To:	Emily Yasukochi, Sound Transit
From:	HNTB
Prepared by:	Mariel Kirschen, Teri Marsh, and David Shelton
Date:	January 24, 2023
Re:	Ballard Link Extension Further Studies: Interbay-Smith Cove Concepts

INTRODUCTION

On July 28th, 2022, the Sound Transit Board requested further studies and public engagement in some areas to inform potential additional future Board action to confirm or modify the Draft Environmental Impact Statement (EIS) Preferred Alternative for the Ballard Link Extension. This memo focuses on the results of the further studies requested by the Board for the South Interbay Segment. Because all three of the further studies concepts presented in this memo affect Interbay Station in the Interbay/Ballard segment, the memo is titled Interbay-Smith Cove Concepts.

For information on the further studies conducted for the Ballard portion of the Interbay/Ballard Segment of the Ballard Link Extension, please see the Ballard Further Studies Memo. Additionally, for more information on how the further studies for Interbay-Smith Cove relate to the systemwide evaluation of the further studies, see the Systemwide Further Studies Memo.

Board Direction

Board Motion M2022-57 directed further study of the following in the South Interbay Segment (Figure 1):

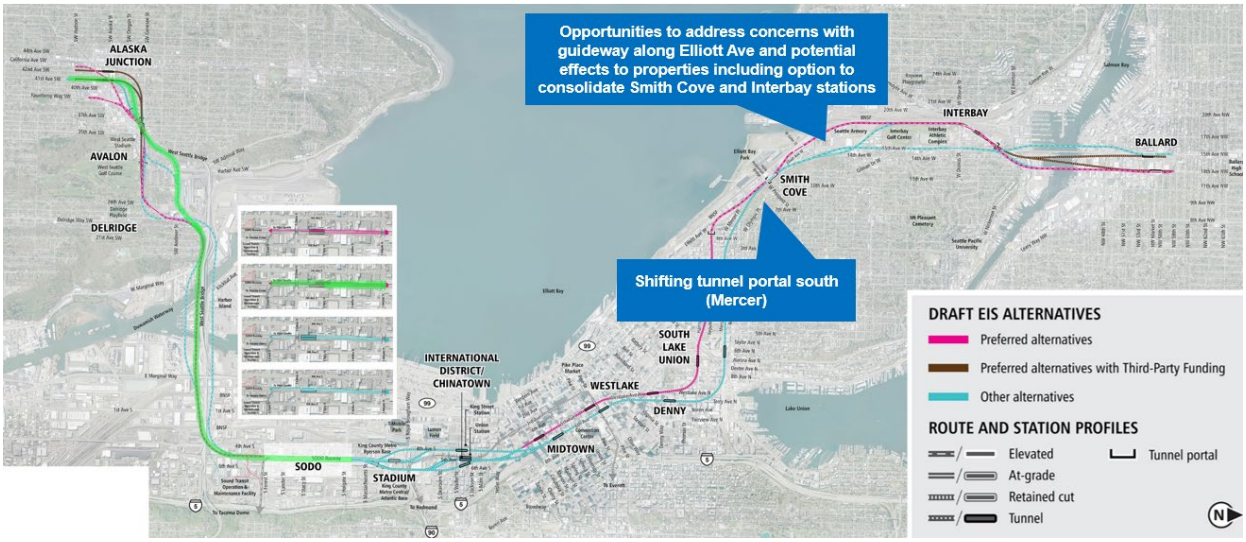
- Explore shifting the tunnel portal south (Mercer)
- Explore opportunities to address concerns with guideway along Elliott Avenue and potential effects to properties in Interbay including option to consolidate Smith Cove and Interbay stations

Based on the Board direction, the project team focused on the following to guide the further studies in Interbay and Smith Cove:

- Address concerns with elevated guideway and effects on the King County Wastewater Treatment Division (KCWTD) facility along Elliott Avenue W associated with *Draft EIS Preferred Galer Street Station/Central Interbay Alternative (SIB-1)* and the *Draft EIS Prospect Street Station/15th Avenue Alternative (SIB-2)*
- Reduce the risks associated with the portal and guideway along the steep slope of the Queen Anne hillside associated with SIB-2 and *Draft EIS Prospect Street Station/Central Interbay Alternative (SIB-3)*

- Reduce the effects on Seattle Storm and Seattle City Light (SCL) properties and reduce business displacements associated with the *Draft EIS Preferred Tunnel 14th Avenue Alternative (IBB-2a)* and the *Draft EIS Preferred Tunnel 15th Avenue Station Option (IBB-2b)*

Figure 1 Ballard Link Extension Further Studies – South Interbay



Further Study Concepts

To meet the board direction, the project team identified the following three concepts for further study:

A. **Modified SIB-1 Alignment** including a tunnel portal from the Downtown Segment at Republican Street (i.e., Republican Portal), an Elevated Galer Street Smith Cove Station (from SIB-1), and a shifted Interbay Station
B. **Modified SIB-3 Alignment** including a tunnel portal from the Downtown Segment at Mercer Place (i.e., Mercer Place Portal), a shifted Smith Cove Station, and a shifted Interbay Station
C. **Consolidated Alignment** including a tunnel portal from the Downtown Segment at Blaine Street (i.e., Blaine Portal), and a consolidated Interbay-Smith Cove Station

A map of the Draft EIS alternatives in South Interbay and Interbay/Ballard segments can be seen in Figure 2. A map of all three further studies concepts can be seen in Figure 3.

Figure 2 **Draft EIS Alternatives in South Interbay and Interbay/Ballard**

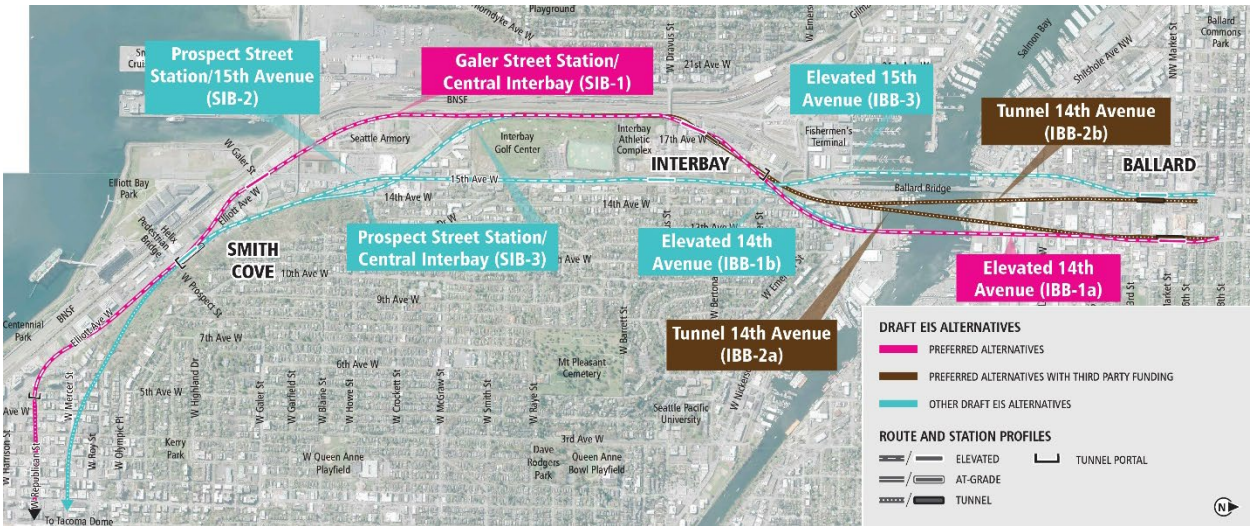
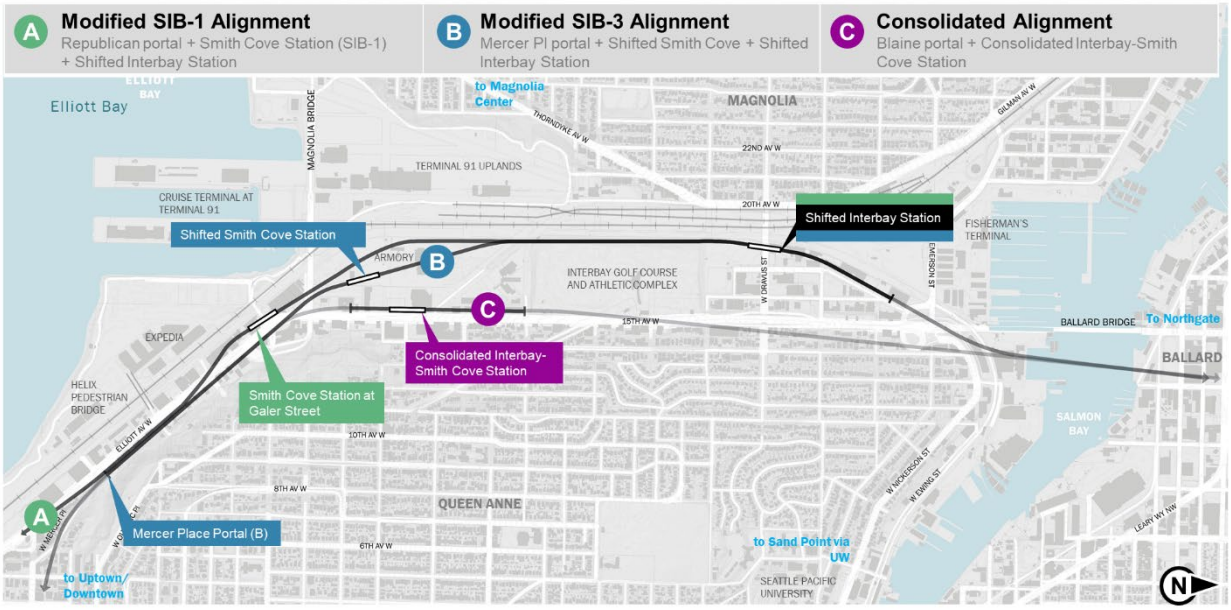


Figure 3 **Interbay-Smith Cove Further Studies Concepts Map**



Summary

Figure 4 summarizes the key results from each of the studies in Interbay and Smith Cove. More details about these results can be found in the body of this memo. Costs are shown as a change from the Sound Transit 3 Plan as represented in the realigned financial plan, which assumes SIB-1 in the South Interbay Segment and IBB-1a in the Ballard Segment.

Figure 4 Summary of Interbay-Smith Cove Further Study Results

Concept	Key Results	**Cost Delta** from realigned financial plan (in $2019)
Modified SIB-1 Alignment compared to SIB-1 connected to IBB-2a/2b	It is possible to avoid Seattle City Light and Seattle Storm properties with these implications: • Avoids Seattle City Light and Seattle Storm properties • Improves passenger access by adding station entrance on both sides of Dravus Street at Interbay station • Guideway and station construction requires partial closure to 2 travel lanes on Dravus Street Bridge for 18 months • Approximately twenty fewer business displacements • Similar eTOD potential	-$33 million
Modified SIB-3 Alignment	• Portal location not practical due to geotechnical/slope stability concerns	N/A
Consolidated Alignment	• Avoids Seattle City Light and Seattle Storm properties affected by SIB-1 and SIB-2 • Avoids permanent columns and medians in the roadway from guideway placement along Elliott Ave W with SIB-1 and SIB-2 • Avoids effects to KCWTD Elliott West site from SIB-1 and SIB-2 • Potentially reduces or avoids risks to light rail facilities on the Queen Anne hillside, but further study is needed on slope stability related to twin bore tunnel • Approximately 98 fewer residential displacements, 6 to 53 more business displacements, avoids park effects, avoids landfill effects, and avoids conflicts with BNSF Railway • Results in a 2,000- to 2,200-foot retained cut along 15th Avenue West, which could limit access to and from future eTOD on surrounding commercial properties unless a more comprehensive lid structure is developed in partnership with others • Ground improvement around Magnolia Bridge results in a series of partial closures leaving 1-2 lanes of 15th Avenue W open in each direction for 18 months during construction • Potential for moderate reduction in daily Link boardings	+$209 million

INTERBAY-SMITH COVE STATION FURTHER STUDIES RESULTS

This section of the memo defines each of concepts, outlines the scope of study, and presents the results for each of the Interbay-Smith Cove further studies.

Modified SIB-1 Alignment

Definition of Concept

The *Modified SIB-1 Alignment* concept focuses on the following study objectives:

- Avoid Seattle Storm and SCL properties and reduce business displacements associated with IBB-2a and IBB-2b

Figure 5 shows a map of the *Modified SIB-1 Alignment* further studies concept. The further studies concept includes the following:

- Track connecting to a Republican tunnel portal, as defined in SIB-1
- Elevated Smith Cove Station at Galer Street, as defined in SIB-1
- Shifted retained cut Interbay Station that straddles W Dravus Street, under the street, west of 17th Avenue West (See Figure 6)
- Guideway and Ballard tunnel portal shifted to the west between 17th Avenue W and the BNSF Railroad
- Connects to IBB-2a or IBB-2b in the Interbay/Ballard segment

Figure 5 Modified SIB-1 Alignment Map

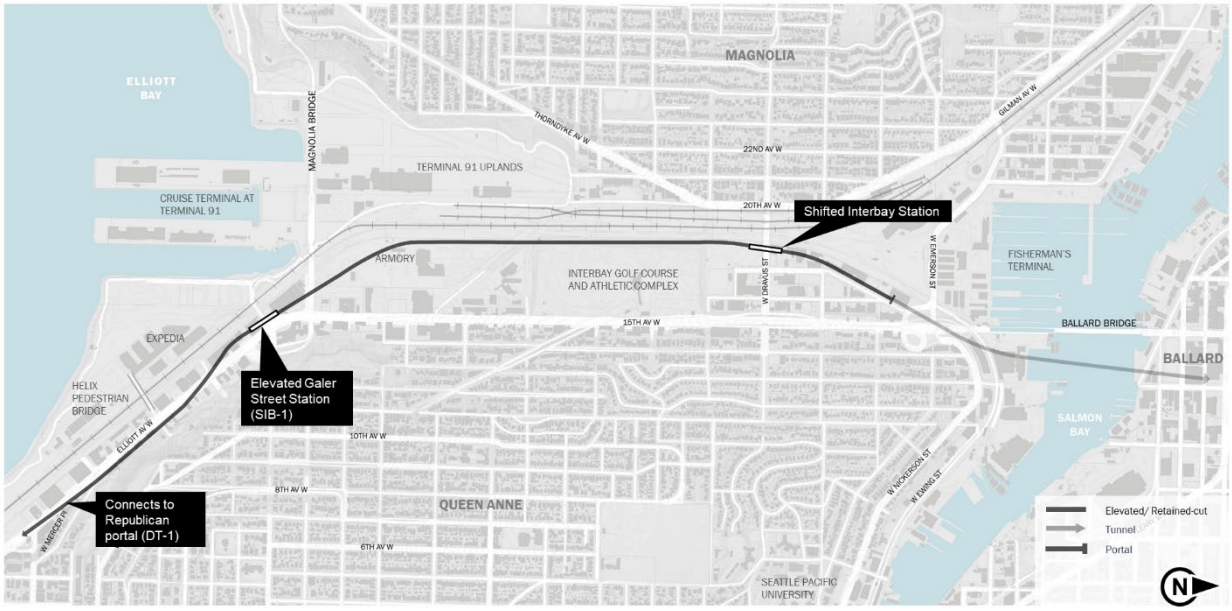
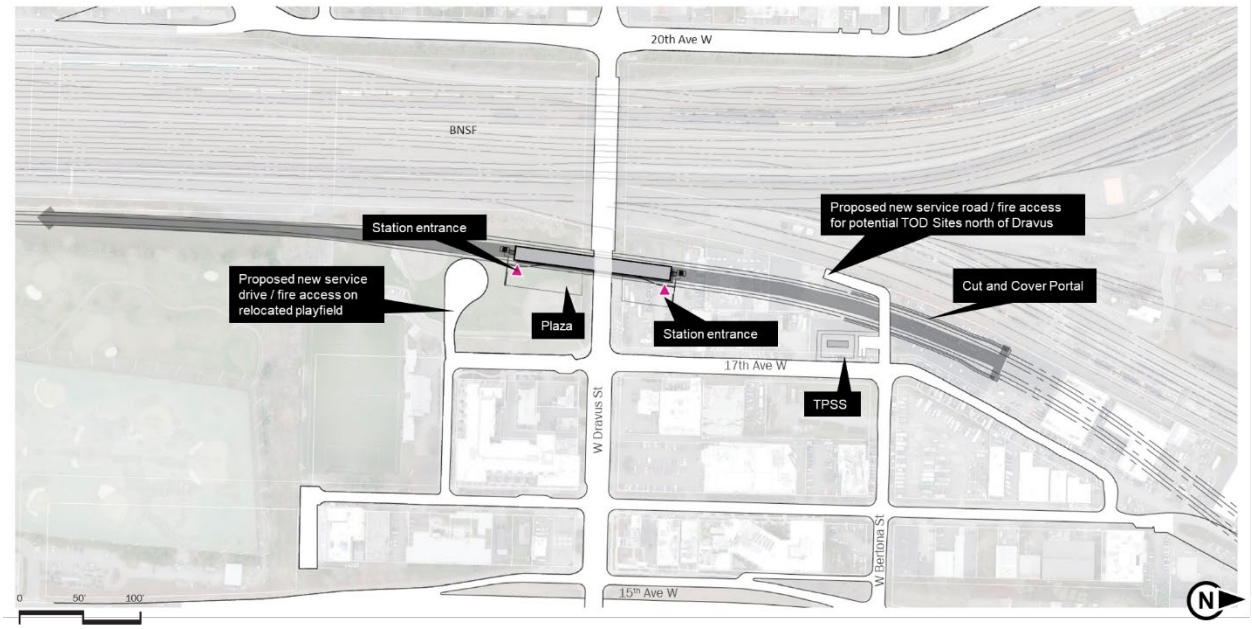


Figure 6 Shifted Interbay Station Area Map



Study Results

This section summarizes how the *Modified SIB-1 Alignment* concept avoids the SCL and Seattle Storm properties, as well as other implications including: station access and passenger experience; construction; property acquisitions, displacements, and environmental concerns; development potential; operations; and cost. The results in this section are expressed as comparisons to SIB-1 connected to IBB-2a/IBB-2b, unless otherwise noted.

Study focus: Avoid SCL and Seattle Storm properties

Shifting the Interbay Station to span W Dravus Street avoids displacing the SCL property and the future Seattle Storm practice facility.

Other Implications

Station access and passenger experience

Shifting Interbay Station has the following effects:

- Improves passenger access to the station by adding entrances on the north and south sides of W Dravus Street
- Reduces travel time and removes at-grade pedestrian crossing for transfers between bus and rail by eliminating the need to cross W Dravus Street

Construction

The shifted station location requires partial closures of Dravus Street during construction of the guideway and the retained cut station below, along with reconstruction of the bridge approach span. These closures would be done in three stages resulting in a partial closure to 2 travel lanes on Dravus Street Bridge over a period of 18 months. For a period of six months, only one travel lane would be open. It should be noted that Dravus is a minor truck street in the City of Seattle freight network and part of a designated oversize route. General truck movements could continue through the construction zone, but if the contractor is not able to maintain a travel way of at least 20 feet wide, this would temporarily restrict oversize truck movements across the bridge. This reconstruction also requires temporary relocation of utilities that run alongside, attached to, or above the existing bridge.

Property acquisitions, displacements, and environmental concerns

The shifted Interbay Station location results in the following potential property and environmental effects in Interbay:

- Twenty fewer business displacements in the vicinity of 17th Avenue W north of W Dravus Street in the Interbay/Ballard Segment.
- South of W Dravus Street, the concept directly affects a larger area of the grass baseball and football playfields in the Interbay Athletic Complex. However, SIB-1 requires replacement of the playfields, so the outcome would not be different for Modified SIB-1.
- As with SIB-1, the concept includes track construction above a large KCWTD sewer pipe at the north end of the golf course. This construction requires permanent shoring and protection structures, which may interfere with maintenance, access, or future replacement of the sewer.

Development potential

The refined Interbay Station location offers similar opportunity for agency-led eTOD, assuming support from the City of Seattle to develop other uses on the current playfield properties. The adjacency of these properties to mixed-use zoning could justify inclusion of housing in eTOD associated with this alternative. Continued analysis and discussion with the City of Seattle and project partners would be needed to determine the nature and extent of this opportunity if this concept were to move forward.

Operations

The Smith Cove Station was identified as a temporary terminus station for the Ballard Link Extension in the Minimum Operable Segment Scenario (MOS) described in the Draft EIS; the concept does not affect the station's ability to operate as a MOS.

Cost

Shifting the Interbay Station location has the potential to lower the cost from the realigned financial plan by $33 million (Figure 7). The primary cost drivers for the concept include changes in the lengths of elevated guideway, retained cut, and tunneled track, as well as a decrease in property acquisitions.

Figure 7 Modified SIB-1 Alignment Cost Implications

Cost Category	**Modified SIB-1 Alignment Cost Implications** (in 2019$ millions)
Construction	**+47**
Elevated guideway replaced by retained cut/fill	+5
Longer tunnel	+27
Station vertical circulation	+6
Dravus Street modification	+9
Utility relocation	-2
Property Acquisitions	**-96**
Professional Services	**+11**
Unallocated Contingency	**+5**
Cost delta compared to realigned financial plan	**-33**

Modified SIB-3 Alignment

Definition of Concept

This concept focuses on the following study objectives:

- Reduce the construction and schedule risks associated with the portal and guideway along the steep slope of the Queen Anne hillside associated with SIB-2 and SIB-3
- Avoid Seattle Storm and SCL properties affected by IBB-2a and IBB-2b

Figure 8 shows the map of the *Modified SIB-3 Alignment* further studies concept. The further studies concept includes the following:

- A refined north tunnel portal location (connecting to the Downtown segment) shifted south from the vicinity of W Prospect Street (Prospect portal) to the vicinity of the intersection of W Mercer Place and Elliott Avenue W (Mercer Place portal).
- Alignment transitioning from the tunnel portal to elevated guideway and continuing north along the east side of Elliott Avenue W, avoiding the steep slopes in the vicinity of W Galer Street and W Garfield Street, and crossing over 15th Avenue W in the vicinity of the Magnolia Bridge overcrossing.
- Shifted elevated Smith Cove Station on the north side of the Magnolia Bridge. Figure 9 shows a map of the shifted Smith Cove Station area.
- Shifted retained cut Interbay Station that straddles below W Dravus Street west of 17th Avenue W. Figure 6 shows the shifted station area concept.
- Alignment and Ballard tunnel portal shifted to the west between 17th Avenue W and the BNSF Railroad.
- Connects to the Tunnel 14th Avenue Alternative (IBB-2a) or the Tunnel 15th Avenue Station Option (IBB-2b) in the Interbay/Ballard segment.

Figure 8 Modified SIB-3 Alignment Map

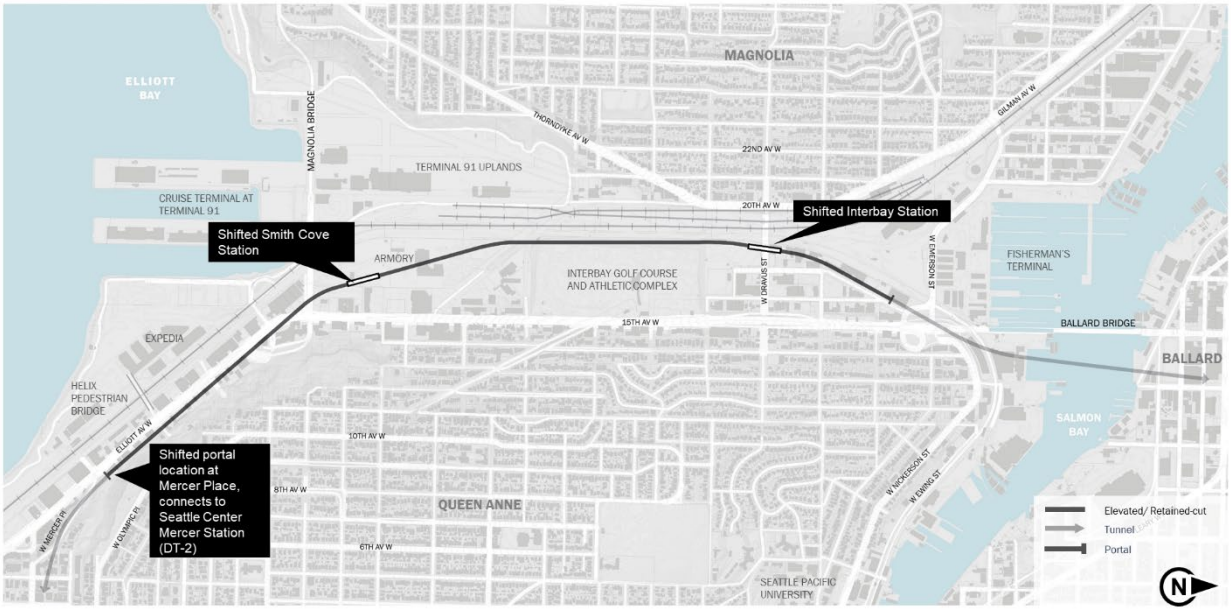
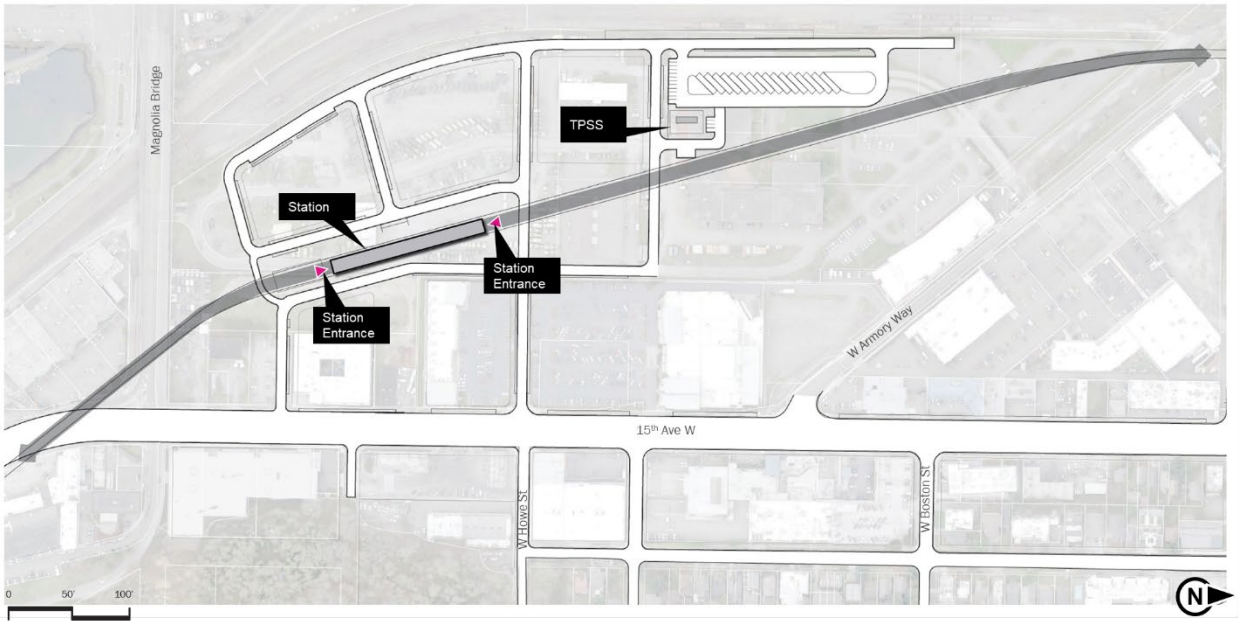


Figure 9 Shifted Smith Cove Station Area Map



Study Results

This section summarizes whether the *Modified SIB-3 Alignment* concept avoids the unstable slope risk and avoids SCL and Seattle Storm properties, as well as other implications including property acquisitions, displacements, and environmental concerns; development potential; station access and passenger experience; construction; operations; and cost. The results in this section are expressed as comparisons to the pairing of SIB-3 connected to IBB-2a/IBB-2b, unless otherwise noted.

Study focus: Avoid unstable slope risk on Queen Anne hillside

The *Modified SIB-3 Alignment* does not reduce the risks associated with the portal and guideway along the steep slope of the Queen Anne hillside.

Through additional geotechnical investigation, geotechnical analysis and conceptual design work, the Sound Transit team has determined that the Mercer Place location is not suitable for a tunnel portal. The retaining walls required to meet the slope stability requirements in the City building code and Sound Transit Requirements Manual are not a practical solution. The substantial width, depth, and extent of the walls would increase effects on the Queen Anne hillside Environmentally Critical Area (ECA), the Southwest Queen Anne Greenbelt and historic Kinnear Park. The work would result in substantial constructability challenges, cost, disruption to the park and hillside/greenbelt, and permitting challenges.

Elements of the concept other than the Mercer Place Portal could be integrated into alternatives for further review in the environmental process. For example, while the SIB-3 Alternative in the Draft EIS is only connected to the *6th Avenue/Mercer Street Alternative (DT-2),* it is potentially feasible to connect the shifted Smith Cove Station to the Republican Portal with elevated guideway to the *Preferred 5th Avenue/Harrison Street Alternative (DT-1)* or to the *Republican West Seattle Center Station* location (see the Downtown Further Studies Memo for more

information about this concept). The implications of this connection would require additional study.

Study focus: Avoid SCL and Seattle Storm properties

The concept avoids displacing the SCL property and future Seattle Storm practice facility by realigning the guideway at W Dravus St and shifting the Interbay Station to span below W Dravus Street.

Other Implications

Property acquisitions, displacements, and environmental concerns

The shifting of Smith Cove Station to north of Magnolia Bridge would have the following potential property and environmental effects:

- Results in 73 more residential and up to four additional business displacements. There would be three fewer business displacements if the MOS scenario for SIB-3 is implemented. This concept displaces Interbay Village, a low-income tiny home village and the Washington Army National Guard at the Seattle Armory site.
- Increases the number of properties affected that are eligible for the National Register under the National Historic Preservation Act (NHPA). This concept is anticipated to have adverse effects under Section 106 of the NHPA to two additional historic properties, the Seattle Armory (partial property acquisition), and the Seattle Armory Field Maintenance Building (partial property acquisition and permanent proximity effects).
- Affects a larger area of Kinnear Park and could potentially have an adverse effect to the park which is also a historic resource under Section 106 of the NHPA. Reduces visual changes seen by sensitive viewers which include residents and recreationists. The guideway would be visible to trail users in the lower part of Kinnear Park but is not anticipated to be visible to sensitive viewers in the Southwest Queen Anne Greenbelt north of Magnolia Bridge.
- South of W Dravus Street, the concept affects a larger area of the grass baseball and football playfields in the Interbay Athletic Complex. However, SIB-3 would require replacement of the playfields, so the outcome would not be different for *Modified SIB-3 Alignment*.

As discussed with the *Modified SIB-1 Alignment* study above, the shifted Interbay Station location results in the following potential property and environmental effects in Interbay:

- Twenty fewer business displacements in the vicinity of 17th Avenue W north of W Dravus Street in the Interbay/Ballard Segment.
- South of W Dravus Street, the concept directly affects a larger area of the grass baseball and football playfields in the Interbay Athletic Complex. However, SIB-1 requires replacement of the playfields, so the outcome would not be different for Modified SIB-1.
- As with SIB-1, the concept includes track construction above a large KCWTD sewer pipe at the north end of the golf course. This construction requires permanent shoring and protection structures, which may interfere with maintenance, access, or future replacement of the sewer.

Development potential

The shifted Smith Cove Station location offers an opportunity to collaborate with the State of Washington, the City of Seattle, and other partners on a potential redevelopment of the Seattle Armory site, currently occupied by the Washington Army National Guard. This collaboration could lead to greater opportunity for equitable TOD (eTOD) and transit-supportive land uses than would the Draft EIS alternatives in the South Interbay Segment. The redevelopment of this site would be consistent with the State of Washington's plans to vacate and redevelop the site, although timely action by public partners would be necessary to align with project delivery milestones to repurpose this site. Continued analysis and discussion with the City of Seattle and project partners would be needed to determine the nature and extent of this opportunity if this concept were to move forward.

Station access and passenger experience

Shifting Smith Cove Station north of Magnolia bridge has the following effects:

- The station would be located within a potential future eTOD site, increasing access to a mix of housing, commercial, and other services
- The station would be further from 15th Avenue West, as well as residents and businesses to the south of the Magnolia Bridge, including the Expedia Group campus
- Access to the Queen Anne neighborhood would improve compared to the SIB-3 Prospect Street Smith Cove Station location, due to closer proximity to connecting streets to the east

As outlined above for the *Modified SIB-1 Alignment*, shifting Interbay Station has the following effects on passenger experience:

- Improves passenger access to the station by adding entrances on the north and south sides of W Dravus Street
- Reduces travel time and removes at-grade pedestrian crossing for transfers between bus and rail by eliminating the need to cross W Dravus Street

Construction

In addition to the construction effects to the Queen Anne hillside in the South Interbay Segment described above, the concept would result in construction effects to the Interbay/Ballard Segment. As with the *Modified SIB-1 Alignment*, the shifted Interbay Station would require partial closures of Dravus Street during construction of the guideway and the retained cut station below, along with reconstruction of the bridge approach span. These closures would be done in three stages resulting in a partial closure to 2 travel lanes on Dravus Street Bridge over a period of 18 months. For a period of six months, only one travel lane would be open. It should be noted that Dravus is a minor truck street in the City of Seattle freight network and part of a designated oversize route. General truck movements could continue through the construction zone, but if the contractor is not able to maintain a travel way of at least 20 feet wide, this would temporarily restrict oversize truck movements across the bridge. This reconstruction also requires temporary relocation of utilities that run alongside, attached to, or above the existing bridge.

Operations

The Smith Cove Station was identified as a temporary terminus station for the Ballard Link Extension in the MOS described in the Draft EIS. The *Modified SIB-3 Alignment* concept provides the required special trackwork (crossovers and pocket tracks) needed to accommodate

a MOS scenario in which shifted Smith Cove Station is a temporary terminus station of the Ballard Link Extension.

Cost

Because the project team found that the *Modified SIB-3 Alignment* did not meet the study objectives, total costs of construction were not calculated. As noted above, additional study would be needed to estimate the construction and property costs to connect the shifted Smith Cove Station element of this concept to the Republican portal.

Consolidated Alignment

Definition of Concept

This concept focuses on the following study objectives:

- Address concerns with the elevated guideway and effects on the KCWTD facility along Elliott Ave W associated with SIB-1 and SIB-2
- Reduce the construction and schedule risks associated with the portal and guideway along the steep slope of the Queen Anne hillside associated with SIB-2 and SIB-3
- Avoid Seattle Storm and SCL properties and reduce business displacements associated with IBB-2a and IBB-2b

Figure 10 shows a map of the *Consolidated Alignment* further studies concept. The further studies concept includes the following:

- A relocated north tunnel portal (connecting to the Downtown segment) located north of the Magnolia Bridge and west of 15th Avenue W at approximately W Blaine Street.
- A guideway that continues north from the tunnel portal in a retained cut along the west side of 15th Avenue W.
- Smith Cove and Interbay Stations consolidated into a single retained cut station north of the Magnolia Bridge, west of 15th Avenue W, and south of W Armory Way. The station site would include facilities to accommodate bus transfers and bus layover with access from 15th Avenue W. Remote ventilation facilities are assumed between Seattle Center station and the north tunnel portal, and between the Ballard tunnel portal and the Salmon Bay crossing. Figure 11 shows a map of the retained cut segment and consolidated station area.
- A Ballard tunnel portal in the vicinity of W Wheeler Street and a tunnel alignment under the southeast corner of the Interbay Golf Center and Interbay Athletic Complex continuing below 15th Avenue W and crossing under Salmon Bay.

Figure 10 Consolidated Alignment Map

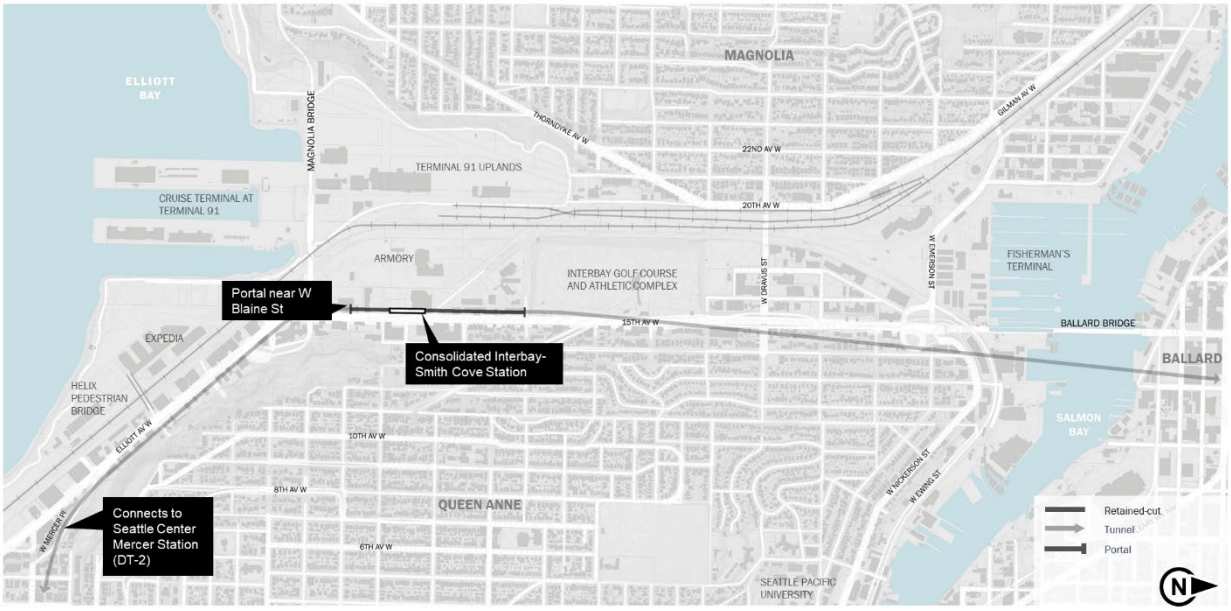


Figure 11 Consolidated Station Area Map

Study Results

This section summarizes how the *Consolidated Alignment* concept meets the study objectives, as well as other implications including: property acquisitions, displacements, and environmental concerns; development potential; construction; station access and passenger experience; operations; and cost. The results in this section are compared to Draft EIS alternatives as noted under each category.

Study focus: Avoid concerns with guideway along Elliott Avenue W

The project team found that the concept achieves the study objective of reducing effects along Elliott Ave W associated with SIB-1 and SIB-2 in the following ways:

- Because the track remains in a tunnel until a portal at W Blaine Street, there would not be an elevated guideway that crosses Elliott Avenue W multiple times. This would avoid permanent columns and medians in the roadway from guideway placement along Elliott Avenue W
- Avoids effects to the KCWTD Elliott facility site.

Study focus: Avoid unstable slope risk on Queen Anne hillside

With this concept, the north portal from the Downtown Segment shifts to the west away from the hillside. This allows the alignment to stay underground for longer, reducing the exposure risk from an unstable slope. However, additional analysis is needed to confirm that the track tunnel would be stable in the event of a landslide. If not, a solution would be needed to minimize the risk, such as a deeper tunnel alignment.

Study focus: Avoid SCL and Seattle Storm properties

The project team found that the consolidated station location achieves the study objective of avoiding the displacements of the SCL property and future Seattle Storm practice facility associated with IBB-2a and IBB-2b.

Other Implications

Property acquisitions, displacements, and environmental concerns

The concept results in the following potential effects to property and other environmental concerns:

- Approximately 98 fewer residential displacements and 6 to 53 additional business displacements in the South Interbay Segment compared to SIB-1. There would be three fewer business displacements in the range above if the MOS scenario for SIB-3 is implemented. Displacements include Whole Foods and Interbay Village, a low-income tiny house development, and a large range of businesses in Interbay Work Lofts. In addition, this concept reduces displacements in the Interbay/Ballard Segment south of Salmon Bay compared to Alternative IBB-2a and Alternative IBB-2b, only requiring 11 residential displacements for the tunnel vent near the West Emerson Street Interchange.
- Six fewer historic properties eligible for the National Register are anticipated to be adversely affected under Section 106 of the NHPA. This concept is anticipated to adversely affect one historic property, affecting the K&D Carpet Installers Building/Alpine Hut (property demolition).

- Avoids effects to parks in the South Interbay and Interbay/Ballard Segments, including Kinnear Park, the Southwest Queen Anne Greenbelt, the Interbay Golf Center, and Interbay Athletic Complex.
- Avoids conflicts with BNSF Railway because of its distance from the BNSF tracks.

Development potential

The consolidated Interbay-Smith Cove Station location offers considerable opportunity for agency-led eTOD on property acquired for station construction and operations. These sites could be developed independently of the decision-making and timing of the redevelopment of the Seattle Armory property, though there is a risk of a less cohesive development scheme if redevelopment proceeds separately without a master plan. Continued analysis and discussion with the City of Seattle and project partners would be needed to determine the nature and extent of this opportunity if this concept were to move forward.

This concept results in a 2,000- to 2,200-foot long retained cut along the west side of 15th Avenue W, which would have implications for urban design and development potential. The retained cut could be lidded at limited locations for street crossings connecting 15th Avenue W to the area to the west of the retained cut.

Construction

Construction of the tunnel would result in traffic effects along on 15th Avenue W. To mitigate the risk presented by anticipated timber piles, poor soil conditions, and tunneling below the foundations of the existing Magnolia Bridge, the construction would require ground replacement across 15th Avenue W in the vicinity of the bridge ramp and W Garfield Street. This concept would require a partial roadway closure of 15th Avenue W during construction with 1 to 2 lanes open in each direction for 1.5 years for ground replacement work, and additional time for utility relocation.

Station access and passenger experience

Consolidated Smith-Cove Interbay Station has the following effects on passenger experience and station access:

- Potential for moderate reduction in daily Link boardings related to Interbay-Smith Cove Consolidated Station
- Station would be located within a potential future eTOD site, increasing access to a mix of housing, commercial, and other services.
- Residents and businesses to the south of the Magnolia Bridge, including Expedia Group campus, would be farther from the station.
- Improves access to the Queen Anne neighborhood compared to the Smith Cove Station location in SIB-3 due to its closer proximity to connecting streets to the east. However, compared to the Interbay Station location in SIB-3, this benefit would be partially offset by reduced connectivity to the Queen Anne and Magnolia neighborhoods along the W Dravus Street corridor.

Operations

The *Consolidated Alignment* concept could connect to the *6th Avenue/Mercer Street Alternative (DT-2)* in downtown or to the *Seattle Center Mix and Match* concept (see the *Downtown Further Studies Memo* for more details). The *Consolidated Alignment* could not connect to DT-1 alignment on Republican Street or to the *Republican West* concept.

The Smith Cove Station was identified as a temporary terminus station for the Ballard Link Extension in the MOS described in the Draft EIS. The *Consolidated Alignment* concept would provide the special trackwork (e.g., crossovers, pocket tracks) needed to accommodate a MOS scenario in which the consolidated Interbay-Smith Cove Station is a temporary terminus station. Additionally, hi-rail access would be provided in the retained cut section of the alignment adjacent to the station.

Cost

Consolidating the Interbay and Smith Cove station locations raises the cost from the realigned financial plan (including SIB-1 connected to the *Draft EIS 14th Avenue Elevated Alternative [IBB-1a])* by $209 million (Figure 12). The primary cost driver for the change is replacing the elevated guideway through Interbay with a tunnel. Tunneled guideway and station construction is more expensive than the elevated alternative. The reduction in property acquisition cost does not offset the cost increase from tunnel construction.

Figure 12 Consolidated Alignment Cost Implications

Cost Category	***Consolidated Alignment*** **Cost Implications** *(in 2019$ millions)*
Construction	**+371**
Eliminated elevated guideway	-626
Additional tunnel	+846
Station number and type	+181
Utility relocation	-30
Property Acquisitions	**-314**
Professional Services	**+114**
Unallocated Contingency	**+37**
Cost delta compared to realigned financial plan	**+209**