0043000300 | Commercial | 3521 S. 154th Street |
| TFR70 | 0043000325 | Commercial | *No Site Address* |
| TFR71 | 0043000330 | Commercial | 15426 S. 35th Avenue S. |
| TFR72 | 0043000335 | Apartment | 3816 S. 154th Lane |
| TFR73 | 0043000270 | Residential | 15421 42nd Avenue S. |

| R/W# | Parcel No. | Property Type | Site Address |
|---|---|---|---|
| TFR74 | 1157200018 | Commercial | 5101 Southcenter Boulevard |
| TFR75 | 0043000306 | Residential | 15420 35th Avenue S. |
| TFR76 | 0043000271 | Residential | *No Site Address* |
| TFR77 | 0043000303 | Commercial | 15426 35th Avenue S. |
| TFR78 | 0043000310 | Commercial | 15426 35th Avenue S. |
| TFR79 | 0043000395 | Commercial | 15426 35th Avenue S. |
| TFR14 | 0323049172 | Commercial | 10847 E. Marginal Way S. |
| TFR15 | 0323049183 | Commercial | 11001 E. Marginal Way S. |
| TFR19 | 0323049029 | Commercial | 10802 E. Marginal Way S. |
| TFR24 | 1023049059 | Commercial | 11231 E. Marginal Way S. |
| TFR25 | 1023049060 | Commercial | 11245 E. Marginal Way S. |
| TFR26 | 1023049071 | Commercial | 11269 E. Marginal Way S. |
| TFR27 | 1023049055 | Commercial | 11269 E. Marginal Way S. |

R/W Right-of-way

# ATTACHMENT G
## *Section 106 Programmatic Agreement and Amendment*

# PROGRAMMATIC AGREEMENT
# AMONG
# THE FEDERAL TRANSIT ADMINISTRATION,
# WASHINGTON STATE HISTORIC PRESERVATION OFFICER,
# AND THE ADVISORY COUNCIL ON HISTORIC PRESERVATION
# REGARDING DEVELOPMENT OF
# THE CENTRAL LINK LIGHT RAIL TRANSIT PROJECT
# IN THE STATE OF WASHINGTON

WHEREAS, the Central Puget Sound Regional Transit Authority (Sound Transit) proposes to construct the Central Link Light Rail Transit Project (Project) within the cities of Seattle, Tukwila and SeaTac, and the Project is requesting funding from the Federal Transit Administration (FTA); and

WHEREAS, FTA has consulted with the Washington State Historic Preservation Officer (SHPO) and the Advisory Council on Historic Preservation (Council) pursuant to Section 106 of the National Historic Preservation Act (NHPA) and Council's implementing regulations; and

WHEREAS, FTA has determined that this project may have an adverse effect on historic properties included in or eligible for inclusion in the National Register of Historic Places (NRHP); and

WHEREAS, the United States Army Corps of Engineers (USACE) and the United States Coast Guard (USCG) concur in this Programmatic Agreement and have designated FTA as lead Federal agency and FTA agrees to serve as the Agency Official who shall act on their behalf; and

WHEREAS, the Suquamish Tribe, the Muckleshoot Tribe, the Duwamish tribal organization (Tribal Governments), the City of Seattle, and the Friends of Seattle's Olmsted Parks have participated in the consultation; and have been invited to concur in this Programmatic Agreement; and

WHEREAS, the City of Seattle will conduct its own review of the project design under provisions of the Seattle Municipal Code regulating city landmarks and special review districts; and

WHEREAS, the consulting parties have considered the applicable requirements of the Native American Graves Protection and Repatriation Act (25 U.S.C. 3001 et seq.) (NAGPRA) and Washington's Indian Graves and Records (Chapter 27.44 RCW) in the course of consultation and, to the best knowledge and belief of the consulting parties, human remains, associated or unassociated funerary objects or sacred objects, or objects of cultural patrimony as defined in NAGPRA may be encountered in any archaeological work undertaken; and

WHEREAS, FTA has completed a traditional cultural properties (TCP) archival inventory of the area of potential effects using secondary sources and information available in the public domain, has identified a single property of cultural interest to the Tribal Governments, located in the vicinity of the South Boeing Access Road, and is finalizing consultation with the Tribal Governments to determine eligibility of this property for NRHP listing and, if determined to be eligible, to assess effects on this property and to develop applicable stipulations;

NOW, THEREFORE, FTA, SHPO and Council agree that in the event FTA decides to fund the undertaking, the Project will be administered and developed in accordance with the following stipulations to satisfy FTA's Section 106 responsibilities for all individual components of the Project, and that FTA shall require that the following terms and conditions, including the Archaeological Resources Treatment and Monitoring Plan, will be implemented in a timely manner and with adequate resources in compliance with (NHPA), as amended.

## STIPULATIONS

FTA, as lead federal agency, shall require that the following measures and stipulations are carried out.

I. Archaeological Resource and Traditional Cultural Properties

A. Cultural Resource Inventory

An Archaeologist will conduct an inventory of archaeological resources along the corridor of the preferred alternative. This work must be performed by individuals who meet or exceed the US Secretary of the Interior's professional qualification standards set out in Stipulation IV. In places where it is not feasible to conduct test excavations, Sound Transit and FTA will work with Tribal Governments on developing alternative methods.

A TCP/Ethnographic Area Study will be prepared to clarify and further develop research questions. The study will be done in consultation with the Tribal Governments by a consultant mutually acceptable to Sound Transit and the Tribal Governments.

B. Treatment and Monitoring Plan

The attached Archaeological Resources Treatment and Monitoring Plan is an initial working draft and will be continually modified and adjusted as necessary by FTA and SHPO in consultation with Tribal Governments.

The Treatment and Monitoring Plan will be consistent with the Secretary of the Interior's *Standards for Archaeological Documentation* (48 FR 44734-44737), Council's *Treatment of Archaeological Properties* (Advisory Council on Historic

Preservation, draft 1980), applicable Washington regulations, and responsive to contemporary professional standards.

FTA, in consultation with SHPO, shall require implementation of the Treatment and Monitoring Plan for the mitigation of anticipated effects on eligible properties.

C. Supplemental Treatment Plans

FTA will prepare Supplemental Treatment Plans (Supplements) for archaeological resources and/or traditional cultural properties identified during inventories for construction phases subsequent to approval of the Treatment and Monitoring Plan and for such properties or resources discovered during construction. Supplements will be approved as stipulated below by SHPO. Each Supplement will modify the existing Treatment and Monitoring Plan to be site and property specific. Additional information shall include:

1. The archaeological resources or traditional cultural properties discovered or to be affected in the specified Project segment and the nature of those effects.
2. Proposed measures to mitigate or avoid adverse effects to identified archaeological resources, or traditional cultural properties.
3. Where data recovery is proposed to mitigate an affected eligible property, the Supplement will contain:
   a. Specific research questions and an explanation of their relevance to the overall research goals as established in the Treatment Plan.
   b. Site-specific fieldwork and analytical strategies that will be employed in data recovery.
   c. Methods for securing the site against vandalism, if not already protected.
   d. Schedule for submission of progress, summary and other reports to FTA, SHPO, Council and Tribal Governments.

D. Comments and Concurrence on Supplemental Treatment Plans

1. Within two working days of FTA's determination of effect on an eligible property, FTA will submit any Supplements to SHPO and Tribal Governments for review. FTA and SHPO will consult with Tribal Governments to elicit comments and/or suggestions. SHPO will have a maximum of six working days upon receipt to review and provide comments and/or objections to FTA. If SHPO does not submit comments and/or objections within these six working days, FTA shall take such non-responsiveness as concurrence.

2. If any party has an objection to the Supplements, the objection must be specifically identified and the reasons for objection documented in writing to FTA. Objections will be resolved according to the procedures in Stipulation V, Dispute Resolution, of this Agreement.

3. If revisions to the Supplement are needed, SHPO will have two working days to review the revisions. If no comments or objections are received within this time frame, FTA will assume concurrence.

4. All Supplements will be deemed finalized when all revisions are made and concurred with by the reviewing parties, or any disputes have been resolved through Stipulation V, Dispute Resolution. Once finalized, Supplements will be provided to SHPO, Council and Tribal Governments. FTA may then issue authorization to proceed with implementation of the Treatment Plans and Supplements.

5. Upon concurrence from SHPO, FTA may issue authorization to proceed with construction in those segments of the Project that contain archaeological properties once agreed upon fieldwork/treatment specified in the Treatment Plans and Supplements have been completed.

If FTA and SHPO agree that any segment(s) of the Project will have no effect on any NRHP listed or eligible properties, FTA may provide authorization to proceed with construction in such area(s), subject to the conditions of the Treatment and Monitoring Plan (Attachment 1) and Stipulation III – Changes in Construction Corridors and Ancillary Areas.

II. Historic Resources

During the environmental review for this Project, conceptual engineering plans and conceptual station designs were reviewed for potential impacts on identified historic resources. These conceptual plans and designs, and related potential impacts, are included in the Central Link Light Rail Transit Project Draft and Final Environmental Impact Statements and the Archaeological and Historic Resources Technical Report. The following stipulations will govern future design activity concerning stations, trackways, guideways, and all related features of the Project.

A. Project Design

FTA shall require that the design of the Project is compatible with the historic and architectural qualities of the following historic properties:

1. Columbia City Historic District The design of all street improvement and landscape plans associated with the pedestrian corridor linking the Edmunds Street Station and Rainier Avenue South shall be prepared in consultation with SHPO and approved by the Seattle Landmarks Preservation Board. Such plans shall be developed with the objective of enhancing the pedestrian connection between the Columbia City commercial district and the station. The design shall be compatible with the historic and architectural qualities of the historic district and consistent with approaches and guidelines set forth in *The Secretary of the Interior's Standards for the Treatment of Historic Properties* (US Department of

the Interior, National Park Service, 1995) and those guidelines formally adopted by the Seattle Landmarks Preservation Board for the Columbia City Landmark District.

2. Cheasty Boulevard All station components, street improvements, and landscape plans associated with the design of the McClellan Street Station and guideway overpass at Cheasty Boulevard (S. Winthrop Street) shall be prepared in consultation with the Seattle Landmarks Preservation Board and SHPO. Such plans shall be developed with the objective of:

   a. Improving Cheasty Boulevard in the light rail station area in a manner compatible with the documented Olmsted design concepts for Seattle's boulevards.

   b. Minimizing the physical encroachment into the right-of-way of Cheasty Boulevard.

   c. Minimizing the obstruction of views from Cheasty Boulevard toward Mt. Baker Boulevard.

3. Pioneer Square Preservation District All street improvement plans associated with changes to surface transportation systems within the historic district shall be prepared in consultation with SHPO and approved by the Pioneer Square Preservation Board. The design of street improvements shall be compatible with the historic and architectural qualities of the historic district and consistent with approaches and guidelines set forth in *The Secretary of the Interior's Standards for the Treatment of Historic Properties* (US Department of the Interior, National Park Service, 1995) and the design guidelines adopted by the Pioneer Square Preservation Board for the historic district.

4. University Heights School When Sound Transit constructs Segment A of the Project (Northgate to the University District), and if a vent shaft and related above-ground structure are located on the grounds of University Heights School, all design plans for architectural, landscape, and other features associated with the above-ground structure shall be prepared in consultation with SHPO and approved by the Seattle Landmarks Preservation Board. Such plans shall be compatible with the character of the historic school building and grounds and consistent with the approaches and guidelines set forth in *The Secretary of the Interior's Standards for the Treatment of Historic Properties* (US Department of the Interior, National Park Service, 1995).

5. Ravenna Boulevard When Sound Transit constructs Segment A of the Project (Northgate to the University District), and, if Alternative A2.1 or A2.2 is selected, all station components, street improvements, and landscape plans associated with the design of Roosevelt Station and guideway overpass at Ravenna Boulevard shall be prepared in consultation with the SHPO and the Seattle Landmarks Preservation Board. Such plans shall be developed with the objective of:

a. Retaining the historic character of the Olmsted-designed boulevard.

b. Minimizing the visual intrusion of the guideway support column(s) by appropriate landscaping or other means.

c. Minimizing the visual impact of the elevated Roosevelt Station by appropriate placement, design, landscaping, or other means.

B. Station Design

In order to avoid any potential adverse effect on the historic resources in the vicinity of station development, FTA shall require that the designs of the following stations are developed in consultation with SHPO. In addition, FTA shall require that the design of the Westlake Station entrance be prepared in consultation with and approved by the Seattle Landmarks Preservation Board. Such designs shall be developed with the objective of ensuring that station designs are responsive to the approaches and guidelines set forth in *The Secretary of the Interior's Standards for the Treatment of Historic Properties* (US Department of the Interior, National Park Service, 1995).

1. N.E. 45th Street Station
2. Capitol Hill Station
2. First Hill Station
3. Westlake Station
4. Royal Brougham Station
5. Beacon Hill Station
6. McClellan Station

C. Design Review and Approval Process

1. Sound Transit shall provide plans and specifications for all station, street improvement or landscape designs cited in Stipulations II.A and II.B at both the 30% and 90% design stages. SHPO will review such plans and specifications and provide comments within thirty (30) days. Failure to respond within thirty days will constitute SHPO review of such plans and specifications.

2. Sound Transit shall coordinate with the Seattle Historic Preservation Officer (HPO) regarding the local review and approval process and meeting schedules of the local review boards. Sound Transit shall not proceed with any construction related activity for all station, street improvement or landscape designs cited in

Stipulations II. A and II. B until completion of SHPO review, or as stipulated in II.C.1, and/or the appropriate local review board has been obtained.

D. Minimization of Construction Impacts

1. No historic property will be used for construction staging or systems operation staging without prior consultation with SHPO and/or approval of the appropriate local review boards.

2. In order to avoid any potential adverse effect on historic properties situated in the immediate vicinity of project construction and/or construction staging activity, FTA shall require that the following measures, or other measures where applicable, are taken when necessary to minimize construction related impacts on historic properties.

   a. Using rigid support of excavation structures (shoring) to minimize the movement of the ground.

   b. Underpinning the building prior to excavation.

   c. Ground stabilization through cementitious or chemical grouts, freezing the ground, or other modification techniques.

3. Facades of nearby historic buildings will be protected from accumulation of excessive dirt, or will be cleaned in an appropriate manner at the conclusion of construction. Appropriate cleaning methods will be determined in consultation with the SHPO or the local review board regulating the property.

4. Access to all historic properties will be maintained except for unavoidable short periods during construction.

5. Temporary construction sheds, barricades, or material storage will be located so as to avoid obscuring significant views of historic properties.

6. The Project will comply with the City of Seattle noise restrictions for construction and equipment operation (SMC 25.08.425) and any variance granted specifically for this Project.

7. When Sound Transit constructs Segment A of the Project (Northgate to the University District) and, if any part of the site of University Heights School is used for a staging or tunnel spoils removal area, upon completion of construction at this location the site will be restored with improvements to fencing, paving, landscaping, and associated features, to compensate for temporary loss of use and alterations to existing conditions. Design plans for restoration of the site shall be developed in consultation with the SHPO and approved by the Seattle Landmarks Preservation Board.

E. Olmsted Planning Studies

Sound Transit will provide to SHPO funds not to exceed $75,000 to otherwise compensate for the impacts of the project on Cheasty Boulevard [and potentially Ravenna Boulevard] that cannot be fully mitigated by modifications of project design, street improvements, and landscaping features. The funds in their entirety will be allocated from SHPO to the City of Seattle, Department of Neighborhoods, Historic Preservation Program. The organization, management and uses of this fund will be specified in a separate agreement, executed by SHPO, Sound Transit, and the City of Seattle. These funds are intended for research, inventory, and planning of the Olmsted Plan for Seattle's Parks, Boulevards, and Playgrounds. This work, must be performed by individuals who meet or exceed the US Secretary of the Interior's professional qualification standards set out in Stipulation IV. Results of the research regarding Cheasty Boulevard will be incorporated into the station design through an interpretative display or other means.

III. Changes in Construction Corridors and Ancillary Areas

If during the course of Project planning or construction there arises a need to make changes to construction corridors or ancillary areas (including but not limited to: reroutes of portions of the proposed light rail trackways and guideways, changes to the footprints of stations or park-and-ride lots, disposal of excavation spoils upon public or private lands, or use of a previously unidentified staging or use area is determined to be necessary, etc.), FTA shall take the following steps.

A. Notify SHPO of the project change.

B. Require that the new area of potential effect is inventoried and evaluated in a manner consistent with 36 CFR § 800.4.

C. If requested through further consultation with the Tribes, SHPO and/or Council, conduct a traditional cultural properties inventory in a manner consistent with the National Park Service's National Register Bulletin 38: Guidelines for Evaluating and Documenting Traditional Cultural Properties. If any traditional cultural properties are found during the inventory phase, FTA will consult with the Tribes, SHPO and Council in accordance with the provisions of this Agreement.

D. Distribute all inventory reports to SHPO for 30-day review and comment.

E. If FTA and SHPO do not agree on NHRP eligibility of any properties, FTA will obtain a formal determination of eligibility from the Secretary of the Interior pursuant to 36 CFR § 63.

F. FTA will apply the Criteria of Adverse Effect in a manner consistent with 36 CFR § 800.5 to all properties determined to be eligible for inclusion in the NRHP.

G. If archaeological resources or traditional cultural properties will be affected, a Supplemental Treatment Plan will be prepared in consultation with SHPO and Tribal Governments in a manner consistent with Stipulation I.B.

H. If historic resources will be adversely affected, FTA and SHPO will continue consultation in a manner consistent with 36 CFR § 800.6 and will execute a supplemental agreement document to stipulate mitigation measures before authorizing construction to proceed.

IV. Professional Qualifications

FTA shall require that all historic preservation or archaeological resources work performed by Sound Transit or on their behalf pursuant to this Agreement shall be accomplished by or under the direct supervision of a person or person who meet(s) or exceed(s) the pertinent qualifications standard set out in the Secretary of the Interior's *Professional Qualifications Standards* (48 FR 44738-44739).

V. Dispute Resolution

A. Unless otherwise specified in this agreement, should any signatory to this Agreement object in writing within 30 days to any plans provided for review, specifications provided or actions or findings proposed pursuant to this Agreement, FTA shall consult with the objecting party to resolve the objection. Upon receiving the written objections:

1. FTA will notify SHPO as to the nature of the dispute.

2. FTA will attempt to informally resolve the objection.

3. In the event informal attempts are unsuccessful, FTA will invite the objecting party to a reconciliation meeting for the purpose of discussing and resolving the objection. FTA will issue such invitation no later than five working days after receipt of the written objection and will schedule a meeting to be held within 10 working days following receipt of the invitation. The time frames specified herein may be expedited by mutual, written agreement.

B. Should any affected Tribal Government object to any proposed plan, curation procedures or handling of Native American human remains, FTA shall consult with the objecting Tribal Government to seek to resolve the objection under Stipulation V.A.

C. If, FTA, in consultation with SHPO, determines that an objection cannot be resolved through Stipulation VA FTA will forward all documentation relevant to the dispute to Council. Within 15 days of receipt of all documentation, Council shall either:

1. Provide FTA with recommendations, which FTA shall take into consideration in reaching a final decision regarding the dispute; or

2. Notify FTA that it will comment within 45 days in accordance with 36 CFR § 800.7(c)(2). Any Council comment provided in response to such a request will be taken into account by FTA in accordance with 36 CFR § 800.7(c)(4) with reference to the subject of the dispute.

D. Any recommendation or comment provided by Council will be understood to pertain only to the subject of the dispute; FTA's responsibilities to carry out all actions under this Agreement that are not the subject of the dispute will remain unchanged.

VI. Amendment

The signatories to this Agreement may request that it be amended, whereupon the parties will consult in accordance with 36 CFR § 800.6 to consider such amendment.

VII. Termination

Any signatory to this Agreement may terminate it by providing 30 days written notice to the other parties, provided that the signatories will consult during this 30-day waiting period to seek agreement on amendments or other actions that would avoid termination. In the event of termination, FTA will comply with 36 CFR § 800.3 – § 800.13 with regard to individual undertakings of the project covered by this Agreement.

VIII. Failure to Carry Out the Terms of the Agreement

If Council determines that the terms of this Agreement are not being carried out, FTA will comply with 36 CFR § 800.3 – § 800.13 with regard to individual undertakings of the project covered by this Agreement.

IX. Scope of Agreement

This Programmatic Agreement is limited in scope to all alternatives for Segment A and the preferred alternative for Segments B, C, D, E, and F of Sound Transit's Central Link Light Rail Transit Project as described in the Final Environmental Impact Statement, and is entered into solely for that purpose.

X. Effective End Date

This Programmatic Agreement will continue in full force and effect until December 31, 2006. At any time in the six-month period prior to this date, FTA may request Council and SHPO in writing to review the Project and consider an extension or modification of this Programmatic Agreement. No extension or modification will be effective unless all signatories to the Programmatic Agreement have agreed to it in writing.

XI. Satisfaction of Section 106 Responsibilities

Execution and implementation of this Programmatic Agreement evidences that FTA has satisfied its Section 106 responsibilities for all individual actions of this undertaking.

FEDERAL TRANSIT ADMINISTRATION, REGION X

By: Helen M. Knoll Date: Dec. 17, 1999
Helen Knoll, Regional Administrator

WASHINGTON STATE HISTORIC PRESERVATION OFFICER

By: Date: Dec. 20, 1999
Allyson Brooks, State Historic Preservation Officer

ADVISORY COUNCIL ON HISTORIC PRESERVATION

By: Date: 12/29/99
(for) [Name], Executive Director

CONCUR:

CITY OF SEATTLE

By: _____ Date: 2-24-00
Paul Schell, Mayor

CONCUR:

FRIENDS OF SEATTLE'S OLMSTED PARKS

By: _____ Date: 1-24-2000
Doug Jackson, President

CONCUR:

MUCKLESHOOT INDIAN TRIBE

By: _____ Date: _____
John Daniels, Jr., Council Chairman

CONCUR:

SUQUAMISH INDIAN TRIBE

By: Charlie Sigo Date: 1-3-00
[name], Council Chairman

CONCUR:

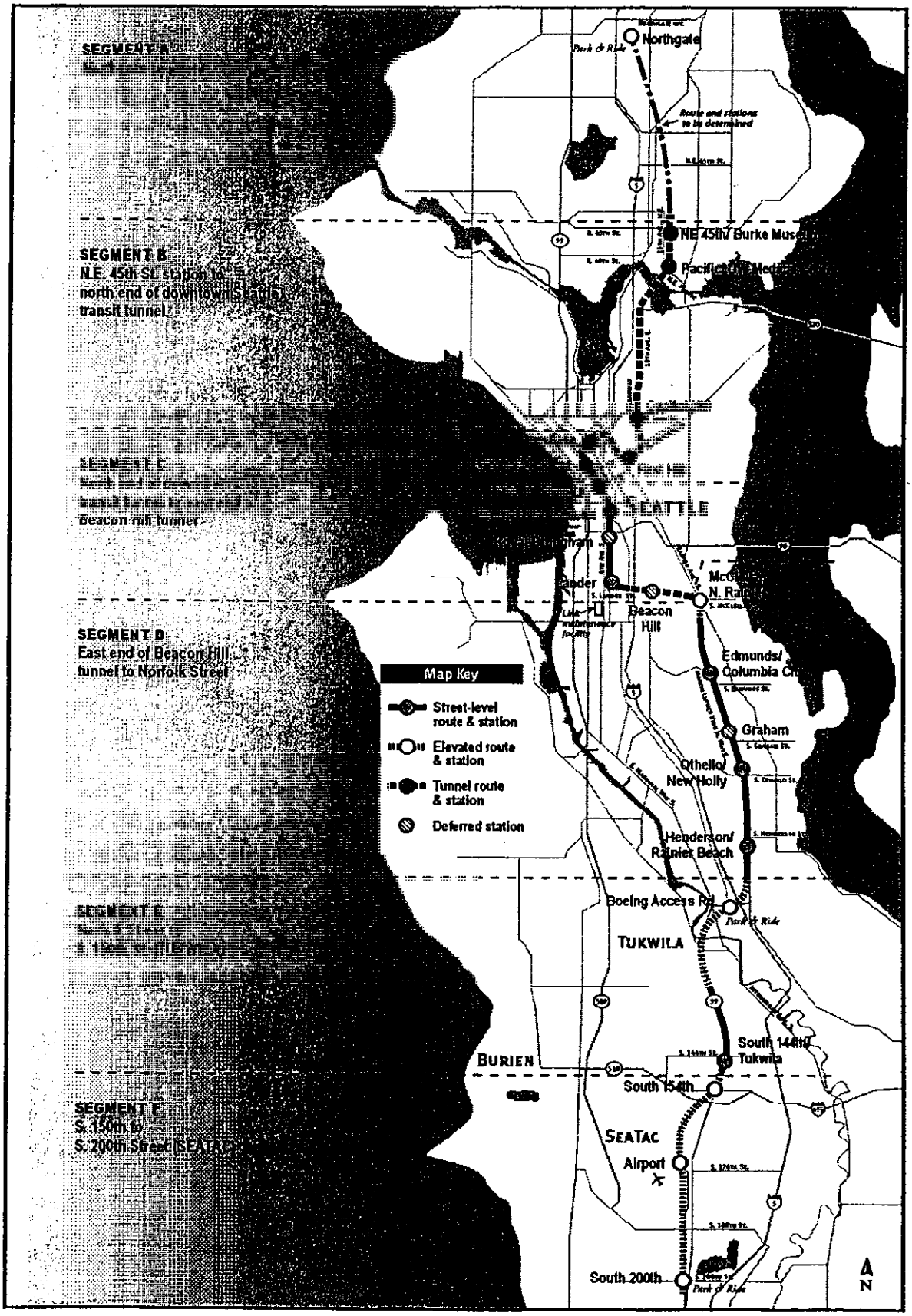
DUWAMISH INDIAN TRIBE

By: _____ Date: _____
Cecile Hanson, Council Chairwoman

CONCUR:

SOUND TRANSIT

By: Bob White Date: 1-20-00
Bob White, Executive Director




# CENTRAL LINK LIGHT RAIL ALIGNMENT

AMENDMENT
TO
PROGRAMMATIC AGREEMENT
AMONG
THE FEDERAL TRANSIT ADMINISTRATION,
WASHINGTON STATE HISTORIC PRESERVATION OFFICER,
AND THE ADVISORY COUNCIL ON HISTORIC PRESERVATION
REGARDING DEVELOPMENT OF
THE CENTRAL LINK LIGHT RAIL TRANSIT PROJECT
IN THE STATE OF WASHINGTON

The Programmatic Agreement dated December 1999 is hereby amended to add the following:

II. A. 6.

Ray-Carrossino Farmstead. The FTA, the SHPO, Sound Transit, the City of Tukwila, and/or other responsible entity, will execute a Memorandum of Agreement stipulating the documentation of the Ray-Carrossino Farmstead, preparation of a preservation plan, relocation of the farmhouse and stabilization of other historic buildings and structures on the site, and transfer of the property to the City of Tukwila, or another responsible entity, with provisions to preserve and maintain the significant historic features of the property in perpetuity in accordance with the recommended approaches and guidelines set forth in *The Secretary of the Interior's Standards for the Treatment of Historic Properties* (US Department of the Interior, National Park Service, 1995).

FEDERAL TRANSIT ADMINISTRATION, REGION X

By: Helen M. Knoll Date: 1/16/02
Helen Knoll, Regional Administrator

WASHINGTON STATE HISTORIC PRESERVATION OFFICER

By: Allyson Brooks Date: 1/24/02
Dr. Allyson Brooks, State Historic Preservation Officer

ADVISORY COUNCIL ON HISTORIC PRESERVATION

By: John M. Fowler Date: 02/20/02
John M. Fowler, Executive Director