

112th Avenue Light Rail Options Concept Design Report

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PREPARED FOR



PREPARED BY



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Introduction

Project Overview

Sound Transit is studying an extension of the light rail system from Downtown Seattle east to Bellevue and Redmond, as shown in Figure 1. The East Link Project would connect the Eastside's biggest population and employment centers and serve 45,000 to 50,000 daily riders on one of the region's most congested travel corridors. Sound Transit is preparing a Supplemental Draft Environmental Impact Statement (SDEIS) to address new or changed project alternatives. The SDEIS is anticipated to be issued in Fall 2010. A Final EIS for the East Link Project is scheduled to be issued in spring 2011.

The East Link project faces two sources of financial pressure. First, revenue forecasts for the ST2 plan, including East Link, have decreased by 20%. Second, funding for a tunnel in downtown Bellevue is not included in the ST2 Plan. Project savings need to be identified to address both these financial pressures

In the fall of 2009, Sound Transit conducted a value review and recommended the 112th Avenue alignment as a potential cost saving measure. The February 2010 Downtown Bellevue Concept Design Report reviewed this alignment option, which has also been studied in the Draft EIS, and in April 2010, the Sound Transit Board of Directors identified a 112th Avenue alignment (known as the

B2Modified Alternative) as the preferred alternative for Segments B and C, replacing Alternative B3S, identified as the Preferred Alternative by the Sound Transit Board in May 2009. Running the line on 112th Avenue is anticipated to cost less and reduce potential impacts on wetlands and streams.

The B2Modified Alternative includes the following elements:

- An elevated exit from the center of I-90 and preservation of direct high-occupancy vehicle (HOV) access from southbound Bellevue Way to westbound I-90 and eastbound I-90 to northbound Bellevue Way.
- An elevated profile on the east side of Bellevue Way to the South Bellevue Station.
- An elevated South Bellevue station on the existing park-and-ride lot property with a park-and-ride garage.
- An alignment along the east side of Bellevue Way to 112th Avenue SE that continues north from Bellevue Way along 112th Avenue SE to Downtown Bellevue.

To further refine B2Modified, Sound Transit is considering six design options that generally follow 112th Avenue SE from Bellevue Way to Downtown Bellevue. This 112th Alignment Options Concept Design Report provides the public and elected officials with

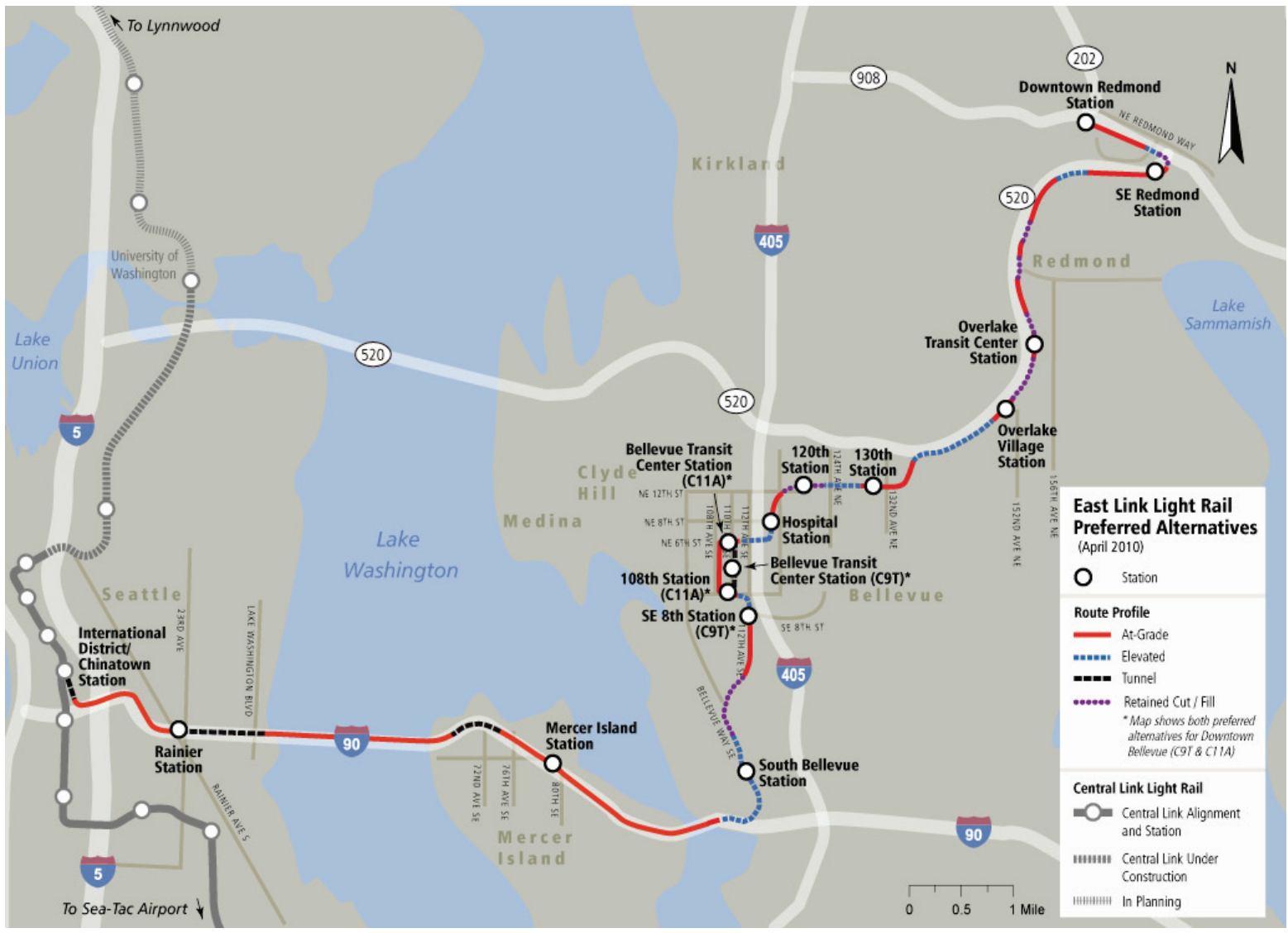


Figure 1. East Link Project Preferred Alternative (April 2010)

information about each of the design options and facilitates the identification of an option that balances costs and potential impacts.

The 112th design options and report have been developed jointly by Sound Transit and the City of Bellevue.

In late July, the Sound Transit Board intends to identify a preferred option along 112th Avenue after reviewing the information in this report and other input from the City of Bellevue and the community. Sound Transit will then complete preliminary engineering and environmental review for the project.

While identifying a preferred alternative is an important step in the process, it is not a final decision. All of the alternatives in the Draft EIS, including the City of Bellevue's preferred alternative, B7, will continue to be carried forward and evaluated. The Sound Transit Board will select the final East Link route in 2011 after completion of the Final EIS. After the Final EIS, Sound Transit will complete final design, permitting, and construction.

Public Involvement and Technical Coordination

The technical information provided in this report was developed by Sound Transit, in coordination with the City of Bellevue. The option analysis process, illustrated in Figure 2, began with a technical workshop to develop alternatives and evaluation measures and has included opportunities for Sound Transit and City staff to review the analysis that is described in this report. In some cases, the City has undertaken a peer review of the Sound Transit consulting team's

work to validate analysis. The work presented in this report represents analysis that has been reviewed by both the City and Sound Transit staff.

In addition to technical work, outreach staff from the City of Bellevue and Sound Transit have worked closely to develop and implement a program to support meaningful involvement of community members and stakeholders. Some outreach has already occurred and additional opportunities for involvement will follow publication of this report.

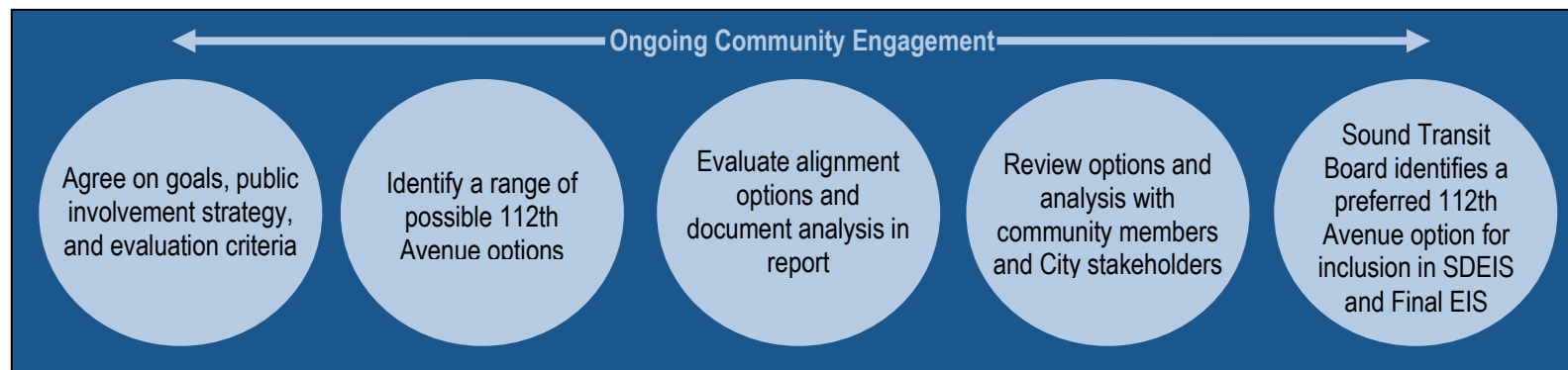


Figure 2. 112th Alignment Options Analysis Process

Description of 112th Avenue Options

The 112th Avenue options would provide a connection between the intersection of 112th Avenue SE and Bellevue Way in South Bellevue (Segment B) and Downtown Bellevue (Segment C).

Alignment Options

Six options that follow 112th Avenue from the “Y” at Bellevue Way have been developed. Each of these options follows 112th Avenue SE to Main Street, and some continue to NE 2nd Street. The options connect with one of the preferred Downtown Bellevue alignments, either the tunnel option (C9T-110th Tunnel) or the at-grade option (C11A-108th At-Grade).

Four options are compatible with the preferred downtown tunnel alternative (C9T-110th Tunnel). Two of these options, a center running and a westside running, would enter the tunnel at Main Street. The other two options, a center running and an eastside running, would enter the tunnel at NE 2nd Street. The final two options, a center running and a westside running option, are compatible with the preferred at-grade downtown alternative (C11A-108th At-Grade).

Cross-section and Profiles

The options include several profiles:

- At-grade – a profile that is generally at street level within or adjacent to the street. Street crossings are at traffic signals or are gated.
- Elevated – a profile that is higher than street level on a structure (bridge). Light rail generally passes over intersections and streets so gates or signals are not required.
- Retained cut – a profile that is below street grade in a trench with a retaining wall on one or both sides. Streets and driveways generally cross over the light rail alignment on short bridges or lids so gates or signals are not required.
- Tunnel – a profile that is underground and below a street, sidewalk, or other land use. All tunnel options included in this report are assumed to be cut and cover construction.

The options also have different cross-sections. The light rail alignment would operate on the eastside, westside, or in the center of 112th Avenue SE. The current travel lanes on 112th Avenue SE would be maintained with two southbound and two northbound lanes.

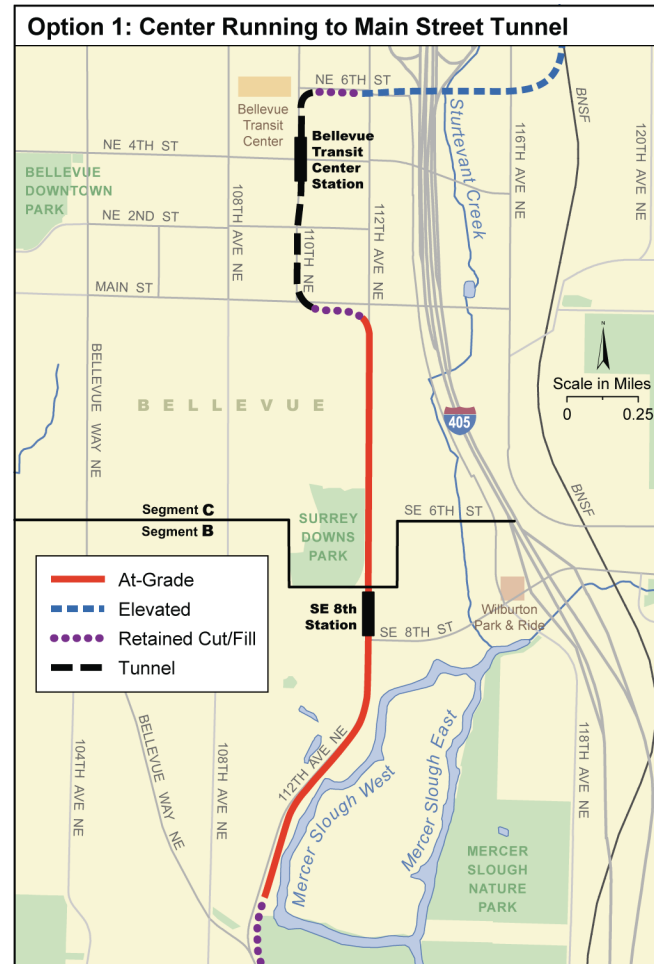
Descriptions of Options

Option 1: Center Running to Main Street Tunnel

With Option 1, light rail travels in a retained cut “trench” on the east side of Bellevue Way north of the Winters House. North of Bellevue Way, light rail transitions to street level and travels on the east side of 112th Avenue SE. Just south of SE 15th Street, light rail crosses the northbound lanes of 112th Avenue SE at a gated crossing and continues north in the center of 112th Avenue SE, still at-grade. An at-grade station is located in the center of 112th Avenue SE north of SE 8th Street.

South of Main Street, light rail crosses the southbound lanes of 112th Avenue SE at a gated crossing and curves to the west along Main Street in a retained cut “trench.” Just east of 110th Place and Main Street, light rail then transitions to a tunnel that follows 110th Avenue NE to an underground Bellevue Transit Center under 110th Avenue NE at NE 4th Street.

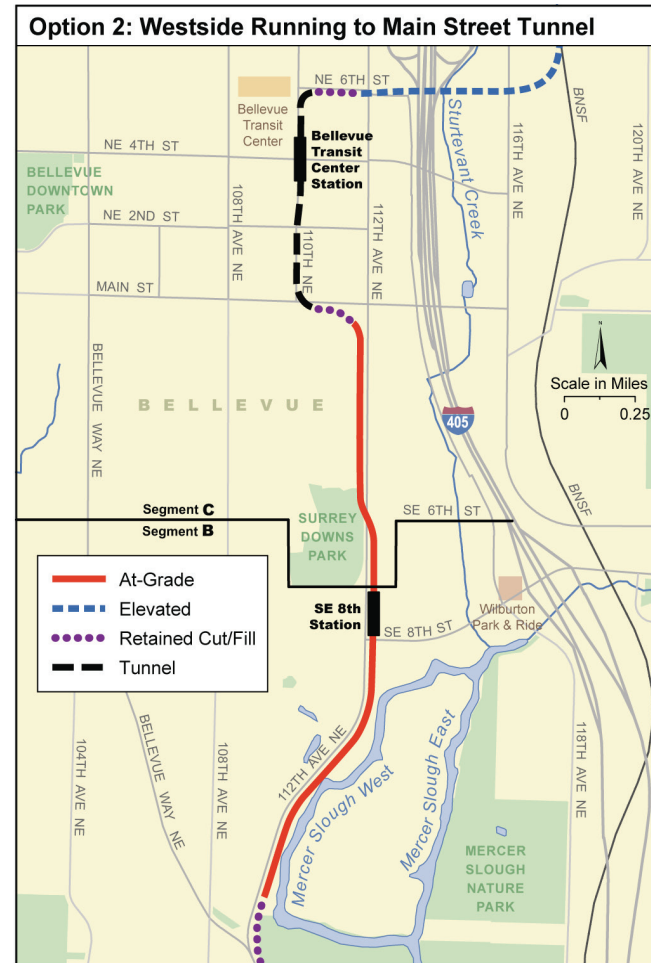
The following sections describe and illustrate each of the six 112th Avenue options. More detailed maps of the options are provided in Appendix A.



Option 2: Westside Running to Main Street Tunnel

With Option 2, light rail travels in a retained cut “trench” on the east side of Bellevue Way north of the Winters House. North of Bellevue Way, light rail transitions to street level and travels on the east side of 112th Avenue SE. The crossings of SE 8th and 15th streets are gated. An at-grade station is located north of SE 8th Street.

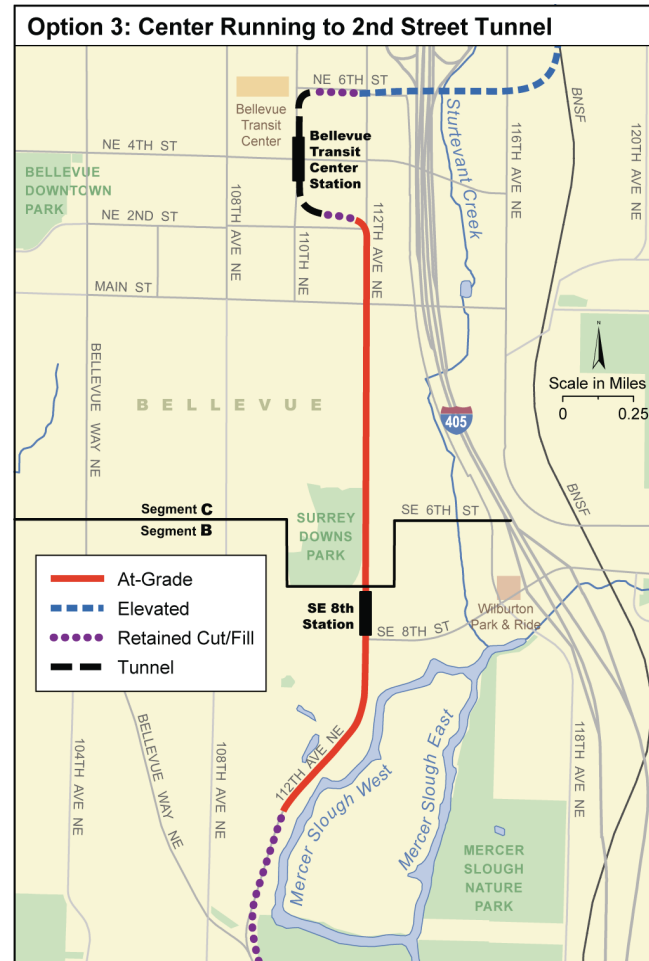
At the SE 6th Street traffic signal, light rail crosses 112th Avenue SE and travels along the west side of the street. South of Main Street, the alignment transitions to a tunnel that follows 110th Avenue NE to an underground Bellevue Transit Center Station under 110th Avenue NE at NE 4th Street.



Option 3: Center Running to 2nd Street Tunnel

With Option 3, light rail travels in a retained cut “trench” on the east side of Bellevue Way north of the Winters House. North of Bellevue Way, light rail crosses to the center of 112th Avenue SE. At this crossing, the light rail alignment is below street level; the northbound lanes of 112th Avenue SE cross over the tracks to accommodate the transition from the trench to the center of 112th Avenue SE.

Light rail travels at-grade in the center of 112th Avenue SE with an at-grade station north of SE 8th Street. Light rail crosses the southbound lanes of 112th Avenue SE at NE 2nd Street. It then transitions to a tunnel that follows 110th Avenue NE to an underground Bellevue Transit Center Station under 110th Avenue NE at NE 4th Street.

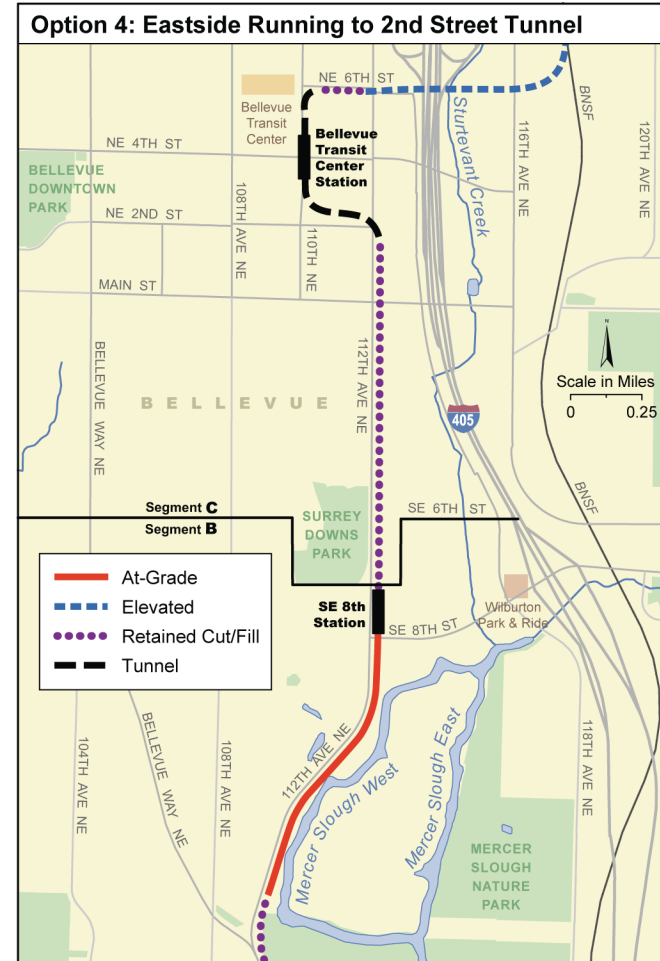


Option 4: Eastside Running to 2nd Street Tunnel

With Option 4, light rail travels in a retained cut “trench” on the east side of Bellevue Way north of the Winters House. North of Bellevue Way, light rail transitions from a retained cut “trench” to a street-level route on the east side of 112th Avenue SE. Light rail crosses SE15th and SE 8th streets at gated crossings.

A street-level station is located north of SE 8th Street. At the station, light rail begins to transition to a retained cut “trench” along the east side of 112th Avenue SE. SE 6th Street, driveways, and Main Street cross over the light rail tracks on short bridges or lids.

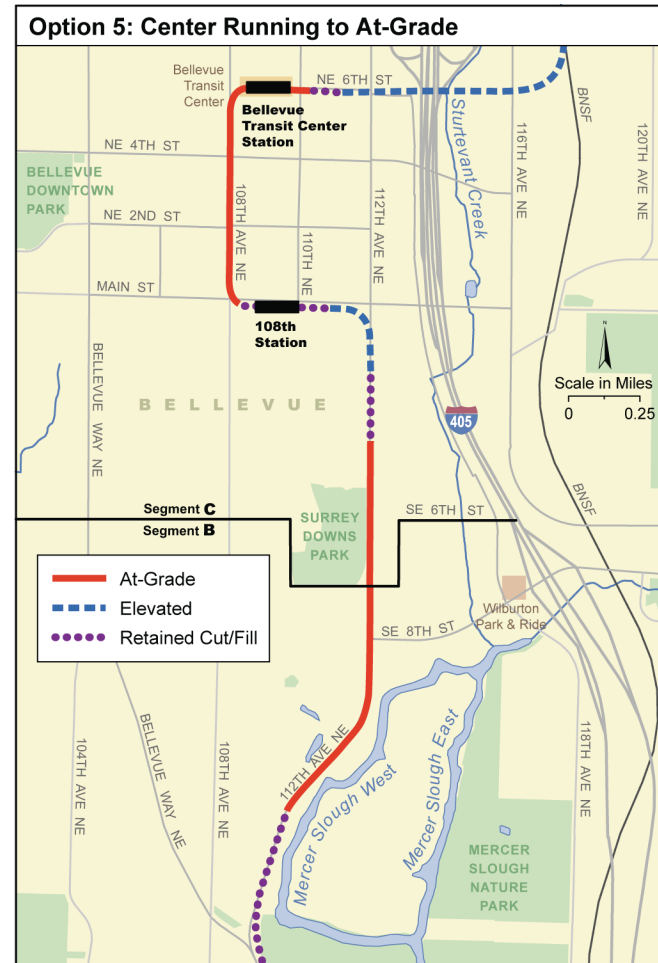
South of NE 2nd Street, light rail transitions to a tunnel, which begins along 112th Avenue NE, then follows NE 2nd to 110th Avenue NE, where there is an underground station below NE 4th Street.



Option 5: Center Running to At-Grade

With Option 5, light rail travels in a retained cut “trench” on the east side of Bellevue Way north of the Winters House. North of Bellevue Way, light rail transitions from a retained cut “trench” to a street-level route in the middle of 112th Avenue SE. At this crossing, the light rail alignment is below street level; the northbound lanes of 112th Avenue SE cross over the tracks to accommodate the transition from the trench to the center of 112th Avenue SE.

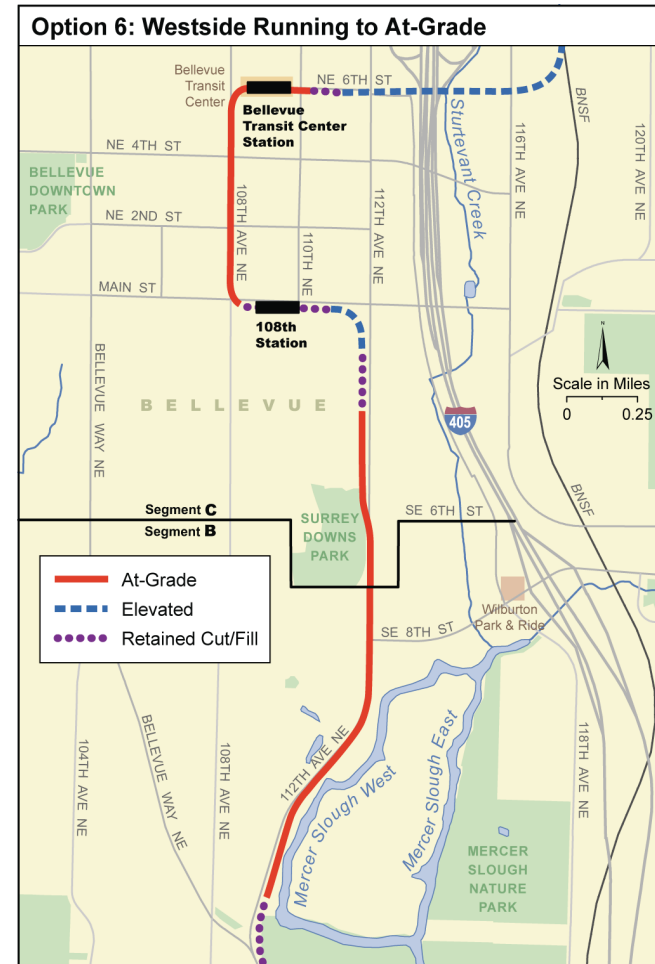
North of SE 4th Street, light rail transitions to an elevated structure. It crosses over the southbound lanes of 112th Avenue SE on an elevated structure and serves a station on the south side of Main Street between 110th Avenue NE and 108th Avenue NE. West of the station, light rail curves north on 108th Avenue NE at street level and serves an at-grade Bellevue Transit Center Station on NE 6th Street.



Option 6: Westside Running to At-Grade

With Option 6, light rail travels in a retained cut “trench” on the east side of Bellevue Way north of the Winters House. North of Bellevue Way, light rail transitions from a retained cut “trench” to street level on the east side of 112th Avenue SE. South of SE 15th Street, light rail crosses the northbound lanes of 112th Avenue SE at a gated crossing and continues north in the center of 112th Avenue SE at street level.

At the SE 6th Street signal, light rail crosses the southbound lanes of 112th Avenue SE to run along the west side of 112th Avenue SE. North of SE 4th Street, light rail climbs to an elevated structure that crosses over SE 1st Street. Light rail transitions to street level, where it serves a station on the south side of Main Street between 110th Avenue NE and 108th Avenue NE. West of the station, light rail curves north on 108th Avenue NE at street level to an at-grade Bellevue Transit Center Station on NE 6th Street.



Evaluation of Options

This section summarizes and describes the evaluation of the 112th Avenue Options and the methodology used for the evaluation. Table 1 lists the criteria and measures used to identify and compare

differences among the new options. These criteria were based on criteria found in the Draft EIS. Table 2 summarizes the results of the evaluation of the 112th Avenue options for each criterion.

Table 1. Criteria and Measures

Criteria	Measures
Capital cost reduction	Estimated capital cost reduction as compared to the Alternative B3S-C9T approach to Downtown Bellevue (\$2007)
Transportation	Number of driveways converted to right-in/right-out (left turns are prohibited) or closed with alternate access available
	Number of side streets on 112th Avenue closed or restricted to right-in/right-out (where left turns are prohibited)
	Number of at-grade roadway crossings by light rail
	Number of study area intersections that fail to meet the City of Bellevue’s level of service (LOS) standard before and after mitigation
Displacements	Number of residences displaced
	Number of businesses displaced
Transit Noise	Number of affected receivers before and after mitigation (receivers are defined as residences or other sensitive uses; each unit—hotel room, apartment, house—is counted as one receiver.)
Visual	No measure – see conceptual illustrations
Wetlands	Acres of wetland affected
	Acres of wetland buffer affected
Parks	Acres of parkland affected
Relative construction impacts	Qualitative comparison of construction disruption to those land uses along or using 112th Avenue, including utility relocation, general disruption, and street reconstruction
Relative construction duration	Qualitative comparison of construction duration

Table 2. Summary of 112th Avenue Options Evaluation

Criteria	Measures	Tunnel: Main Street Portal		Tunnel: 2nd Street Portal		108th Avenue At-Grade	
		Option 1 (Center)	Option 2 (Westside)	Option 3 (Center)	Option 4 (Eastside)	Option 5 (Center)	Option 6 (Westside)
Capital Cost Reduction	Estimated reduction in capital cost compared to B3S-C9T (millions, \$2007) ^a	\$75-125	\$85-150	\$105-170	\$75-135	\$255-425	\$280-455
Transportation	Driveways converted to right-in, out or closed (with alternate access available)	15	2	15	2	15	6
	Changes to side streets (closed/ converted to right-in, right-out)	0/2	1/0	1/2	0/0	2/2	3/0
	At-grade roadway crossings	4	3	4	2	2	3
	Intersections that do not meet City LOS standard (without mitigation/ with mitigation)	1/0	1/0	0/0	1/0	1/0	1/0
Displacements	Residences displaced	1	46	0	0	2	46
	Businesses displaced	7	7	5	5	7	7
Transit Noise	Impacts (severe/moderate)	21/107	6/42	21/98	1/31	3/116	9/87
	Impacts after mitigation (severe/moderate) ^b	0/0	0/0	0/0	0/0	0/0	0/0
Visual	No measure	See conceptual illustrations in separate Appendix C					
Wetlands	Wetlands affected (acres)	0	0	0	0	0	0
	Wetland buffer affected (acres)	1.3	2.0	0.4	2.1	0.4	1.3
Parks	Parklands affected (acres)	0.5	1.4	0.2	0.3	0.2	1.0
Construction impacts	Relative construction disruption on 112th Avenue	Moderate to higher	Lower	Moderate to higher	Moderate	Moderate to higher	Moderate to lower
	Relative construction duration	Intermediate	Shortest	Intermediate	Longest	Intermediate	Intermediate

^a Cost are presented in a range to reflect the uncertainty at this stage of design and estimating. Applying a similar uncertainty factor to the estimate of additional financing needed for updated preferred alternative with C9T in downtown Bellevue yields a range of \$255 to 415 million.

^b All interior impacts can be mitigated. There may be some residual impacts to outdoor areas.

Summary of Methodology and Mitigation by Criteria

Sound Transit used a subset of the potential environmental impacts analyzed in the Draft EIS as a basis for the comparison of key environmental factors to differentiate among the options. Where applicable, a summary of potential mitigation is also provided.

The same study area was used for each criterion. Shown in Figure 3, the study area has been defined to highlight the differences among the 112th Avenue SE options. The study area is generally bounded by the “Y” at 112th Avenue SE and Bellevue Way to the south and at the point where each option meets 110th Avenue NE: either Main Street or NE 2nd Street.

The methodologies and mitigation proposals presented herein are preliminary and are only useful for comparisons among the options presented. The Supplemental Draft EIS and Final EIS will present more complete impact analyses and mitigation strategies for the preferred option.

The methodology and proposed mitigation for each criterion are summarized below.



Figure 3. Study Area Map

Capital Cost Reduction

Sound Transit calculated capital costs in 2007 dollars. Estimated capital costs include construction, right-of-way, construction cost markups for general conditions, overhead, profit and sales tax, a design allowance, and allocated contingency. Other costs reflected in the total capital cost include construction management, design (including environmental review, preliminary engineering, final design, and permitting), agency administration, construction contingency, and project reserve. For the purposes of this report, costs are reported as the reduction between the B3S approach to Downtown Bellevue and each 112th Avenue alignment option. A range of potential cost reductions are provided for each option. This approach of reporting a range reflects the limited conceptual level of design available and is consistent with the methodology used to prepare the estimates.

The potential cost reductions reflected in this report are preliminary estimates and are only useful in comparing among the options. After a preferred option is identified for this segment, an updated cost estimate will be presented in the Supplemental Draft EIS and Final EIS.

Transportation

The access and circulation measures characterize how the options would change residential and business driveways and street access along 112th Avenue. Sound Transit counted the number of residential and business driveways that would be converted from

full-access to right-in/right-out in the study area. (Right-in/right-out refers to driveways where vehicle are restricted to turning right into the driveway and right out of the driveway.) Additionally, Sound Transit counted the number of locations along 112th Avenue SE where side street access would change by either closing the access or converting it to right-in/right-out. Sound Transit also counted the number of light rail at-grade street crossings. Crossings could either occur at signalized intersections or through gated crossings.

To measure traffic congestion, Sound Transit completed a traffic modeling analysis to predict the number of intersections on 112th Avenue SE and its cross streets that would fail to meet City of Bellevue LOS standards after the light rail project. At intersections that would fail to meet the City's LOS standards with light rail, Sound Transit would provide roadway improvements to mitigate these impacts. Sound Transit also counted the number of intersections that would not meet the City's LOS standard after these mitigation measures are implemented. The analysis reflects conditions during the afternoon peak period in the year 2030.

Displacements

Sound Transit counted displacements based on properties identified as requiring demolition of buildings. The number of businesses and residences affected was determined based on property site visits conducted during 2007 for the Draft EIS. The number of residences and businesses affected includes the number of individual residences in the case of multifamily housing and the number of

individual businesses affected in the case of multiple businesses located in single building or on a single property.

Sound Transit would compensate affected property owners according to the provisions specified in Sound Transit's adopted Real Estate Property Acquisition and Relocation Policy, Procedures, and Guidelines and would comply with the appropriate provisions of the federal Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended, and the State of Washington's relocation and property acquisition regulations (Washington Administrative Code 468-100 and Revised Code of Washington 8.26).

Transit Noise

Sound Transit conducted a preliminary analysis of potential noise impacts based on criteria defined by the Federal Transit Administration (FTA). The analysis considers light rail noise impacts to residential areas and to other noise sensitive land uses such as hotels and associated outdoor spaces. There are two levels of impact included in the FTA criteria: moderate and severe. The impact criteria for both moderate and severe criteria varies according to the level of existing ambient noise. A severe noise impact can be expected to cause a higher percentage of people to be highly annoyed. See Appendix B for additional discussion of noise basics and noise impact maps.

Noise analysis is based on existing noise measurements in the study area. Six long-term noise-monitoring locations were used for this analysis. Existing noise levels at single-family and multifamily residences along 112th Avenue SE ranged from 70 dBA Ldn for residents directly adjacent to 112th Avenue SE to 60 dBA Ldn for properties farther away from 112th Avenue SE. These noise levels have been used in the noise model to determine impacts.

The analysis used to evaluate the impacts of the options is based upon the change in the environmental noise level due to each option and the number of dwelling units potentially affected by project noise. Input to the noise model for this analysis included the following:

- Noise measurement levels from the Central Link light rail line
- On-board bells sounded at each signalized or gated crossing and sounded when entering or departing a station.
- Warning bells at crossing gates.
- Speed of light rail trains.
- Elevation of properties and topographic features that could affect noise transmission.
- Design of option including track elevations, places where the tracks meet (crossovers) or locations of other special trackwork.



Figure 4. **Example of sound wall on elevated structure**

- Track types assumptions for the noise analysis were:
 - Embedded in roadway for center-running profiles
 - Ballasted (on a gravel bed) for at-grade side-running profiles
 - Direct fixation of rails on concrete for elevated and retained cut/fill profiles

The potential for wheel squeal on curves is discussed qualitatively and was not modeled. Further analysis of noise impacts and mitigation will be conducted during the Supplemental Draft EIS and Final EIS process. The analysis presented in this report is intended for purposes of comparing these options only. Noise mitigation will be developed as the design is advanced. Mitigation can include

sound walls, residential sound insulation, special trackwork modifications, track lubrication, and different types of track. Where sound walls or mitigation at the noise source are ineffective, building sound insulation would be used. Building insulation would not reduce noise for outdoor activities. Ballasted track (track constructed on a gravel bed) can reduce noise levels through greater sound absorption compared to embedded track, sometimes called paved track, which is set into the street.



Figure 5. **Example of at-grade sound wall**

Visual

Conceptual illustrations suggesting how each light rail option may look in the corridor are provided in the separately bound Appendix C.

Wetlands

Sound Transit calculated wetland and wetland buffer impacts by overlaying conceptual designs of the alternatives onto maps representing wetland and wetland buffer areas. The identification of wetland and wetland buffer resources in the study area relies on available data from the City of Bellevue. Sound Transit is committed to no net loss of wetlands. None of the proposed options would have wetland impacts, but the options would have varying amounts of buffer impacts along 112th Avenue SE between Bellevue Way and SE 8th St.

Parks

Sound Transit calculated park impacts by overlaying conceptual designs of the alternatives on maps representing park areas provided by the City of Bellevue and confirmed through field work conducted for the 2008 Draft EIS.

All park impacts would be mitigated based on agreements with the City of Bellevue, with one or more of the following mitigation measures:

- Acquiring replacement lands of comparable value and function

- Financial compensation (which could be used to enhance the remaining land)
- Restoration of disturbed park areas
- Other measures as agreed with the City of Bellevue

For property at the Mercer Slough Nature Park purchased through the Land and Water Conservation Fund, mitigation would be implemented in consultation with the National Park Service.

Construction Impacts

Sound Transit developed a qualitative assessment of the disruption to residents, businesses, and street-level activity associated with each option. This measure is intended to highlight the differences in construction disruption to those who live, work, or do business along the 112th Avenue corridor during the most intense construction phases associated with each option. The primary disruptions would include temporary impacts to traffic and access and general disruption (e.g., noise, dust) to adjacent businesses and residents.

Sound Transit also prepared a qualitative comparison of construction duration. Construction duration is affected by construction type and typical production rates for each construction type. The reported qualitative comparison is based on assessment of a typical project comprising the different construction types. The actual construction schedule has not been determined, but would be developed as project design advances.

Evaluation Summary by Option

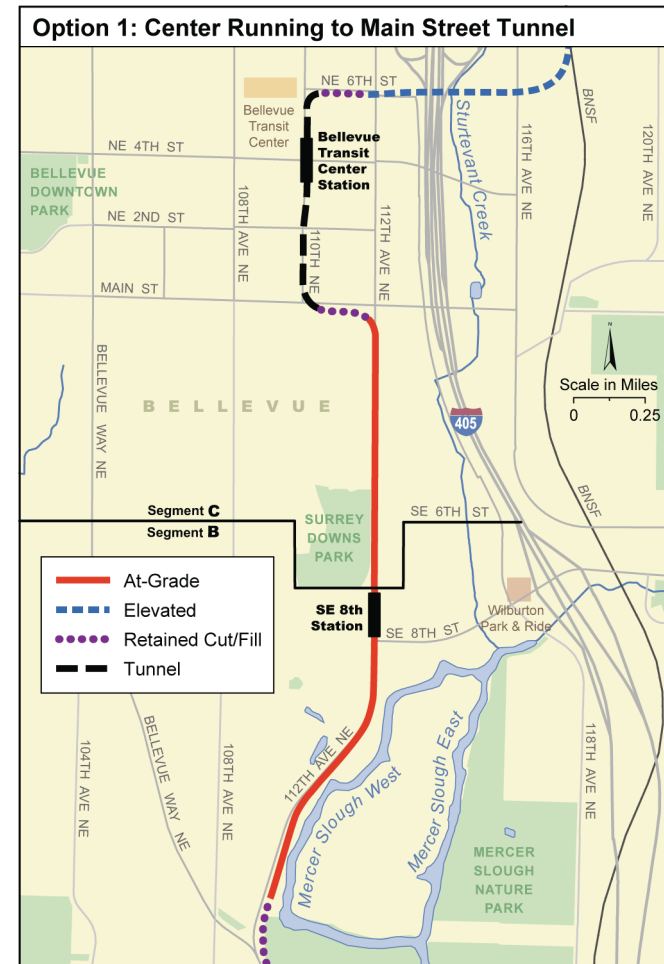
Option 1: Center Running to Main Street Tunnel

Transportation

Like the other center-running alignments where vehicles can only cross the tracks at signalized intersections, Option 1 would require converting 14 driveways to right-in, right-out and closing one driveway to a property with alternate access. SE 1st Street and SE 4th Street intersections along 112th Avenue SE would remain open, allowing for right-in, right-out movements only. As with all center-running alignments, u-turn movements would be accommodated at SE 8th, SE 6th, and Main street intersections along 112th Avenue SE to continue providing access to all properties.

With Option 1, light rail would have at-grade street crossings at SE 8th Street and SE 6th Street and to and from the center of 112th Avenue SE. With four crossings, Option 1, along with Option 3, would have the most at-grade light rail crossings.

Like the other options, with small changes to intersections, no intersections on 112th Avenue SE would fail to meet the City of Bellevue's LOS standards. An eastbound right-turn pocket could be provided at the intersection of Main Street and 112th Avenue to reduce traffic congestion that would occur with the gated light rail crossing immediately south of this intersection.



Displacements

Option 1 would displace 1 single-family residence—fewer total residential displacements than Options 2 and 6, which would affect more than 40 homes. Option 1 would displace seven businesses,

located primarily along the south side of Main Street. This is more than Options 3 and 4 and the same as the remaining options.

Sound Transit would mitigate these acquisitions and displacements as described in the Summary of Methodology and Mitigation by Criteria section of this report.

Transit Noise

As with all options, noise impacts from Option 1 would be mitigated. Option 1 would result in 107 moderate impacts and 21 severe impacts. The severe impacts are associated with the crossover near SE 4th Street and would affect 20 multifamily residences and 1 single-family residence along 112th Avenue SE. The moderate impacts would affect 30 single-family residences, 43 multifamily residences and 32 hotel rooms, tennis courts and the pool at the Bellevue Club Hotel. The single-family residences are primarily located west of 112th Avenue SE between Bellevue Way SE and Surrey Downs Park. The multifamily residences are located at the Bellefields Residential Park and along 112th Avenue SE between SE 4th and SE 1st streets.

The impacts from Bellevue Way to Surrey Downs Park could be mitigated with sound walls on the west side of 112th Avenue SE, sound walls along the tracks and sound insulation where necessary. Mitigation for crossover noise could include the installation of special noise-reducing trackwork. Impacts north of Surrey Downs Park on the west side of 112th Avenue SE could be mitigated with a sound wall adjacent to the tracks, if practical, and/or with sound

insulation. The impacts at the Bellevue Club Hotel could be mitigated by a sound wall on the eastside of 112th Ave SE. Mitigation for the upper floors of the hotel may also require sound insulation. There is the potential for wheel squeal at the curve by 112th Avenue and Main St that could be mitigated with track lubrication.

Wetlands and Wetland Buffer

This option would affect 1.3 acres of wetland buffer along the west side of Mercer Slough, the same as with Option 6. This impact is more than with Options 3 and 5 and less than with Options 2 and 4. Wetland buffer impacts would be mitigated through one or more of the following mitigation measures: restoration, enhancement, replacement of wetland buffer or compensation to pre-approved wetland mitigation bank.

Parks

Option 1 would affect 0.5 acre of parklands. 0.3 acre of this impact would be to Mercer

Option 1 Parks Impacts	
Mercer Slough Nature Park	Surrey Downs Park
0.3 acre	0.2 acre

Slough Park and 0.2 acre to Surrey Downs Park. Impacts on Mercer Slough Nature Park would be mitigated with one or more of the following measures: acquiring replacement lands of comparable value and function, financial compensation (which could be used to enhance the remaining land), restoration of disturbed park areas, or other measures as agreed with the City of Bellevue. Impacts on

Surrey Downs Park could also be mitigated by financial compensation or replacement land such as development of acquired properties adjacent to and north of the park.

Construction Impacts

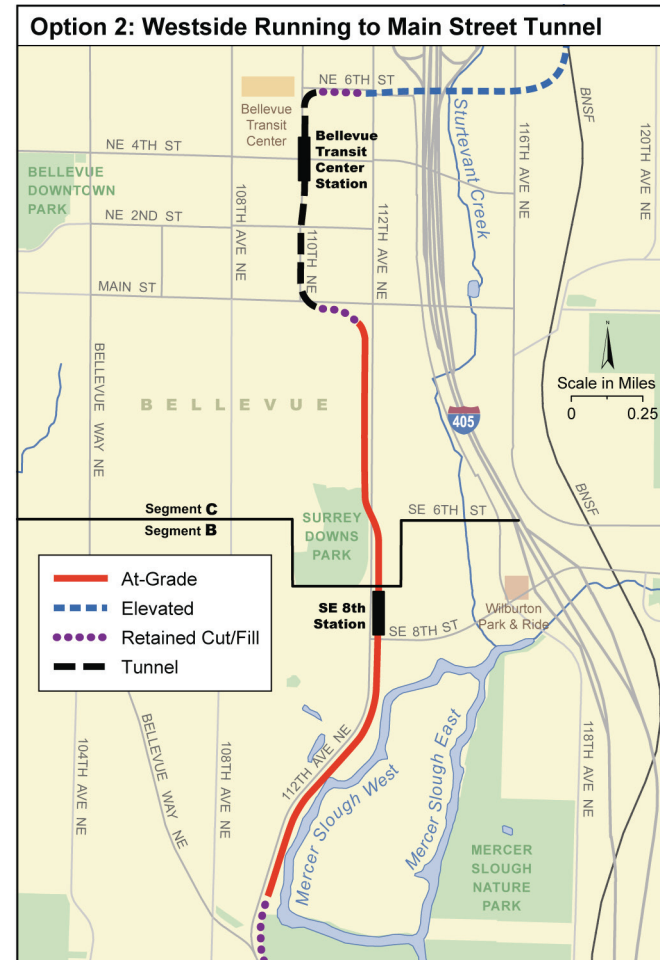
Option 1 would be constructed primarily in the center of 112th Avenue with full width roadway reconstruction. Like all options that would operate in the center of 112th Avenue, Option 1 would require a relatively high level of utility relocations, and roadway widening would be required primarily to the east of 112th Avenue SE. Retaining wall structures would be constructed behind the sidewalk on the east side of the roadway. The construction impacts resulting from this type of construction would cause a moderate to higher level of disruption, similar to the other options that operate in the center of 112th Avenue. The duration of construction would be longer than Option 2 and shorter than Option 4, and it would be similar to Options 3, 5 and 6.

Option 2: Westside Running to Main Street Tunnel

Transportation

Option 2 would require closing two driveways to properties with other access already available. The intersection of SE 1st Street and 112th Avenue SE would be closed.

Option 2, along with Option 6, would have three at-grade roadway crossings; it would cross SE 15th and SE 8th streets in side-running



areas and cross 112th Avenue SE at SE 6th Street. This is more than Options 4 and 5 and fewer than Options 1 and 3.

As with all options, with small improvements to intersections, no intersections on 112th Avenue SE would fail to meet the City of

Bellevue’s LOS standards. A northbound right-turn pocket could be provided at the SE 8th Street and 112th Avenue SE intersection to reduce traffic congestion at this side-running gated light rail crossing.

Displacements

Option 2 would displace 5 single-family residences and 41 multifamily residences, more than would be displaced under Options 1, 3, 4, and 5 and the same as Option 6. Option 2 would also displace seven businesses, primarily along the south side of Main Street. This represents more business displacements than Options 3 and 4 and the same as Options 1, 5 and 6.

Sound Transit would mitigate these acquisitions and displacements as described in the Summary of Methodology and Mitigation by Criteria section of this report, beginning on page 16.

Transit Noise

As with all options, noise impacts associated with Option 2 would be mitigated. Option 2 would result in 42 moderate impacts and 6 severe impacts. The six severe impacts would affect single-family residences due to the crossover near SE 4th Street. The 42 moderate impacts would affect 16 multifamily units at the Bellefield Residential Park, 25 single-family residences, and the tennis courts at the Bellevue Club.

The impacts from Bellevue Way to Surrey Downs Park could be mitigated with sound walls on the west side of 112th Avenue SE

along with sound insulation where required. North of Surrey Downs Park, impacts on single-family residences could be mitigated with a sound wall and noise-reducing trackwork at the crossover. Noise impacts at the Bellevue Club could be mitigated with a sound wall. There is the potential for wheel squeal at the curve by 112th Avenue and Main St that could be mitigated with track lubrication.

Wetland and Wetland Buffer

Option 2 would affect approximately 2 acres of wetland buffer along the west side of Mercer Slough. This option, along with Option 4, would have the greatest impact on the wetland buffer. Wetland buffer impacts would be mitigated through one or more of the following mitigation measures: restoration, enhancement, replacement of wetland buffer, or compensation to pre-approved wetland mitigation bank.

Parks

Option 2 would affect the most parkland (1.4 acres), relative to the other options. The

Option 2 Parks Impacts	
Mercer Slough Nature Park	Surrey Downs Park
0.3 acre	1.1 acre

impact on Surrey Downs Park, which would be affected by both the light rail alignment and the realignment of SE 4th Street to create a four-way intersection with SE 6th Street and 112th Avenue SE, would be the largest of any option.

Impacts on Mercer Slough Nature Park would be mitigated with one or more of the following measures: acquiring replacement lands of comparable value and function, financial compensation (which could be used to enhance the remaining land), restoration of disturbed park areas, or other measures as agreed with the City of Bellevue. Impacts on Surrey Downs Park could also be mitigated by development of acquired properties adjacent to and north of the park.

Construction Impacts

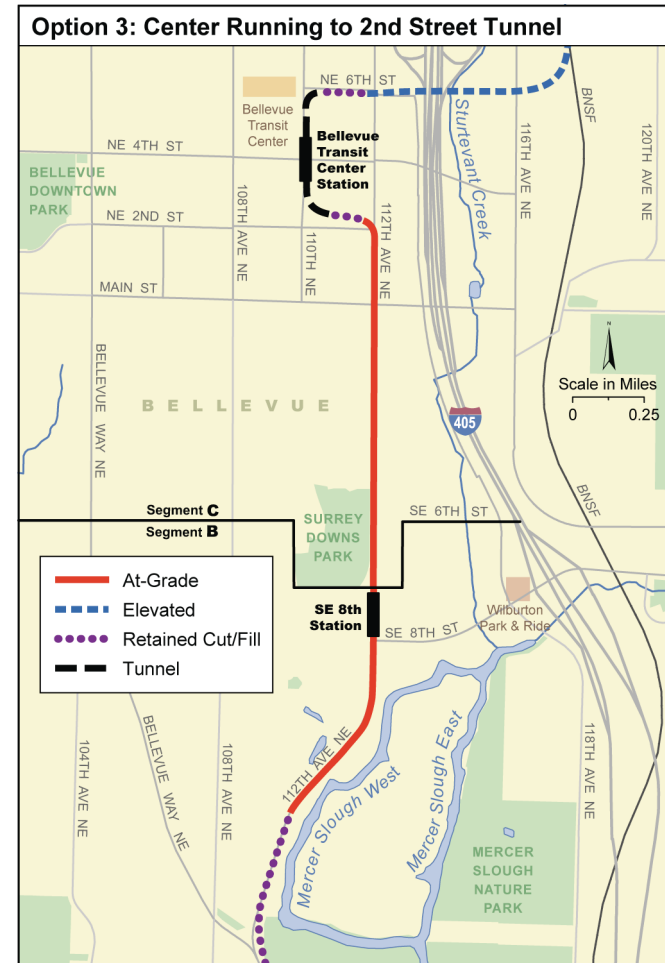
Option 2 would be constructed on the east side of 112th Avenue SE south of SE 6th Street and on the west side of 112th Avenue SE north of SE 6th Street. Option 2 would require partial roadway reconstruction to accommodate additional traffic turn lanes and to restore areas disrupted by construction activities, and would require fewer utility relocations than other options. Retaining wall structures would be constructed on the outside of the light rail tracks due to existing topography. This option would result in a lower level of construction disruption to the traveling public, businesses, and residents. The construction duration would be the shortest of any option.

Option 3: Center Running to 2nd Street Tunnel

Transportation

Like the other center-running alignments where vehicles can only cross the tracks at signalized intersections, Option 3 would require converting 14 driveways to right-in, right-out and closing one

driveway to a property with alternate access. Similar to the driveway changes, the SE 1st Street and SE 4th Street intersections along 112th Avenue SE would remain open, allowing for right-in, right-out movements only. In addition, 111th Avenue NE at NE 2nd Street



would be closed. As with all center-running alignments, u-turn movements would be accommodated at SE 8th, SE 6th and Main street intersections along 112th Avenue SE to continue providing access to all properties.

With Option 3, no intersections on 112th Avenue SE would fail to meet the City of Bellevue’s LOS standards.

Displacements

Option 3 would have no residential displacements. It would displace five businesses along the north side of NE 2nd Street. This option, along with Option 4, would have the fewest displacements. Sound Transit would mitigate these acquisitions and displacements as described in the Summary of Methodology and Mitigation by Criteria section of this report, beginning on page 16.

Transit Noise

As with all options, noise impacts associated with Option 3 would be mitigated. Option 3 would result in 98 moderate impacts and 21 severe impacts. The 21 severe impacts would affect 20 multifamily residences and 1 single-family residence near the crossover at SE 4th Street. The moderate impacts would affect 43 multifamily units and 21 single-family residences, along with 32 hotel rooms and the tennis courts and pool at the Bellevue Club Hotel.

The impacts from Bellevue Way to Surrey Downs Park could be mitigated with sound walls on the west side of 112th Avenue SE

with sound insulation where necessary. North of Surrey Downs Park, noise impacts could be mitigated with a sound wall for the Bellevue Club Hotel, while impacts to residences along the westside of the tracks could be mitigated with sound walls near the tracks, sound insulation and use of special noise-reducing trackwork at the crossover. There is the potential for wheel squeal at the curve by 112th Avenue and NE 2nd St that could be mitigated with track lubrication.

Wetland and Wetland Buffer

Option 3 would affect approximately 0.4 acre of wetland buffer along Mercer Slough. This option, along with Option 5, would have the least impact on the wetland buffer. Wetland buffer impacts would be mitigated through one or more of the following mitigation measures: restoration, enhancement, replacement of wetland buffer, or compensation to pre-approved wetland mitigation bank.

Parks

Option 3 would affect 0.2 acre of parkland. Less than one tenth of an acre of this impact

Option 3 Parks Impacts	
Mercer Slough Nature Park	Surrey Downs Park
< 0.1 acre	0.2 acre

would be to Mercer Slough Park and 0.2 acre would be to Surrey Downs Park. Option 3, along with Option 5, would have the least impact on Mercer Slough Park. Impacts on Mercer Slough Nature Park would be mitigated with one or more of the following measures: acquiring replacement lands of comparable value and

function, financial compensation (which could be used to enhance the remaining land), restoration of disturbed park areas, or other measures as agreed with the City of Bellevue. Impacts on Surrey Downs Park could also be mitigated by financial compensation, acquisition of replacement land or other measures as agreed to with the City.

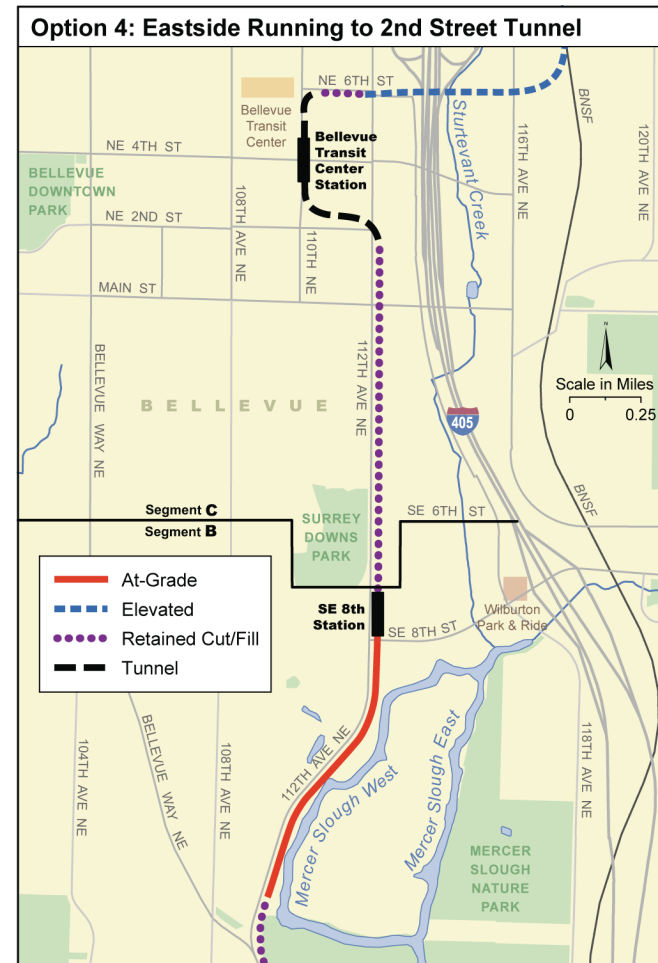
Construction Impacts

Option 3 would be constructed primarily in the center of 112th Avenue SE. Like other options that operate in the center of 112th Avenue, Option 3 would require reconstructing the entire roadway and a greater level of utility relocations. Roadway widening would occur primarily to the east of 112th Avenue SE. Roadway retaining wall structures would be constructed behind the sidewalk on the east side of the roadway. Option 3 would cause a moderate to higher level of construction disruption, similar to other center running options, for a similar amount of time as would occur with Options 1, 5 and 6.

Option 4: Eastside Running to 2nd Street Tunnel

Transportation

Option 4 would require closing two driveways for properties with other access available. It would maintain access at SE 8th and 15th streets before transitioning to a grade-separated eastside alignment.



Option 4, along with Option 5, would have the fewest at-grade light rail crossings because it is grade-separated north of SE 8th Street.

As with all options, assuming minimal intersection improvements, no intersections on 112th Avenue SE would fail to meet the City of

Bellevue’s LOS standards. A northbound right-turn pocket could be provided at the intersection of SE 8th Street and 112th Avenue SE to improve traffic congestion at this gated light rail crossing.

Displacements

Option 4 would have no residential displacements and would displace five businesses along the north side of NE 2nd Street. This option, along with Option 3, would have the fewest displacements. Sound Transit would mitigate these acquisitions and displacements as described in the Summary of Methodology and Mitigation by Criteria section of this report, beginning on page 16.

Transit Noise

As with all options, noise impacts associated with Option 4 would be mitigated. Option 4 would result in 31 moderate impacts and 1 severe impact. The severe impact would affect the Bellevue Club pool. Moderate impacts would affect 15 single-family residences and 16 multifamily residences at the Bellefields Residential Park and the Bellevue Club tennis courts. Noise from this option would affect fewer receptors than other options north of SE 6th St because much of the light rail track is located in a retained cut through this area.

The impacts from Bellevue Way to Surrey Downs Park could be mitigated with sound walls on the west side of 112th Avenue SE with sound insulation where necessary. Mitigation for impacts at the Bellevue Club Hotel could include noise walls and special noise

reducing track work at the crossover. The curve by 112th Avenue and NE 2nd St is in a tunnel and any wheel squeal is not likely to create impacts.

Wetland and Wetland Buffer

Option 4 would affect 2.1 acres of wetland buffer on the west side of Mercer Slough. This option would have the greatest impact on wetland buffer. Wetland buffer impacts would be mitigated through one or more of the following mitigation measures: restoration, enhancement, replacement of wetland buffer, or compensation to pre-approved wetland mitigation bank.

Parks

Option 4 would affect about 0.3 acre of parkland, all of which would be in the Mercer

Option 4 Parks Impacts	
Mercer Slough Nature Park	Surrey Downs Park
0.3 acre	No impact

Slough Nature Park. These impacts would be mitigated with one or more of the following measures: acquiring replacement lands of comparable value and function, financial compensation (which could be used to enhance the remaining land), restoration of disturbed park areas, or other measures as agreed with the City of Bellevue.

Construction Impacts

Option 4 would be constructed on the east side of 112th Avenue SE south of SE 8th Street and in a retained cut north of SE 8th Street.

This option would require partial roadway reconstruction to accommodate additional traffic turn lanes and to restore areas disrupted by construction activities, and it would require few utility relocations. For the retained cut area, it would require extensive retaining walls and bridge structures for cross street and driveway access. Option 4 would result in a moderate level of construction impacts for the longest duration, compared to the other options.

Option 5: Center Running to At-Grade

Transportation

Like the other center-running alignments where vehicles can only cross the tracks at signalized intersections, Option 5 would require converting 14 driveways to right-in, right-out and closing one driveway to a property with alternative access. Similar to the driveway changes, the SE 1st Street and SE 4th Street intersections along 112th Avenue SE would remain open, allowing for right-in, right-out movements only. Access to Main Street from 110th Place SE and 110th Avenue SE would be closed.

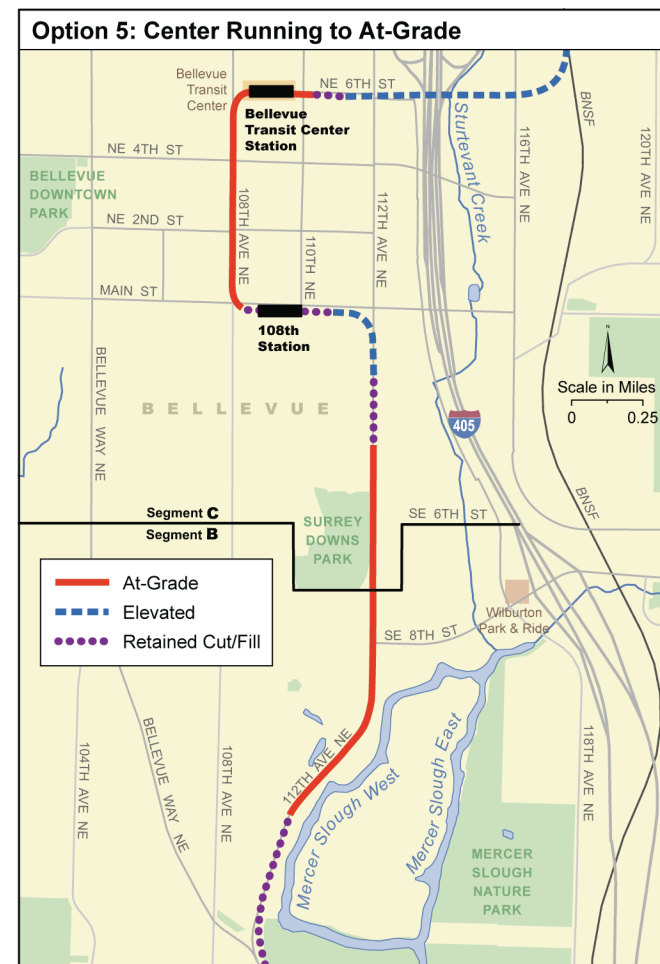
As with Option 4, Option 5 would have the fewest at-grade light rail crossings because it is grade separated as it crosses to and from the center of 112th Avenue SE.

As with all options, assuming minimal intersection improvements, no intersections on 112th Avenue SE would fail to meet the City of Bellevue's LOS standards. To reduce traffic congestion at the Main

Street and 112th Avenue SE intersection, an eastbound right-turn pocket could be provided.

Displacements

Option 5 would displace two single-family homes. This is fewer total residential displacements than would occur under Options 2 and 6, which would affect more than 40 homes, but more than Options 3



and 4, which would displace no homes. Similar to Options 1, 2 and 6, Option 5 would also displace seven businesses located along the south side of Main Street. Sound Transit would mitigate these acquisitions and displacements as described in the Summary of Methodology and Mitigation by Criteria section of this report, beginning on page 16.

Transit Noise

As with all options, noise impacts associated with Option 5 would be mitigated. Option 5 would result in 116 moderate impacts and 3 severe impacts. The severe impacts would affect two single-family residences and the tennis courts at the Bellevue Club due to the crossover at SE 4th Street. The moderate impacts would affect 20 single-family residences, 63 multifamily residences, 32 hotel rooms at the Bellevue Club, and the Bellevue Club pool.

The impacts from Bellevue Way to Surrey Downs Park could be mitigated with sound walls on the west side of 112th Avenue SE, along with sound insulation where necessary. North of Surrey Downs Park, sound walls on the retained fill, elevated and at-grade segments along Main St would be effective at mitigating most impacts. Additional sound walls, sound insulation, and special noise-reducing trackwork at crossovers would be used to mitigate any remaining noise impacts. Impacts to the Bellevue Club Hotel would be mitigated with sound walls and sound insulation where necessary. There is the potential for wheel squeal at the curve by

112th Avenue and Main St that could be mitigated with track lubrication.

Wetland and Wetland Buffer

Option 5 would affect approximately 0.4 acre of wetland buffer along Mercer Slough. This option, along with Option 3, would have the least impact on wetland buffer. Wetland buffer impacts would be mitigated through one or more of the following mitigation measures: restoration, enhancement, replacement of wetland buffer, or compensation to pre-approved wetland mitigation bank.

Parks

Option 5 would have similar park impacts as Option 3, with 0.2 acre of impact. Less than

Option 5 Parks Impacts	
Mercer Slough Nature Park	Surrey Downs Park
< 0.1 acre	0.2 acre

one tenth of an acre of this impact would be to Mercer Slough Park and 0.2 acre would be to Surrey Downs Park. Impacts on Mercer Slough Nature Park would be mitigated with one or more of the following measures: acquiring replacement lands of comparable value and function, financial compensation (which could be used to enhance the remaining land), restoration of disturbed park areas, or other measures as agreed with the City of Bellevue. Impacts on Surrey Downs Park could also be mitigated by financial compensation, acquisition of replacement land or other measures as agreed to with the City.

Construction Impacts

Like other options that operate in the center of 112th Avenue, Option 5 would require full-width roadway reconstruction and a higher level of utility relocations than other options; roadway widening would occur primarily to the east of 112th Avenue SE. Roadway retaining wall structures would be constructed behind the sidewalk on the east side of the roadway. Option 5 would result in a moderate to higher level of construction impacts, similar to the other center running options. The duration of construction would be longer than Option 2, shorter than Option 4, and similar to the other options.

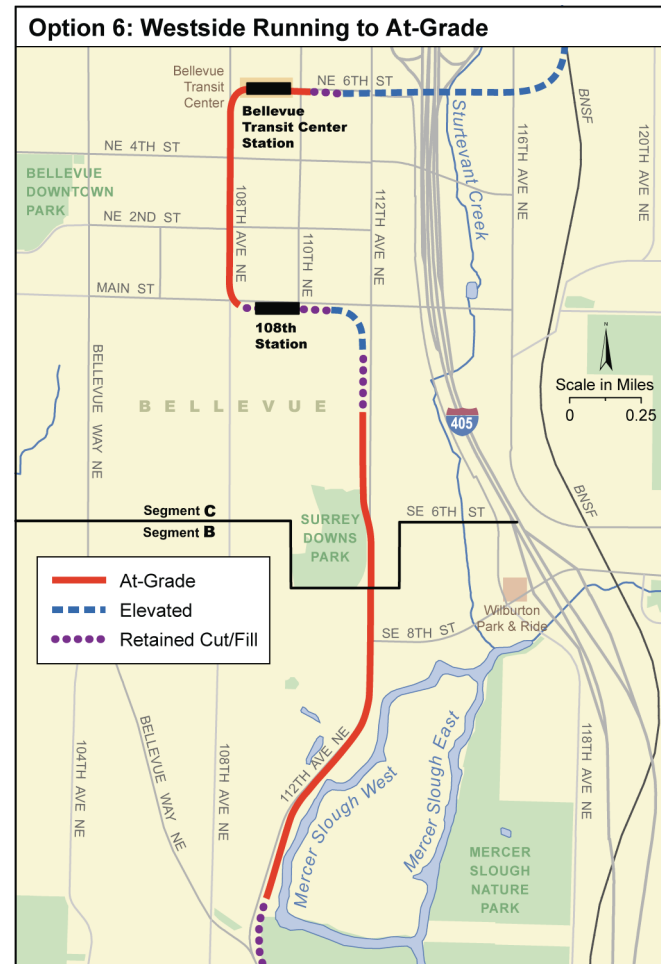
Option 6: Westside Running to At-Grade

Transportation

Option 6 would convert two driveways to right-in, right-out and close four driveways to properties with other access. This is more than Options 2 and 4, which would only affect two driveways, but fewer than the center running options, which would affect 15 driveways. Full access at the SE 1st Street intersection would be maintained because the light rail alignment would be elevated at this location; the intersections at SE 4th Street, 110th Place SE, and 110th Avenue SE would be closed.

Option 6 would have the second most at-grade light rail crossings (3) because its alignment would be at-grade through the SE 8th Street intersection and transition to and from the center of 112th Avenue SE at-grade.

As with all options, assuming minimal intersection improvements, no intersections on 112th Avenue SE would fail to meet the City of Bellevue's LOS standards. A southbound left-turn pocket could be provided at the intersection of SE 6th Street and 112th Avenue SE to improve traffic operations.



Displacements

Option 6 would displace 5 single-family residences, 41 multifamily residences, and 7 businesses located along the south side of Main Street. Along with Option 2, this option would have the most total displacements. Sound Transit would mitigate these acquisitions and displacements as described in the Summary of Methodology and Mitigation by Criteria section of this report, beginning on page 16.

Transit Noise

As with all options, noise impacts associated with Option 6 would be mitigated. Option 6 would result in 87 moderate impacts and 9 severe impacts. The severe impacts would affect 7 single-family residences, as well as the Bellevue Club tennis courts and pool due to the crossover near SE 4th Street. Moderate impacts would affect 33 single-family residences, 22 multifamily residences, and 32 hotel rooms.

The residential impacts on the west side of 112th Avenue SE could be mitigated with sound walls. The severe and moderate noise impacts at single-family residences and the Bellevue Club Hotel north of SE 6th St could be mitigated using a variety of methods, including sound walls at-grade and on the retained fill and elevated segments, special noise-reducing trackwork, or sound insulation where necessary. There is the potential for wheel squeal at the curve by 112th Avenue and Main St that could be mitigated with track lubrication.

Wetland and Wetland Buffer

This option would affect 1.3 acres of wetland buffer along the west side of Mercer Slough, which is greater impact than would occur with Options 3 and 5 and less than with Options 2 and 4. Wetland buffer impacts would be mitigated through one or more of the following mitigation measures: restoration, enhancement, replacement of wetland buffer, or compensation to pre-approved wetland mitigation bank.

Parks

Option 6 would affect 1.0 acre of parkland, the second greatest impact among the

options. 0.3 acre of this impact would be to Mercer Slough Park and 0.7 acre to Surrey Downs Park.

Option 6 Parks Impacts	
Mercer Slough Nature Park	Surrey Downs Park
0.3 acre	0.7 acre

Impacts on Mercer Slough Nature Park would be mitigated with one or more of the following measures: acquiring replacement lands of comparable value and function, financial compensation (which could be used to enhance the remaining land), restoration of disturbed park areas, or other measures as agreed with the City of Bellevue. Impacts on Surrey Downs Park could also be mitigated by development of acquired properties adjacent to and north of the park.

Construction Impacts

Option 6 would be constructed in the center of 112th Avenue SE south of SE 6th Street and west of 112th Avenue SE north of SE 6th Street. Option 6 would require partial roadway reconstruction, full reconstruction for the center running portion, and minimal roadway work for section on the west side of the roadway. It would require a moderate to lower level of utility relocations compared to the other options. Roadway retaining wall structures would be constructed behind the sidewalk on the east side of the roadway south of SE 6th and outside of the track north of SE 6th. Option 6 would cause a moderate to low level of disruption during construction. The duration of construction would be more than Option 2, less than Option 4, and similar to the remaining options.

