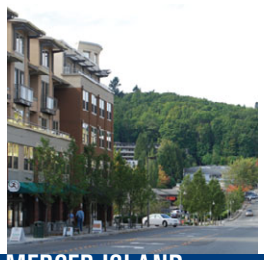
DRAFT EIS

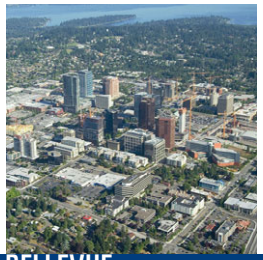
EAST LINK PROJECT

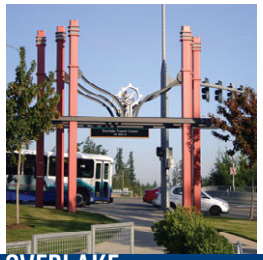
DRAFT ENVIRONMENTAL IMPACT STATEMENT

Executive Summary


SEATTLE


MERCER ISLAND


BELLEVUE


OVERLAKE


REDMOND

SOUNDTRANSIT

CENTRAL PUGET SOUND
REGIONAL TRANSIT AUTHORITY

Washington State Department of Transportation

U.S. Department of Transportation
Federal Transit Administration

December 2008

SOUNDTRANSIT

December 12, 2008

Dear Recipient:

The U.S. Department of Transportation Federal Transit Administration (FTA), Sound Transit (the Central Puget Sound Regional Transit Authority), and Washington State Department of Transportation (WSDOT) have prepared the Draft Environmental Impact Statement (Draft EIS) on the proposed East Link light rail transit project. Sound Transit is the project proponent.

The Draft EIS has been prepared pursuant to the National Environmental Policy Act (42 U.S.C. 4321 to 4370e) and the State Environmental Policy Act (Ch. 43.21C RCW). It has been prepared to inform the public, agencies and decision makers about the environmental consequences of building and operating the East Link extension of the light rail system from downtown Seattle to Mercer Island, Bellevue, and Redmond via Interstate 90. The Draft EIS examines the project alternatives identified by the Sound Transit Board in December 2006.

The major choices for the project involve the route and profile of the light rail line and station locations. The Sound Transit Board will consider the Draft EIS, public comment, and other information before identifying a preferred route and station locations. FTA, Sound Transit and WSDOT will then prepare a Final EIS. After completion of the Final EIS the Sound Transit Board will select the project to be built. The FTA will then issue a Record of Decision, which will state FTA's decision on the project and list Sound Transit's mitigation commitments to reduce or avoid impacts.

Enclosed is an Executive Summary of the Draft EIS. Also available are a separately bound Draft EIS and appendices, consisting of drawings and maps, and four technical reports. Please see the Fact Sheet in the Executive Summary regarding how to obtain these documents and who to contact for further information about the Draft EIS.

Sincerely,

James Irish

James Irish
Environmental Manager
Link Light Rail

Central Puget Sound Regional Transit Authority • Union Station
401 S. Jackson St., Seattle, WA 98104-2826 • Reception: 206-398-5000 • FAX: 206-398-5499 • www.soundtransit.org

EAST LINK LIGHT RAIL TRANSIT PROJECT
SEATTLE, WASHINGTON

DRAFT ENVIRONMENTAL IMPACT STATEMENT

Submitted pursuant to
The National Environmental Policy Act (NEPA) (42 U.S.C. 4322 (2)(c))
and the State Environmental Policy Act (SEPA) (Ch. 43.21 C RCW)
by the

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL TRANSIT ADMINISTRATION
and

CENTRAL PUGET SOUND REGIONAL TRANSIT AUTHORITY (SOUND TRANSIT)

and

WASHINGTON STATE DEPARTMENT OF TRANSPORTATION
(For SEPA)

In cooperation with

FEDERAL HIGHWAY ADMINISTRATION
CITY OF SEATTLE
CITY OF MERCER ISLAND
CITY OF BELLEVUE
CITY OF REDMOND
KING COUNTY
U.S. ARMY CORPS OF ENGINEERS
U.S. COAST GUARD

11-5-08
Date of approval

R. F. Krochalis, Regional Administrator
For Federal Transit Administration, Region 10

11/6/08
Date of approval

Perry Weinberg, Environmental Compliance Manager
For Central Puget Sound Regional Transit Authority

11/10/08
Date of approval

Megan White, Director of Environmental Services
For Washington State Department of Transportation

See the Fact Sheet for persons who may be contacted for additional information concerning this document.

Abstract

Sound Transit proposes to construct and operate an eastern extension of the Link light rail system providing urban transportation improvements in the Central Puget Sound metropolitan region. The East Link project would connect to the rail system's Initial Segment in downtown Seattle and extend the system east to Mercer Island, Bellevue, and Redmond. Alternatives are considered in five geographic segments in this EIS. **Segment A, Interstate 90,** connects downtown Seattle to Mercer Island and South Bellevue via I-90. **Segment B, South Bellevue,** connects I-90 to approximately SE 6th Street along one of three corridors: Bellevue Way, 112th Avenue SE, or the BNSF Railway right-of-way**. Segment C, Downtown Bellevue,** would travel through downtown Bellevue between approximately SE 6th Street and an I-405 crossing at either NE 6th Street or NE 12th Street on either an at-grade, elevated, or tunnel profile. **Segment D, Bel-Red/Overlake,** would travel from the I-405 crossing to the Overlake Transit Center, either through the Bel-Red corridor or along SR 520. **Segment E, Downtown Redmond,** would travel from Overlake Transit Center to Downtown Redmond via the SR 520 corridor until West Lake Sammamish Parkway and then proceed through Downtown Redmond via either Redmond Way or the BNSF Railway corridor. Alternatives considered include a No Build Alternative, one alternative for Segment A, five alternatives for Segment B, six alternatives for Segment C, four alternatives for Segment D, three alternatives for Segment E, and four maintenance facility alternatives. Overall, the project would have between 10 and 13 stations. Interim termini could occur at the east end of Segment C or any station in Segments D or E. Construction is expected to start in 2013, with operation under way between 2020 and 2021. The analysis and impact information in this EIS addresses potential long-term and short-term impacts of transportation; acquisitions, displacements and relocations; land use; economics; social impacts, community facilities, and neighborhoods; visual and aesthetic resources; air quality and greenhouse gas; noise and vibration; ecosystem resources; water resources; energy; geology and soils; hazardous materials; electromagnetic fields; public services; utilities; historic and archaeological resources; and parkland and open space. The analysis also considers issues related to environmental justice, protected park and historic resources, and the cost, funding, and cost-effectiveness of the alternatives.

Fact Sheet

Proposed Action

The Central Puget Sound Regional Transit Authority (Sound Transit) proposes to construct and operate an extension of its electric light rail transit system that would improve transportation connectivity between Seattle, Mercer Island, and the east side of Lake Washington to Bellevue and Redmond. The proposed light rail extension, known as the East Link Light Rail Transit Project (East Link Project), would cross Lake Washington in the center lanes of Interstate 90 (I-90) and would operate in a dedicated right-of-way between Seattle and Redmond. The East Link Light Rail Transit Project is included in Sound Transit 2: A Mass Transit Guide, The Regional Transit System Plan for Central Puget Sound (ST2), also known as the Mass Transit Expansion proposal, which was approved by the voters in November 2008.

The East Link corridor is approximately 18 miles long and has been divided into five segments along distinct geographic boundaries: Segment A, Interstate 90 (Seattle to Mercer Island and Bellevue via I-90); Segment B, South Bellevue; Segment C, Downtown Bellevue; Segment D, Bel-Red/Overlake (Downtown Bellevue to Overlake Transit Center); and Segment E, Downtown Redmond (Overlake Transit Center to Downtown Redmond). Alternatives considered include 19 build alternatives (one in Segment A, five in Segment B, six in Segment C, four in Segment D, and three in Segment E), the No Build Alternative, and four maintenance facility alternatives (three in Segment D and one in Segment E). Each alternative route includes one to four stations; a total of 28 station options exist in the five segments. The segment alternatives would be linked to create a complete, operable light rail system that would connect with the Central Link light rail system at the Chinatown/International District Station in downtown Seattle. The East Link Project may be constructed in phases, depending on available funding or other factors. Sound Transit anticipates that any station including and beyond the last station in Segment C could be considered an interim station.

Project Proponent

Sound Transit (Central Puget Sound Regional Transit Authority)
Union Station
401 South Jackson Street
Seattle, Washington 98104
www.soundtransit.org

Dates of Construction and Opening

Sound Transit plans to begin construction of East Link by 2013. The project may be constructed in stages, with the segment to Bellevue opening by 2020 and to Overlake Transit Center by 2021. Segment E to Downtown Redmond would be constructed after 2021.

State Environmental Policy Act (SEPA) Lead Agencies

Sound Transit – Nominal Lead Agency
Union Station
401 South Jackson Street
Seattle, Washington 98104
www.soundtransit.org

Washington State Department of Transportation (WSDOT) – Co-Lead Agency
401 Second Avenue South
Seattle, WA 98104
www.wsdot.wa.gov

National Environmental Policy Act (NEPA) Lead Agency

Federal Transit Administration
915 Second Avenue, Suite 3142
Seattle, Washington 98174-1002
www.fta.dot.gov/office/regional/region10/

SEPA Responsible Official

Perry Weinberg, Environmental Compliance Manager
Sound Transit
Union Station
401 South Jackson Street
Seattle, WA 98104-2826

Megan White, Director Environmental Services
WSDOT
PO Box 47331
Olympia, WA 98504

Contacts

Sound Transit

James Irish, Link Light Rail Environmental Manager
Union Station
401 South Jackson Street
Seattle, WA 98104-2826

Ann Mueller, Community Outreach Specialist
Union Station
401 South Jackson Street
Seattle, WA 98104-2826
(206) 370-5511

Elma Borbe, Environmental Planner
Union Station
401 South Jackson Street
Seattle, WA 98104-2826
(206) 398-5445

Federal Transit Administration

John Witmer, Community Planner
Jackson Federal Building, Suite 3142
915 2nd Avenue
Seattle, WA 98174
(206) 220-7950

Washington State Department of Transportation

Paul Krueger, WSDOT Environmental Manager,
I-90 Corridor and Sound Transit Lead
Urban Corridors Office
401 2nd Avenue South, Suite 400
Seattle, WA 98104

Dylan Counts, Sound Transit Liaison
WSDOT Public Transportation Division
401 2nd Avenue South, Suite 400
Seattle, WA 98104

Anticipated Permits and Approvals

Permit or Approval	Issuing Agency
Federal	
Section 106 Review	Federal Transit Administration
Section 4(f) Review	Federal Transit Administration, U.S. Department of Transportation, U.S. Department of the Interior
Clean Water Act, Section 404 and Section 10	U.S. Army Corps of Engineers
Federal Endangered Species Act Review	U.S. Fish and Wildlife Service and National Oceanic and Atmospheric Administration Fisheries Service
Interchange Justification Report	Federal Highway Administration
Franchise for Use of Interstate Right-of-Way	Washington State Department of Transportation
State and County	
Hydraulic Project Approval	Washington Department of Fish and Wildlife
Aquatic Use Authorization: Aquatic Lease	Washington Department of Natural Resources
Public Utility Commission Permits	Washington Public Utility Commission
Section 106 Review	Washington State Department of Archaeology and Historic Preservation
National Pollution Discharge Elimination System Stormwater Discharge Permit	Washington State Department of Ecology
Coastal Zone Management Consistency Certification	Washington State Department of Ecology
Temporary Modification of Water Quality Criteria	Washington State Department of Ecology
Underground Storage Tank Notification Requirement	Washington State Department of Ecology
Water Quality Certification: Section 401	Washington State Department of Ecology
Air Space Lease: Interstate or State Routes	Washington State Department of Transportation

Permit or Approval	Issuing Agency
Cities	
Shoreline Permits	Cities of Seattle, Mercer Island, Bellevue, Redmond
Street Use Permits	Cities of Bellevue and Redmond
Construction Permits	Cities of Seattle, Mercer Island, Bellevue, Redmond
Right-of-Way Permits or Franchise for Use of City Right-of-Way	Cities of Bellevue and Redmond
Environmental Critical Areas/Sensitive Areas Review	Cities of Bellevue and Redmond
Development Permits	Cities of Bellevue and Redmond
Noise Variance	Cities of Seattle, Mercer Island, Bellevue and Redmond
Street Vacations	Cities of Bellevue and Redmond
Certificates of Approval	Cities of Seattle and Redmond Landmark Preservation Boards
Other	
Various Approvals: Planning, Design Review, and Arts Commissions	Cities of Bellevue, Redmond, Seattle, Mercer Island
Notification of Intent to Perform Demolition or Asbestos Removal	Puget Sound Clean Air Agency
Pipeline and Utility Crossing: Permits	Utility Providers
Utility Approvals: Easements and Use Agreements	Utility Providers
Property Permits and Licenses	BNSF Railway

Principal Contributors

See Appendix A, List of Preparers.

Date of Issue of the Draft EIS

December 12, 2008.

Commenting on the Draft EIS

An extended comment period of 75 days (45 days are required) will begin December 12, 2008. Comments on the Draft EIS can be made in writing, by e-mail, or at the public hearings. All comments are due by close of business on February 25, 2009. Send written comments to the following address:

Attention: East Link DEIS Comments
Sound Transit
Union Station
401 South Jackson Street
Seattle, Washington 98104

E-mail comments should be sent to eastlink.deis@soundtransit.org. Both written and e-mail comments should include an addressee and return address.

Or please attend one of the following public hearing with open house events and offer your comments at the hearing:

Wednesday, January 21, 2009
Open House: 4 – 7 p.m.
Public Hearing starts at 5 p.m.
Old Redmond Schoolhouse Community Center,
16600 NE 80th Street, Redmond, WA

Thursday, January 22, 2009
Open House: 4 – 7 p.m.
Public Hearing starts at 5 p.m.
Thurgood Marshall Elementary School,
2401 S Irving Street, Seattle, WA

Tuesday, January 27, 2009
Open House: 4 – 7 p.m.
Public Hearing starts at 5 p.m.
Community Center at Mercer View,
8236 SE 24th Street, Mercer Island, WA

Wednesday, January 28, 2009
Open House: 5:30 – 8:30 p.m.
Public Hearing starts at 6 p.m.
Bellevue High School,
10416 Wolverine Way, Bellevue, WA

Thursday, January 29, 2009
Open House: 3:30 – 6:30 p.m.
Public Hearing starts at 4:30 p.m.
Bellevue City Hall,
450 110th Ave. NE, Bellevue, WA

Next Actions

Following publication of the Draft Environmental Impact Statement (EIS), public hearings will be held and comments will be taken on the proposed action. A Final EIS will then be published identifying a Preferred Alternative. Following publication of the Final EIS, the Sound Transit Board of Directors will make a final decision on the route, station, and maintenance facility locations to be built for the project. Also, after publication of the Final EIS, the Federal Transit Administration (FTA) is expected to issue its Record of Decision (ROD) on the project.

Related Documents

Environmental Documents

Final Environmental Impact Statement, Destination 2030: Metropolitan Transportation Plan for the Central Puget Sound Region (Puget Sound Regional Council, May 2001)

Central Link Light Rail Transit Project Final EIS (Sound Transit, November 5, 1999)

Central Link Light Rail Transit Project Final Supplemental EIS, Tukwila Freeway Route (Sound Transit, November 16, 2001)

Central Link Light Rail Transit Project Final EIS Addendum Initial Segment (Sound Transit, November 16, 2001)

Central Link Light Rail Transit Project Environmental Assessment Initial Segment (Sound Transit, February 5, 2002)

Airport Link Environmental Assessment/SEPA Addendum (EA) (Sound Transit, May 26, 2005)

North Link Final Supplemental EIS (Sound Transit, April 7, 2006)

East Link Project Environmental Scoping Information Report Seattle to Bellevue to Redmond (Sound Transit, August 2006)

I-90 Two Way Transit and HOV Operations Project Final EIS/ROD (WSDOT and Sound Transit, May 2004)

Regional Transit System Plan Final Supplemental EIS (Sound Transit, June 2005)

Other Documents

Sound Transit 2: A Mass Transit Guide, The Regional Transit System Plan for Central Puget Sound (Sound Transit, July 2008)

VISION 2040. 2008 Update. (PSRC, April 2008)

Destination 2030: Metropolitan Plan for the Central Puget Sound Region. (PSRC, 2001)

East Corridor High Capacity Transit Mode Analysis History (Sound Transit, 2006)

Regional Transit Long-Range Plan (Sound Transit, July 2005)

East Link Project Sound Transit Board Briefing Book Light Rail Alternatives Seattle to Bellevue to Redmond (Sound Transit, November 2006)

Coordination Plan, Updated December 2008 (Sound Transit, 2008)

Cost and Availability

This Draft EIS is available for public review in a variety of formats and locations. The Draft EIS is available on the Sound Transit website (www.soundtransit.org/eastlink). The Draft EIS is also available on CD at no cost from Sound Transit. Paper copies of the Draft EIS are available for the cost listed below.

- Executive Summary – FREE
- Draft EIS - $25.00
- Appendix to Draft EIS: Drawings and Maps - $25.00
- Technical Background Reports
  - East Link *Noise and Vibration Technical Report* - $15.00
  - East Link *Ecosystems Technical Report* - $15.00
  - East Link *Historic and Archaeological Resources Technical Report* - $15.00
  - East Link *Transportation Technical Report* - $15.00

Copies of the Draft EIS and related documents listed above are available for review or purchase at the offices of Sound Transit, Union Station, 401 South Jackson Street, Seattle, Washington 98104. To request any of the documents, please contact Elma Borbe at (206) 398-5445. To review these documents, please call the Sound Transit librarian at (206) 398 5344 during normal business hours

(weekdays from 8:00 a.m. to 5:00 p.m.) to arrange an appointment.

Paper copies of the Draft EIS documents are also available for review at the following public places:

- Bellevue Community College Library
- King County Library System
  - Bellevue Regional Library
  - Mercer Island Public Library
  - Newport Way Library
  - Library Connection at Crossroads
  - Redmond Regional Library
- Seattle Public Library Branches
  - Downtown Branch
  - International District /Chinatown Branch Library
  - Douglas Truth Branch Library
- University of Washington Library
- Washington State Department of Transportation Library
- Washington State Library

Preface

Local, regional, and state agencies have been studying high-capacity transportation alternatives to connect Seattle with the Eastside of King County since the mid-1960s. In 1976, when expansion plans for Interstate 90 (I-90) were stalled, the affected entities of Seattle, Mercer Island, Bellevue, and the Washington State Highway Commission signed a Memorandum Agreement on the Design and Construction of the I-90 bridge, which called for conversion of the center roadway to dedicated transit usage in the future.

Aerial of East Link Corridor

In 2004, the Puget Sound Regional Council (PSRC) prepared the *Central Puget Sound Regional High Capacity Transit Corridor Assessment* to establish a basis for more detailed planning studies and environmental analysis. Applying the adopted land use and metropolitan transportation plan, the report found that the cross-lake corridor, connecting the urban centers of Seattle, Bellevue, Overlake and Redmond, had the highest potential for near-term development of high-capacity transit (HCT) alternatives. Sound Transit's updated Long-Range Plan (2006) includes HCT across I-90 serving these urban centers, and the Sound Transit Board has adopted light rail as the mode for this corridor, now referred to as the East Link Project.

Today, much of Central Link is nearly complete, and Sound Transit is moving forward with the next phase of mass transit improvements in the Puget Sound region, Sound Transit 2 (ST2). ST2 includes construction of the East Link Project, which is an extension of light rail service from Seattle to Mercer Island, Bellevue, and Redmond via I-90. The ST2 plan funds East Link construction to the Overlake Transit Center in Redmond and provides for environmental review and preliminary engineering from Overlake Transit Center to Downtown Redmond.

Sound Transit, together with the Federal Transit Administration (FTA) and Washington State Department of Transportation (WSDOT), have prepared this Draft Environmental Impact Statement (EIS) for the East Link Project in compliance with the National Environmental Policy Act (NEPA), and the Washington State Environmental Policy Act (SEPA). This Draft EIS does the following:

- Describes the alternatives and their potential impacts
- Provides environmental information to assist decision-makers in selecting the project to be built
- Identifies measures to avoid and minimize impacts, and, when necessary, compensate for adverse impacts
- Considers cumulative impacts as part of the environmental review process
- Provides information for other environmental processes, including compliance with the following:
  - Endangered Species Act
  - Section 106 of the National Historic Preservation Act of 1966
  - Section 4(f) of the Department of Transportation Act of 1966, 49 United States Code (U.S.C.) 303
  - Section 6(f) of the Land and Water Conservation Funds Act
  - Executive Order 12898 – Environmental Justice

The scope of environmental review and the range of alternatives evaluated in the Draft EIS respond to public and agency comments received during the public scoping process that began in September 2006. After the close of the formal scoping period, community participation was further extended through community workshops, briefings, stakeholder presentations, and agency coordination meetings.

In order to comply with NEPA and SEPA and to enhance readability, this Draft EIS focuses on the most relevant information regarding project definition, potential adverse impacts, and trade-offs among

alternatives. The study area for the Draft EIS varies by topic and is described within each section of the document, as appropriate. The Draft EIS is organized as follows:

The **Executive Summary** is a separately bound condensed version of the overall document. It briefly describes the purpose and need for the project, the project's goals and objectives, and the alternatives being considered. It presents the major impacts for each alternative and potential mitigation, reviews the project's financial characteristics, and provides a brief evaluative comparison of the different alternatives. The Executive Summary concludes by identifying the major conclusions, areas of uncertainty, and the project's next steps.

Chapter 1, Purpose and Need, describes the project's purpose and need, background, and goals and objectives.

Chapter 2, Alternatives Considered, describes the alternatives that are studied in this Draft EIS. It also presents the history of selecting light rail as the mode of transit and identifies the process used to refine the range of potential project alternatives to the set studied in the Draft EIS. This chapter provides a review of construction activities and a comparison of cost estimates by alternative. It concludes by explaining the project's planning and decision-making context, including the major steps in the environmental evaluation and project development process.

Chapter 3, Transportation Environment and Consequences, describes the potentially affected existing and future regional and local transportation system and identifies how the project alternatives could affect that system. It then describes potential strategies to reduce or eliminate transportation impacts. The transportation system elements include transit, highways, arterials, local streets, nonmotorized facilities, freight traffic, and navigable waterways.

Chapter 4, Affected Environment and Environmental Consequences, describes the potentially affected environmental conditions (built and natural) in the study area, explains the impacts from construction and operation of the project alternatives, and describes avoidance and minimize measures. Finally, when adverse impacts cannot be avoided, compensatory mitigation is identified as appropriate. This chapter includes the following environmental elements:

- Acquisitions, displacements, and relocations
- Land Use
- Economics
- Social impacts, community facilities, and neighborhoods
- Visual and aesthetic resources
- Air quality
- Noise and vibration
- Ecosystem resources (aquatic resources, vegetation and wildlife, and wetlands)
- Water resources
- Energy
- Geology and soils
- Hazardous materials
- Electromagnetic fields
- Public services
- Utilities
- Historic and archaeological resources
- Parklands and open space

Chapter 5, Cumulative Impacts, describes relevant past, present, and reasonably foreseeable actions and projects in or around the project vicinity and the cumulative impact of the proposed alternatives on each element of the environment.

Chapter 6, Alternatives Evaluation, compares the project alternatives in terms of how effectively they meet the project's goals and objectives.

Appendices A to H provide additional details on the project and Draft EIS process. Appendices A to F, attached to the main volume of the Draft EIS, include document support information (references, lists of preparers and recipients, and acronyms and glossary), public involvement and agency coordination documentation, federally required reports on environmental justice and Section 4(f) and 6(f) resources (park and recreation areas, wildlife refuges, historic sites, and any facilities that have received Land and Water Conservation Act funding), an operating plan summary, and technical appendices related to the affected environment and environmental consequences analyses. Materials in Appendix F are numbered to match their corresponding environmental elements in Chapter 4. Appendix G is a separate large-format document containing conceptual design drawings, property acquisition, and hazardous material site appendices. Appendix H, also bound in separate volumes, contains detailed technical reports prepared for transportation, noise and vibration, ecosystems, and historic and archeological resources.

Contents

Executive Summary

ES.1 Introduction

Current population and employment levels are causing longer hours of congestion for traffic crossing Lake Washington in both directions, and population and employment trends indicate this situation will continue to worsen. On both sides of the lake, the cities of Seattle, Bellevue and Redmond are rapidly meeting housing and employment density goals set by the Puget Sound Regional Council (PSRC). PSRC's *VISION 2040* plan recognizes that these urban centers will require high-capacity transit (HCT) options to meet their increasing transportation demands. A record increase in transit ridership of 15 percent has occurred in the last year within the Puget Sound region as gas prices have dramatically increased (American Public Transportation Association, 2008). However, current transit options are vulnerable to traffic congestion, which affects transit's on-time performance and reliability. In July 2006, as an outgrowth of nearly 40 years of extensive analyses and coordination among agencies and local jurisdictions, including public input, the Central Puget Sound Regional Transit Authority (known as Sound Transit) identified light rail as the preferred transportation mode for this corridor.

Sound Transit is proposing the East Link Project to address these growing transportation needs. The East Link Project would entail construction of an approximately 18-mile-long light rail transit system in a dedicated right-of-way from Downtown Seattle to Mercer Island, Bellevue, Overlake, and Redmond via Interstate 90 (I-90), and it would benefit the region by providing frequent and reliable HCT service 20 hours each day in the Seattle-Bellevue-Redmond corridor. The light rail system would provide fast transit travel times and would increase transportation capacity in the corridor. Daily ridership in the corridor is projected to be up to 48,000 boardings by 2030, and light rail service can easily be expanded to accommodate future growth.

Table ES-1 shows anticipated project milestones for the East Link Project. The schedule for final design, construction, and operation will be refined as the project nears the end of environmental review and preliminary design.

The East Link Light Rail Transit Project is included in Sound Transit 2: a Mass Transit Guide, The Regional Transit System Plan for Central Puget Sound (ST2), also known as the Mass Transit Expansion proposal, which was approved by the voters in November 2008. The ST2 Plan funds construction and operation of the portion of the East Link Project from Seattle to the Overlake Transit Center. ST2 provides funding for an at-grade or elevated alternative through Downtown Bellevue. If the Sound Transit Board selects a tunnel alternative in this segment, additional funding sources would be required. Environmental review and preliminary engineering are funded for the segment from the Overlake Transit Center Station to Downtown Redmond. The length and configuration of the constructed project would depend on project funding, final project design, track profiles, and project costs. However, this Draft Environmental Impact Statement (EIS) covers the whole corridor.

ES.2 Purpose and Need

ES.2.1 Purpose

The purpose of the East Link Project is to expand the Sound Transit Link light rail system from Seattle to Mercer Island, Bellevue, and Redmond via I-90 in

TABLES ES-1
Project Milestone

Preliminary Design and Environmental Review	
Draft EIS published	December 2008
Draft EIS comment period	75 days
Sound Transit Board identifies preferred alternative	Spring 2009
Final EIS published	Summer 2010
Sound Transit Board selects project to be built	Summer 2010
Federal Record of Decision	Summer 2010
Final Design, Construction, and Operation	
Final Design	2011 - 2013
Construction	
• Seattle to Bellevue • Bellevue to Overlake	2013 - 2019 2014 - 2020
Start of Service	
• Seattle to Bellevue • Bellevue to Overlake	2020 2021

order to provide a reliable and efficient alternative for moving people throughout the region. The following project objectives support this purpose:

- Improve speed and reliability and expand region's transportation system capacity through an exclusive light rail transit right-of-way, while preserving the environment.
- Increase mobility and accessibility to and from the region's highest employment and housing concentrations.
- Support regional land use and transportation plans—*VISION 2040* (PSRC, 2008) and *Destination 2030* (PSRC, 2001)—to direct growth into high-density urban and manufacturing centers in Downtown Bellevue, Overlake, and Redmond by providing an HCT connection between these centers, Seattle, and other regional destinations.
- Continue to implement the goals and objectives identified in Sound Transit's Long-Range Plan (Sound Transit, 2005), which guides the development of the regional HCT system. The main transportation goal is to "provide a public transportation system that helps ensure long-term mobility, connectivity, and convenience for the citizens of the Puget Sound Region for generations to come" and to "provide reliable, convenient, and safe public transportation services between regional growth centers and create an integrated system of transit services."
- Implement the HCT element of the Washington State Department of Transportation (WSDOT) I-90 Two Way Transit and High Occupancy Vehicle (HOV) Operations Project Final EIS (WSDOT and Sound Transit, 2004); the Federal Highway Administration (FHWA) Record of Decision (September 28, 2004); and the August 2004 Amendment to the 1976 Memorandum Agreement between King County, City of Bellevue, City of Seattle, City of Mercer Island, Washington State Transportation Commission, and Sound Transit (WSDOT, 2004). These documents stipulate that the ultimate configuration of I-90 should accommodate all phases of the I-90 Two-Way Transit and HOV Operations Project with HCT in the center lanes. The amendment directs the agencies "to provide high-capacity transit in the center lanes of I-90 between Bellevue and Seattle as quickly as possible . . ." The amendment and Final EIS define HCT as ". . . a transit system operating in dedicated right-of-way, such as light rail, monorail, or a substantially equivalent system."
- More fully develop a regional transit system that would integrate with the Central Link light rail line, providing direct connections among the largest urban centers in King County.
- Fulfill Sound Transit's legislative mandate to meet public transportation and mobility needs for HCT infrastructure in the Central Puget Sound region, as established by the State High-Capacity Transportation Systems Act (Chapter 81.104 Revised Code of Washington).

ES2.2 Need

There are several reasons why existing transit will not be able to serve future transit needs in the project vicinity.

Increased Demand for Transit Services

Transit demand across Lake Washington is expected to nearly double in the next 30 years as residential and employment growth continue on both sides of the lake. In addition, regional transit models project a 30 percent increase in transit demand between Bellevue and Redmond through 2030 as a result of strong population and employment growth in the region.

Regional Urban Center Growth Plans Require High-Capacity Transit Investments

The PSRC long-range transportation planning document *Destination 2030* identifies Seattle, Bellevue, and Redmond as urban centers. As a result, each city has adopted plans to create concentrated centers of high-density, mixed-use, pedestrian-oriented development under the assumption that they will receive HCT to support their changing transportation needs.

Increased Congestion on I-90

The I-90 corridor is expected to reach maximum vehicle capacity during peak-hour travel as early as year 2015, and the roadway capacity of the I-90 bridge is constrained by bottlenecks at interchanges with I-405 in Bellevue and I-5 in Seattle. Even with planned improvements on the State Route (SR) 520 and I-90 Lake Washington bridge crossings, the westbound travel time on I-90 is expected to double during peak commute hours by the year 2030, thus reducing the mobility of people crossing I-90 during the peak hours.

Operating Deficiencies in Regional Bus Transit

With urban centers throughout the region increasing in population density, it is essential to identify ways

to overcome the following limitations of the existing regional bus system:

- **Increasing Congestion.** Because use of bus transit is highly sensitive to expectations of travel time, growth in transit ridership may be constrained as use of HOV lanes expands and corridor congestion increases, resulting in longer bus travel times. WSDOT and Sound Transit transportation modeling indicates that the duration of congestion periods along I-90 in the morning (AM) and afternoon (PM) peak periods is expected to lengthen by more than an hour in both directions by the year 2030, and bus speeds from Seattle-to-Bellevue and Bellevue-to-Redmond are projected to decrease by 20 percent or more.
- **Decreased Reliability.** The reliability of current bus service in the corridor east of Lake Washington is poor because of congestion on local arterials and on I-90. Lack of reliability makes it difficult for users to have confidence they will reach their destinations on time and reduces the attractiveness of bus service.

Limited Transit Capacity and Connectivity
High-density employment centers generate a demand for reliable daily business and commuter travel that is not well served by the existing bus transit system because of its poor reliability and speed in the project corridor. The limited capacity of existing arterials in urban areas often limits the ability to increase bus service and/or stops.

ES.3 East Link Meets the Need

The East Link project would meet the stated need by providing greater capacity and reliability and improving travel time for people traveling between Seattle, Bellevue, and Redmond. To meet planned growth in the corridor, Bellevue, Seattle, and Redmond have made land use and planning decisions based upon increased employment and residential density, which would be more fully realized with the long-term promise of an HCT connection across I-90. East Link is this connection. Specifically, the project would:

- Meet growing transit and mobility demands by increasing person-moving capacity across Lake Washington on I-90 by up to 60 percent.
- Strengthen the transportation linkages between the major urban employment and residential centers through which this project passes: Seattle, Bellevue, Overlake, and Redmond.
- Substantially reduce travel time for most transit riders.

This analysis estimates that light rail travel between Seattle and Downtown Bellevue would reliably take less than 20 minutes, and light rail service to Downtown Redmond would take about 35 minutes regardless of the time of day or level of road congestion. Furthermore, adding to the existing Central Link system, which will run between Downtown Seattle and Sea-Tac International Airport in 2009 and will be extended north to the University of Washington in 2016, provides enhanced benefits of connecting multiple regional destinations using one mode.

In addition, the frequency of transit throughout the day would also improve because light rail would operate 20 hours every day with headways of 9 to 15 minutes, in comparison to average bus headways of 15 to 30 minutes or longer. Light rail would provide more reliable service than existing transit and greater capacity for moving people within the corridor because it would not be limited to existing roadway infrastructure and slowed by traffic congestion.

ES.4 Project Corridor

The East Link Project would serve the regional destinations of Downtown Seattle, Mercer Island, Downtown Bellevue, Overlake, and Downtown Redmond. The study area for East Link is divided into five segments (Exhibit ES-1) for evaluation purposes. The study area for each impact category varied along this corridor, from 200 feet on each side of the route to evaluation of the entire Puget Sound region.

ES.5 Comparison of Alternatives

To identify the most promising alternatives to propose during the EIS public scoping process and to analyze in this Draft EIS, Sound Transit developed and reviewed 35 preliminary alternatives for the corridor between Seattle and Redmond. Several alternatives were eliminated because of ridership, cost, construction risk, and environmental impacts.

Public scoping initiated the environmental review process. The scoping period took place from September 1, 2006, to October 2, 2006. Sound Transit conducted the scoping process in consultation with city and county agencies; affected tribes; regional, state, and federal agencies; interest groups; businesses; affected communities and the public.

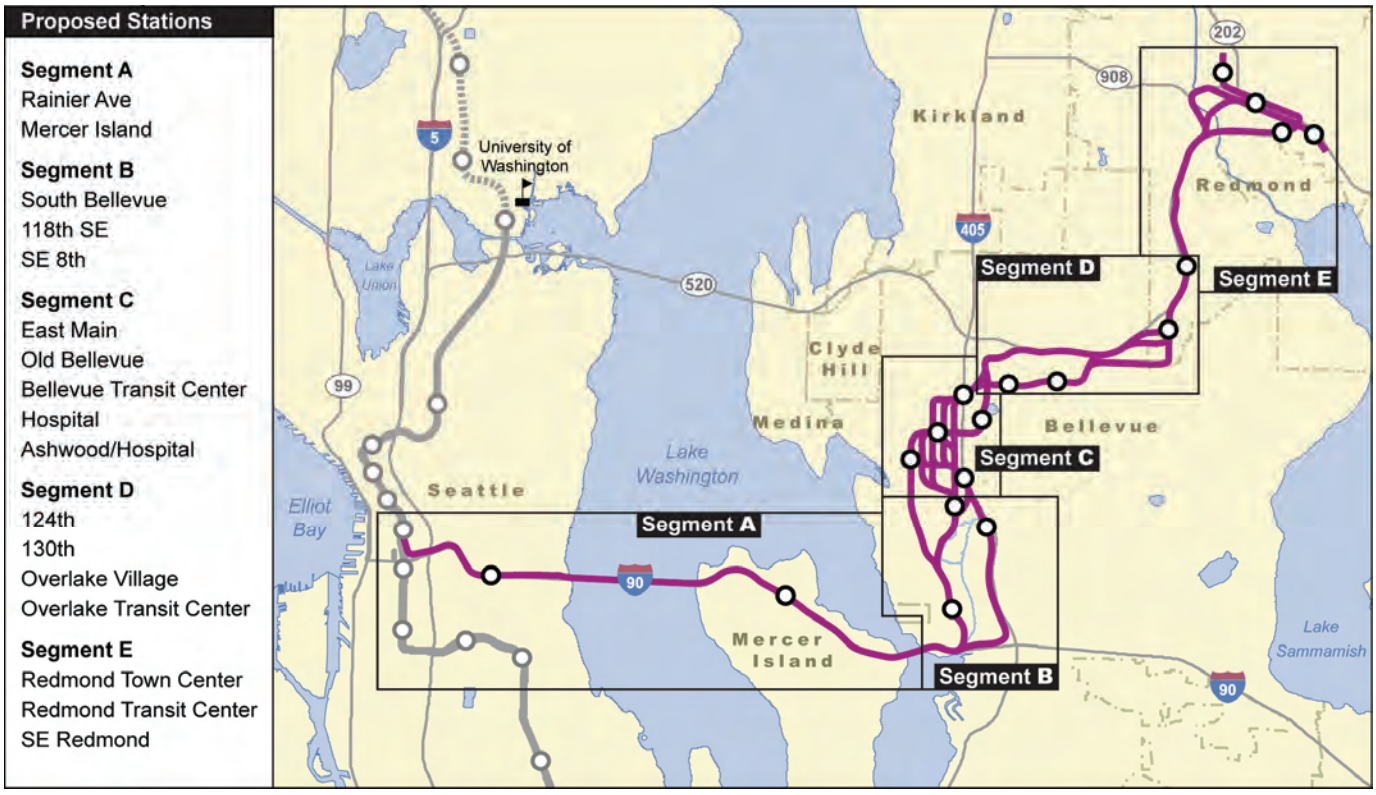


EXHIBIT ES-1
Project-Wide East Link Study Area

When the alternative development process was complete, a No Build Alternative, 19 build alternatives, and 4 maintenance facility alternatives were carried forward for analysis in this Draft EIS: one Segment A alternative, five Segment B alternatives, six Segment C alternatives, four Segment D alternatives, and three Segment E alternatives.

ES.5.1 No Build Alternative

The No Build Alternative represents the transportation system and environment as they would exist without the proposed project. The No Build Alternative provides a baseline condition for comparing impacts of the build alternatives and includes two future transportation forecast years, 2020 and 2030.

For the transportation analysis in the East Link Draft EIS, there are two No Build Alternatives related to implementing the various stages of the I-90 Two Way Transit and HOV Operations Project. The final stage of the I-90 Two Way Transit and HOV Operations Project would place HOV lanes in the outer roadway between Seattle and Mercer Island. One No Build Alternative includes construction and use of these outer roadway HOV lanes along with the center roadway before construction of the East Link Project, while the other assumes the HOV lanes in the outer roadways would start operating when the I-90 center roadway closes for construction of East Link and therefore HOV users would not be able to use both facilities at the same time. Because the two No Build Alternatives are relevant only in Segment A, they are discussed in greater detail in the summary of that segment. All other environmental analyses evaluated one No Build Alternative, which assumes a

Simulation of Light Rail on I-90 with Completed of R-8A Project

completed I-90 Two Way Transit and HOV Operations Project, with HOV lanes in the outer roadway as well as the center roadway.

ES.5.2 Build Alternatives

The East Link Project would ultimately be a composite of one alternative from each of the five geographic segments in the study area. There are 19 alternatives spread over these five segments, as follows:

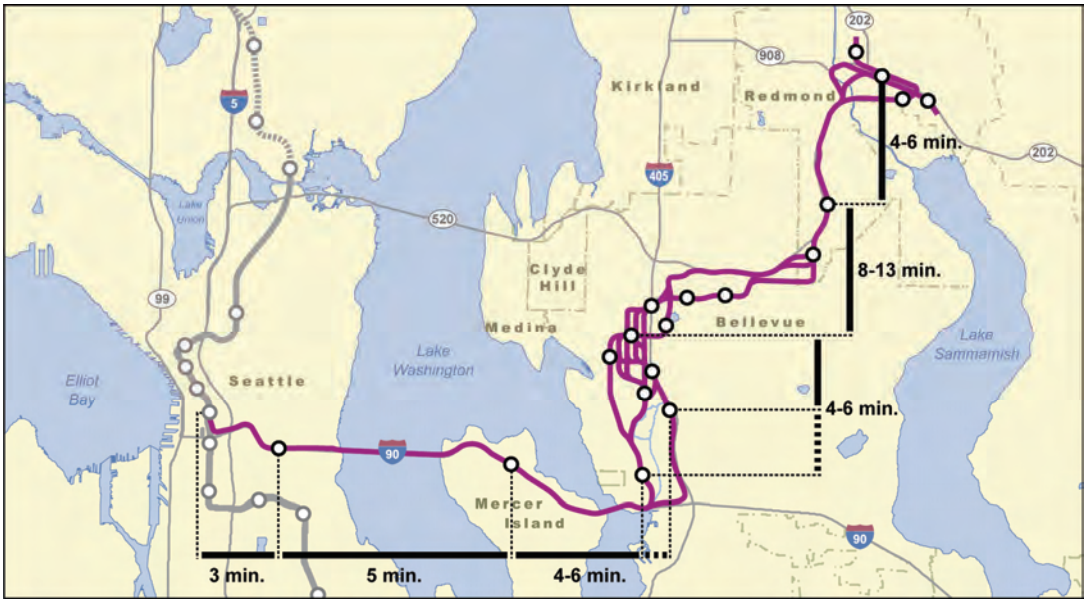


EXHIBIT ES-2
Light Rail Travel Times in the East Link Corridor

Segment A, Interstate 90

- I-90 Alternative (A1)

Segment B, South Bellevue

- Bellevue Way Alternative (B1)
- 112th SE At-Grade Alternative (B2A)
- 112th SE Elevated Alternative (B2E)
- 112th SE Bypass Alternative (B3)
- BNSF Alternative (B7)

Segment C, Downtown Bellevue

- Bellevue Way Tunnel Alternative (C1T)
- 106th NE Tunnel Alternative (C2T)
- 108th NE Tunnel Alternative (C3T)
- Couplet Alternative (C4A)
- 112th NE Elevated Alternative (C7E)
- 110th NE Elevated Alternative (C8E)

Segment D, Bel-Red/Overlake

- NE 16th At-Grade Alternative (D2A)
- NE 16th Elevated Alternative (D2E)
- NE 20th Alternative (D3)
- SR 520 Alternative (D5)

Segment E, Downtown Redmond

- Redmond Way Alternative (E1)
- Marymoor Alternative (E2)
- Leary Way Alternative (E4)

Within Segments D and E, there are four alternative sites for a new Sound Transit maintenance facility:

- 116th Maintenance Facility (MF1)
- BNSF Maintenance Facility (MF2)
- SR 520 Maintenance Facility (MF3)
- SE Redmond Maintenance Facility (MF5)

Exhibit ES-2 above is a schematic of estimated travel times for the East Link Project. Table ES-2 provides a segment-level comparison of all the alternatives considered for the segments. Following the table, the segments and the alternatives are discussed in more detail. The issues that differentiate alternatives within each segment, such as estimated capital cost (in 2007 dollars), ridership, construction, transportation, and environmental impacts, are compared in segment-level tables. The environmental-impact comparison focuses on categories that were found to differentiate alternatives within each segment, and the categories may differ between segments. In addition, each alternative is addressed individually with an overview of features, performance, environmental impact issues, construction impacts, and construction risk level. Following these descriptions of the segments and alternatives is a summary description of the maintenance facility alternatives and a brief project-wide analysis.

Finally, this Executive Summary provides an overview of significant and unavoidable adverse impacts, areas of controversy, issues to be resolved, avoidance, minimization and mitigation measures, a summary of other required environmental evaluations, and the next steps for the East Link Project.

TABLE ES-2
Summary of Alternative Analysis

Alternative	Planned Number of Stations	Segment Daily Boardings (2030)[a]	East Link Daily Ridership Totals (2030)[a]	Segment Travel Time (minutes)	Key Environmental Issues	Estimated Cost ($2007 in millions)[b]
Segment A, Interstate 90						
A1, I-90	2	5,500	45,500	11	Improved person throughput and capacity. Similar or improved vehicle and truck travel time. Traffic intersection impacts and increased bus travel times with light-rail-only option on D2 Roadway.	730 to 750
Segment B, South Bellevue						
B1, Bellevue Way	1	4,000	46,000	5	Residential & business displacements, park impacts, visual impacts, nonwetland habitat impacts, noise & vibration impacts, traffic intersection benefit and impacts	420
B2A, 112th SE At-Grade	2	4,500	44,500	5	Residential displacements, park impacts, habitat removal, visual & noise impacts, traffic intersection impacts	500
B2E, 112th SE Elevated	2	4,500	45,500	5	Residential displacements, habitat removal, park & visual impacts	550
B3, 112th SE Bypass	1	4,000	45,500	5	Residential displacements, park impacts, habitat removal, visual & wetland impacts, traffic intersection impacts	520
B7, BNSF	1	1,000	43,500	5	Business displacements, park impacts, noise impacts, wetland & habitat impacts, traffic intersection impacts	510
Segment C, Downtown Bellevue						
C1T, Bellevue Way Tunnel	3	8,000	46,000	5	Hazardous material sites, potential for soil settlement, residential & business displacements, noise, vibration & ground-borne noise impacts, utility relocation, traffic intersection impacts	1,610
C2T, 106th NE Tunnel	2 to 3	7,500	46,500	5	Hazardous material sites, residential & business displacements, noise, vibration & ground-borne noise impacts, utility relocation, traffic intersection impacts	1,280 to 1,360
C3T, 108th NE Tunnel	2 to 3	8,000	48,000	4	Hazardous material sites, residential & business displacements, noise, vibration & ground-borne noise impacts, utility relocation, traffic intersection impacts, park impacts, visual impacts	1,120 to 1,260
C4A, Couplet	2 to 3	6,500	44,000	7	Residential & business displacements, noise & vibration impacts, utility relocation, traffic intersection and lane removal impacts, park impacts, visual impacts	610 to 700
C7E, 112th NE Elevated	2 to 3	5,500	44,000	4	Business displacements, noise & vibration impacts	500 to 600
C8E, 110th NE Elevated	2 to 3	6,500	45,500	4	Residential & business displacements, noise & vibration impacts, park & visual impacts, traffic intersection impacts	700

TABLE ES-2
Summary of Alternative Analysis

Alternative	Planned Number of Stations	Segment Daily Boardings (2030)[a]	East Link Daily Ridership Totals (2030)[a]	Segment Travel Time (minutes)	Key Environmental Issues	Estimated Cost ($2007 in millions)[b]
Segment D, Bel-Red/Overlake						
D2A, NE 16th At-Grade	3 to 4	6,500	46,000	10	Business displacements; hazardous material; stream, wetland & habitat impacts; traffic intersection impacts	690 to 710
D2E, NE 16th Elevated	3 to 4	6,500	46,000	9	Business displacements; hazardous material; stream, wetland, & habitat impacts; traffic intersection impacts	800 to 840
D3, NE 20th	3 to 4	6,000	45,500	10	Business displacements; hazardous material; stream, wetland, & habitat impacts; traffic intersection impacts	840 to 870
D5, SR 520	2	6,000	46,000	7	Business displacements hazardous material; noise impacts; stream, wetland, & habitat impacts; traffic intersection impacts	530 to 580
Segment E, Downtown Redmond						
E1, Redmond Way	2	3,000	45,500	6	Residential & business displacements, park impacts, noise & vibration impacts, stream & habitat impacts, traffic intersection impacts	680
E2, Marymoor[c]	2 to 3	3,000	45,500 to 46,000	6 to 8	Residential and business displacements, park impacts, stream & habitat impacts, vibration impacts, traffic intersection impacts	570 to 790
E4, Leary Way	2	3,000	45,500	6	Residential & business displacements, historic property impacts, park impacts, visual impacts, stream & habitat impacts, vibration impacts, traffic intersection impacts	580

[a] Based on approved Puget Sound Regional Council land use forecasts. Higher ridership is likely with proposed land use plans in the Bel-Red and Overlake areas.

[b] Ranges show lowest to highest for the D2 Roadway options in Segment A and the different connector options in Segments C and D.

[c] Range for E2 Marymoor is dependent on whether the alternative terminates at Redmond Town Center (low end) or continues to the Redmond Transit Center (high end).

Segment A: Interstate 90

Segment A would begin in the Downtown Seattle Transit Tunnel at the International District/Chinatown Station. This station is in an urban area consisting of high-density residential, retail, and office uses. There are large event centers nearby, such as Safeco Field and Qwest Field and Event Center, and some industrial land uses. The alternative would travel eastward on I-90 across north Beacon Hill and Rainier Valley, which encompass a mix of residential and commercial uses and parklands at the intersection of Rainier Avenue South and I-90. The route would then travel on the I-90 floating bridge across Lake Washington to Mercer Island, mostly a low-density residential community. The Mercer Island Town Center is located immediately south of I-90 and has a mixture of multifamily residential, commercial, and offices. The route would remain on I-90 across Mercer Island and Lake Washington to south Bellevue.

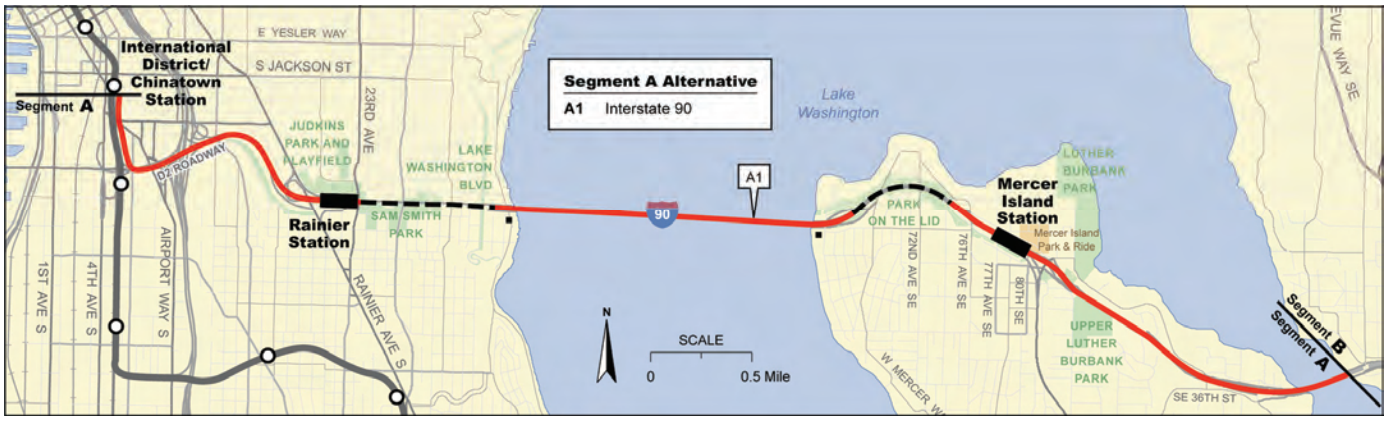
In Segment A, one alternative is proposed: the I-90 Alternative (A1), which would connect with the Central Link system at the International District/Chinatown Station. From there it would enter I-90 via the D2 Roadway (an exclusive access road for transit/HOVs to the reversible center roadway of I-90). It would provide a station in the center of I-90, between Rainier Avenue and 23rd Avenue, just east of the current I-90 Rainier bus stop. The Rainier Station would include pedestrian connections to 23rd Avenue S and Rainier Avenue S. Alternative A1 would continue in the I-90 reversible center lanes, crossing Lake Washington to a Mercer Island station between 77th and 80th avenues, then cross the I-90 East Channel Bridge to connect to Segment B in South Bellevue.

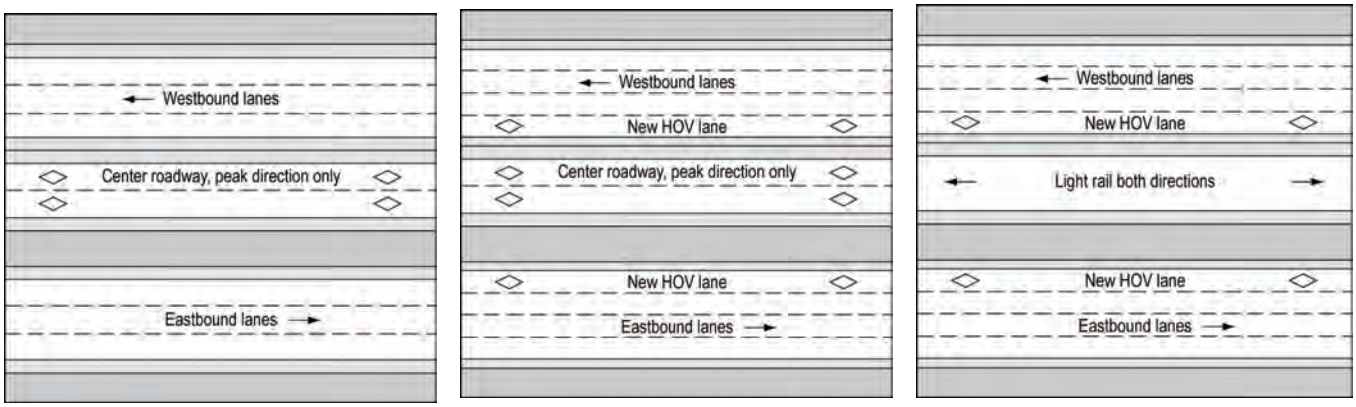
There are two design options for A1. The first involves exclusive light rail on the D2 Roadway section of I-90 (see west side of Segment A graphic below). The option would allow joint transit bus and light rail use of the D2 roadway between 5th Avenue and the Rainier Avenue interchange.

The second A1 option involves the pedestrian connection to the Mercer Island Station. One option has pedestrian access via 80th Avenue SE and 77th Avenue SE. Another option has pedestrian access at 80th Street but none at 77th Street; instead, it would have a pedestrian bridge over the eastbound lanes of I-90 to the station, connecting to the Mercer Island Sculpture Garden and Town Center shopping district at approximately 78th Avenue SE.

The East Link Project would require dedication of the I-90 center roadway for HCT, as stipulated in the 1976 Memorandum Agreement (as amended in 2004) by Seattle, Mercer Island, Bellevue, King County Metro, WSDOT, and Sound Transit. Today, the reversible center roadway is dedicated to peak-direction HOV lanes, and the outer roadways are general-purpose lanes. HOV lanes are being built on the outer roadways in a three-stage project known as the I-90 Two Way Transit and HOV Project, allowing HOVs to travel in both directions any time of the day (Exhibit ES-3). This project has the following stages:

1. Stage 1 has constructed a westbound HOV lane on the outer roadway between East Mercer Way and 80th Avenue SE and a direct-access exit ramp at 80th Avenue SE. The existing ramps at Bellevue Way have been modified for two-way HOV operation.
2. Stage 2 will construct an eastbound HOV lane on the outer roadway between East Mercer Way and 80th Avenue SE and will modify an existing direct access ramp at 80th Avenue SE.
3. Stage 3 will construct HOV lanes in both outer roadways between the Mercer Island Town Center and Rainier Avenue S in Seattle. In addition, an eastbound direct access exit ramp will be added at 77th Avenue SE.





I-90 Existing Conditions *I-90 Two Way Transit and HOV Project* *I-90 with Alternative A-1*

EXHIBIT ES-3
I-90 Configuration Before and After Alternative A1

The entire I-90 Two Way Transit and HOV Operations Project would need to be constructed prior to the East Link Project so that HOV traffic can be moved from the center roadway to the outer roadways. If the I-90 Two Way Transit and HOV Operations Project is completed well before East Link construction begins, the reversible center HOV lanes would be available for bus transit, HOVs, and Mercer Island residents in conjunction with the new HOV lanes.

Stage 1 was recently completed and Stage 2 is being designed, but Stage 3 may not be completed until just before East Link construction begins. Because the HOV lanes in the outer roadway might not be completed until just before construction of East Link, A1 was analyzed against two No Build Alternatives:

1. One with the Stage 3 HOV lanes constructed immediately before East Link, so that HOV and transit traffic shifts from using the center roadway to the outer roadway HOV lanes, but never uses both at the same time. This is referred to as "with Stages 1 and 2 only."
2. One with the Stage 3 HOV lanes complete and the center roadway available for transit, HOV users and Mercer Island residents. In this No Build Alternative, both the center roadway and outer HOV lanes are open the entire distance between Seattle and Bellevue (see Exhibit ES-3). This is referred to as "with Stages 1 – 3."

Components

- **Rainier Station** between 23rd Avenue S and Rainier Avenue S
- **Mercer Island Station**, with existing park-and-ride garage between 77th and 80th avenues SE
- **Optional pedestrian bridge,** a new bridge over I-90 from Town Center to the Mercer Island Station
- **Two traction power substations,** one located under the I-90 floating bridge near S Day Street in Seattle, and the other where the bridge touches down on Mercer Island
- **D2 Roadway,** for shared use with bus transit or light rail only

I-90 Floating Bridge Design Considerations

A1 has several design considerations regarding the compatibility of light rail with the I-90 floating bridge. The Washington State Legislature Joint Transportation Committee commissioned an independent review team (IRT) to evaluate the bridge design with light rail. The IRT concluded that all issues identified as potentially affecting feasibility can be addressed. Specific concerns involve the expansion joints on the transition span between the approach bridges and the floating bridge, the additional weight of rail and trains on the bridge pontoons, stray electrical currents, installation of light rail components on the bridge, seismic upgrades, and bridge maintenance changes.

Expansion Joints. The I-90 bridge includes land-based fixed spans attached to the floating mid-section of the bridge. The existing traffic expansion joint between the fixed and floating portions of the bridge allows for bridge movement, and the new light rail expansion joint would need to accommodate this movement also. Because this would be the first known example of rail operation on a floating bridge, Sound Transit compared the anticipated movement on the I-90 bridge with the movements of other modern passenger rail suspension bridges that have similar movement. This comparison demonstrates that it is feasible to design a light rail track system to accommodate the movements of the I-90 floating bridge. Sound Transit developed a conceptual design for the track expansion joints and will further develop plans for early final design and

prototyping of the joint, with continued coordination with WSDOT during the design.

Additional East Link Weight. Load testing was conducted by WSDOT and Sound Transit in September 2005. Results of the load test confirmed previous findings that the bridge can be structurally retrofitted to carry the loads associated with the light rail system in addition to general traffic on the roadway. The additional weight would not change the bridge's ability to remain safe during storm events.

Stray Currents. Stray electrical current from light rail operation could corrode the steel components of the bridge. The project would include three layers of protection: isolating the rail by constructing special insulating systems, installing a stray current collector mat, and a cathodic protection system. Additionally, the project would place a monitoring system on the bridge to monitor stray current levels.

Light Rail Installation. Rails are typically attached to a bridge by placing them on concrete plinth blocks. These, the overhead catenary poles, and other pieces of rail equipment normally attach to a bridge deck with dowel rods. However, the bridge deck has a dense fabric of reinforcing steel and post-tensioning cable, so it is important to locate this steel during construction to avoid damaging it. Sound Transit has demonstrated that it can locate the steel using the proven method of ground-penetrating radar.

Seismic Upgrades. WSDOT has recently adopted a new seismic retrofit policy for bridges, including portions of I-90 where the light rail would be located. Placing light rail on the I-90 structures would not change their seismic vulnerability. However, Sound Transit commits to funding improvements to improve the earthquake resistance of the structures in the I-90 corridor used by light rail, consistent with WSDOT's own practices for retrofitting existing structures. The floating bridge is generally not vulnerable to seismic events due to the dampening effect of the lake water.

Bridge Maintenance. Some maintenance procedures may change with light rail on the bridge. Sound Transit would work with WSDOT to make sure that the bridge can continue to be maintained satisfactorily.

Evaluation Summary

Table ES-3 provides a summary of Segment A features and impacts.

Markets Served by Stations: A1 would serve Downtown Seattle, North Rainier Valley Urban Village, Central Area neighborhood, and Mercer Island.

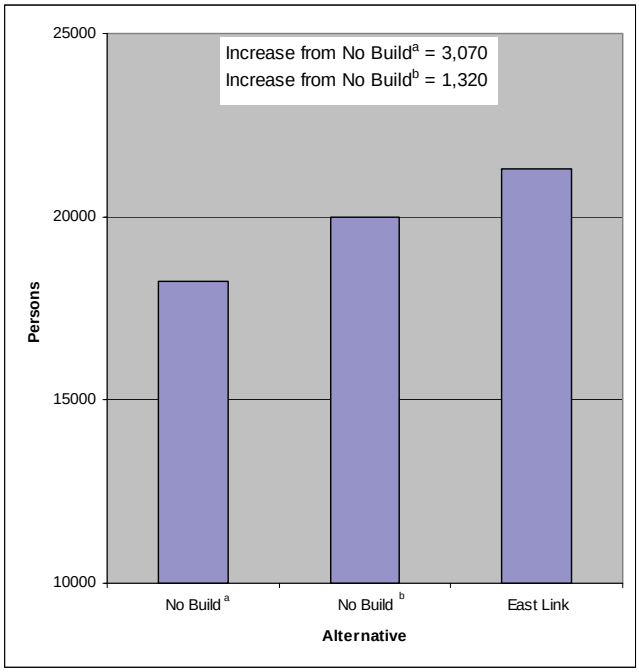
Estimated Cost: $730 to 750 million

Stations: Rainier and Mercer Island.

Ridership: Forecasts predict 5,500 daily boardings at the stations in this segment in 2030.

Transportation Impacts: When compared to either No Build Alternative, light rail would increase total person throughput (a measure of the number of people crossing a point) across Lake Washington on I-90 during peak traffic periods. The difference in throughput between the project and each No Build Alternative is shown in Exhibit ES-4. Exhibit ES-5 shows the I-90 mode share, or percentage of people using each transportation mode, in 2030. The transit mode share would increase with light rail. Light rail would not only provide an increase in transit use but also allow greater person throughput on I-90. Travel times across I-90 for vehicles and trucks would also improve or remain similar with East Link.

Compared with the No Build Alternative (with Stages 1 through 3 completed), East Link would increase the number of people able to travel across I-90 without adding lanes. The East Link Project has the capacity to comfortably carry 600 persons per 4-car train and 800 persons with crowded conditions. Therefore, with the Project, the center roadway would have a peak-hour capacity of up to 18,000 to 24,000 people per hour, equivalent to between 6 to 10 freeway lanes of traffic. Although congestion would still occur on I-90 with the East Link Project, it would be shorter in duration and affect a smaller area as people shift to use of light rail.



[a] With Stages 1 and 2 of the I-90 Two Way Transit and HOV Operations Project
[b] With Stages 1 through 3 of the I-90 Two Way Transit and HOV Operations Project

EXHIBIT ES-4
I-90 2030 AM and PM Peak-Hour Person Throughput Across Lake Washington

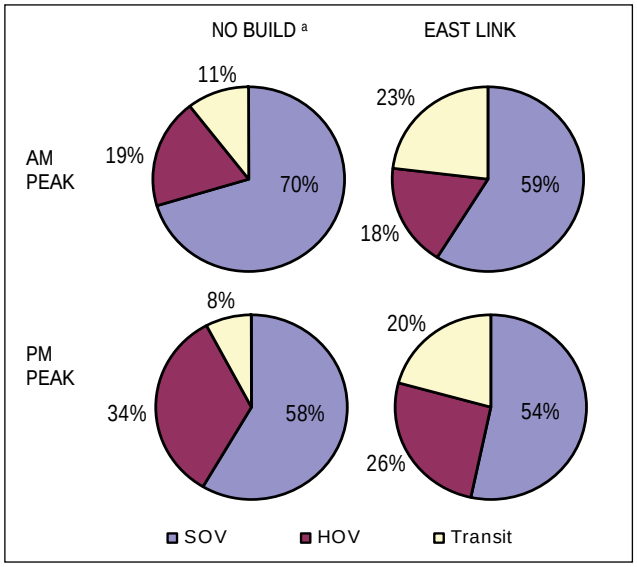


EXHIBIT ES-5
I-90 2030 Mode Share

[a] With HOV lanes in the outer roadways (with new HOV lanes Stages 1 – 3 completed)

TABLE ES-3
Segment A Summary

Features			A1
Number of Stations			2
Estimated Cost in millions, 2007 $			$730 to $750 [a]
2030 Daily Ridership	Daily Segment Boardings/Total East Link Ridership		5,500/45,500
Travel Time in minutes			11
Length in miles			6.9
Comparative Cost-Effectiveness – annualized cost divided by annual segment ridership in 2030			$11.50 to $11.90
Construction Risk			Low
Environmental Impacts			
Transportation Impacts			Improved person throughput and capacity. Similar or improved vehicle and truck travel time. Traffic intersection impacts and increased bus travel times with light-rail-only option on D2 Roadway
I-90 Total Person Throughput Across Lake Washington	AM	Increase over No Build[b]	4,200
		Increase over No Build[c]	2,300
	PM	Increase over No Build[b]	1,900
		Increase over No Build[c]	350
No. of Buildings with Ground Borne Noise Impacts (after mitigation)			25 (0)
Public Services			May increase emergency service response times
Permanent impacts to Park –acres before mitigation			0.2 to 0.3 acres
Other construction impacts			I-90 access changes

[a] The cost for the project to use the I-90 center roadway has yet to be determined and is subject to negotiations with WSDOT.
[b] Without HOV lanes in the outer roadways between Mercer Island and Rainier Avenue S (Stages 1 and 2 only).
[c] With HOV lanes in the outer roadways (HOV lanes Stages 1 – 3 completed)

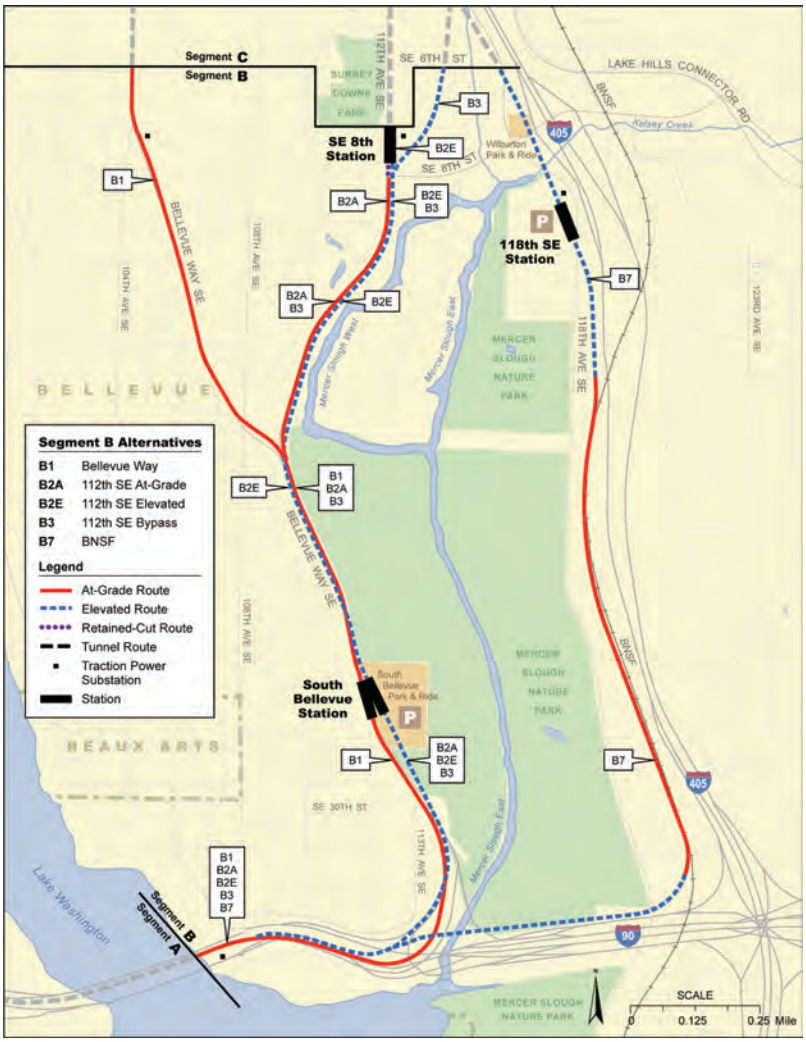
Freight trucks would experience effects similar to general purpose traffic. If use of the D2 Roadway is not designated as joint use for bus and light rail, bus travel times across I-90 would increase by 10 to 12 minutes as buses are rerouted to other roadways to access Downtown Seattle. Nine intersections on Mercer Island would operate below the city or state's level of service standard and worse than the No Build Alternatives, but these impacts could all be mitigated to the same or better level of service than the No Build Alternative.

Potential Environmental Impacts During Operation: Because this alternative is predominantly within existing roadway, there would be few environmental impacts. Emergency service vehicles would be limited to the outer roadway, which may lengthen response times. Acquiring small parts of two I-90 lid parks, Benvenuto Park in Seattle and Park on the Lid in Mercer Island, would be required. Mitigation of these impacts would include enhancement of existing facilities. Ground-borne noise impacts would occur for 25 residences over the Mt. Baker Tunnel, but these could be mitigated. The Rainier and Mercer Island stations would be designed to reduce high traffic noise levels for patrons.

Temporary Impacts During Construction: Before construction of East Link, all stages of the I-90 Two Way Transit and HOV Operations Project would be completed, providing outer-roadway HOV lanes from Bellevue to Rainier Avenue. Construction impacts would be minimal because most of the East Link construction would occur within the center roadway of I-90. Travel times for traffic and freight during peak periods would be similar or improved in reverse-peak and slightly worsened in peak direction. Light rail construction on I-90 would close the D2 Roadway, as well as the reversible center roadway. With these closures, bus service would be rerouted to the HOV lanes in the outer roadways. Noise and dust are not expected to affect adjacent land uses. There would be some in-water work to retrofit the I-90 bridges.

Segment B: South Bellevue

Segment B would travel from the I-90 center roadway northward to approximately SE 6th Street. The south portion of Segment B is dominated by the Mercer Slough Nature Park and the residential communities of south Bellevue. North of the Mercer Slough Nature Park and following Bellevue Way SE, single-family and multifamily housing are interspersed with some pockets of commercial retail uses. To the north, along 112th Avenue SE, the west side is mostly residential uses and the east side mostly office parks. A strip of multifamily residential and office uses and a small pocket of industrial uses are located immediately east of 118th Avenue SE and west of I-405 and the BNSF Railway, and west of 118th Avenue SE near SE 8th Street.



Alternatives

Segment B has five alternatives, all connecting to Segment A from I-90 and to Segment C in Downtown Bellevue:

- Bellevue Way (B1)
- 112th SE At-Grade (B2A)
- 112th SE Elevated (B2E)
- 112th SE Bypass (B3)
- BNSF (B7)

All the alternatives would leave the I-90 center roadway at Bellevue Way SE. Four of the alternatives would follow Bellevue Way north, and one of the alternatives would continue parallel to I-90 on an elevated structure across Mercer Slough.

Components

South Bellevue Station: At-grade or elevated station. Expands existing park-and-ride lot from 519 to about 1,475 stalls in a garage; would serve B1, B2A, B2E, and B3 alternatives.

SE 8th Station: At-grade or elevated station that would serve the B2A and B2E alternatives.

118th Station: New park-and-ride structure with about 1,000 stalls that would serve the B7 alternative only. This station would replace the Wilburton Park-and-Ride Lot, which has 186 parking stalls.

Traction Power Substation Locations:

- Under I-90 bridge as it touches down in Bellevue (all alternatives)
- East of Bellevue Way at SE 8th Street (B1)
- East of 112th Avenue SE at SE 8th Street (B2A, B2E, B3)
- West of 118th Avenue SE by the 118th Station (B7)

Connectors from Segment A

Segment B alternatives would exit I-90 either at-grade on existing HOV ramps to/from Bellevue Way or elevated over the westbound I-90 lanes. B1 would require removal of the eastbound HOV off-ramp and the westbound HOV on-ramp. The remaining Segment B alternatives would have an elevated connection to Bellevue Way SE, allowing preservation of HOV direct access to westbound I-90, but would have the option to either close or keep open the eastbound HOV off-ramp from I-90 to Bellevue Way SE. Keeping the ramp open would require reconstructing the ramp and making other interchange modifications.

Comparison of Segment B Alternatives

The Bellevue Way Alternative (B1) and the 112th SE alternatives (B2A, B2E, and B3) would have similar impacts, but B1 would cause the highest number of residential and business displacements and noise impacts from surface traffic. It would have the lowest estimated cost among the Segment B alternatives but would only connect to the Bellevue Way Tunnel Alternative (C1T) in Segment C, which is the alternative with the highest estimated cost in that segment, resulting in the overall highest cost of the combined Segment B and C alternatives. The 112th SE alternatives would all have similar impacts and estimated capital costs. Among the alternatives traveling along 112th Avenue SE, B2A would be the least expensive because construction is mostly at-grade, and B2E would be the most expensive because it is entirely elevated. The BNSF Alternative (B7) would have a similar cost to the 112th SE alternatives. The BNSF Alternative (B7) would not have any residential displacements, but would have the highest business and employee displacements, the greatest number of light-rail related noise impacts, and the greatest impact on wetlands and other high-value habitat because of its construction across Mercer Slough Nature Park. B7 would also have substantially lower segment boardings and lower overall ridership, creating a cost per rider almost five times that of the other alternatives.

All alternatives traveling along Bellevue Way from I-90 have been designed to avoid the historic Frederick Winters House and, to the extent possible, to minimize property acquisition from the Mercer Slough Nature Park. By designing right-of-way expansion to the west, these alternatives remove vegetation along the west side of Bellevue Way and use retaining walls, reducing visual quality in this corridor. Although B1 is the only alternative entirely at-grade, it would result in the greatest amount of road widening and visual change. The alternatives along 112th Avenue SE (B2A, B2E, and B3) would have a similar degree of visual impact. These alternatives would have traffic impacts at the Bellevue Way and 112th SE intersection, but this impact could be mitigated. A traffic impact would occur for B7 at the 118th Avenue SE and SE 8th Street intersection, but the impacts could be mitigated.

TABLE ES-4
Comparison of Segment B Alternatives

Features		B1	B2A	B2E	B3	B7
No. of Stations		1	2	2	1	1
Estimated Cost in millions, 2007 $		$420	$500	$550	$520	$510
2030 Daily Ridership	Segment Boardings	4,000	4,500	4,500	4,000	1,000
	Total East Link Ridership	46,000	44,500	45,500	45,500	43,500
Travel Time through Segment in minutes		5	5	5	5	5
Length in miles		2.3	2.1	2.1	2.3	2.6
Comparative Cost-Effectiveness - annualized cost divided by annual segment ridership in 2030		$8.60	$8.75	$9.10	$9.40	$51.15
Construction Risk		Low	Low	Low	Low	Low
Environmental Impacts						
Residential Displacements – No. of housing units		13	3	1	3	0
Business Displacements (No. of employees)		2 (20)	0 (0)	0 (0)	0 (0)	4 (130)
Wetland Impact in acres		0	0	< 0.1	0.4	1.8
High-Value Nonwetland Habitat Loss in acres		1.7	0.7	0.4	0.7	3.1
Decrease in Visual Quality?		Yes	Yes	Yes	Yes	No
Noise-Impacted Receptors – No. of living units (No. after mitigation)	Traffic Related	80 (0)	20 (0)	0	20 (0)	0
	Light Rail Related	3 (0)	0	0	0	98 (0)
Vibration-Impacted Buildings with Vibration Impacts (No. after mitigation)		1 (0)	0	0	0	0
Permanent Park Impacts (area in acres before mitigation)	Surface	0.4	1.4	0.3	1.2	0.1
	Elevated	0	0.3	0.4	0.4	0.9
Intersections Not Meeting Local Standard and Operating Worse than No Build Alternative (No. after mitigation)		1 (0)	1 (0)	0 (0)	1 (0)	1 (0)

Bellevue Way Alternative (B1)

The **Bellevue Way Alternative (B1)** would travel from the I-90 center roadway and onto Bellevue Way at-grade to the South Bellevue Station. The Bellevue Way SE HOV westbound on-ramp and eastbound off-ramp to I-90 would be removed. The light rail would then travel in the median of Bellevue Way SE until reaching Segment C at SE 6th Street. This is the only alternative in Segment B that would be entirely at-grade, and the only alternative that would connect to the Bellevue Way Tunnel Alternative (C1T). This alternative would also modify the South Bellevue Park-and-Ride Lot to a four-story parking structure with about 1,475 stalls; however, only two stories would be above the grade of Bellevue Way.

Evaluation Summary

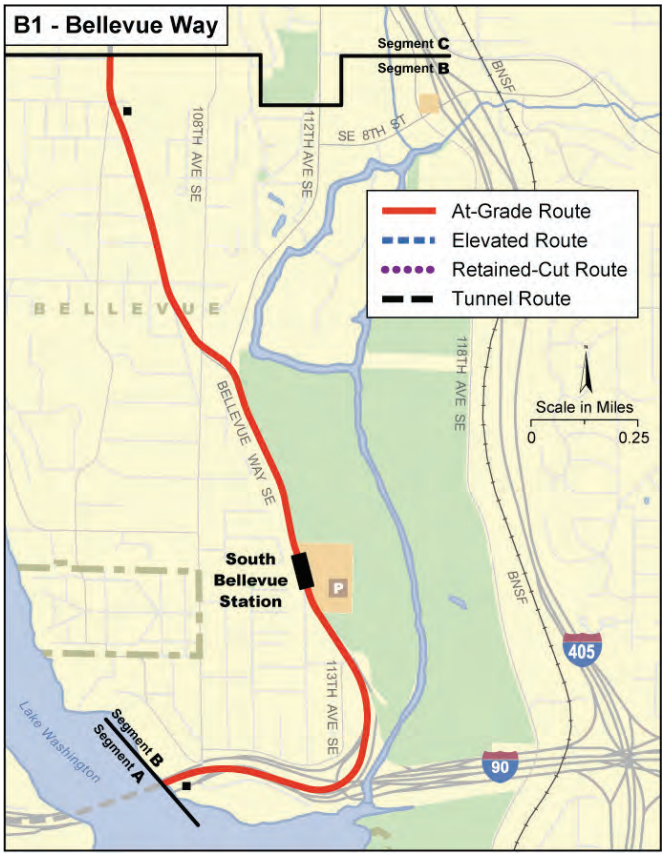
Markets Served by Stations: The South Bellevue Station would serve the regional South Bellevue Park-and-Ride Lot and the South Bellevue residential neighborhoods.

Estimated Cost: $420 million

Ridership: Forecasts predict 4,000 daily boardings at the station in this alternative in 2030.

Transportation Impacts: Removing the Bellevue Way SE HOV on- and off-ramps to I-90 would increase travel times for westbound HOV users by 10 to 12 minutes, but would not impact travel times for eastbound HOV users. Properties adjacent to Bellevue Way would be limited to right-in, right-out only access, except at signalized intersections. This alternative would also require installation of a traffic signal at the intersection of SE 30th Street and Bellevue Way SE and installation of left-turn pockets at all signalized intersections along the route where they are not currently present. Traffic at the intersection of Bellevue Way SE and 112th Avenue SE would experience delays. This impact can be mitigated.

Potential Environmental Impacts During Operation: The Bellevue Way Alternative (B1) would displace 13 residences and 2 businesses with approximately 20 employees. This alternative would affect 1.7 acres of high-value nonwetland habitat, but less than 1 acre total would need to be acquired from the Mercer Slough Nature Park and the Bllevue Way SE Greenbelt. A decrease in visual quality would result from the removal of trees and other vegetation along Bellevue Way. Noise impacts from light rail operation would affect three receptors, and noise impacts from surface traffic would affect 80 receptors, but all interior impacts could be mitigated. A vibration impact would occur on one building, but it can be mitigated.



Temporary Impacts During Construction: Construction on Bellevue Way would temporarily result in traffic detours, lane closures, and signal modifications. Partial or full closure of the South Bellevue Park-and-Ride Lot would be required for station construction. A temporary construction easement of about 1.6 acres along the west side of Mercer Slough Nature Park would be needed. Construction noise would occur during site preparation and project construction.

Construction Risks: Construction risk is considered low.

Bellevue Way (B1) Simulation

112th SE At-Grade Alternative (B2A)

The **112th SE At-Grade Alternative (B2A)** would be elevated as it exits I-90 over the westbound lanes and travels on the east side of Bellevue Way to the South Bellevue Station. After leaving the station, B2A would transition to at-grade in the median of Bellevue Way, continuing onto the median of 112th Avenue SE to the SE 8th Station. The eastbound HOV off-ramp from I-90 to Bellevue Way SE would be removed or reconstructed. Use of the center median of 112th Avenue SE until the alternative reaches Segment C at SE 8th Station would minimize property acquisition for this section of the alternative.

The South Bellevue Station would be elevated, and the park-and-ride facility would include a four-story parking structure with about 1,475 stalls; however, only two stories would be above the grade of Bellevue Way. The SE 8th Station would be at-grade.

Evaluation Summary

Markets Served by Stations: The stations would serve the regional South Bellevue Park-and-Ride Lot, the south Bellevue residential neighborhoods, and the commercial area east of 112th Avenue SE.

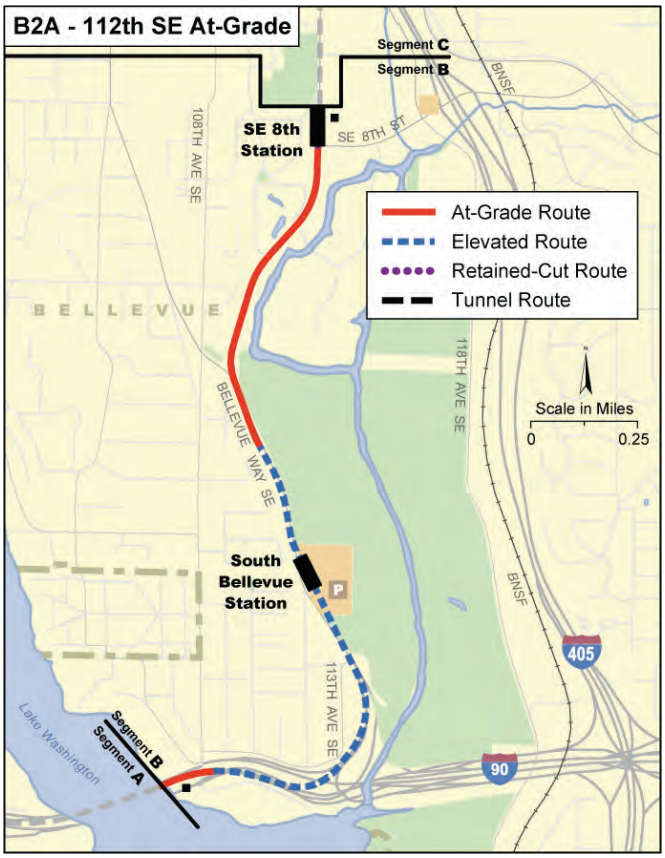
Estimated Cost: $500 million

Ridership: Forecasts predict 4,500 daily boardings at the stations in this alternative in 2030.

Transportation Impacts: Traffic at the intersection of Bellevue Way SE and 112th Avenue SE would experience delays due to light rail vehicles traveling at-grade through the intersection. This impact can be mitigated.

Potential Environmental Impacts During Operation: The 112th SE At-Grade Alternative (B2A) would displace three residences along Bellevue Way SE and no businesses. B2A would result in the acquisition of almost 1.4 acres of Mercer Slough Nature Park and less than one-tenth of an acre of the Bellevue Way Greenbelt. A decrease in visual quality would result from the removal of trees and other vegetation along Bellevue Way and 112th Avenue SE. Noise impacts from surface traffic would affect 20 receptors, but all could be mitigated.

112th SE At-Grade Alternative Simulation



Temporary Impacts During Construction: Modifications to Bellevue Way SE and 112th Avenue SE would temporarily result in traffic detours, lane closures, and signal modifications. Partial or full closure of the South Bellevue Park-and-Ride Lot would be required for station construction. A temporary construction easement of about 2.0 acres along the west side of Mercer Slough would be required. Construction noise would occur during site preparation and project construction.

Construction Risks: Construction risk is considered low.

112th SE Elevated Alternative (B2E)

The **112th SE Elevated Alternative (B2E)** would be elevated as it exits I-90 over the westbound lanes and travels to the east side of Bellevue Way to the South Bellevue Station. After leaving the station, B2E would cross to the west side of Bellevue Way SE until 112th Avenue SE, then cross over to continue along the east side of 112th Avenue SE to the SE 8th Station. This alternative would require the fewest property acquisitions in Segment B. Most of the additional right-of-way would be acquired along the west side of Bellevue Way SE and on the east side of 112th Avenue SE. The eastbound HOV off-ramp from I-90 to Bellevue Way SE would be removed or reconstructed. Both stations would be elevated, and the South Bellevue Station would include a four-story parking structure with about 1,475 stalls; however, only two stories would be above the grade of Bellevue Way.

Evaluation Summary

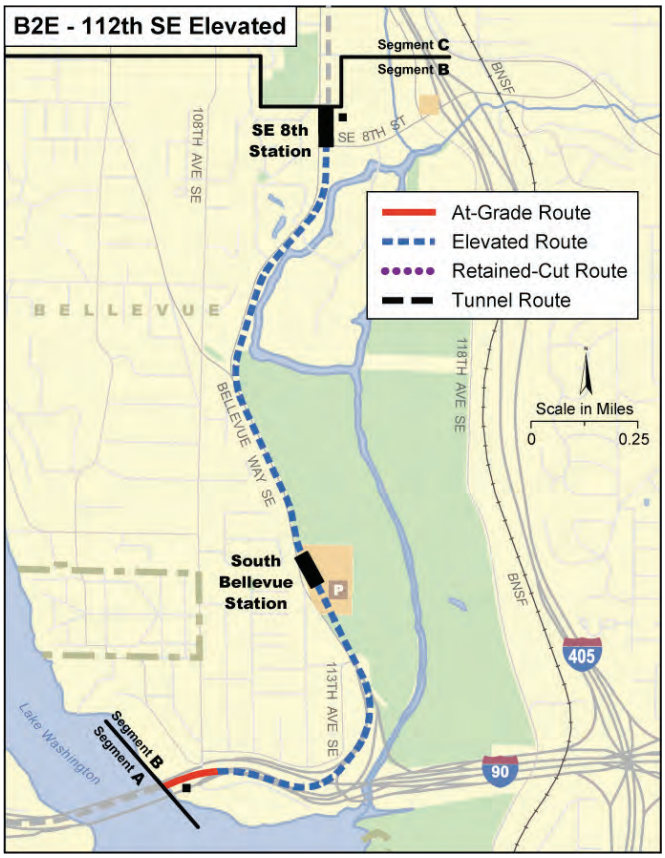
Markets Served by Stations: The stations would serve the regional South Bellevue Park-and-Ride Lot, the west and south Bellevue residential neighborhoods, and the commercial area east of 112th Avenue SE.

Estimated Cost: $550 million

Ridership: Forecasts predict 4,500 daily boardings at the stations in this alternative in 2030.

Transportation Impacts: Because this alternative would be entirely grade-separated, there would be no transportation impacts.

Potential Environmental Impacts During Operation: The 112th SE Elevated Alternative (B2E) would displace one residence and no businesses. B2E would also have visual impacts along Bellevue Way SE and 112th Avenue SE, where some large trees would need to be removed and the elevated guideway would be within view of hillside residents. B2E would require less than one-half acre of acquisition in Mercer Slough Nature Park. There would be no light rail or traffic noise impacts from operation of this alternative.



112th SE Elevated Alternative Simulation

Temporary Impacts During Construction: Modifications to Bellevue Way and 112th Avenue SE would temporarily result in traffic detours, lane closures, and signal modifications. Partial or full closure of the South Bellevue Park-and-Ride Lot would be required for station construction. A temporary construction easement of about 1.0 acre along the west side of Mercer Slough Nature Park would be required. Construction noise would occur during site preparation and project construction.

Construction Risks: Construction risk is considered low.

112th SE Bypass Alternative (B3)

The **112th SE Bypass Alternative (B3)** would be elevated as it exits I-90 over the westbound lanes and continues on Bellevue Way to the South Bellevue Station. B3 would then transition to an at-grade profile in the medians of Bellevue Way and 112th Avenue SE. At SE 15th Street, it would transition to elevated and then at SE 8th Street would turn into a new right-of-way behind commercial buildings and travel as far as approximately SE 6th Street. This alternative would require limited expansion of existing right-of-way north of SE 8th Street. The westbound I-90 HOV off-ramp to Bellevue Way would be maintained and the eastbound HOV off-ramp from I-90 to Bellevue Way SE would be removed or reconstructed.

The South Bellevue Station would be elevated and include a four-story parking structure with about 1,475 stalls; however, only two stories would be above the grade of Bellevue Way.

Evaluation Summary

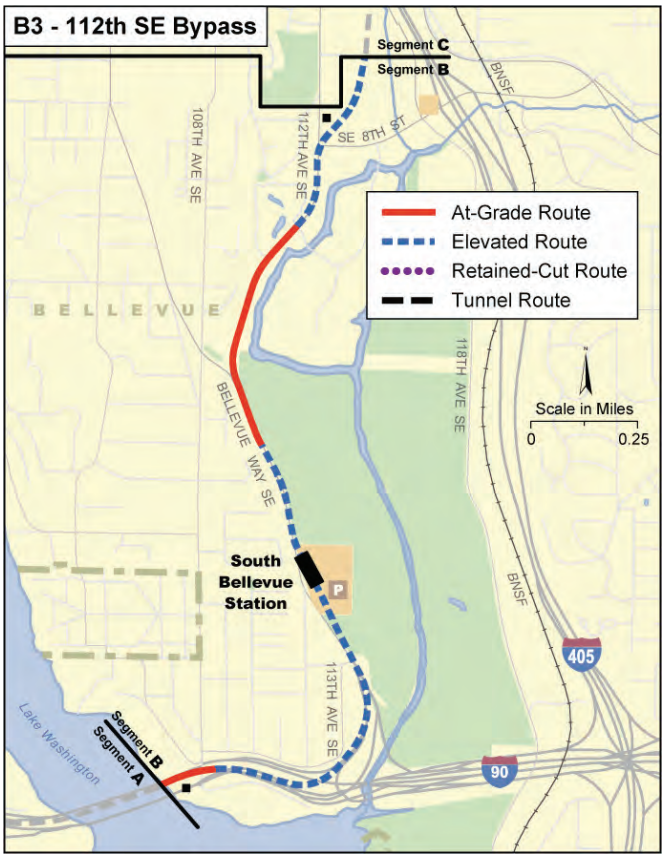
Markets Served by Station: The station would serve the regional South Bellevue Park-and-Ride Lot and south Bellevue residential neighborhoods.

Estimated Cost: $520 million

Ridership: Forecasts predict 4,000 daily boardings at the station in this alternative in 2030.

Transportation Impacts: Traffic at the intersection of Bellevue Way SE and 112th Avenue SE would experience delays due to light rail vehicles traveling at-grade through the intersection. This impact can be mitigated.

Existing view of Mercer Slough Nature Park



Potential Environmental Impacts During Operation: The 112th SE Bypass Alternative (B3) would displace three residences directly adjacent to Bellevue Way SE, but it would displace no businesses. This alternative would also reduce visual quality by removing vegetation on the hillside to the west along Bellevue Way SE south of 112th Street SE. B3 would result in the acquisition of about 1.2 acres of the Mercer Slough Nature Park and less than one-tenth of an acre of the Bellevue Way Greenbelt. There would be impacts to 0.4 acre of wetlands. Noise impacts from surface traffic would affect 20 receptors, but all could be mitigated.

Temporary Impacts During Construction: Modifications to Bellevue Way SE and 112th Avenue SE would temporarily result in traffic detours, lane closures, and signal modifications. Partial or full closure of the South Bellevue Park-and-Ride Lot would be required for station construction. A temporary construction easement of about 1.9 acres along the west side of Mercer Slough Nature Park would be required. Construction noise would occur during site preparation and project construction.

Construction Risks: Construction risk is considered low.

BNSF Alternative (B7)

The **BNSF Alternative (B7)** would be elevated as it exits I-90 over the westbound lanes and continues parallel to I-90 in an eastbound direction in Mercer Slough Nature Park. The eastbound HOV off-ramp from I-90 to Bellevue Way SE would be removed or reconstructed. The light rail would remain elevated until turning north inside the BNSF Railway right-of-way to the west of I-405. Once inside the BNSF right-of-way, B7 would transition to an at-grade profile. Where the BNSF Railway turns east over I-405, B7 would transition to elevated and veer west, crossing 118th Avenue SE to the 118th Station south of SE 8th Street. This alternative includes a new four-story park-and-ride structure with about 1,030 spaces to replace the existing Wilburton Park-and-Ride Lot, with nearby access to and from I-405.

Evaluation Summary

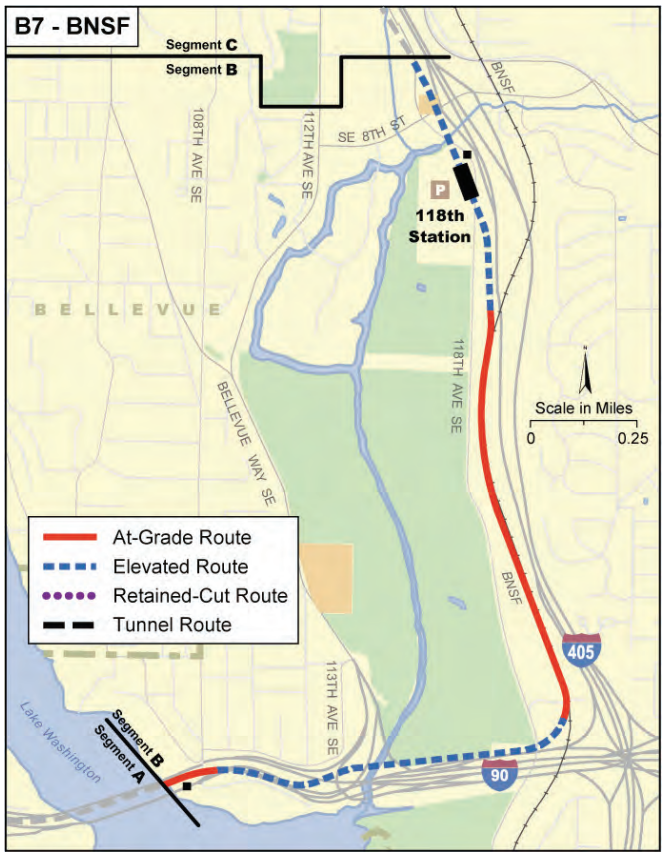
Markets Served by Stations: The 118th Station would serve primarily as a park-and-ride lot, as well as serving nearby commercial uses and residences located west and east of I-405.

Estimated Cost: $510 million

Ridership: Forecasts predict 1,000 daily boardings at the station in this alternative in 2030.

Transportation Impacts: Intersection operations would be impacted at SE 8th Street and 118th Avenue SE due to traffic entering and exiting the new park-and-ride lot. This could be improved by adding an eastbound right-turn pocket on 118th Avenue SE, and result in a delay similar to or slightly better than no build conditions.

Simulation of BNSF Alternative North of I-90 in Mercer Slough



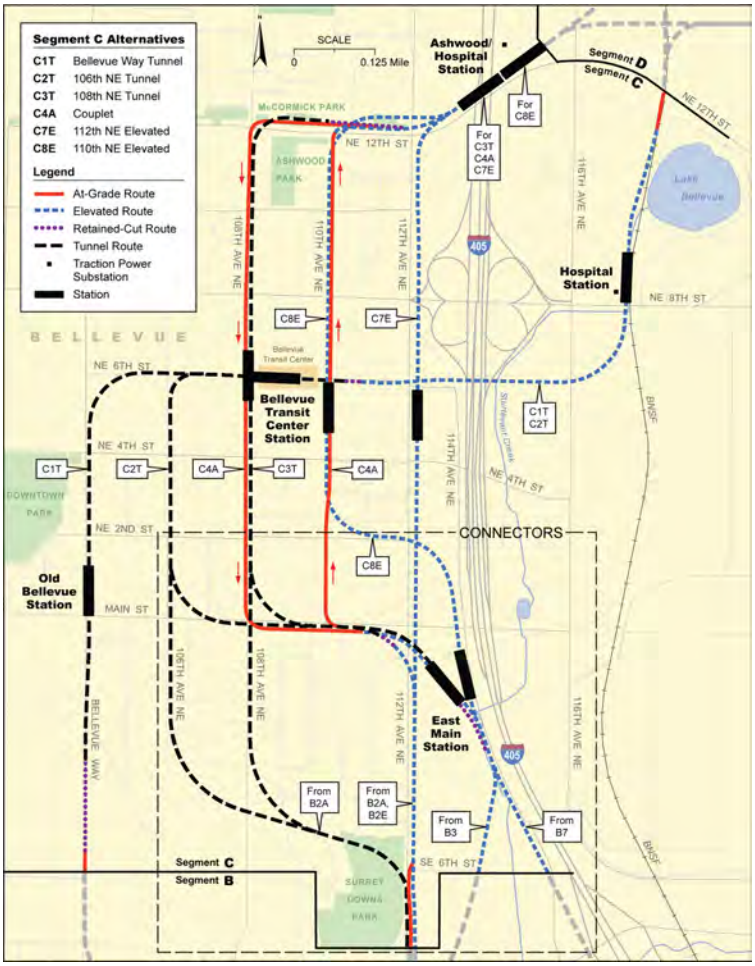
Potential Environmental Impacts During Operation: The BNSF Alternative (B7) would displace 4 businesses and approximately 130 employees, primarily for construction of the 118th Station. B7 would not cause any residential displacements. As a result of crossing the Mercer Slough Nature Park, it would permanently remove about 1.8 acres of wetlands as well as 3.1 acres of high-value nonwetland habitat. Less than one-tenth of an acre of Mercer Slough Nature Park would be acquired. Noise impacts from light rail operation would affect up to 98 receptors, but all could be mitigated.

Temporary Impacts During Construction: Construction in Mercer Slough and the BNSF Railway corridor would minimize traffic impacts. Work adjacent to 118th Avenue SE would require partial long-term lane closures. A temporary construction easement of about 1.9 acres along the south end of Mercer Slough Nature Park would be needed. Construction noise would occur during site preparation and project construction.

Construction Risks: Construction risk is considered low.

Segment C: Downtown Bellevue

Segment C would travel between approximately SE 6th Street and NE 12th Street. The segment transitions from the primarily suburban single-family residential and commercial area of south Bellevue to the dense urban central business district of Downtown Bellevue, which is a major regional urban center. Key destinations in Segment C are Bellevue's downtown core and transit center and, on the east side of I-405, the Overlake Hospital, Group Health, and planned Children's medical centers. The City of Bellevue's Downtown Plan anticipates adding 14,000 housing units and 38,000 jobs between 2000 and 2030. The Hospital Station or Ashwood/Hospital Station could be an interim terminus.



Alternatives

There are six alternatives in Segment C:

- Bellevue Way Tunnel (C1T)
- 106th NE Tunnel (C2T)
- 108th NE Tunnel (C3T)
- Couplet (C4A)
- 112th NE Elevated (C7E)
- 110th NE Elevated (C8E)

Because of the dense development in Downtown Bellevue, potential construction staging areas have already been identified in this segment, and impacts associated with these areas have been assessed. Although these staging areas are included in property acquisition impacts, most of these areas would be available for redevelopment after construction.

Components

Old Bellevue Station: Underground station, C1T only.

East Main Station: Station would serve routes connecting to the 112th SE Bypass (B3) and BNSF (B7) alternatives in Segment B. This station would be in a retained cut for C2T or C3T, or elevated for C4A, C7E, or C8E.

Bellevue Transit Center Station: Would serve all alternatives, elevated for C7E and C8E, at-grade for C4A, and underground for all tunnel alternatives.

Hospital Station: Elevated station, would serve C1T and C2T. Potential interim terminus.

Ashwood/Hospital Station: Elevated station, directly above or immediately to the east of I-405; would serve C3T, C4A, C7E, and C8E. Potential interim terminus.

Traction Power Substation Locations: Either at the Hospital Station or at the Ashwood/Hospital Station.

Connectors to Segment B

From Bellevue Way: Bellevue Way Alternative (B1) would uniquely connect to C1T.

From District Courthouse: 112th SE At-Grade Alternative (B2A) tunnel connection to C2T or C3T would require removal of the King County District Court House, located in the north portion of Surrey Downs Park.

From 112th SE: The connection along 112th Avenue SE from 112th SE Elevated Alternative (B2E) for C2T and C3T, and the connection from either B2A or B2E for C4A, C7E, and C8E.

From 112th SE Bypass Alternative (B3) or the BNSF Alternative (B7): These connectors would follow similar routes south of Main Street along 114th Avenue SE to the East Main Street Station before crossing Main Street to all alternatives except C1T.

Comparison of Segment C Alternatives

The Segment C tunnel alternatives (C1T, C2T, and C3T) would generally have the highest ridership but also the highest estimated costs, which makes them less cost-effective. In addition, the tunnel alternatives would present the greatest construction risk. The at-grade and elevated alternatives (C4A, C7E, and C8E) would have slightly lower systemwide ridership and lower estimated costs than the tunnel alternatives (Table ES-5). C1T would require the most residential displacements, while C1T and C2T would have the fewest business displacements. C8E would result in two intersections falling below traffic standards.

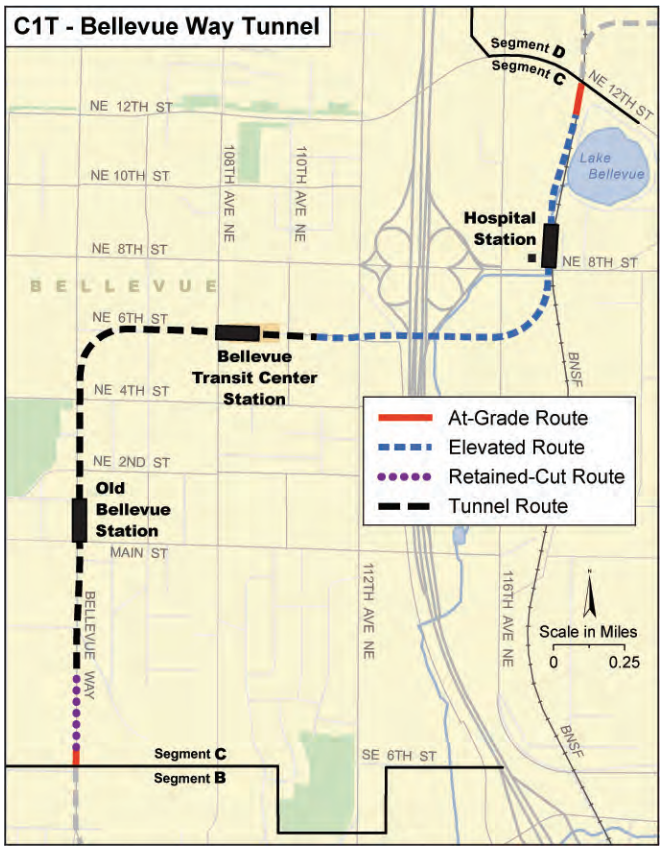
The differing impacts of the connections from the Segment B alternatives and the staging areas required cause the range in impacts in most alternatives. Generally, connectors from 112th Avenue SE (B2A, B2E) would cause higher displacements than other connectors, but the B3 and B7 connectors may cause realignment of Sturtevant Creek. Connection from the 112th At-Grade (B2A) to tunnel alternatives (C2T, C3T) would require construction to be staged at the current District Court location at the north end of Surrey Downs Park. During construction, most alternatives that cross I-405 at NE 12th Street (C3T, C4A, and C8E) would occupy much of McCormick Park, which would be restored and possibly enlarged after construction, but there would be a residual visual impact.

TABLE ES-5
Comparison of Segment C Alternatives

Feature		C1T	C2T	C3T	C4A	C7E	C8E
No. of Stations		3	2 to 3	2 to 3	2 to 3	2 to 3	2 to 3
Estimated Cost in millions, 2007 $		$1,610	$1,280 to 1,360	$1,120 to 1,260	$610 to 700	$500 to 600	$700
2030 Daily Ridership	Segment Boardings	8,000	7,500	8,000	6,500	5,500	6,500
	Total East Link Ridership	46,000	46,500	48,000	44,000	44,000	45,500
Travel Time through Segment in minutes		5	5	4	7	4	4
Length in miles		1.9	2.1 to 2.2	1.8 to 2.0	1.6 to 1.7	1.4 to 1.5	1.6 to 1.7
Comparative Cost-Effectiveness - annualized cost divided by annual segment ridership in 2030		$15.55	$11.45 to 11.60	$9.30 to $10.00	$6.95 to 7.95	$6.60 to 7.90	$7.45
Construction Risk		High	High	High	Moderate	Low	Low
Environmental Impacts							
Residential Displacements (No. of housing units)		93	0-12	7-19	8	0	2
Business Displacements (No. of Employees)		18 (300)	8 to 16 (210 to 290)	50 to 57 (680 to 770)	59 to 61 (670 to 830)	44 to 45 (530 to 570)	48 (590)
Decrease in Visual Quality?		No	No	Yes	Yes	No	Yes
Hazardous Material Sites		6	2	3	0	0	0
Light Rail Noise Impacted Receptors – No. of living units (No. after mitigation)		12 (0)	12 to 36 (0)	0 to 24 (0)	4 to 12 (0)	4 to 12 (0)	87 (0)
Traffic Noise Impacted Receptors – No. of living units (No. after mitigation)		21 (0)	0	0	0	0	0
Vibration Impacted Receptors – No. of buildings (No. after mitigation)		3 (0)	1 to 2 (0 to 1)	0 to 1 (0 to 1)	7 to 8 (3 to 4)	0 to 1 (0 to 1)	7 (3)
Ground-Borne Noise Impacted Receptors – No. of buildings (No. after mitigation)		2 (0)	1 to 2 (0 to 1)	3 to 12 (0)	0	0	0
Permanent Park Impacts – area in acres before mitigation	Surface	0	< 0.1	0.6	1.0	0	0.4
	Elevated	0	0	0	0.3	0	0.2
Utility Relocation		High	High	Medium	High	Low	Low
Intersections Not Meeting Local Standard and Operating Worse than No Build Alternative (No. after mitigation)		0	0	0	0	0	1 (1)

Bellevue Way Tunnel Alternative (C1T)

The **Bellevue Way Tunnel Alternative (C1T)** would continue at-grade in the median of Bellevue Way SE from B1, then transition to a tunnel to an underground Old Bellevue Station north of Main Street. At NE 6th Street, the tunnel would turn east to align with an underground Bellevue Transit Center Station. C1T would exit the tunnel east of 110th Avenue NE, transition to an elevated profile, and cross 112th Avenue NE, I-405, and 116th Avenue NE before turning north inside the BNSF Railway right-of-way up to the Hospital Station, and then to NE 12th Street. This is the only alternative that connects from the Bellevue Way Alternative (B1) in Segment B and the only alternative with an Old Bellevue Station.



Evaluation Summary

Markets Served by Stations: The stations would serve the Old Bellevue area, city center, Bellevue Transit Center, City Hall, Meydenbauer Center, the NE 6th Street pedestrian corridor, and the Overlake Hospital and Group Health medical centers.

Estimated Cost: $1,610 million

Ridership: Forecasts predict 8,000 daily boardings at the stations in this alternative in 2030.

Transportation Impacts: Left-turn movements along Bellevue Way in this segment would not be allowed between SE 6th Street and SE Kilmarnock Street.

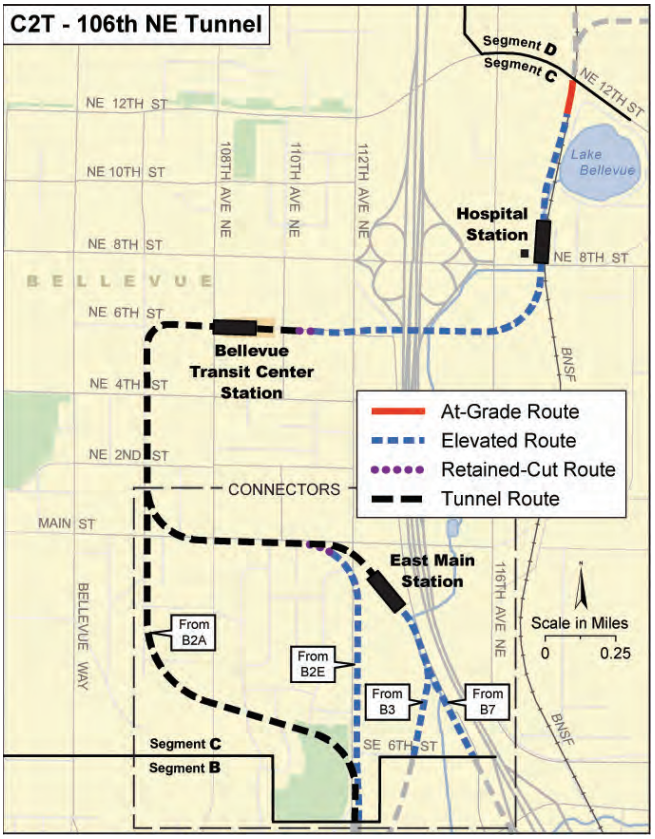
Potential Environmental Impacts During Operation: The Bellevue Way Tunnel Alternative (C1T) would displace 93 residences and 18 businesses with approximately 300 employees. This alternative may require relocation of Sturtevant Creek under the Hospital Station. Noise impacts from light rail would impact 12 receptors and noise from surface traffic would impact 21 receptors, but all could be mitigated. Vibration impacts would occur for three buildings and ground-borne noise would affect two buildings, all of which could be mitigated.

Temporary Impacts During Construction: C1T would involve cut-and-cover construction for the tunnel and stations in Downtown Bellevue, except under the Bellevue Arts Museum, where sequential excavation mining would be used. Cut-and-cover construction creates traffic circulation impacts and would require temporary partial closures of Bellevue Way and NE 6th Street. Adjacent businesses would experience temporary adverse impacts from changes in circulation and access during construction. In addition, the Bellevue Transit Center would temporarily close during construction of the new station, relocating bus stops to adjacent streets. Construction staging areas would be needed near the NE 6th portal and by the old Bellevue and Bellevue Transit Center stations. Soil settlement and contaminated soil and groundwater issues are possible during tunnel construction. Cut-and-cover construction would require underground utilities to be either relocated or suspended to minimize disruptions in service. Overhead utilities would need to be relocated when in conflict with elevated structures. Construction noise would occur during site preparation and project construction. C1T would be located adjacent to six contaminated sites and would have the potential to encounter contaminated soil and groundwater during construction.

Construction Risks: Construction risk is considered high due to the cut-and-cover construction method, which requires extensive excavation, fill, and utility relocations and creates conflicts with traffic during construction. Sequential excavation mining under the Bellevue Arts Museum presents the highest risk of any construction method.

106th NE Tunnel Alternative (C2T)

The **106th NE Tunnel Alternative (C2T)** would travel along 106th Avenue NE in a tunnel and turn east under NE 6th Street to the Bellevue Transit Center Station. C2T would exit the tunnel east of 110th Avenue NE, transition to an elevated profile, and cross 112th Avenue NE, I-405, and 116th Avenue NE before turning north inside the BNSF Railway right-of-way to the Hospital Station, and then to NE 12th Street. C2T could connect to Segment B via a tunnel from the District Courthouse (112th At-Grade [B2A]), or from the 112th Elevated (B2E), 112th Bypass (B3), or BNSF (B7) alternatives. The East Main Station would be added if connecting from B3 or B7.



Evaluation Summary

Markets Served by Stations: The stations would serve the city center, City Hall, Bellevue Transit Center, Meydenbauer Center, NE 6th Street pedestrian corridor, Overlake and Group Health medical centers east of I-405, southeast downtown and Surrey Downs.

Estimated Cost: $1,280 to 1,360 million

Ridership: Forecasts predict 7,500 daily boardings at the stations in this alternative in 2030.

Transportation Impacts: The tunnel portal located at NE 6th Street would reduce the roadway to one lane in each direction between 110th Avenue NE and 112th Avenue NE. Other transportation impacts would be minimal.

Potential Environmental Impacts During Operation: *North of Main Street:* Ground-borne noise and vibration effects could occur for up to two receptors, and light rail noise impacts could occur for 12 receptors, all of which can be mitigated.

Connectors: Connecting to the 112th SE Elevated Alternative (B2E) would displace 12 residences; other connectors would displace zero or one residence. The connection with B2E would have the most business displacements, and with B2A would have the least. Displacements would be primarily for construction staging areas. Noise impacts from light rail operation and ground borne noise impacts would occur to additional receptors when connecting from B2E. These impacts can be mitigated. Vibration and light rail noise impacts would occur at the Hilton Hotel when connecting to B3 or B7. This noise impact can be mitigated, but mitigation for the vibration impact may not be possible, and would need to be further evaluated during final design. The B3 and B7 connectors would require the relocation of Sturtevant Creek, and the project would make habitat quality improvements and increase shading.

Temporary Impacts During Construction: C2T would be a combination of cut-and-cover tunneling, tunnel-boring and elevated construction. Tunnel boring would only occur for the B2A connector. Staging areas would be located at the Bellevue Transit Center and tunnel portals, and staging for the B2A connector would occupy the District Courthouse part of Surrey Downs Park. There is a potential during tunnel construction for soil settlement and groundwater issues. The Bellevue Transit Center would temporarily close during construction of the new station, and partial road closures could occur on 106th Avenue NE and NE 6th Street due to cut-and-cover construction. Utilities may have to be relocated when in conflict with cut-and-cover construction or elevated structures. C2T would be located adjacent to two contaminated sites and would have the potential to encounter contaminated soil and groundwater during construction. Construction noise would occur during site preparation and project construction.

Construction Risks: Construction risk is considered high due to cut-and-cover tunneling, which requires extensive excavation, fill, and utility relocations and would cause conflicts with traffic during construction.

108th NE Tunnel Alternative (C3T)

The **108th NE Tunnel Alternative (C3T)** would travel along 108th Avenue NE in a tunnel until turning east at NE 12th Street and transitioning to an elevated profile to cross over 112th Avenue NE and I-405. The Ashwood/Hospital Station would be located directly over I-405. C3T could connect to Segment B via a tunnel from the District Courthouse (112th SE At-Grade [B2A]), from 112th SE Elevated (B2E), or from I-405 (112th SE Bypass [B3] or BNSF [B7] alternatives). If connecting from B3 or B7, the East Main Station would be added.

Evaluation Summary

Markets Served by Stations: The stations would serve the city center, Bellevue Transit Center, City Hall, Meydenbauer Center, NE 6th Street pedestrian corridor, Overlake Hospital and Group Health medical centers, southeast downtown, and Surrey Downs.

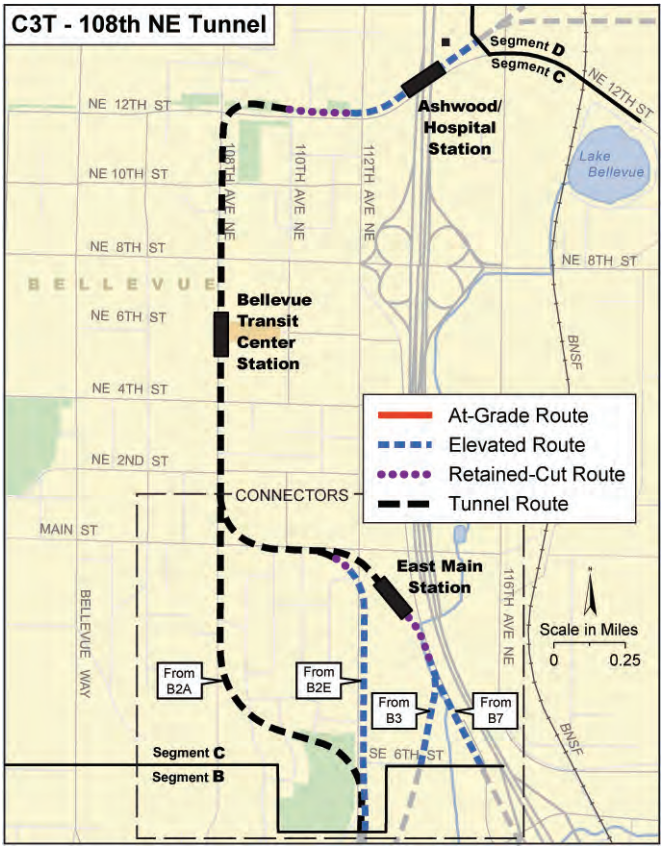
Estimated Cost: $1,120 to 1,260 million

Ridership: Forecasts predict 8,000 daily boardings at the stations in this alternative in 2030.

Transportation Impacts: The transition from tunnel to above-grade profile along NE 12th Street would require a permanent change in access to a portion of the Northtowne Neighborhood.

Potential Environmental Impacts During Operation: *North of Main Street*: This alternative would cause visual impacts for users of McCormick Park, where C3T transitions from a tunnel to an elevated profile. Although 0.6 acre of McCormick Park would be acquired for the project, additional property acquired for construction staging would be converted to park use after construction, permanently increasing McCormick Park by approximately 1 acre.

Connectors: Connecting to B2E would have the most residential displacements (19 residences), while all other connectors would have fewer residential displacements. Connecting to B2E would also have the most business displacements, while connecting from B2A would have the least. Most displacements would be related to construction staging areas. Connecting to either B3 or B7 would require relocation of Sturtevant Creek, and the project would make habitat quality improvements and increase shading. Noise impacts from light rail operation would occur from the B2E, B3 and B7 connectors and could be mitigated. A vibration impact would occur for one building with the B3 and B7 connectors for which mitigation may not be possible. Ground-borne noise impacts would be highest for the B2A connector. Except as noted, all of these noise and vibration impacts can be mitigated.

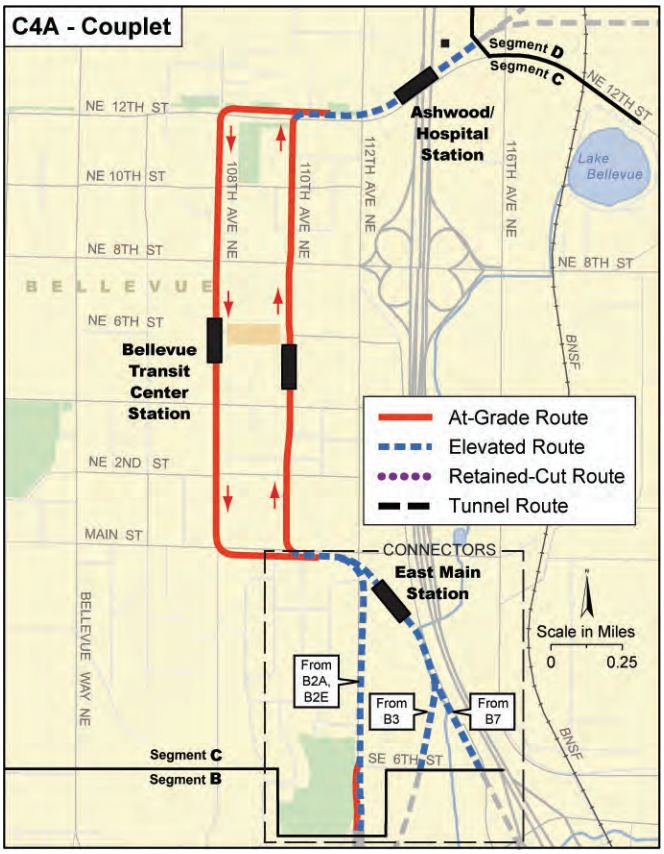


Temporary Impacts During Construction: C3T would be mostly bored tunnel construction, which minimizes surface impacts except at stations and staging areas, such as around the Bellevue Transit Center Station, which would require cut-and-cover construction. Construction staging areas are proposed at each of the stations and tunnel portals, including closing McCormick Park for about 4 to 5 years during construction. Staging for the B2A connector would occupy the District Courthouse part of Surry Downs Park. Partial road closures could occur on 108th Avenue NE during construction of this station. Soil settlement and encountering contaminated soil would be possible during tunnel construction. Utilities may have to be relocated when in conflict with cut-and-cover construction or elevated structures. C3T would be located adjacent to three contaminated sites and would have the potential to encounter contaminated soil and groundwater during construction. Construction noise would occur during site preparation and project construction.

Construction Risks: Construction risk is considered high due to tunnel boring methods, although less risky than the cut-and-cover construction method.

Couplet Alternative (C4A)

For the **Couplet Alternative (C4A)**, light rail would travel between Main Street and NE 12th Street as an at-grade couplet running counterflow to traffic on one-way roadways (northbound track on the east side of 110th Avenue NE and the southbound track on the west side of 108th Avenue NE). Vehicle traffic on these avenues would be converted to one-way in the opposite direction. Both tracks would combine going east on NE 12th Street to cross over 112th Avenue NE and I-405. South of downtown, C4A would connect from Segment B as an elevated structure and transition to at-grade on Main Street. The Bellevue Transit Center Station would be on 108th and 110th avenues NE, south of NE 6th Street, and the Ashwood/Hospital Station would be located directly over I-405. The East Main Station would be added if connecting from the 112th SE Bypass (B3) or BNSF (B7) alternatives.



Evaluation Summary

Markets Served by Stations: The stations would serve the city center, Bellevue Transit Center, City Hall, Meydenbauer Center, the NE 6th Street pedestrian corridor, the Overlake Hospital and Group Health medical centers, southeast downtown, and Surrey Downs.

Estimated Cost: $610 to 700 million

Ridership: Forecasts predict 6,500 daily boardings at the stations in this alternative in 2030.

Transportation Impacts: The Couplet Alternative (C4A) would reduce the roadway by one lane along 110th Avenue NE and 108th Avenue NE, but intersection operations would not be adversely impacted because lane modifications would optimize traffic operations. To minimize turning movements along 110th and 108th avenues NE, access to businesses would be closed if properties have alternative access available. Because C4A would be primarily at-grade, light rail train and vehicle interactions would be higher than other Segment C alternatives.

Potential Environmental Impacts During Operation: *North of Main Street*: C4A would displace eight residences and about 60 businesses, more businesses than other Segment C alternatives. Most of the displacements would be related to construction staging areas, which would be available for redevelopment after construction. Although 0.8 acre of McCormick Park would be acquired for staging, this area would be converted to park use after construction, increasing McCormick Park by approximately 0.25 acre.

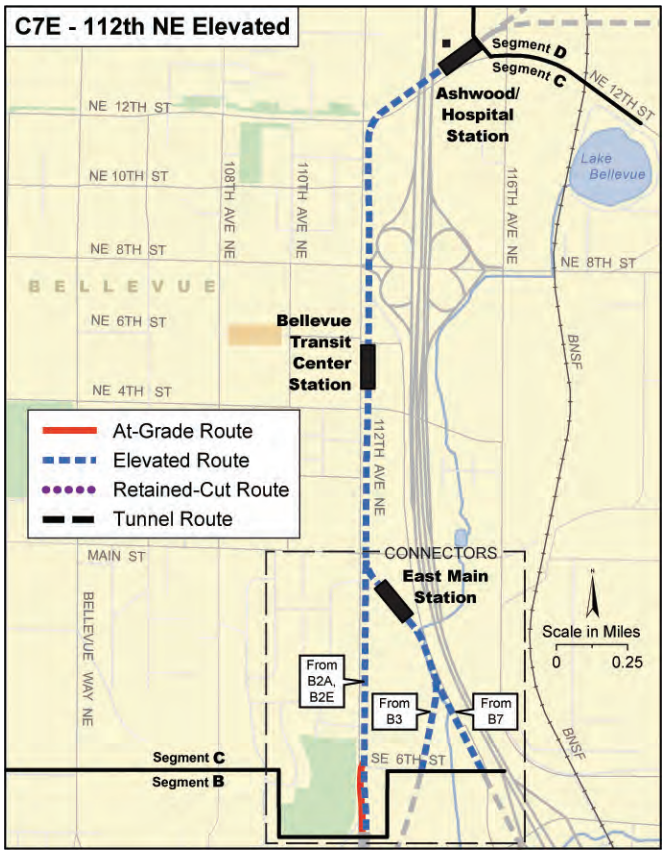
Connectors: The B3 or B7 connectors would displace the most businesses and the B2A and B2E connectors would displace the fewest. These displacements are primarily related to construction staging areas. Connecting to B3 or B7 would also require relocation of Sturtevant Creek, and the project would make habitat quality improvements and increase shading. Noise impacts from light rail operation would occur for all connectors and can all be mitigated. All connectors would have vibration impacts to either seven or eight buildings, and mitigation may not be possible for up to four of these buildings. These impacts would need to be further evaluated during final design.

Temporary Impacts During Construction: Partial road closures would occur on 108th and 110th avenues NE, Main Street, and NE 6th Street. Construction staging would be located at each of the stations, south of Main Street and McCormick Park, which would close this park to the public for about 4 to 5 years. Utilities directly under the trackway and overhead utilities in conflict with elevated structures would need to be relocated. Construction noise would be experienced during site preparation and construction.

Construction Risks: Construction risk would be moderate due to construction constraints in a highly urban corridor and conflicts with traffic and utilities.

112th NE Elevated Alternative (C7E)

The **112th NE Elevated Alternative (C7E)** would travel in an elevated profile from Segment B along 112th Avenue, turn east at NE 12th Street, and cross I-405 to connect with the Segment D alternatives. C7E would connect from Segment B in an elevated profile and continue in an elevated profile. For C7E, the Bellevue Transit Center Station would be located south of NE 6th Street, with an overhead pedestrian walkway that would connect the light rail station to the existing Bellevue Transit Center at street-level. The Ashwood/Hospital Station would be located just east of I-405. The East Main Station would be added if connecting from the 112th SE Bypass (B3) or BNSF (B7) alternatives.



Evaluation Summary

Markets Served by Stations: The stations would serve the eastern side of Downtown Bellevue, City Hall, Meydenbauer Center, the NE 6th Street pedestrian corridor, the northeast corner of downtown, the Overlake Hospital and Group Health medical centers, southeast downtown, and Surrey Downs.

Estimated Cost: $500 to 600 million

Ridership: Forecasts predict 5,500 daily boardings at the stations in this alternative in 2030.

Transportation Impacts: There would be no transportation impacts during operation.

Potential Environmental Impacts during Operation: *North of Main Street*: Impacts would be mostly caused by the connection from Segment B. There would be no residential displacements with this alternative, but 44 to 45 businesses would be displaced.

Connectors: Connecting to the 112th SE Bypass Alternative (B3) or the BNSF Alternative (B7) would displace more businesses than connecting to the 112th SE At-Grade (B2A) or Elevated (B2E) alternatives. The B3 and B7 connectors would require relocation of Sturtevant Creek, and the project would make habitat quality improvements and increase shading. Noise impacts from light rail operation would occur for all connectors, and a vibration impact would occur when connecting to B3 and B7, all of which could be mitigated.

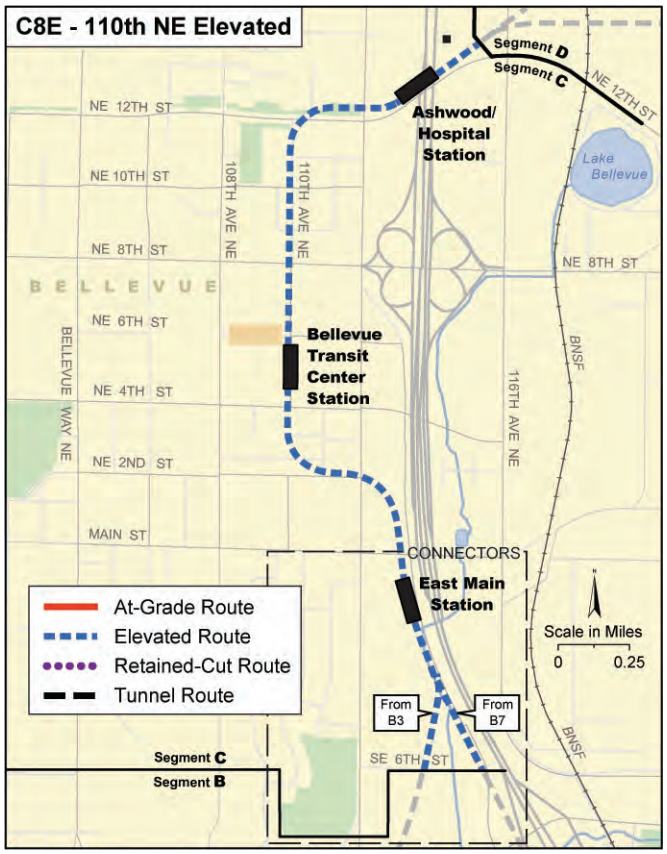
Temporary Impacts during Construction: Most of the construction would be outside of the 112th Avenue right-of-way. Construction staging areas would be located at each of the stations. Short-term partial closures of 112th Avenue NE would occur, and temporary changes in access may occur. Adjacent businesses would experience temporary adverse impacts from changes in circulation and access during construction. Overhead utilities must be relocated when in conflict with elevated structures. Construction noise impacts would be experienced during site preparation and construction.

Construction Risks: Construction risk would be low.

Simulation of Pedestrian Walkway on NE 6th Avenue

110th NE Elevated Alternative (C8E)

The **110th NE Elevated Alternative (C8E)** travels north along 114th Avenue NE/I-405, turning west at NE 2nd Street and then north again onto 110th Avenue NE before turning east at NE 12th Street and crossing I-405 to connect with the Segment D alternatives. For this alternative, the Bellevue Transit Center Station would be elevated south of NE 6th Street. C8E would only connect to Segment B from the 112th SE Bypass Alternative (B3) or the BNSF Alternative (B7).



Evaluation Summary

Markets Served by Stations: The stations would serve the southeast downtown, city center, Bellevue Transit Center, City Hall, Meydenbauer Center, NE 6th Street pedestrian corridor, northeast corner of downtown, the Overlake Hospital and Group Health medical centers and Surrey Downs.

Estimated Cost: $700 million

Ridership: Forecasts predict 6,500 daily boardings at the stations in this alternative in 2030.

Transportation Impacts: C8E would reduce 110th Avenue by one lane between NE 4th Street and NE 12th Street, creating an impact at the intersection of 110th Avenue NE and NE 6th Street. This impact can be mitigated to reduce delays but would still be worse than the No Build Alternative.

Potential Environmental Impacts During Operation: *North of Main Street*: The 110th NE Elevated Alternative (C8E) would displace 2 residences and 48 businesses. There would be visual changes, related to the elevated structure, to McCormick Park, the Pocket Parks at 2nd Place NE and 110th Avenue, and on the 110th Avenue NE pedestrian corridor adjacent to City Hall. Although 0.2 acre of McCormick Park would be impacted, additional property acquired for staging would be converted to park use after construction, permanently increasing McCormick Park by approximately 0.01 acre. Noise impacts from light rail operation would affect 87 receptors, and all can be mitigated for the interior spaces. Vibration impacts would occur at seven buildings, and mitigation may not be possible for three of these buildings. These impacts would need to be further evaluated during final design.

Simulation of Elevated Guideway over NE 12th at 110th Avenue NE

Connectors: Sturtevant Creek would need to be relocated with either connection, and the project would improve habitat quality and increase shading.

Temporary Impacts During Construction: South of NE 2nd Place, construction would occur outside of the 110th Avenue NE right-of-way. Between NE 2nd Place and NE 12th Street, there would be long-term partial closures of 110th Avenue NE, and temporary changes in access may occur. Construction staging areas would be near each of the stations and would require McCormick Park to be closed for about 4 to 5 years. Businesses adjacent to the alternative would experience temporary adverse impacts from changes in circulation and access during construction. Overhead utilities would need to be relocated when in conflict with elevated structures. Construction noise would be experienced during site preparation and construction.

Construction Risks: Construction risk would be low.

Segment D: Bel-Red/Overlake

Segment D would be located within the Bel-Red subarea of Bellevue and the Overlake neighborhood of Redmond. This area is currently dominated by light industrial and commercial land uses, with several office parks located throughout the corridor as well. The Bel-Red Subarea Plan, which is planned for adoption in early 2009, will accommodate 4.5 million square feet of office and commercial space and about 5,000 dwelling units. In Redmond, the newly adopted Overlake Neighborhood Plan update and implementation project anticipates approximately 5,800 dwellings and up to 4.5 million square feet of new commercial space. Any of the Segment D stations could be an interim terminus and the Overlake Transit Center Station is identified as an interim terminus in the ST2 Plan. The maintenance facilities within Segment D are discussed after the descriptions of the Segment E alternatives in this Executive Summary.

Alternatives

In Segment D, there are four alternatives:

- NE 16th At-Grade (D2A)
- NE 16th Elevated (D2E)
- NE 20th (D3)
- SR 520 (D5)

Components

124th and/or 130th Stations: All alternatives except D5; either one or both could be constructed. A park-and-ride lot with 500 spaces would be constructed as part of the 130th Street Station.

Overlake Village Station: Location depends on the Segment D alternative. The existing park-and-ride lot has approximately 200 parking stalls.

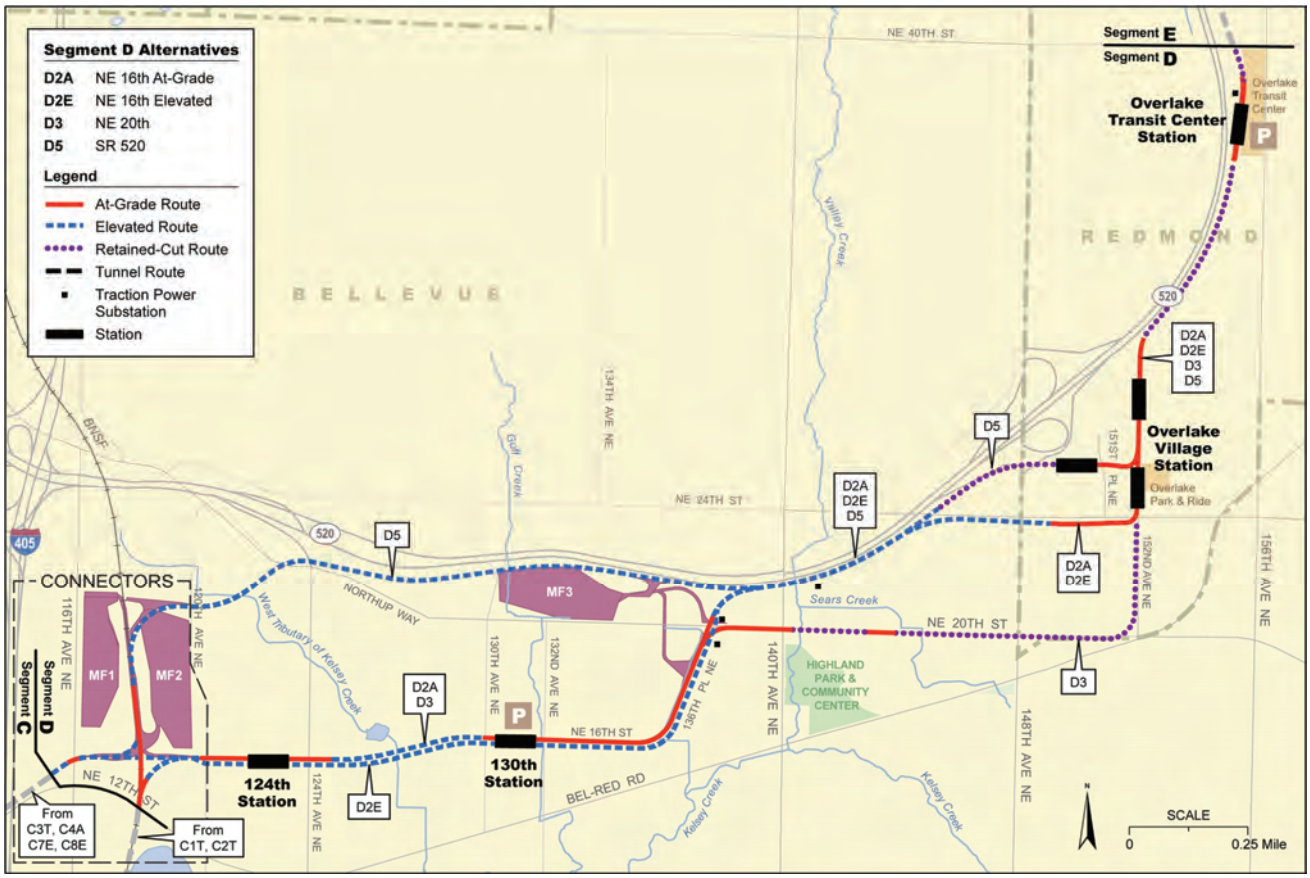
Overlake Transit Center Station: For all Segment D alternatives, the existing Overlake Transit Center Park-and-Ride Lot would be reconfigured to accommodate the new station and up to 320 cars.

Traction Power Substations: One substation would be located near 140th Avenue NE (south of SR 520) and another would be located within the Overlake Transit Center Station.

Connectors from Segment C

BNSF: From the Bellevue Way Tunnel Alternative (C1T) and the 106th NE Tunnel Alternative (C2T).

NE 12th Street: From the 108th NE Tunnel Alternative (C3T), the Couplet Alternative (C4A), the 112th NE Elevated Alternative (C7E), and the 110th NE Elevated Alternative (C8E).



Comparison of Segment D Alternatives

The NE 16th At-Grade (D2A), NE 16th Elevated (D2E), and NE 20th (D3) alternatives would follow a newly planned roadway along approximately NE 16th Street from Segment C east to 136th Place NE. All three of these alternatives would have traffic impacts at intersections in Redmond, which could be mitigated but the mitigation would not meet Redmond's urban design objectives. Acceptable mitigation would be developed through coordination between Sound Transit and the City of Redmond to meet these design objectives and maintain traffic operations.

The NE 16th alternatives (D2A and D2E) would both have similar impacts, while the NE 20th Alternative (D3) would displace the most businesses and employees, would have moderate construction risk, and would have the greatest estimated cost. It would also have lower ridership than the NE 16th alternatives. Although all alternatives in Segment D would cross several streams, impacts on habitat would be minimal and, in some cases, beneficial with mitigation. None of the Segment D alternatives would have residential displacements or visual or parkland impacts.

The SR 520 Alternative (D5) would be the only alternative to have noise impacts, which would occur to 10 multifamily units on the south side of SR 520 and could be mitigated. D5 would have the lowest estimated cost, but because of its location adjacent to SR 520, it would have the fewest stations and the least influence on transit-oriented development opportunities in the Bel-Red Subarea.

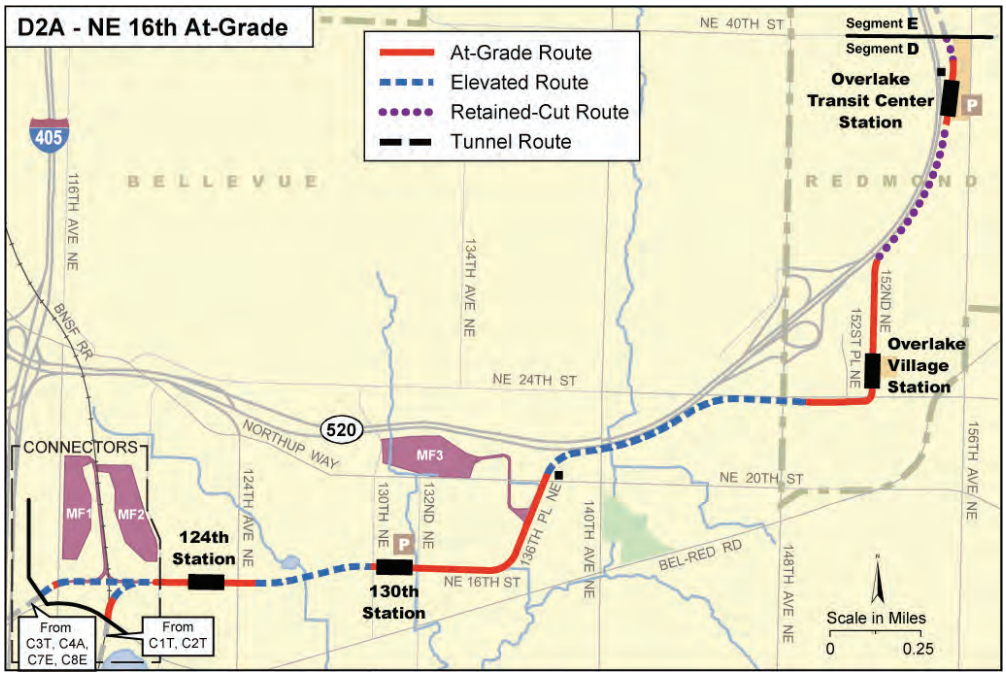
Sound Transit's ridership model uses population and employment growth for future forecast years that has been adopted by the regional planning agency, PSRC. The future growth in the City of Bellevue and Redmond studies (the Bel-Red Corridor Study [City of Bellevue, 2007] and Overlake Neighborhood Plan [City of Redmond, 2007]) have yet to be fully incorporated by PSRC. However, these two studies have been approved by both cities' councils and included in their long-range development and economic goals. The expected growth could lead to greater ridership in this area than is predicted by the Sound Transit forecasts. These ridership increases would occur for all Segment D alternatives; however, the SR 520 Alternative (D5) would have the smallest ridership increases because it does not include the 124th and 130th stations.

TABLE ES-6
Comparison of Segment D Alternatives

Feature		D2A	D2E	D3	D5
No. of Stations		3 to 4	3 to 4	3 to 4	2
Estimated Cost in millions, 2007 $		$690 to 710	$800 to 840	$840 to 870	$530 to 580
2030 Daily Ridership	Segment Boardings	6,500	6,500	6,000	6,000
	Total East Link Ridership	46,000	46,000	45,500	46,000
Travel Time through Segment in minutes		10	9	10	7
Length in miles		3.4 to 3.5	3.4 to 3.5	3.5 to 3.6	3.5
Comparative Cost-Effectiveness -annualized cost divided by annual segment ridership in 2030		$7.45 to 7.50	$7.85 to 8.10	$9.00 to 9.20	$5.70 to 6.10
Construction Risk		Low	Low	Moderate	Low
Environmental Impacts					
Business Displacements (No. of employees)		41 to 49 (1,270 to 1,480)	43 to 46 (960 to1,180)	64 to 72 (1,260 to 1,480)	43 to 52 (430 to 570)
Wetland Impact in acres		0.4	0.3	0.1	0.5
High-Value Nonwetland Habitat Loss in acres		0.7	0.6	0.1	1.27
Hazardous Material Sites		3	3	5	2
Noise Impacted Receptors - No. of living units (No. after mitigation)		0	0	0	10 (0)
Stream Crossings		4	4	4	3
Intersections Not Meeting Local Standard and Operating Worse Than No Build Alternative (No. after mitigation)		2 (0)	2 (0)	1 (0)	0 (0)

NE 16th At-Grade Alternative (D2A)

The **NE 16th At-Grade Alternative (D2A)** would use both at-grade and elevated profiles to follow a new Bellevue east-west street at approximately NE 16th Street until 136th Place NE, where it would turn north to SR 520 and follow SR 520 until NE 24th Street, where it would head east until 152nd Avenue NE. D2A would then turn north along the west side of 152nd Avenue NE, returning to SR 520 then following SR 520 in a retained cut to the Overlake Transit Center Station. D2A would support the dense, transit-oriented land-use redevelopment plans of Bellevue and Redmond.



Evaluation Summary

Markets Served by Stations: The stations would serve the Bel-Red corridor, Overlake Village, and Microsoft headquarters.

Estimated Cost: $690 to 710 million

Ridership: Forecast predicts 6,500 daily boardings at the stations in this alternative in 2030.

Transportation Impacts: Impacts would occur at NE 24th Street at 151st Avenue NE and 152nd Avenue NE due to the at-grade crossing of this intersection. These impacts can be mitigated through design modifications. Access to existing properties off 136th Place NE and NE 16th Street would be limited to right-turn-only movements. Access to properties west of 152nd Avenue NE would be relocated to NE 24th Street.

Potential Environmental Impacts During Operation: *East of 120th Avenue NE:* This alternative would cross four streams, impacting approximately 1 acre of wetland and high-value nonwetland habitat associated with these crossings. D2A would displace 40 businesses with approximately 1,120 employees.

Connectors: The NE 16th At-Grade Alternative (D2A) would displace 9 additional businesses with approximately 150 employees when connecting to Segment C at NE 12th Street and one additional business with approximately 360 employees when connecting along the BNSF Railway corridor.

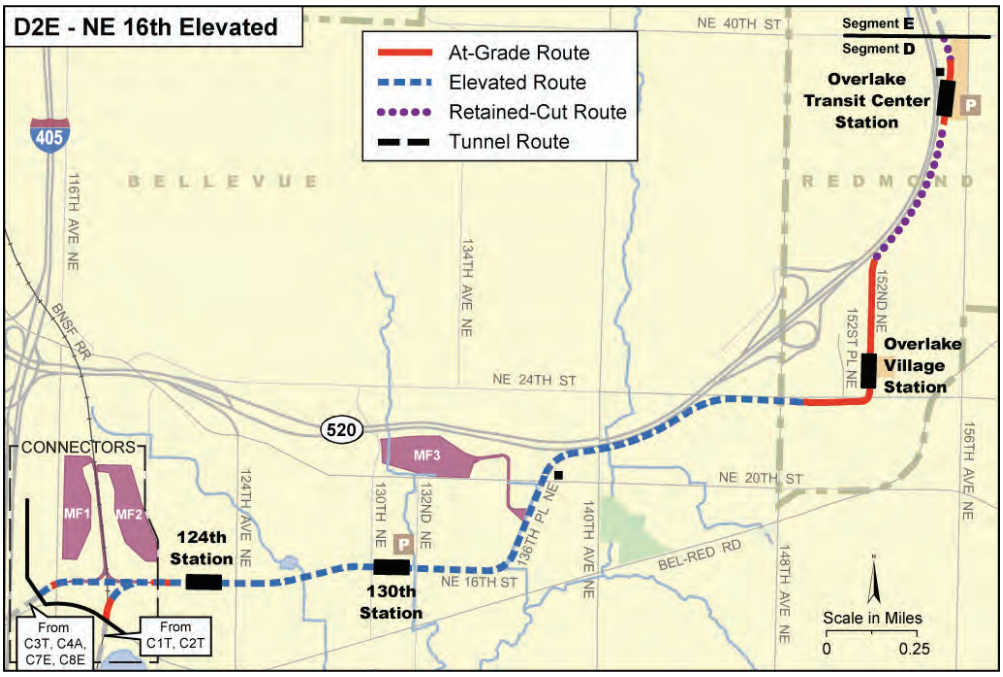
Temporary Impacts During Construction: Partial closures of 116th, 120th, 124th, 130th, and 152nd avenues NE; NE 24th Street; and Microsoft Road would be required. Full long-term closure would be required for NE 16th Street between 132nd Avenue NE and 136th Place NE and for 136th Place NE between NE 16th and 20th streets. Temporary closure of the Overlake Transit Center would occur, preventing parking at this location and temporarily relocating bus stops to adjacent streets. D2A would be located at-grade adjacent to three contaminated sites and would have the potential to encounter contaminated soil and groundwater during construction. Construction noise would occur during site preparation and project construction.

Construction Risks: Construction risk would be low.

Simulation of Transition to At-Grade Along NE 24th at 151st Avenue NE

NE 16th Elevated Alternative (D2E)

The **NE 16th Elevated Alternative (D2E)** would follow a new east-west street at approximately NE 16th Street until 136th Place NE, where it would turn north to and follow SR 520 until NE 24th Street. D2E would then become at-grade at 148th Avenue NE, and would then head east until 152nd Avenue NE, returning to and following SR 520 in a retained cut to the Overlake Transit Center Station. D2E would support the dense, transit-oriented land-use redevelopment plans of Bellevue and Redmond.



Evaluation Summary

Markets Served by Stations: The stations would serve the Bel-Red corridor, Overlake Village, and Microsoft headquarters.

Estimated Cost: $800 to 840 million

Ridership: Forecast predicts 6,500 daily boardings at the stations in this alternative in 2030.

Transportation Impacts: An impact would occur at NE 24th Street and 151st Avenue NE due to the at-grade crossing of this intersection, which can be mitigated through design modifications. Access to properties off 136th Place NE and NE 16th Street would be limited to right-turn-only movements. Access to properties west of 152nd Avenue NE would be relocated to NE 24th Street.

Potential Environmental Impacts During Operation: *East of 120th Avenue NE*: The NE 16th Elevated Alternative (D2E) would cross four streams, impacting approximately 1 acre of wetland and high-value nonwetland habitat associated with these crossings. D2E would displace 42 businesses with approximately 820 employees.

Connectors: The NE 16th Elevated Alternative (D2E) would displace 4 additional businesses with approximately 140 employees when connecting to Segment C at NE 12th Street and one additional business with approximately 360 employees when connecting along the BNSF Railway corridor.

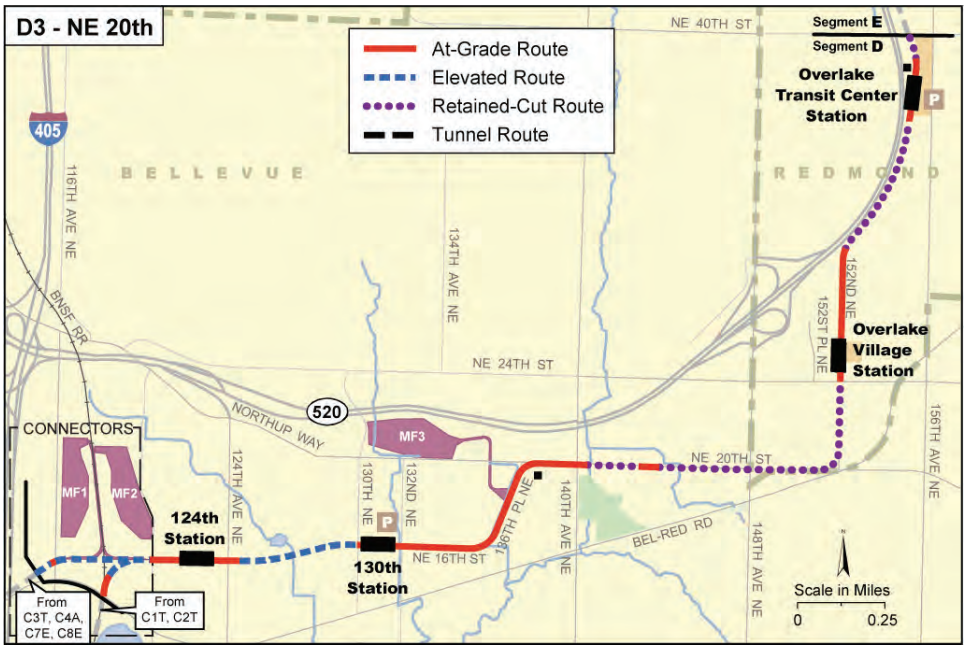
Temporary Impacts During Construction: Partial closures of 116th and 152nd avenues NE, NE 24th Street, and Microsoft Road would be required. Full long-term closure of 136th Place NE between NE 16th and 20th streets and 151st Place NE at NE 24th Street would also be required. These closures would include a temporary loss of on-street parking. Temporary closure of the Overlake Transit Center would occur, preventing parking at this location and temporarily relocating bus stops to adjacent streets. Construction noise would occur during site preparation and project construction. D2E would be located adjacent to three contaminated sites and would have potential to encounter contaminated soil and groundwater during construction.

Construction Risks: Construction risk would be low.

Simulation of light rail at Overlake Transit Center

NE 20th Alternative (D3)

The **NE 20th Alternative (D3)** would follow a new east-west street at approximately NE 16th Street until 136th Place NE, where it would turn north and then east into NE 20th Street, entering a retained cut until 152nd Avenue NE. The alternative would continue in a retained cut while traveling north to the Overlake Village Station, where it would return to at-grade. D3 would then follow 152nd Avenue NE to SR 520 and parallel SR 520 in a retained cut to the Overlake Transit Center Station. D3 would support the dense, transit-oriented land-use redevelopment plans of Bellevue and Redmond.



For D3, NE 20th Street would be widened on either side of the road and 152nd Avenue NE would be widened to the east and west around the Overlake Village Station.

Evaluation Summary

Markets Served by Stations: The stations would serve the Bel-Red corridor, Overlake Village, and Microsoft headquarters.

Estimated Cost: $840 to 870 million

Ridership: Forecast predicts 6,000 daily boardings at the stations in this alternative in 2030.

Transportation Impacts: An impact would occur at 148th Avenue NE and NE 20th Street, but it could be mitigated. Access to properties on 136th Place NE and NE 16th Street would be limited to right-turn-only movements. This alternative would limit access to businesses on NE 20th Street and 152nd Avenue NE, where there would be a retained cut. The retained cut along NE 20th Street and 152nd Avenue NE would require widening the signalized intersections at 136th Place NE, 140th Avenue NE, and the 14300 block of NE 20th Street. Between these intersections, however, access would be limited to right-in, right-out only access. Property access on 152nd Avenue NE, north of NE 20th Street, would be limited to right-in, right-out only turns.

Potential Environmental Impacts During Operation: *East of 120th Avenue NE:* The NE 20th Alternative (D3) would cross four streams, impacting approximately one quarter of an acre of wetland and high-value nonwetland habitat associated with these crossings. D3 would displace 64 businesses with approximately 1,260 employees.

Connectors: The NE 20th Alternative (D3) would displace 8 additional businesses with approximately 220 employees when connecting to Segment C at NE 12th Street instead of from the BNSF Railway corridor. Connecting to the BNSF Railway corridor would not require any additional displacements.

Temporary Impacts During Construction: Partial closures would be required on 116th, 120th, 124th, 130th, and 152nd avenues NE; NE 20th Street; and, Microsoft Road. Full long-term closure of NE 16th Street between 132nd Avenue NE and 136th Place NE, 136th Place NE between NE 16th and 20th streets, and 151st Place NE at NE 24th Street would be required. These closures would include a temporary loss of on-street parking and possible detours. Temporary closure of the Overlake Transit Center would occur, preventing parking at this location and temporarily relocating bus stops to adjacent streets. Construction noise would occur during site preparation and project construction. D3 would involve acquiring one contaminated property with the potential for encountering four other sites with contaminated soil and/or groundwater during construction.

Construction Risks: Construction risk would be moderate due to a retained cut in an urban corridor, requiring extensive excavation of soil, conflicts with traffic circulation, and extensive utility relocation.

SR 520 Alternative (D5)

The **SR520 Alternative (D5)** would follow the BNSF Railway corridor, turning east at approximately NE 20th Street and traveling to the south side of SR 520. The alternative would cross over NE 24th Street and under 148th Avenue NE to the Overlake Village Station and then follow SR 520 to the Overlake Transit Center Station. D5 would have two optional locations for the Overlake Village Station: near Safeway (approximately 26th Street) or on 152nd Avenue NE.

This alternative would have fewer daily boardings than other Segment D alternatives; however, the shortened projected travel time would result in higher overall daily East Link ridership. D5 would not serve the Bel-Red redevelopment plans for transit-oriented development along the NE 16th Street corridor, nor would the placement of the Overlake Village Station be ideal according to the Overlake Neighborhood Plan.

Evaluation Summary

Markets Served: The stations would serve Overlake Village and the Microsoft headquarters campus.

Estimated Cost: $530 to 580 million

Ridership: Forecast predicts 6,000 daily boardings at the stations in this alternative in 2030.

Transportation Impacts: Property access on the west side of 152nd Avenue NE north of the Overlake Village Station would be closed, but access to this property would remain from 151st Place NE.

Potential Environmental Impacts During Operation: *East of 120th Avenue NE:* The SR 520 Alternative (D5) would cross 3 streams, and would impact approximately 1.8 acres of wetland and high-value nonwetland habitat associated with these crossings. This alternative would have light-rail noise impacts on 10 multifamily units; all of these noise impacts can be mitigated. D5 would displace 43 businesses with approximately 430 employees.

Connectors: D5 would displace 9 additional businesses with approximately 140 employees when connecting to NE 12th Street. Connecting to the BNSF Railway corridor would not require any additional displacements.

Temporary Impacts During Construction: Partial closures would be required for 116th Avenue NE and 152nd Avenue NE, NE 24th Street, and Microsoft Road. These closures would include a temporary loss of on-street parking and possible detours. Temporary closure of the Overlake Transit Center would occur, preventing parking at this location and temporarily relocating bus stops to adjacent streets. D5 would be located adjacent to two contaminated sites and would have the potential to encounter contaminated soil and groundwater during construction. Construction noise would occur during site preparation and project construction.

Construction Risks: Construction risk would be low.

Segment E: Downtown Redmond

Segment E would travel parallel to SR 520 north and east into Downtown Redmond. Land uses consist of office campuses of three- to four-story buildings between NE 40th Street and NE 51st Street, then transition to suburban low-density, single-family residential, and then to multifamily residential before West Lake Sammamish Parkway NE, where the segment would enter Downtown Redmond. Downtown Redmond is an urban center with mostly one- to four-story commercial structures, while southeast of Downtown Redmond the land uses change considerably to include light industrial/ manufacturing. Downtown Redmond includes a substantial amount of land designated for park and open space uses along the Sammamish River and Bear Creek. All alternatives would either cross or travel parallel to these lands. Any of the Segment E stations could be an interim terminus. Maintenance facilities are discussed following descriptions of the Segment E alternatives.

Alternatives

In Segment E, there would be a single route from the Overlake Transit Center and along SR 520 to the interchange with West Lake Sammamish Parkway NE; the route would then separates into three alternatives through Downtown Redmond:

- Redmond Way (E1)
- Marymoor (E2)
- Leary Way (E4)

In Downtown Redmond, the alternatives would use a portion of the abandoned BNSF Railway for the route, coming either from Redmond Way, Marymoor Park, or Leary Way. Segment E alternatives would terminate at either the Redmond Transit Center, Redmond Town Center, or a new SE Redmond Station near the interchange of SR 520 and SR 202.

Components

Redmond Town Center Station: At-grade station for all Segment E alternatives.

SE Redmond Park-Station: At-grade station for all Segment E alternatives; would include a 5-story parking structure with 1,400 stalls.

Redmond Transit Center Station: At-grade station for the Marymoor Alternative (E2) only.

Tail Track: Beyond the terminus station, between 800 and 1,600 feet long, depending on the alternative.

Traction Power Substations: There would be a total of two for each alternative. One would be located along the route adjacent to SR 520 or along West Lake Sammamish Parkway NE, the others would be at either the Redmond Town Center Station or the terminus station at SE Redmond.

Connectors to Segment D

All Segment E alternatives would connect to Segment D at the Overlake Transit Center.

Comparison of Segment E Alternatives

All three Segment E alternatives would have the same ridership. The Marymoor Alternative (E2) would provide one more station but would also have the greatest impact in many categories if constructed to the Redmond Transit Center—the highest estimated cost and the most residential, business, and employee displacements (Table ES-7). However, Sound Transit is considering ending Alternative E2 at the Redmond Town Center Station, which would reduce these impacts to levels similar to the Redmond Way (E1) and the Leary Way (E4) alternatives. Regardless of the termini chosen, E2 would still have the highest impacts to parks. E1 would have the highest habitat impacts but the lowest impact on parks. E4 would require relocation of a historic structure and would also result in a decrease in visual quality along Leary Way.

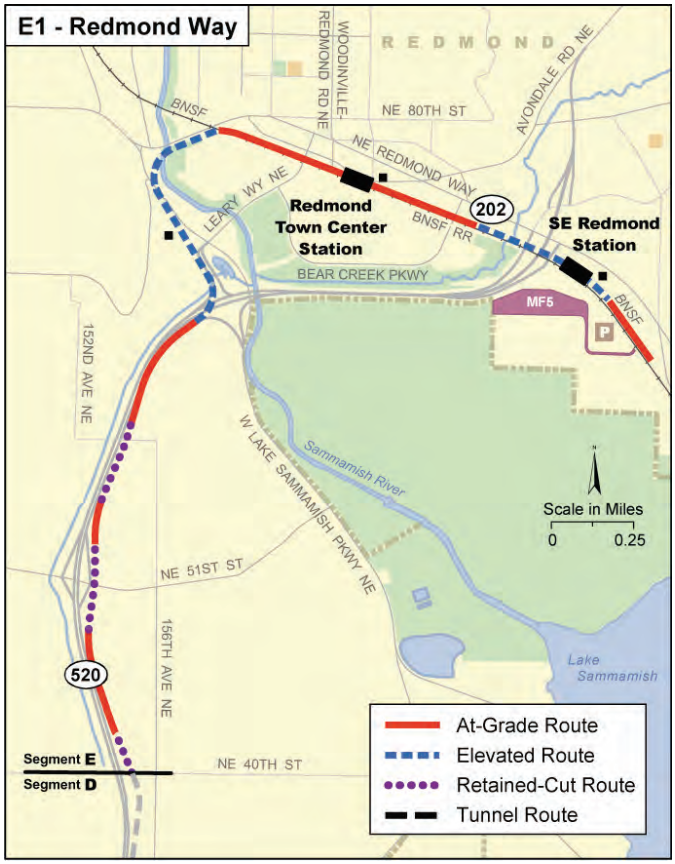
Aerial View of Redmond Town Center

TABLE ES-7
Comparison of Segment E Alternatives

Features		E1	E2		E4
			To Redmond Transit Center	To Redmond Town Center	
No. of Stations		2	3	2	2
Estimated Cost in millions, 2007 $		$680	$790	$570	$580
2030 Daily Ridership	Segment Boardings	3,000	3,000	3,000	3,000
	Total East Link Ridership	45,500	46,000	45,500	45,500
Travel Time through Segment in minutes		6	8	6	6
Length in miles		3.7	3.8	3.5	3.3
Comparative Cost-Effectiveness -annualized cost divided by annual segment ridership in 2030		$14.10	$15.00	$11.25	$11.25
Construction Risk		Low	Low	Low	Low
Environmental Impacts					
Residential Displacements – No. of housing units		2	126	2	2
Business Displacements (No. of employees)		7 (210)	24 (380)	8 (200)	7 (120)
Decrease in Visual Quality?		No	No	No	Yes
High-Value Nonwetland Loss in acres		2.1	1.0	1.0	1.3
Stream Crossings		2	2	2	2
Noise Impacted Receptors – No. of living units (No. after mitigation)		26 (0)	0 (0)	0 (0)	0 (0)
Vibration Impacted Receptors – No. of buildings (No. after mitigation)		3 (1)	3 (1)	3 (1)	3 (0)
Historic Property Impact		No	No	No	Yes
Permanent Park Impacts (area in acres before mitigation)	Surface	< 0.1	2.0	2.0	0.7
	Elevated	0.3	0.2	0.2	0.2
Intersections Not Meeting Local Standard and Operating Worse than No Build Alternative (No. after mitigation)		2 (0)	4 (0)	2 (0)	3 (0)

Redmond Way Alternative (E1)

The **Redmond Way Alternative (E1)** would follow SR 520 to West Lake Sammamish Parkway NE, where it would head north to Redmond Way and would turn northeast on the south side of Redmond Way to cross the Sammamish River. E1 would continue along Redmond Way and turn southeast into the BNSF Railway right–of-way to the Redmond Town Center Station, then travel over Bear Creek and the SR 520/ SR 202 interchange to the terminus at the SE Redmond Station.



Evaluation Summary

Markets Served by Stations: The stations would serve the Redmond Town Center and communities northeast and southeast of Redmond with a large park-and-ride terminus station.

Estimated Cost: $680 million

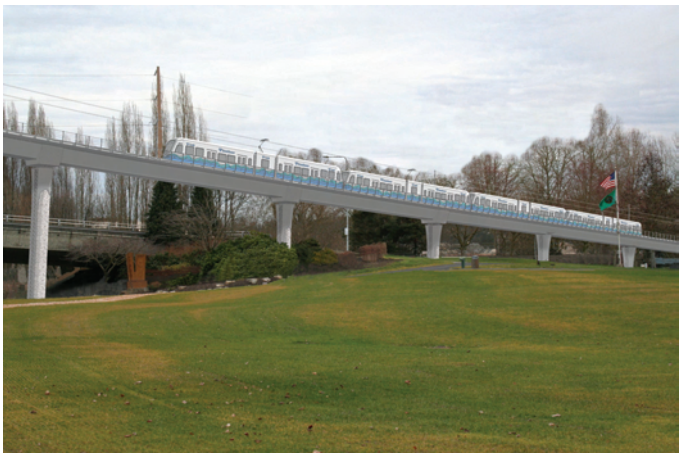
Ridership: Forecasts predict 3,000 daily boardings at the stations in this alternative in 2030.

Transportation Impacts: Traffic at the intersections of SR 202 and NE 70th Street and at NE 70th Street and 176th Avenue NE would be adversely affected, but it could be mitigated.

Potential Environmental Impacts During Operation: The Redmond Way Alternative (E1) would displace 2 residences and 7 businesses with approximately 210 employees. E1 would acquire about one-tenth of an acre from Luke McRedmond Landing Park and the Sammamish River Trail, but these areas would still be accessible under the elevated guideway. The alternative would have minor visual impacts on residents along West Lake Sammamish Parkway NE. Noise impacts from the light rail would impact 26 receptors, but all of these impacts could be mitigated. There would be vibration impacts on three buildings, and mitigation may not be possible for one of them; this impact would need to be further evaluated during final design.

Temporary Impacts During Construction: Temporary trail closures and detours would be required for work in the vicinity of the Sammamish River, Bear Creek, East Lake Sammamish and Bridle Creek trails. Partial closures of NE 40th, NE 51st, and NE 60th streets and 161st, 166th, and 170th avenues NE would be required. A short-term full closure of NE 70th Street would also be required and would include the temporary loss of on-street parking on this road. Construction noise would be experienced during site preparation and project construction.

Construction Risks: Construction risk would be low.



Simulation of Redmond Way Alternative (E1) Near Luke McRedmond Landing Park

Marymoor Alternative (E2)

The **Marymoor Alternative (E2)** would remain elevated on the south side of SR 520 with a new bridge structure over the Sammamish River, then descend down to the south side of SR 520 along Marymoor Park. After the SE Redmond Station, E2 would turn west and go under the SR 520/SR 202 interchange before entering the BNSF Railway right–of-way. E2 would continue past the Redmond Town Center Station to NE 161st Street, where it would head north, with a terminus station at the Redmond Transit Center. Sound Transit is also considering ending Alternative E2 at the Redmond Town Center Station.

Evaluation Summary

Markets Served by Stations: The stations would serve the Sammamish Plateau, the Union Hill and Novelty Hill neighborhoods, the Redmond Town Center, and north Redmond.

Estimated Cost: $570 to 790 million

Ridership: Forecasts predict 3,000 daily boardings at the stations in this alternative in 2030.

Transportation Impacts: Traffic at the intersection of SR 202 and NE 70th Street and at NE 70th Street and 176th Avenue NE would be adversely affected, but could be mitigated. There would be traffic impacts at Redmond Way and 161st Avenue NE related to the track in the median of the 161st Avenue NE, and at NE 83rd Street and 161st Avenue NE related to right-turn movements into the Redmond Transit Center. These impacts could be mitigated or avoided with a Redmond Town Center Station.

Potential Environmental Impacts During Operation: The Marymoor Alternative (E2) would displace 126 residences, including 2 apartment buildings, and 24 businesses with approximately 380 employees. Many of these acquisitions would be related to the Redmond Transit Center Station; therefore, these impacts could be reduced if the terminus occurs at the Redmond Town Center Station, as shown in Table ES-7. E2 would acquire approximately 2 acres of Marymoor Park, a 640-acre regional park**;** the acquisition which would be replaced in-kind. This alternative would have vibration impacts on three buildings, and mitigation may not be possible for one; this impact would need to be further evaluated during final design.

Temporary Impacts During Construction: A temporary construction easement would be required in Marymoor Park, but construction would not affect use of the park. Temporary trail closures and detours would be required for work in the vicinity of the

Sammamish River, Bear Creek, East Lake Sammamish, and Bridle Creek trails. Partial closures of NE 40th, NE 51st, and NE 60th streets and the SR 520 on- and off-ramps at SR 202 would be required. A long-term full closure of 161st Avenue NE between Redmond Way and NE 85th Street would also be required and would include the temporary loss of on-street parking on this road. Construction noise would occur during site preparation and project construction.

Construction Risks: Construction risk would be low.

Simulation of Marymoor Park with Light Rail in Distance

Leary Way Alternative (E4)

The **Leary Way Alternative (E4)** would follow SR 520 to West Lake Sammamish Parkway NE, where it would turn north before heading east on Leary Way and entering Downtown Redmond. From Leary Way, E4 would turn southeast into the BNSF Railway right-of-way, and continue over Bear Creek and under SR 520 to the SE Redmond terminus station, which would be at-grade. This would be the shortest Segment E alternative.

Evaluation Summary

Markets Served by Stations: The stations would serve Redmond Town Center and communities northeast and southeast of Redmond with a large park-and-ride terminus station.

Estimated Cost: $580 million

Ridership: Forecasts predict 3,000 daily boardings at the stations in this alternative in 2030.

Transportation Impacts: Traffic at the intersections of SR 202 and NE 70th Street and at NE 70th Street and 176th Avenue NE would be adversely affected, but could be mitigated. A traffic impact would also occur at the intersection of Leary Way and Bear Creek Parkway, where traffic turning onto Bear Creek Parkway would be delayed when light rail cars cross the roadway; this impact could be mitigated.

Potential Environmental Impacts During Operation: The Leary Way Alternative (E4) would displace 2 residences and 7 businesses with approximately 120 employees. E4 would require removing trees along Leary Way, which serves as an entryway to Downtown Redmond. Landscape treatment would minimize the impact, but the project would still result in lowering the visual quality along Redmond's entry into downtown. The historic Justice William White House would need to be relocated to a nearby site where the context of the house with the BNSF Railway would be preserved. This alternative would have vibration impacts on three buildings, and mitigation may not be possible for one of them; this impact would need to be further evaluated during final design.

Temporary Impacts During Construction: There would be temporary impacts on the farmer's market east of Leary Way during construction. Temporary trail closures and detours would be required for work in the vicinity of the Sammamish River, Bear Creek, East Lake Sammamish, and Bridle Creek trails. Partial closures would be required for NE 40th, NE 51st, and NE 60th streets; 161st, 166th, and 170th avenues NE; Leary Way; and the SR 520 on- and off-ramps at SR 202. A short-term full closure of NE 70th Street would also be required and would include the temporary loss of on-street parking on this road. There would be construction noise related to site preparation and project construction.

Construction Risks: Construction risk would be low.

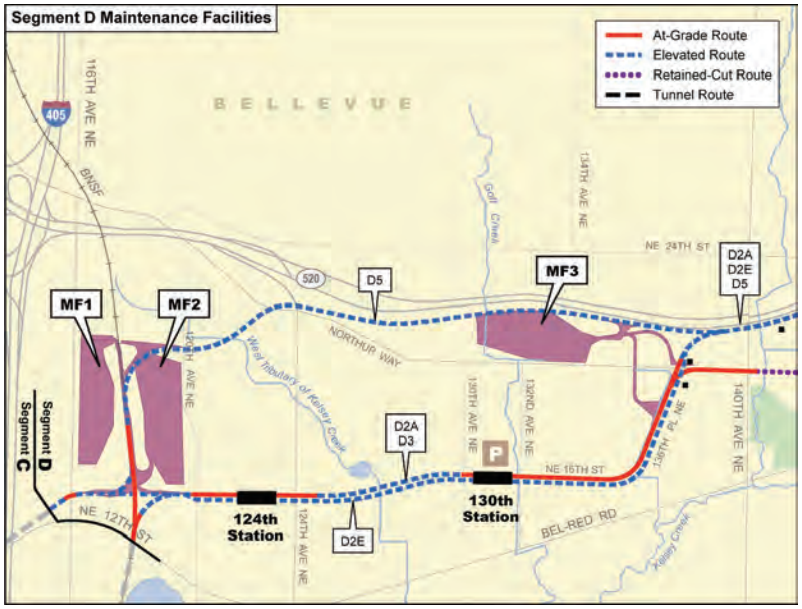
Simulation of Elevated Light Rail on Leary Way

Maintenance Facilities

A new maintenance facility would be needed with full build out of the East Link Project to provide for light maintenance activities without traveling to Sound Transit's primary maintenance facility in Seattle, and it would provide for vehicle storage beyond the capacity of the Seattle facility. A site of approximately 10 to 15 acres would be needed to allow for maintenance and storage of up to about 40 light rail cars. In Segment D, the maintenance facilities alternatives would all be located within current light industrial or commercial areas of the Bel-Red Neighborhood. The maintenance facility alternative within Segment E would be located in a light industrial area near the interchange of SR 202 and SR 520. A maintenance facility is not funded in the ST2 Plan and may not be needed until the project extends beyond the Overlake Transit Center Station.

Ultimately, only one maintenance facility would be constructed to supplement the Seattle maintenance facility. Access tracks have been designed to connect the maintenance facilities to any of the alternatives within the segment.

Functions at the maintenance facility site would include storage for out-of-service vehicles; car washing facility for exterior vehicle cleaning; interior cleaning of light rail vehicles; daily service and inspection of revenue vehicles; corrective and preventive maintenance; maintenance of track facilities; East Link operating offices; and light rail vehicle operator reporting and ready-room areas.



Alternatives

116th Maintenance Facility (MF1). MF1 would be located between 116th Avenue NE and the BNSF Railway right-of-way. Constructing this facility would require major grading and a 60-foot retaining wall on the east side of 116th Avenue NE to create a flat area for operations at the level of the BNSF Railway.

BNSF Maintenance Facility (MF2). MF2 would be located between 120th Avenue NE and the BNSF Railway right-of-way and would require minor grading to create a flat area.

SR 520 Maintenance Facility (MF3). MF3 would be located adjacent to the south side of the SR 520 right-of-way, roughly between 130th Avenue NE and 135th Avenue NE. This site would require a moderate amount of grading to create a flat area.

SE Redmond Maintenance Facility (MF5). MF5 has two possible locations. For the Redmond Way Alternative (E1), the maintenance facility would be located southwest of the SR 520/SR 202 interchange. For the Marymoor and Leary Way alternatives (E2 and E4), the maintenance facility would be located directly adjacent to the BNSF Railway corridor. These sites would require minimal to no grading.

Comparison of Maintenance Facility Alternatives

The maintenance facilities would not displace any residences or affect any parks (Table ES-8) and would be located in predominately commercial/industrial areas. The areas of the 116th Maintenance Facility (MF1), the BNSF Maintenance Facility (MF2), and the SR 520 Maintenance Facility (MF3) will eventually shift away from industrial uses to more commercial uses under new land use plans for this area. This transition, however, is dependent on purchase and redevelopment of these properties by a private developer. MF1 and MF3 would be more expensive to construct and would displace substantially more businesses (up to 93 and 96, respectively) than the other potential maintenance facility locations. The greater cost for these maintenance facilities would be related to greater amounts of excavation and grading required to make these sites level. The 116th Maintenance Facility (MF1) and the SR 520 Maintenance Facility (MF3) have the most potential employee displacements, with over 900, while the SE Redmond Maintenance Facility (MF5) would be the least costly maintenance facility and could have the fewest employee displacements, with as few as 320. The fewest business displacements would occur under the BNSF Maintenance Facility (MF2), which would displace three to six businesses, depending on which alternative it connects from.

View of Sound Transit's Central Link Operations and Maintenance Facility in Seattle

MF1 and MF2 would require wetlands and wetland buffers to be filled. MF3 would result in the loss of 230 linear feet of channel where Goff Creek would be placed in culverts under the facility. This impact could be avoided by realigning the stream.

TABLE ES-8
Comparison of Maintenance Facility Alternatives

Features	MF1	MF2	MF3	MF5
Estimated Cost (millions, 2007 $)	$430 to 460	$310	$360 to 380	$240 to 280
Access Track (feet)	1,050 to 1,800	1,500 to 1,600	460 to 1,300	800 to 1,300
Environmental Impacts				
Business Displacements (No. of employees)	86 to 93 (750 to 940)	3 to 6 (470 to 880)	93 to 96 (890 to 940)	20 to 50 (320 to 600)
Acres Converted to Transportation Use	21.9 to 24.1	26 to 26.9	19.3 to 27.6	16.5 to 19.6
Wetland Impact in acres	0.1	0.2	0	0
High-Value Nonwetland Loss in acres	0	0 to 0.4	0	0
Stream Crossings	0	0	1	0
Change in Impervious Surface in acres	+2.5 to +3.7	–0.4 to –3.7	–1 to –1.7	+1.8 to +2.3
Construction Risk	Low	Low	Low	Low

ES.6 Project-Wide Impacts

Construction of the East Link Project would benefit the region by providing frequent and reliable high-capacity transit service 20 hours each day in the Seattle-to-Bellevue-to-Redmond corridor. The light rail system would provide faster transit travel times and increase transportation capacity in the corridor. Daily ridership is projected to be up to 48,000 boardings directly attributable to East Link by 2030 and light rail service can easily be expanded to accommodate future growth.

The project is consistent with and would support regional and local land use plans to encourage urban growth centers of high, mixed-use density. PSRC, working with the region's largest cities, has plans to direct much of the expected growth in population and employment into the urban centers in the Puget Sound region, in large part to help reduce sprawl and the related impacts of growth on the environment.

Due to the highly urbanized nature of the study area, impacts on natural resources would be relatively small (Table ES-9) and most impacts would be related to the built environment. Table ES-9 illustrates the range of the lowest and highest impacts over the entire project corridor for each impact category before and after mitigation measures are applied. As shown, many project-wide impacts before mitigation concern property acquisition, which is also reflected in business and employee relocation, removal of parklands, and some losses in wetlands. East Link operation may also degrade traffic intersections. After mitigation, only a few resources would be adversely affected by the project. For the most part, noise from traffic and transit impacts can be mitigated; however, there may be some residual exterior noise impacts for some front yards or small balcony areas of apartments. Also, depending on the combination of alternatives, there may be some residual vibration impacts, visual quality reductions, and long-term impacts on McCormick Park. Many of the adverse impacts on the built environment can be mitigated as discussed in Section ES.7 and all alternatives incorporate impact avoidance and minimization measures.

The East Link Project would also offer environmental improvements over the No Build Alternative. Some project alternatives could result in net benefits to parks and aquatic habitats and would remove contaminated soils encountered along the project route. The project would benefit the region by decreasing daily vehicle miles traveled (VMT) by approximately 200,000 miles and daily vehicle hours traveled (VHT) by approximately 15,000 hours, which would result in lower energy usage and reduced greenhouse gas emissions, reducing the overall volume of CO_2 emissions in the region. Thus, the proposed project is expected to preserve environmental quality and provide beneficial effects.

TABLE ES-9
Summary of Project-Wide Impacts

Impact Category		Low to High Impact Range
Number of Intersections Adversely Affected (No. after mitigation)		10 to 15 (0 to 1)
Residential Displacements-No. of units		3 to 232
Business (No. of Employees) Displacements		56 to 161 (760 to 2,820)
Wetland Impacts in Acres		0.1 to 2.8
High-Value Nonwetland Habitat Loss in Acres		1.6 to 7
Number of Hazardous Material Sites		5 to 34
Number of receptors affected by Noise Due to Traffic (No. after mitigation)		0 to 101 (0)
Number of receptors affected by Noise Due to Light Rail Operation (No. after mitigation)		0 to 217 (0)
Number of receptors affected by Vibration Impacts (No. after mitigation)		3 to 12 (0 to 5)
Number of receptors affected by Ground-Borne Noise impacts (No. after mitigation)		25 to 37 (0 to 1)
Potential permanent parkland impact in Acres	Surface	0.5 to 3.6
	Elevated	0.2 to 1.2
Areas with Reduction in Visual Quality		Up to 3
Number of Stream crossings		5 to 6
Number of Potential Impacts to Historic Properties		0 to 1

Although construction would be temporary, the duration of civil construction on a light rail project can be between 2 and 5 years on any given portion of the route. During construction, traffic may be adversely affected, which can affect adjacent businesses and residents. Construction would also result in dust, noise, and vibration, as well as lower visual quality around the construction site. There may be other temporary impacts on wetlands and an increase in sediment loads in fish-bearing streams. A number of parks would be used or affected during construction, but Sound Transit is committed to mitigating adverse effects or restoring these parklands as necessary. Conversely, construction of any of the alternatives could result in increased employment and spending in the project vicinity during construction. The extent of these effects depends on the source of project funding and the makeup of work crews used during project construction.

In addition, Sound Transit evaluated 23 potential construction risk factors for each alternative in terms of frequency and implication on cost and safety. Sound Transit concluded that the greatest risk would be associated with the Segment C tunnel alternatives, primarily due to two high-risk factors—safety and overall construction cost and bid climate—in addition to moderate risk factors. Sound Transit concluded that the Couplet (C4A) and NE 20th (D3) alternatives would pose a moderate level of construction risk, due primarily to right-of-way, agency coordination, and extensive utility relocation risk factors. All other alternatives would pose a lower construction risk.

ES.7 Avoidance, Minimization, and Mitigation Measures

Sound Transit is committed to satisfying applicable federal, state, and local environmental regulations and applying reasonable mitigation measures to reduce significant adverse impacts. The Draft EIS identifies measures to mitigate impacts of the project alternatives. Avoidance and minimization measures committed to as part of the project are identified along with other potential measures that would reduce or eliminate impacts. These measures would be refined through final design and permitting. The NEPA Record of Decision would be issued after the Final EIS and would include a list of all committed mitigation measures for the project to be built.

The following is a summary of select mitigation measures for impacts that the project alternatives may not be able to fully minimize or avoid:

Wetlands: Sound Transit is committed to no net loss of wetland function and area on a project-wide basis. To the extent possible, compensatory mitigation would be identified close to impacts that would compensate for lost values in-kind. Mitigation would meet the requirements of local critical area ordinances.

Noise: Noise impacts would be mitigated by installing noise walls, building insulation, or other measures.

Vibration: Sound Transit would install ballast mats, resilient rail fasteners or other specialized trackwork.

Visual Impacts: Sound Transit would incorporate visual enhancement measures into the project and include the following measures to address adverse impacts where they occur: provide landscaping or visual screening, aesthetic treatment of walls, pedestrian improvements, and minimize bulk of elevated structure.

Parks: Mitigation measures may include purchase of replacement land, enhancement or restoration of existing parks, or financial compensation.

Transportation: Mitigation of changes in intersection level of service on surface streets may include restriping, adding right- or left-turn pockets, allowing U-turn movements at intersections, or signalization.

ES.8 Significant and Unavoidable Adverse Impacts

With the avoidance, minimization, and mitigation measures described in Chapter 3 (Transportation) and Chapter 4 (Environmental Impacts), significant adverse impacts would be avoided for most alternatives. Operational impacts that could not be fully mitigated include the following:

- Removal of vegetation along with the addition of other project components, such as retaining walls or an overhead guideway, would have a visual impact along Bellevue Way for the Bellevue Way (B1), 112th SE At-Grade (B2A), 112th SE Elevated (B2E), and 112th SE Bypass (B3) alternatives.
- Removal of mature vegetation in McCormick Park and the presence of the light rail transition structure would have a visual impact for the 108th NE Tunnel (C3T), Couplet (C4A), and 110th NE Elevated (C8E) alternatives. In addition, the C8E elevated structure would have a visual impact on the pedestrian-oriented streetscape along 110th Avenue NE.
- Residual vibration impacts may result in Segment C along the Couplet (C4A) and 110th NE Elevated (C8E) alternatives for all connectors, and along the 106th NE Tunnel (C2T), 108th NE Tunnel (C3T), and 112th NE Elevated (C7E) alternatives when connecting to the 112th SE Bypass (B3) and BNSF (B7) alternatives. Residual vibration impacts could also occur along the Marymoor (E2) and Leary Way (E4) alternatives in Segment E.
- A traffic impact would occur at the intersection of 110th Avenue NE and NE 6th Street for the 110th NE Elevated Alternative (C8E). This impact could be mitigated to decrease the delay occurring here, but the intersection would still fail to meet local standards and would operate worse than the No Build Alternative.

Temporary impacts during construction may not be avoidable and could be significant and adverse in some locations. These impacts could include temporary longer-term lane or roadway closures, loss of parking, and noise and vibration along portions of any alternative. Detour routes, when available, would reduce the impact of roadway closures, although

delays, congestion, and inconvenience would still occur. There could be adverse impacts on businesses adjacent to the alternative corridors that depend on drive-by traffic to attract business. This impact would be most severe for cut-and-cover tunnel construction for the Bellevue Way Tunnel (C1T) and 106th NE Tunnel (C2T) alternatives in Segment C and for retained-cut construction for the NE 20th Alternative (D3) in Segment D. Closure of parts or all of McCormick Park would occur during construction of the 108th NE Tunnel (C3T), the Couplet (C4A), and 110th NE Elevated (C8E) alternatives in Segment C.

ES.9 Other Environmental Considerations

ES.9.1 Section 4(f) and Section 6(f) Resources

Section 4(f) of the Department of Transportation Act (23 United States Code Sec. 138) protects parks and recreation areas, historic sites, and waterfowl and wildlife refuges that may be affected by a project with U.S. Department of Transportation (DOT) involvement. Under the law, the Secretary of Transportation cannot approve a transportation project that uses or adversely affects such properties unless (1) there is no feasible and prudent alternative, and (2) the project minimizes the impacts as much as possible. Section 6609 of the Safe, Accountable, Flexible, Efficient Transportation Equity Act: a Legacy for Users (SAFETA-LU), amended the existing Section 4(f) legislation to simplify the processing and approval of projects that have only *de minimis* impacts on properties protected by Section 4(f). When the DOT determines that there is a transportation use of a Section 4(f) property, if the impact is *de minimis* after avoidance, minimization, and mitigation, then an analysis of avoidance alternatives is not required.

In addition, Section 6(f) of the 1965 Land and Water Conservation Fund (LWCF) Act provides funding for acquiring property for park uses. Section 6(f) states that "no property acquired or developed with assistance under this section shall, without the approval of the Secretary, be converted to other than public outdoor recreation uses." The act requires any Section 6(f) property affected by this proposed project be replaced by recreation property of equal value and usefulness.

The following is a summary of potential Section 4(f) and Section 6(f) impacts:

- **Segment A:** Acquisition or direct use of portions of Benvenuto Park (part of the I-90 lid) by the Rainier Station and the I-90 Outdoor Sculpture Gallery by the Mercer Island Station.
- **Segment B:** All alternatives would require direct use of the Mercer Slough Nature Park but would not affect the Frederick Winters House, a historic site. However, part of the area in the Mercer Slough Nature Park affected by the Bellevue Way (B1), 112th SE At-Grade (B2A), and 112th SE Bypass (B3) alternatives would affect a portion of the park acquired with funds from the LWCF, creating a Section 6(f) impact.
- **Segment C:** Direct use of McCormick Park would result during construction of the 108th NE Tunnel (C3T), Couplet (C4A), and the 110th NE Elevated (C8E) alternatives. Permanent acquisition of less than 0.1 acre of Surrey Downs Park would occur from the 106th NE Tunnel (C2T) and the 108th NE Tunnel (C3T) alternatives, and 0.4 acre would be acquired from the Couplet (C4A) and the 112th NE Elevated (C7E) alternatives when connecting to the 112th SE At-Grade Alternative (B2A). Temporary construction impacts would occur on the planned Surrey Downs Park site from the 106th NE Tunnel (C2T) and the 108th NE Tunnel (C3T) alternatives when connecting to the 112th SE At-Grade Alternative (B2A). Also, direct use of less than 0.1 acre of the Pocket Parks would occur from the Couplet (C4A) and the 110th NE Elevated (C8E) alternatives.
- **Segment D:** There would be no potential Section 4(f) or Section 6(f) impacts.
- **Segment E:** Acquisition or direct use of Marymoor Park would occur from the Marymoor Alternative (E2), and acquisition or direct use of Luke McRedmond Landing Park would occur from the Redmond Way Alternative (E1). The Sammamish River Trail, the East Lake Sammamish Trail, and the Bear Creek Trail would be affected by all Segment E alternatives. The Leary Way Alternative (E4) would relocate the Justice William White House, a historic property, but after mitigation, there would be no Section 4(f) impact.

Sound Transit has proposed (the Federal Transit Administration will make the final determination) that several of the Section 4(f) resources affected by alternatives may qualify for a determination of de minimis impact and therefore would not require further Section 4(f) avoidance analysis. Sound Transit has incorporated measures of avoidance, minimization, mitigation, or enhancement such that the uses would not adversely affect the activities, features, or attributes of the facilities. Construction impacts on McCormick Park are the only impacts that would not be considered for a *de minimis* finding, and avoidance alternatives are analyzed in the Draft EIS.

ES.9.2 Environmental Justice

Environmental justice has been addressed in compliance with Presidential Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, and the DOT order to address environmental justice in minority populations and low-income populations (DOT Order 5610.2). The purpose of the analysis was to determine whether the East Link Project would result in any disproportionately high and adverse effects on minority and/or low-income populations. The analysis also describes the specific outreach efforts made to involve minority and low-income populations and the benefits from the East Link Project.

The analysis concludes that, after proposed mitigation and design elements are implemented, the East Link Project is not expected to result in any disproportionately high and adverse impacts on minority and low-income populations. In addition, the project would provide substantial benefit to people served by the light rail project, including minority and low-income residents. Operation of the project would provide many benefits, including improved access to transit; a safer, more reliable, and more efficient transportation system; improved mobility through the project vicinity; transit travel time savings; improved accessibility to employment; and extended transit service hours. Although all populations would have access to these benefits to the same extent, they would accrue to a higher degree to minority and low-income populations because these groups are more likely to use transit. These project benefits further support the conclusion that the East Link Project would not result in disproportionately high and adverse effects on minority or low-income populations.

ES.10 Areas of Controversy and Issues to be Resolved

Areas of controversy and issues that remain to be resolved include the following:

- Choosing between the joint bus/rail use or a dedicated light rail use only for the D2 Roadway on I-90
- Reaching agreement on the configuration of the I-90 Bellevue Way interchange for single-occupancy vehicles, HOVs, and light rail
- Choosing between the BNSF Railway corridor and alternatives near neighborhoods in Segment B
- Choosing between higher cost tunnels and the lower cost surface or elevated alternatives in Segment C, which affects the length of the project that could be built
- Choosing between routes closer to Bel-Red corridor redevelopment or closer to SR 520 in Segment D
- Choosing among routes through Downtown Redmond in Segment E
- Choosing a maintenance facility location
- Determining the length of the project based on available funding
- Funding plan for the project
- Agreement between Sound Transit and WSDOT on the value of the use of the I-90 center roadway for the East Link Project

Sound Transit would continue to coordinate with appropriate federal, state, and local agencies and jurisdictions to address these issues.

ES.11 Next Steps

Following publication of this Draft EIS, the following steps are anticipated (see Table ES-1 for schedule):

- **Draft EIS Comment Period:** The Draft EIS will be available for public and agency comment for 75 days. In addition, public hearings will be held during this comment period to receive oral testimony.
- **Identification of Preferred Alternative:** Following this comment period, it is anticipated that the Sound Transit Board will identify a preferred alternative, after consideration of the Draft EIS and based on public and agency feedback and other relevant information. The final decision on the alternative to be built will not be made until after the Final EIS is issued.
- **Final EIS:** After the Draft EIS is distributed and comments reviewed, a Final EIS will be prepared. The Final EIS will document and address comments received on the Draft EIS, describe the preferred alternative, and describe proposed mitigation commitments associated with the project.
- **Project Decision:** After completion of the Final EIS, the Sound Transit Board will select the project to be built.
- **Federal Approval:** FTA will issue a decision document referred to as the federal Record of Decision, which states FTA's decision on the project, identifies the alternatives considered, and itemizes mitigation commitments. Issuance of the Record of Decision is required before any federal funding or approvals.