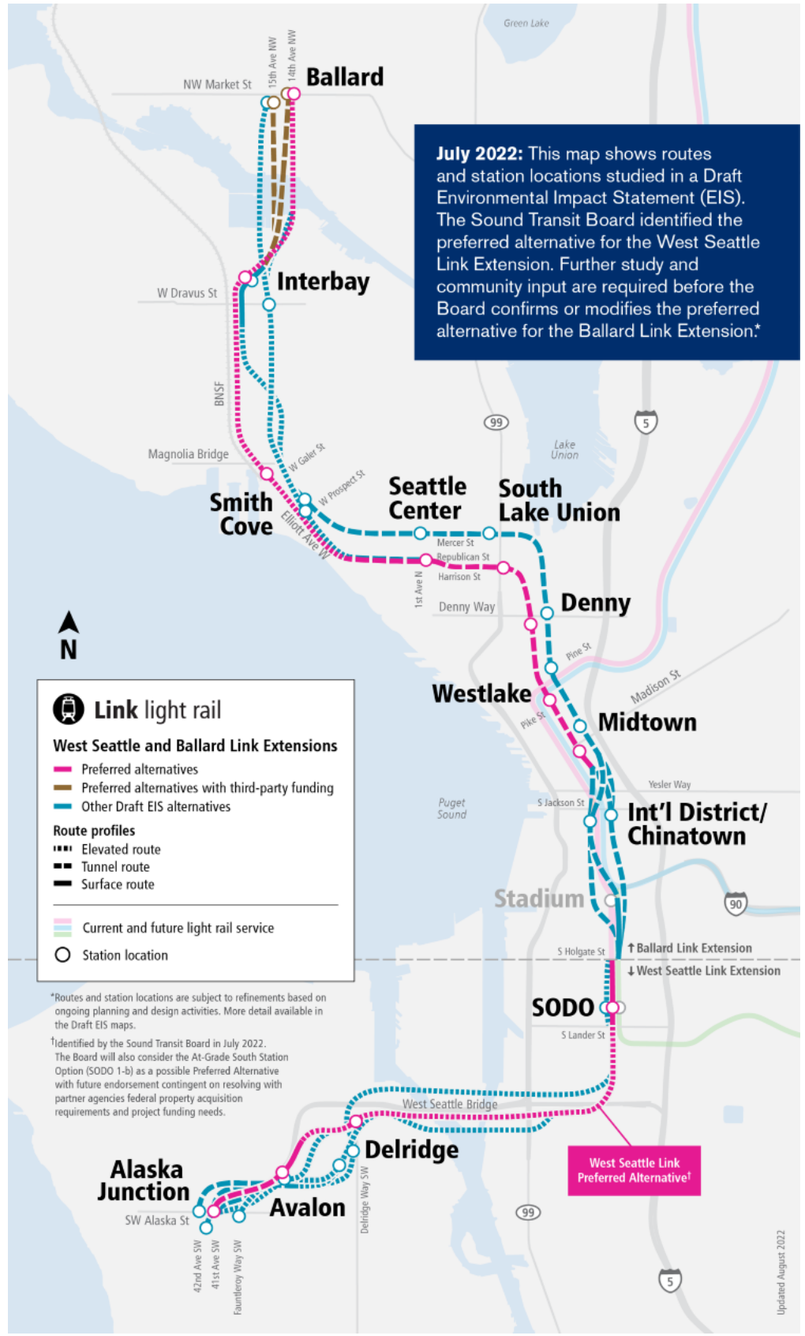
FURTHER STUDIES EXECUTIVE SUMMARY

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 executive summary provides high-level results from the memos in three tables:

- **Individual Studies (Elements of Study and Findings)** lists the elements of study and their associated findings for each study defined in the board motion (*beginning on Page 2).*
- **Individual Studies (Evaluation Criteria)** reports the results of each study defined in the board motion by certain evaluation criteria *(beginning on Page 11).*
- **End-to-End Scenarios (Evaluation Criteria)** defines segment combinations that can be linked together to define the overall Ballard Extension from end-to-end. Key results are reported on for each scenario against the same criteria as the individual studies in the *Individual Studies (Evaluation Criteria) table (beginning on Page 20).*



Individual Studies (Elements of Study and Findings)

Further Study	Study Focus	Elements of Study	Findings (based on conceptual design)	Next Steps
Shift Alaska Junction station entrance to 42nd Avenue compared to *Medium Tunnel 41st Avenue Alternative (WSJ-5)*	Improve station access from California Avenue SW	• Station access and passenger experience • Property acquisition and displacements • Development opportunity • Cost	It is possible to locate a station entrance at 42nd Avenue SW, with these implications: • Passengers do not need to cross 41st Avenue SW to access California Avenue SW • Net change of 39 fewer residential displacements and 32 additional business displacements • Greater opportunity for agency-led equitable TOD resulting in upwards of 600 units of housing under current zoning across all sites (90 more than WSJ-5) • Cost delta compared to realigned financial plan: +$80 million	Present results to the Board for information
Delridge station access refinements compared to *Andover Street Lower Height Alternative (DEL-6)*	Improve station access and transit integration and reduce effects to organizations serving low-income and communities of colors	<u>Station access via pedestrian bridge across Andover Street</u> <u>Shifting alignment south towards SW Yancy Street</u> • Station access and passenger experience and transit integration • Traffic and transit effects • Property acquisitions and displacements • Effects to Longfellow Creek • Cost	<u>Station access via pedestrian bridge across Andover Street</u> An alternative solution to transit circulation and stop placement eliminated the need for an entrance on the south side of Andover, therefore negating the need for a pedestrian bridge. The design provides a more efficient station design and removes the potential freight conflict. <u>Shifting alignment south towards SW Yancy Street</u> Shifting the alignment south towards SW Yancy Street would have the following implications: • Direct bus-light rail transfer with stops adjacent to station entrance • Eliminates potential conflicts between Nucor Steel trucks and passengers transferring between buses and light rail • Lowers height of Delridge Station by about 15 feet • New signal at 23rd Avenue SW and Delridge Way SW • Permanent closure of 32nd Avenue SW by creating two cul-de-sacs • Results in 14 fewer residential and 3 additional business displacements • Reduced property effects to Transitional Resources • Columns in the riparian management area and 100-year floodplain of Longfellow Creek • Cost delta compared to realigned financial plan: +$50 million	Present results to the Board for information
Eliminate Avalon Station compared to WSJ-5 and DEL-6	Explore eliminating station as potential cost savings opportunity	• Station access and passenger experience • Property acquisition and displacements • Construction effects • Street ROW effects • Cost	Eliminating Avalon Station would result in the following: • Longer travel times for light rail passengers from the area around the Avalon Station location. No expected decrease in West Seattle ridership • 48 fewer residential displacements and 3 fewer business displacements • Reduces full and partial roadway closures of 35th Avenue SW south and Fauntleroy Way SW during construction • Avoids permanent closure of SW Genesee Street at 35th Avenue SW • Cost delta compared to realigned financial plan: -$80 million (does not include additional cost of Delridge Station Access Refinements)	Present results to the Board for information
SODO station access refinements compared to *Preferred At-Grade Alternative (SODO-1a) Staggered Station Configuration*	Improve station access to S Lander Street overpass and minimize property effects west of the station	• Station access • Property avoidance • Station access and passenger experience effects • Cost	It is possible to enhance access to Lander Street overcrossing with the following implications: • Direct access to S Lander Street from the station • Minimizes property effects west of the station • Increased distance for people walking and biking to the station from the northwest or transferring from buses on 4th Avenue S • No level access from west of the station for people with disabilities • Cost delta compared to realigned financial plan: no increase or decrease	Present results to the Board for information

Further Study	Study Focus	Elements of Study	Findings (based on conceptual design)	Next Steps

Further study and engagement between community and agency partners regarding station in Chinatown/International District:
Refinements to the *DEIS 4th Avenue Shallow Alternative (CID-1a)* compared to CID-1a
	Explore station and alignment options that minimize potential effects and maximize community benefits, create an integrated, well-connected hub for all modes of transportation, and activate and/or modify uses of Union Station and the adjacent plaza	• Minimize potential effects and maximize community benefits:[1]
		  ○ Methods to reduce construction effects
		  ○ Methods to reduce cost and construction durations
		  ○ Strategies to minimize residential displacements to ICON Building
		  ○ Strategies for detour routes and maintaining access during construction
		  ○ Relocate ventilation shaft/emergency egress away from Union Station building
		  ○ Lid over BNSF tracks for traffic detours
		  ○ Sounder to Link pedestrian tunnel
		  ○ Public realm opportunities
		• Cost
			• A range of construction strategies would be implemented to minimize effects related to noise, visual, dust, and roadway closures
			• Eliminating temporary viaduct construction for 4th Avenue reduces duration of partial roadway closures by one year (to 5 years). Proposing a different type of support of excavation would potentially reduce risks when working adjacent to BNSF but adds one year to overall construction duration (up to 12 years)
			• Temporary decking during construction in front of the ICON Building reduces temporary displacement of residents from 4 years to two periods of two months each
			• Substantial traffic would need to divert elsewhere during construction due to closures on 4th Avenue, Jackson Street, and Main Street. With mitigating measures to divert traffic, drivers could experience up to 15 minutes of added delay along 4th Avenue; the addition of traffic onto parallel routes would exacerbate congestion on those corridors, potentially including some roadways in the CID and Pioneer Square neighborhoods. Various strategies can be used to reduce these effects. Sidewalk detours create 5 to 10 minute additional walk time. About 100 bus routes may use alternate routes in peak hour. Streetcar service truncated at 5th and Jackson Street
			• Vent and emergency egress locations could be located outside of Union Station and plaza area and designed to integrate with area
			• A lid over BNSF tracks is not practical due to interruptions to BNSF, Amtrak, and Sounder operations; inability to provide continuous roadway; and an increase in construction duration and cost
			• Pedestrian tunnel connection between Sounder and Link platforms not practical due to insufficient Sounder platform width to accommodate vertical circulation, poor soils resulting in much deeper tunnel, building effects, and requires temporary shutdown of existing station in CID due to underground structure conflicts
			• Opportunities to enhance public spaces within the station area include activation of Union Station, sidewalk and streetscaping improvements, and addition of open space on a lid structure spanning over the existing railroad tracks
			• Cost delta compared to realigned financial plan: +$700 million
				Present results to the Board for information

Further study and engagement between community and agency partners regarding station in Chinatown/International District:
New Alignment and Station Locations
	Explore station and alignment options that minimize potential effects and maximize community benefits, create an integrated, well-connected hub for all modes of transportation, and activate and/or modify uses of Union Station and the adjacent plaza	<u>Station North of CID:</u>
		• Station access and passenger experience
		• Construction effects
		• Property displacements
		• Development and public realm opportunities
		• Cost
			<u>Station North of CID:</u>
			• Idea would have the following effects on station access and passenger experience:
			  ○ Station would be within a 10-minute walk of CID, Pioneer Square, Colman Dock, and south end of Downtown/Midtown Seattle
			  ○ Station provides transfer within fare paid zone between 1, 2, and 3 Lines via underground walkway. Transfer to Sounder via 12 minute at-grade walk or transfer to 2/3 Line
			  ○ Additional three minutes of out-of-direction travel time for passengers transferring between the 1 Line and 2/3 Lines.
			  ○ Consolidates stations in Midtown and CID
			  ○ Platform depth about 80 to 105 feet
			  ○ Located near key node of citywide bike network. Bi-level entrance could serve walking and biking route to Yesler Terrace and CID. Could integrate with bus routes serving First Hill, hospitals, and Central District
				Present results to the Board for consideration

[1] Station platform depth can be reduced by 35 feet with increased construction effects and cost; Connecting to a shallower CID 4th Avenue Shallow Station reduces Midtown Station depth by about 55-60 feet to 140-145 feet deep.

Further Study	Study Focus	Elements of Study	Findings (based on conceptual design)	Next Steps

			• Idea would have the following construction effects:
			  ○ Avoids direct displacements in CID neighborhood due to station construction
			  ○ Construction truck traffic would use main arterials
			  ○ Results in full closure of James Street between 3rd and 4th Avenues for four years and a part of Jefferson Street for 6 years. Closure of east curb lane along 4th Avenue between Terrace Street and James Street
			  ○ Results in displacement of King County Administration Building and other historic properties that house social services
			• Idea would have the following development and public realm opportunities:
			  ○ Increased potential for equitable Transit Oriented Development (eTOD) on existing publicly owned property
			  ○ Opportunity for partnerships on additional or reconfigured existing station entrances to improve public safety
			• Cost delta compared to realigned financial plan: -$360 million	

		<u>Station South of CID:</u>
		• Station access and passenger experience
		• Construction
		• Development and public realm opportunities
		• Cost
			<u>Station South of CID:</u>
			• Idea would have the following effects on station access and passenger experience
			  ○ Station would be within a 10-minute walk of existing CID station, Lumen Field, T-Mobile Park, and northern CID
			  ○ Does not provide transfers within fare paid zone between 1, 2, and 3 Lines. Station only provides direct service to 1 Line. Transfers to 2 Line, 3 Line and Sounder can be made via a 10-minute walk at street level to existing CID and Sounder stations. Transfers to 3 Line can also be made via a 5-minute walk at street level to Stadium station. Alternatively, transfers from 1 Line to 2 and 3 Lines can be made at Westlake Station
			  ○ Additional 3 to 5 minutes of out-of-direction travel time for passengers transferring between the 2 Line and areas south on the 1 Line
			  ○ Platform depth of about 95 to 115 feet
			• Idea would have the following construction effects:
			  ○ Avoids direct displacements in CID neighborhood due to station construction
			  ○ Construction truck traffic would use main arterials
			  ○ Potential conflict with high pressure gas line and planned Seattle City Light high voltage power line on 6th Avenue S
			  ○ Results in closure of 6th Avenue S between Seattle Blvd S and Royal Brougham Way S for 5-6 years (currently closed) which has fewer overall traffic and road closure implications
			• Idea would have the following development and public realm opportunities:
			  ○ Potential to incorporate station entrance into potential future equitable TOD with affordable housing and retail and to partner on potential future development in the area.
			  ○ Opportunities for a station entrance closer to CID with new public space and creative street and plaza design
			  ○ Opportunity for new or improved connections from existing light rail and Sounder station to new station
			• Cost delta compared to realigned financial plan: +$80 million	

Further Study	Study Focus	Elements of Study	Findings (based on conceptual design)	Next Steps

		<u>Station North of CID and Station South of CID:</u>
		• Station access and passenger experience
		• Construction
		• Development and public realm opportunities
		• Cost
			<u>Station North of CID and Station South of CID:</u>
			• Provides benefits and challenges of both the Station North of CID and Station South of CID, including:
			  ○ Station provides transfer within fare paid zone between 1, 2, and 3 Lines via underground walkway. Transfer to Sounder via 12 minute at-grade walk or transfer to 2 and 3 Line
			  ○ Additional three minutes of out-of-direction travel time for passengers transferring between the 1 Line and 2/3 Lines
			  ○ Avoids direct displacements in CID neighborhood due to station construction
			  ○ Displaces King County Administration building and social services
			  ○ Presents eTOD and public realm opportunities
			• Cost delta compared to realigned financial plan: +$160 million	

Further study and engagement between community and agency partners regarding Chinatown/International District station: **Union Station and Plaza Activation**	Explore station and alignment options that minimize potential effects and maximize community benefits, create an integrated, well-connected hub for all modes of transportation, and activate and/or modify uses of Union Station and the adjacent plaza	Questions posed through community "intake" sessions in person and on-line: • How can the WSBLE project help support community goals and visions? • How would you like the plaza to be used? What amenities would you like to see in the plaza? What uses would you like to see in Union Station? What would help you feel safer in the plaza? • Where would you like to see [preferred uses and amenities] on the plaza and in Union Station?	Overall, there was widespread community support for activation of Union Station and surrounding plazas regardless of station location. Key findings on posed questions: • Activate Union Station with community-oriented uses confirmed as a key value; support public safety indicated as a new key value. Widely held perception that the plazas around Union Station are unsafe and lack adequate police presence • Respondents wanted to see space for small-scale commerce, like kiosks and temporary/event-oriented markets, as well as space for community events, celebrations, and performances • Initial concepts for Union Station and plaza activation incorporating preferred uses and amenities presented to community, including concept with direct interface to light rail line transfers with CID-1a	Requires Board direction and sponsorship / resourcing to implement

South Lake Union Mix-and-Match: Connect Westlake/5th Avenue Station (DT-1) to Denny/Terry Station (DT-2) to South Lake Union/Harrison Station (DT-1) compared to *Preferred 5th Avenue/Harrison Street Alternative (DT-1)*	Assess feasibility of mix-and-match alignment	• Passenger Experience
		• Construction effects:
		  ○ To roadway network
		  ○ Streetcar disruption
		  ○ To utilities
		  ○ To overall project construction and schedule risk
		• Operational Effects
		• Cost
			It is possible to construct this alignment, with these implications:
			• Transfers from buses and streetcar on Westlake would be one block further and on a steep hill. Denny Station would be 25 feet deeper (to 120 to 125 feet deep) than station in DT-1
			• Construction effects include:
			  ○ Additional cut-and-cover construction along Harrison Street at 8th Avenue, resulting in one additional multi-family displacement
			  ○ Avoids construction disruption to businesses along Westlake Avenue as well as impacts to vehicular traffic and streetcar operations
			  ○ Relocation of underground telecommunications utilities associated with H5 data center would be required
			  ○ Minimum of one year of overall project delay. Multiple construction and schedule risks, including construction adjacent to a future development, crossover construction in a mined cavern, and increased schedule risk associated with third party utility relocation
			• Results in 12 additional residential and 12 fewer business displacements
			• Meets track design requirements for operational resilience and schedule recovery
			• Cost delta compared to realigned financial plan: +$200 million
				Present results to the Board for consideration

Further Study	Study Focus	Elements of Study	Findings (based on conceptual design)	Next Steps
Denny/Terry Station (DT-2) access refinements compared to DT-1	Explore opportunities to provide station access from both sides of Denny Way, improving passenger experience and eliminating the need for passengers to cross Denny Way	• Pedestrian experience • Street ROW effects • Construction effects • Displacements • Cost	It is possible to provide station access on both sides of Denny Way, with these implications: • Shortens walk for passengers transferring to transit lines on Westlake Avenue and eliminates need for passengers to cross Denny Way • Narrows Terry Avenue, reducing local vehicular access but increasing space for people in public realm. Traffic effects are negligible • Reduces property acquisition and relocation of private property infrastructure • Results in no change in displacements compared with South Lake Union Mix-and-Match concept • Cost delta compared to realigned financial plan: +$190 million, with South Lake Union Mix and Match	Present results to the Board for information

Seattle Center Mix-and-Match: Connect South Lake Union/Harrison Station (DT-1) to Seattle Center/Mercer Station (DT-2) to either Prospect or Blaine portal[2] compared to DT-1	Assess feasibility of mix-and-match alignment	• Construction effects:
		  ○ Roadway network
		  ○ Noise and vibration effects to Seattle Center campus facilities
		• Property acquisitions, displacements, and environmental concerns
		• Operational effects
		• Cost
			It is possible to construct this alignment, with these implications:
			• Avoids station construction-related noise and vibration effects to NW Rooms and other Seattle Center facilities
			• Construction effects:
			  ○ Partial closure of Mercer Street for 3.5 years, similar to *6th Avenue/Mercer Street Alternative (DT-2)*
			  ○ Temporary and permanent noise and vibration effects to McCaw Hall and Seattle Opera can be mitigated with standard measures
			• Results in 15 additional residential and 24 additional business displacements. Avoids International Commerce and Industry Building. Avoids permanent park effects to Seattle Center
			• Meets track design requirements for operational resilience and schedule recovery
			• Cost delta compared to realigned financial plan: +$210 million
				Present results to the Board for consideration

Shift Seattle Center Republican Station west compared to DT-1	Assess feasibility of shifting Seattle Center Republican station west	• Construction effects • Property acquisitions, displacements, and environmental concerns • Operational effects • Cost	It is possible to construct this alignment, with these implications: • Avoids station construction-related effects to NW Rooms and other Seattle Center facilities • Adds station construction-related noise and vibration effects to SIFF Cinema Uptown • Temporary tunnel construction and/or permanent light rail operation ground borne noise and vibration effects to SIFF Cinema Uptown, KEXP, Vera Project, SIFF Film Center, and Seattle Repertory Theatre. Permanent effects can be mitigated • Results in eight additional business displacements • Traffic effects due to closures of Republican and north-south streets west of Seattle Center would be negligible. Additional access constraints during construction for properties west of Seattle Center due to extended cut-and-cover construction in Republican Street • Avoids permanent and temporary park effects to Seattle Center. Avoids adversely affecting the historic NW Rooms building • Meets track design requirements for operational resilience and schedule recovery • Cost delta compared to realigned financial plan: +$60 million	Present results to the Board for consideration

[2] Connection to Republican portal not practical due to operational issues

Further Study	Study Focus	Elements of Study	Findings (based on conceptual design)	Next Steps
Midtown Station refinements compared to DT-1	Explore opportunities to reduce station depth and improve passenger access, circulation, and experience	• Connecting to refined 4th Avenue Shallow Station in CID • Shift Station entrance to ROW	• Connecting to a shallower 4th Avenue Shallow Station reduces Midtown Station depth by 55-60 feet to be 140-145 feet deep • Shifting the Midtown Station entrance into the ROW would not reduce the station depth but would allow for escalator access as opposed to elevator only access in the DEIS (does not apply when connected to CID 4th Avenue Shallow)	Present results to the Board for information
Station entrance refinements at Midtown, Denny, and Westlake Stations compared to DT-1	Explore station entrance locations within street ROW at Midtown and Denny stations as potential cost savings opportunity and consolidating station entrances at Westlake station	<u>Midtown Station: Columbia Street ROW</u> • Street ROW effects • Construction effects • Station access and passenger experience • Cost <u>Midtown Station: 4th Avenue Street ROW</u> • Street ROW effects • Construction effects • Property acquisitions, displacements, and environmental concerns • Cost <u>Denny Station: Lenora Street ROW</u> • Street ROW effects • Construction effects • Cost <u>Denny Station: 8th Avenue ROW</u> • Street ROW effects • Cost	<u>Midtown Station: Columbia Street ROW</u> • Results in narrower roadway on Columbia Street, but would not have substantial effect on traffic operations • Reduces risks associated with high rise building modification for station entrance • Results in seven fewer business displacements • Improves station access with addition of escalators instead of elevator only access in DEIS design (does not apply when connected to CID 4th Avenue Shallow) • Increased cost due to revised shaft configuration • Cost delta compared to realigned financial plan: +$30 million <u>Midtown Station: 4th Avenue Street ROW</u> • Results in narrower roadway on 4th Avenue • Reduces 4th Avenue to one lane during construction, causing substantial traffic and mobility effects Avoids property acquisition and risk associated with high rise building modification • Avoids adversely affecting Bank of California Building, which is an historic resource eligible for the National Register • Results in one less business displacement • Cost delta compared to realigned financial plan: -$20 million <u>Denny Station: Lenora Street ROW</u> • Reduces property acquisition and development risk for station entrance • Permanent closure of Lenora Street for half a block east of Westlake Avenue and 8th Avenue, providing potential plaza space • Potential relocation of telecommunication utilities on Lenora Street would introduce a cost and schedule risk • Results in five fewer business displacements • Cost delta compared to realigned financial plan: - $20 million <u>Denny Station: 8th Avenue ROW</u> • Reduces property acquisition and development risk for station entrance • 8th Avenue would be permanently narrowed to one lane and a buffered bike lane north of Westlake with minimal traffic effects • Results in five fewer business displacements • Cost delta compared to realigned financial plan: -$60 million	Present results to the Board for information

Further Study	Study Focus	Elements of Study	Findings (based on conceptual design)	Next Steps
		<u>Westlake Station: Entrance consolidation</u> • Station access and passenger experience • Development potential • Displacements • Construction effects • Cost	<u>Westlake Station: Entrance consolidation</u> • Improved vertical circulation redundancy and ease of transfer between all Link lines • Provides opportunity for integrated joint development • Results in four fewer business displacements • Eliminates 4th Avenue roadway closure • Cost delta compared to realigned financial plan: -$50 million	
Shift north tunnel portal location at Mercer south compared to DT-1	Explore shifting tunnel portal location south to reduce risks associated with steep slopes along Queen Anne hillside and reduce effects to park areas	Analysis performed as part of South Interbay segment station and alignment location options. Refer to those findings below for Modified SIB-3 alignment.		

Further Study	Study Focus	Elements of Study	Findings (based on conceptual design)	Next Steps
South Interbay segment station and alignment location options compared to DT-1	Explore opportunities to address concerns with guideway along Elliott Avenue and potential effects to properties in Interbay	<u>Modified SIB-1 alignment:</u> • Station access and passenger experience • Construction effects • Property acquisitions, displacements, and environmental concerns • Development potential • Operational effects • Cost <u>Modified SIB-3 alignment:</u> • Risk of unstable slope on Queen Anne Hillside <u>Consolidated Alignment:</u> • Concerns with guideway along Elliot Avenue W • Risk of Unstable Slope on Queen Anne Hillside • Seattle City Light (SCL) and Seattle Storm property avoidance • Property acquisitions, displacements, and environmental concerns • Development potential • Construction effects • Station access and passenger experience • Operational effects • Cost	<u>Modified SIB-1 alignment (compared to *Preferred Galer Street Station/Central Interbay Alternative (SIB-1)* connected to *Preferred Tunnel 14th Avenue Alternative (IBB-2a)* or *Preferred Tunnel 15th Avenue Station Option (IBB-2b*)</u> It is possible to shift the Interbay station south to straddle below Dravus Street 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 • Cost delta compared to realigned financial plan: -$30 million <u>Modified SIB-3 alignment</u> • Portal location not practical due to geotechnical/slope stability concerns <u>Consolidated Alignment</u> It is possible to consolidate the Smith Cove and Interbay stations with below grade alignment with these implications: • Avoids Seattle City Light and Seattle Storm properties affected by SIB-1 and *Prospect Street Station/15th Avenue Alternative (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 associated with SIB-2 and *Prospect Street Station/Central Interbay Alternative (SIB-3),* 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 • Cost delta compared to realigned financial plan: +$210 million	Present results to the Board for consideration

Further Study	Study Focus	Elements of Study	Findings (based on conceptual design)	Next Steps
Tunnel 15th Avenue station option refinements compared to *Preferred Tunnel 15th Avenue Station Option (IBB-2a)*	Explore opportunities to improve access and safety to the station, particularly north and south of Market Street as well as cost savings opportunities	<u>Tunnel 15th Avenue DEIS Station Entrance Refinements:</u> • Station access and passenger experience • Construction effects • Property acquisitions and displacements • Development potential Cost <u>Tunnel 15th Avenue Station in ROW:</u> • Station access and passenger experience • Construction effects • Property acquisitions and displacements • Development potential • Cost <u>Tunnel 15th Avenue Entrance North of Market:</u> • Station access and passenger experience • Street ROW effects • Construction effects • Cost	<u>Tunnel 15th Avenue DEIS Station Entrance Refinements:</u> • Reduced access from southeast by eliminating the southern station entrance; smaller west entrance would reduce prominence of the station for passengers coming from downtown Ballard and limit the ability to provide redundant vertical circulation • Reduced construction staging area • Avoids displacement of Safeway grocery store • Reduces opportunities for eTOD by about half • Cost delta compared to realigned financial plan: +$70m (or +$30m with optional smaller west entrance) <u>Tunnel 15th Avenue Station in ROW:</u> • Reduced access from south by eliminating the southern station entrance. Smaller west entrance would reduce prominence of the station for passengers coming from downtown Ballard and limit the ability to provide redundant vertical circulation. Better opportunity to reallocate street space to allow for better multimodal connections • Partial closure of 15th Avenue NW between NW 53rd St and NW 57th St for up to 48 months. Coordination with King County Metro is needed for partial intersection closures that could affect trolley wire routes on Market • Avoids displacement of Safeway grocery store • Reduces opportunities for eTOD by about two-thirds Cost delta compared to realigned financial plan: +$70m (or +$30m with optional smaller west entrance) <u>Tunnel 15th Avenue Entrance North of Market:</u> • Addition of a northern entrance would improve travel time to station, shorten distance for pedestrians crossing 15th Avenue NW, and add access point for passengers • Permanently reduces 15th Avenue Northwest from seven to five lanes • Partial closure of 15th Avenue NW between NW 57th St and NW 53rd St NW for 18-24 months • Coordination with King County Metro is needed for partial intersection closures that could affect trolley wire routes on Market • Cost delta compared to realigned financial plan: +$200 million	Present results to the Board for information
Access refinement to the Tunnel 14th Avenue station option (IBB-2a) compared to IBB-2a	Explore opportunities to improve pedestrian access from Ballard core to the station, particularly across 15th Avenue	• Station access and passenger experience • Traffic effects • Cost effects	• Curb bulb-outs, median islands and underground pedestrian concourse reduce travel time for pedestrians crossing 15th Avenue NW to station entrances. A pedestrian scramble, undercrossing or overcrossing could increase pedestrian travel time across 15th Avenue NW to the station entrance but would reduce pedestrian/vehicle conflict potential • Access improvements would have varying effects on traffic, including up to 2 minutes of additional vehicle delay and possible effects to transit operations • At-grade improvements ($<0.5 to 1 million) are substantially less expensive than grade-separated improvements ($20 to 100 million, plus operations and maintenance and security costs)	Present results to the Board for information

Further Study	Study Focus	Elements of Study	Findings (based on conceptual design)	Next Steps
Shift Tunnel 14th Avenue alignment compared to IBB-2a	Explore moving station out of ROW as cost savings opportunity	• Station access and passenger experience • Property acquisitions and displacements • Development potential • Construction effects • Cost	• Removal of western entrance requires passengers walking from the west to cross 14th Avenue NW • Reduces business displacements by two, including Safeway grocery store • Reduces opportunities for eTOD by about three-fourths • Likely decreases roadway closure length and duration of 14th Avenue NW, but further evaluation needed • Cost delta compared to realigned financial plan: -$140 million	Present results to the Board for information

Individual Studies (Evaluation Criteria)

West Seattle Extension

Study	Feasibility Constructability risk Schedule risk Operational issues Regulatory	Passenger Experience Station depth Transfers Travel time Reliability of vert conv	Ridership, Access, eTOD potential	Future Expansion	Environmental Displacements Construction/Traffic	Equity	ROM Cost (delta compared to realigned financial plan)
Shift Alaska Junction station entrance to 42nd Avenue compared to WSJ-5	• Feasible	• Improved access from west	• 90 additional units of housing with potential TOD • Allows independent private development adjacent to station	• Does not preclude	• 39 fewer residential displacements • 32 additional business displacements	N/A	+$80m
Delridge station access refinements compared to DEL-6	• Feasible	• Provides direct access from bus to rail without any street crossing	N/A	• Does not preclude	• 14 fewer residential • 3 additional business displacements • Additional effects to Longfellow Creek • Additional effects to 100-year floodplain	• Reduces effects to Transitional Resources	+$50m
SODO station access refinements compared to SODO-1a Staggered Configuration	• Feasible	• Improved access from Lander • Less direct access from 4th Ave	N/A	• Does not preclude	• Minimizes property effects west of station	N/A	Similar
Eliminate Avalon Station compared to WSJ-5 connected to DEL-6	• Feasible	• Longer travel times for light rail passengers from area around Avalon Station location	• No expected decrease in ridership • Reduces opportunity for eTOD outside of station area	• Does not preclude	• 48 fewer residential displacements • 3 fewer business displacements • Reduces full and partial roadway closures of 35th Ave and Fauntleroy Way during construction • Avoids permanent closure of Genesee Street at 35th, Andover and 32nd	N/A	-$80m (does not include additional cost of Delridge Station Access Refinements)

Ballard Extension

Study	**Feasibility** Constructability risk Schedule risk Operational issues Regulatory	**Passenger Experience** Station depth Transfers Travel time Reliability of vert conv	**Ridership, Access, eTOD potential**	**Future Expansion**	**Environmental** Displacements Construction/Traffic	**Equity**	**ROM Cost Delta** (compared to realigned financial plan, 2019$)
CID 4th Shallow Refined[3] compared to CID-1a	• Construction risk of BNSF proximity reduced but increases duration of construction by 1 year (to up to 12 years)	N/A	N/A	• Does not preclude	• Reduced duration of 4th Ave partial closure by one year (to 5 years) • Reduced duration of temporary displacement of residents of ICON apartments (from 4 years to two, 2-month periods)	• Vent and emergency egress locations could be located outside of Union Station and plaza area and designed to integrate with area	+$700m
Station South of CID	• Potential conflict with high pressure gas line and planned Seattle City Light high voltage power line on 6th Avenue S (between Seattle Boulevard and Royal Brougham)	• Connections available by 5-minute walk via streets and sidewalks between future 1 Line (Ballard/Tacoma) and 3 Line (Everett/West Seattle) at Stadium Station, and by 10 minute walk between future 1 Line (Ballard/Tacoma) and 2 Line (Mariner/Redmond) at existing station in CID	• Station would be within a 10-minute walk of CID, Lumen Field, T-Mobile Park, and northern CID • Increased potential for eTOD • Allows independent private development adjacent to station • Potential for small reduction in overall daily Link boardings	• Does not preclude	• Closure of 6th Avenue S between Seattle Blvd S and Royal Brougham Way S for 5 to 6 years (currently closed)	• Avoids direct station construction disruption in CID neighborhood	+$80m

[3] Station platform depth can be reduced by 35 feet with increased construction effects and cost; connecting to a shallower CID 4th Avenue Shallow Station reduces Midtown Station depth by about 60 feet to 140 feet.

Study	Feasibility Constructability risk Schedule risk Operational issues Regulatory	Passenger Experience Station depth Transfers Travel time Reliability of vert conv	Ridership, Access, eTOD potential	Future Expansion	Environmental Displacements Construction/Traffic	Equity	ROM Cost Delta (compared to realigned financial plan, 2019$)
Station North of CID	N/A	• Accommodates Link transfers at Pioneer Square • Transfer to Sounder via at-grade walk or transfer to 2/3 Line • Increased transfer time for East Link riders to areas to the south along the 1 Line to Tacoma by 3 min • Less convenient transfer to Jackson Streetcar • Potential to reroute RapidRide G Line to serve station, in coordination with City of Seattle and King County Metro • Potential for greater volume of transfer activity at Westlake Station	• Station would serve CID, Pioneer Square, Colman Dock and south end of Downtown/Midtown Seattle within a 10-minute walk • Increased potential for eTOD • Potential for small reduction in overall daily Link boardings	• Does not preclude • Additional analysis required to determine if North of CID entrances and reconfigured existing Pioneer Square Station entrances could improve ability to accommodate future expansion/increase in ridership	• Full closure of James Street between 3rd and 4th Avenues for four years and a part of Jefferson Street for 6 years • Displacement of King County Administration Building and other historic properties that house social services	• Avoids direct station construction disruption in CID neighborhood	-$360m
Station South of CID and Station North of CID	• Potential conflict with high pressure gas line and planned Seattle City Light high voltage power line on 6th Avenue S	• Accommodates Link transfers at Pioneer Square • Transfer to Sounder via at-grade walk or transfer to 2/3 Line • Increased transfer time for East Link riders to areas to the south along the 1 Line to Tacoma by 3 min • Less convenient transfer to Jackson Streetcar • Potential to reroute RapidRide G Line to serve station, in coordination with City of Seattle and King County Metro • Potential for greater volume of transfer activity at Westlake Station	• Station would serve CID, Pioneer Square, Colman Dock, and south end of Downtown/Midtown Seattle within a 10-minute walk • Increased potential for eTOD • Potential for small reduction in overall daily Link boardings	• Does not preclude • Additional analysis required to determine if North of CID entrances and reconfigured existing Pioneer Square Station entrances could improve ability to accommodate future expansion/increase in ridership	• Full closure of James Street between 3rd and 4th Avenues for four years and a part of Jefferson Street for 6 years • Displacement of King County Administration Building and other historic properties that house social services • Closure of 6th Avenue S between Seattle Blvd S and Royal Brougham Way S for 5-6 years (currently closed)	• Avoids direct station construction disruption in CID neighborhood	+$160m

Study	Feasibility Constructability risk Schedule risk Operational issues Regulatory	Passenger Experience Station depth Transfers Travel time Reliability of vert conv	Ridership, Access, eTOD potential	Future Expansion	Environmental Displacements Construction/Traffic	Equity	ROM Cost Delta (compared to realigned financial plan, 2019$)
South Lake Union Mix-and-Match: Connect Westlake/5th Avenue Station (DT-1) to Denny/Terry Station (DT-2) to South Lake Union/Harrison Station (DT-1) compared to DT-1	• Terry fiber relocation would result in high risk of project delay of at least one year • Narrower ROW and new development on Terry would result in challenging station construction • Crossover in mined cavern increases risk	• Transfers from buses and streetcar on Westlake would be one block further; could be improved by providing access on both sides of Denny • Denny Station would be 25 feet deeper (125') than DT-1 (100')	• Similar ridership with station shift	• Does not preclude	• Avoids Westlake streetcar effects • Additional cut-and-cover construction along Harrison Street at 8th Avenue • 12 additional residential displacements • 12 additional business displacements	N/A	+$200m
Denny/Terry Station (DT-2) access refinements compared to DT-1	• Requires SDOT approval of entrance in ROW	• Shortens walk for passengers transferring to transit lines on Westlake Avenue	• Narrows Terry Avenue, reducing local vehicular access but increasing space for people in public realm	• Does not preclude • Additional analysis required to determine if entrances in street ROW could limit ability to accommodate future expansion/increase in ridership	• Reduces property acquisition and relocation of private property infrastructure	N/A	+$190m (includes SLU mix-match)
Seattle Center Mix-and-Match: Connect South Lake Union/ Harrison Station (DT-1) to Seattle Center/Mercer Station (DT-2) to Prospect or Blaine portal compared to DT-1	• Feasible	N/A	N/A	• Does not preclude	• Partial closure of Mercer Street for 3.5 years, similar to DT-2 • Temporary and permanent noise and vibration effects to McCaw Hall and Seattle Opera can be mitigated with standard measures • 15 additional residential displacements • 24 additional business displacements	N/A	+$210
Station entrance refinement at Midtown south entrance (in Columbia Street ROW) compared to DT-1	• Requires SDOT approval of entrance in ROW • Reduces risks associated with high rise building modification for station entrance	• Improves station access with addition of escalators instead of elevator only access in DEIS design	N/A	• Does not preclude • When connected to CID 4th Avenue Shallow, deeper station is limited in its capacity to accommodate future expansion/ increase in ridership due to elevator-only access	• Results in narrower roadway on Columbia Street, but would not have substantial effect on traffic operations • Reduces property acquisition for station entrance • 7 fewer business displacements	N/A	+$30m

Study	Feasibility Constructability risk Schedule risk Operational issues Regulatory	Passenger Experience Station depth Transfers Travel time Reliability of vert conv	Ridership, Access, eTOD potential	Future Expansion	Environmental Displacements Construction/Traffic	Equity	ROM Cost Delta (compared to realigned financial plan, 2019$)
Station entrance refinement at Midtown north entrance (in 4th Ave ROW) compared to DT-1	• Requires SDOT approval of entrance in ROW • Reduces risks associated with high rise building modification for station entrance	N/A	N/A	• Does not preclude • When connected to CID 4th Avenue Shallow, deeper station is limited in its capacity to accommodate future expansion/ increase in ridership due to elevator-only access • Additional analysis required to determine if entrances in street ROW could limit ability to accommodate future expansion/increase in ridership	• Results in narrower roadway on 4th Avenue • Reduces 4th Avenue to one lane during construction, causing substantial traffic and mobility effects • 1 less business displacement	N/A	-$20m
Station entrance refinement at Westlake station (consolidated headhouse) compared to DT-1	• Feasible	• Improved vertical circulation redundancy and ease of transfer between all Link lines	• Provides opportunity for integrated joint development	• Does not preclude • Additional analysis required to determine if consolidated headhouse could improve ability to accommodate future expansion/increase in ridership	• 4 fewer business displacements • Fewer roadway closures required • 4 fewer business displacements	N/A	-$50m
Station entrance refinement at Denny DT-1 south entrance (in 8th Ave ROW) compared to DT-1	• Requires SDOT approval of entrance in ROW	N/A	• Allows independent private development adjacent to station	• Does not preclude • Additional analysis required to determine if entrances in street ROW could limit ability to accommodate future expansion/increase in ridership	• Reduces property acquisition for station entrance • 8th Avenue would be narrowed to one lane and a buffered bike lane north of Westlake with minimal traffic effects • 5 fewer business displacements	N/A	-$60m
Station entrance refinement at Denny DT-1 south entrance (in Lenora Street ROW) compared to DT-1	• Requires SDOT approval of entrance in ROW	N/A	• Allows independent private development adjacent to station	• Does not preclude • Additional analysis required to determine if entrances in street ROW could limit ability to accommodate future expansion/increase in ridership	• Reduces property acquisition for station entrance • Permanent closure of Lenora Street for half a block east of Westlake Avenue and 8th Avenue, providing potential plaza space • 5 fewer business displacements	N/A	-$20m

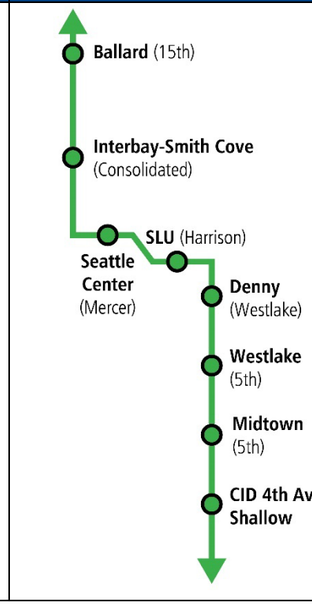
Study	**Feasibility** Constructability risk Schedule risk Operational issues Regulatory	**Passenger Experience** Station depth Transfers Travel time Reliability of vert conv	**Ridership, Access, eTOD potential**	**Future Expansion**	**Environmental** Displacements Construction/Traffic	**Equity**	**ROM Cost Delta** (compared to realigned financial plan, 2019$)
Shift Seattle Center Republican Station west compared to DT-1	• Feasible	N/A	N/A	• Does not preclude	• Avoids permanent and temporary park effects to Seattle Center • Avoids NW Rooms building • Results in 8 additional business displacements • Traffic effects due to closures of Republican and north-south streets west of Seattle Center would be negligible • Additional access constraints during construction for properties west of Seattle Center due to extended cut-and-cover construction in Republican Street • Temporary and permanent noise and vibration effects to Cinema Uptown can be mitigated with standard measures	N/A	+$60m
Shift north tunnel portal location at Mercer south	• Portal location not practical due to geotechnical/slope stability concerns	N/A	N/A	N/A	• N/A	N/A	Not available
South Interbay segment station and alignment location options: **Modified SIB-1 alignment; adjusted Interbay station location** compared to SIB-1 connected to IBB-2a/2b	• Feasible	• Improves passenger access by adding station entrance on both sides of Dravus Street at Interbay station • Allows independent private development adjacent to station	N/A	• Does not preclude	• Avoids Seattle City Light substation and Seattle Storm facility properties • Guideway and station construction requires partial closure of 1-2 lanes of Dravus Street for 18 months • Approximately 20 fewer business displacements	N/A	-$30m

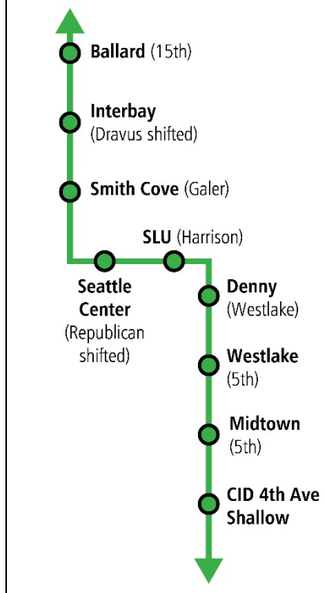
Study	**Feasibility** Constructability risk Schedule risk Operational issues Regulatory	**Passenger Experience** Station depth Transfers Travel time Reliability of vert conv	**Ridership, Access, eTOD potential**	**Future Expansion**	**Environmental** Displacements Construction/Traffic	**Equity**	**ROM Cost Delta** (compared to realigned financial plan, 2019$)
South Interbay segment station and alignment location options: **Modified SIB-3 alignment, adjusted Interbay station location and adjusted Smith Cove station north of Magnolia Bridge** compared to SIB-3 connected to IBB-2a/2b	• Portal location not practical due to geotechnical/slope stability concerns	N/A	N/A	N/A	N/A	N/A	Not available
South Interbay segment station and alignment location options: **Consolidated alignment; Smith Cove and Interbay Station consolidation**	• Potentially reduces or avoids risks to light rail facilities on the Queen Anne hillside anticipated with SIB-1 and SIB-2, subject to ongoing analysis	• Results in a 2,000- to 2,200-foot retained cut within property adjacent to west side of 15th Avenue West; could limit access points to and from future eTOD on surrounding commercial properties • Allows independent private development adjacent to station	• Potential for moderate reduction in daily Link boardings from Draft EIS alternatives	• Does not preclude • Consolidated Smith Cove/Interbay Station can operate as temporary terminus similar to Draft EIS alternatives	• 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 • Approximately 98 fewer residential displacements, 6 to 53 more business displacements, avoids park effects, avoids landfill effects, and avoids conflicts with BNSF Railway compared to SIB-1 • 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	N/A	+$210m

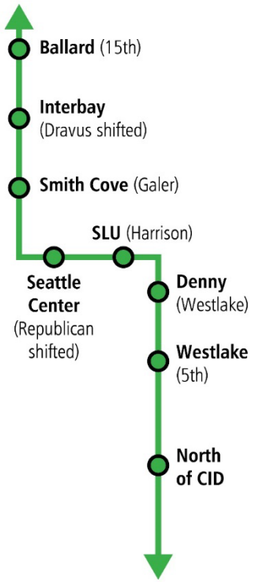
Study	Feasibility Constructability risk Schedule risk Operational issues Regulatory	Passenger Experience Station depth Transfers Travel time Reliability of vert conv	Ridership, Access, eTOD potential	Future Expansion	Environmental Displacements Construction/Traffic	Equity	ROM Cost Delta (compared to realigned financial plan, 2019$)
Tunnel 15th Avenue station access north of Market compared to IBB-2b	• Feasible	N/A	• Addition of northern entrance would improve travel time to station, shorten distance for pedestrians crossing 15th Avenue NW, and eliminate passenger-vehicle interactions crossing Market St.	• Does not preclude	• Permanently reduces 15th Avenue Northwest from seven to five lanes • Partial closure of 15th Avenue NW between NW 57th St and NW 53rd St NW for 18-24 months. Coordination with KC Metro is needed for partial intersection closures that could affect trolley wire routes on Market	N/A	+$200m
Tunnel 15th Avenue station cost savings – DEIS location compared to IBB-2b	• Feasible	• Allows independent private development adjacent to station	• Reduced access from southeast by eliminating the southern station entrance; smaller west entrance would reduce prominence of the station for passengers coming from downtown Ballard and limit the ability to provide redundant vertical circulation • Reduces opportunities for eTOD	• Does not preclude • Additional analysis required to determine if smaller entrance option could limit ability to accommodate future expansion/increase in ridership	• Reduced construction staging area • Avoids displacement of Safeway grocery store	N/A	+$70m (or +$30m with optional smaller west entrance)
Tunnel 15th Avenue station cost savings – station in ROW compared to IBB-2b	• Feasible	• Allows independent private development adjacent to station	• Reduced access from south by eliminating the southern station entrance. Smaller west entrance would reduce prominence of the station for passengers coming from downtown Ballard and limit the ability to provide redundant vertical circulation. Better opportunity to reallocate street space to allow for better multimodal connections • Reduces opportunities for eTOD	• Does not preclude • Additional analysis required to determine if smaller entrance option could limit ability to accommodate future expansion/increase in ridership	• Partial closure of 15th Avenue NW between NW 53rd St and NW 57th St for up to 48 months • Avoids displacement of Safeway grocery store	N/A	+$70m (or +$30m with optional smaller west entrance)

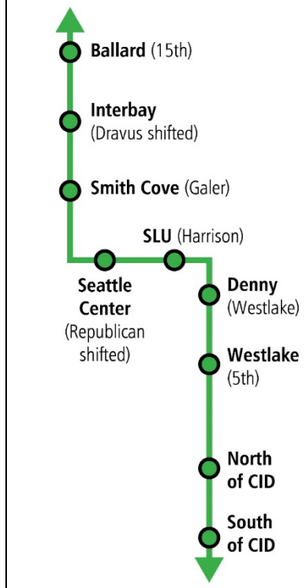
Study	**Feasibility** Constructability risk Schedule risk Operational issues Regulatory	**Passenger Experience** Station depth Transfers Travel time Reliability of vert conv	**Ridership, Access, eTOD potential**	**Future Expansion**	**Environmental** Displacements Construction/Traffic	**Equity**	**ROM Cost Delta** (compared to realigned financial plan, 2019$)
Access refinement to the Tunnel 14th Avenue station option (IBB-2a) compared to IBB-2a	• Feasible	• N/A	• Curb bulb-outs, median islands and underground pedestrian concourse reduce travel time for pedestrians crossing 15th Avenue NW to station entrances. A pedestrian scramble, undercrossing or overcrossing could increase pedestrian travel time across 15th Avenue NW to the station entrance but would reduce pedestrian/vehicle conflict potential	• Does not preclude	• Access improvements would have varying effects on traffic, including up to 2 minutes of additional vehicle delay and effects to transit operations	N/A	• +$0.5- $1m for at-grade improvements • $20m – $100m for grade-separated improvements • Operations and maintenance and security costs not included in above numbers
Shift Tunnel 14th Avenue alignment compared to IBB-2a	• Feasible	• Allows independent private development adjacent to station	• Removal of western entrance requires passengers walking from the west to cross 14th Avenue • Reduces opportunities for eTOD	• Does not preclude	• Reduces business displacements by two, including Safeway grocery store. • Likely decreases roadway closure length and duration of 14th Avenue NW, but further evaluation needed	N/A	-$140m

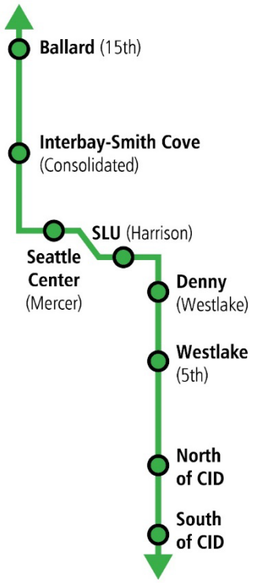
End-to-End Scenarios (Evaluation Criteria)

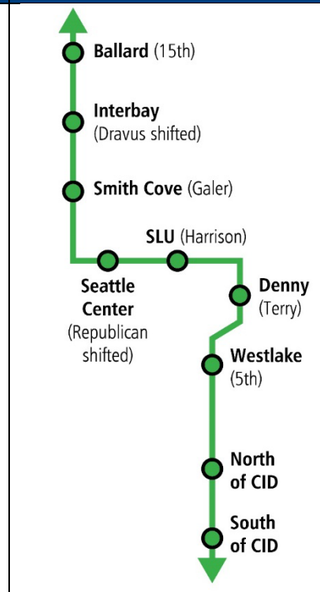
Scenario	**Map**	**Feasibility** Constructability risk Schedule risk Operational issues Regulatory	**Passenger Experience** Station depth Transfers Travel time Reliability of vertical conveyance	**Ridership, Access, eTOD potential**	**Future Expansion**	**Environmental** Displacements Construction/Traffic	**Equity**	**ROM Cost Delta** (compared to realigned financial plan, 2019$)
A. • **Ballard (15th)** • **Interbay-Smith Cove (Consolidated)** • **Seattle Center (Mercer)** • **SLU (Harrison)** • **Denny (Westlake)** • **Westlake (5th)** • **Midtown (5th)** • **CID 4th Ave Shallow**		• CID 4th Ave Shallow schedule risk	• Improved vertical circulation redundancy at Westlake Station • Deep Midtown Station with elevator only access (about 195- 205 feet deep)	• Improved access to Ballard core • Consolidates Smith Cove and Interbay stations • Potential for moderate reduction in daily Link boardings related to consolidating Interbay and Smith Cove stations	• Consolidated Westlake headhouse could improve ability to accommodate future expansion/increase in ridership • Entrances in street ROW could limit ability to accommodate future expansion/increase in ridership	• Eliminates park/open space effects in Interbay • 15th Avenue W traffic effects • Avoids temporary and permanent park effects at Seattle Center • Mercer Street traffic effects • Streetcar effects on Westlake Avenue • Detour of approximately 15,000 average daily traffic from 4th Ave S	• 4th Ave S construction traffic detour effects in CID	+$1,300m

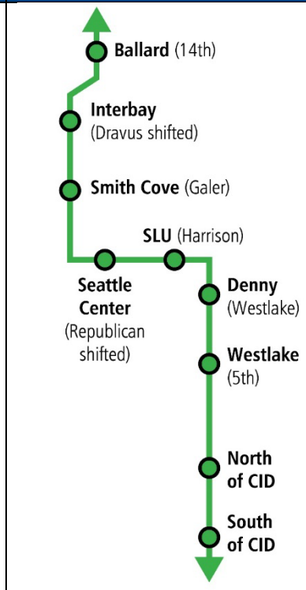
Scenario	Map	**Feasibility** Constructability risk Schedule risk Operational issues Regulatory	**Passenger Experience** Station depth Transfers Travel time Reliability of vertical conveyance	**Ridership, Access, eTOD potential**	**Future Expansion**	**Environmental** Displacements Construction/Traffic	**Equity**	**ROM Cost Delta** (compared to realigned financial plan, 2019$)
B. • **Ballard (15th)** • **Interbay (Dravus shifted)** • **Smith Cove (Galer)** • **Seattle Center (Republican shifted)** • **SLU (Harrison)** • **Denny (Westlake)** • **Westlake (5th)** • **Midtown (5th)** • **CID 4th Ave Shallow**		• CID 4th Ave Shallow schedule risk	• Improved vertical circulation redundancy at Westlake Station • Deep Midtown Station with elevator only access (about 195- 205 feet deep)	• Improved access to Ballard core • Similar overall ridership	• Consolidated Westlake headhouse could improve ability to accommodate future expansion/increase in ridership • Entrances in street ROW could limit ability to accommodate future expansion/increase in ridership	• Dravus Street traffic effects • 15th Avenue W traffic effects • Elliott Avenue traffic effects • Avoids temporary and permanent park effects at Seattle Center • Streetcar effects on Westlake Avenue • Detour of approximately 15,000 average daily traffic from 4th Ave S	• 4th Ave S construction traffic detour effects in CID	+$900m

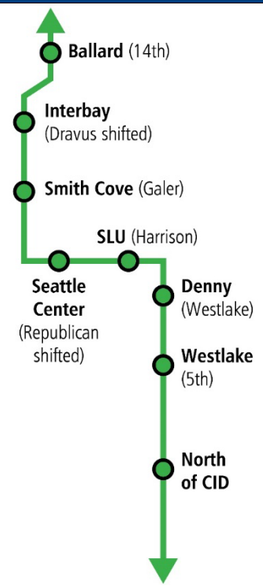
Scenario	Map	**Feasibility** Constructability risk Schedule risk Operational issues Regulatory	**Passenger Experience** Station depth Transfers Travel time Reliability of vertical conveyance	**Ridership, Access, eTOD potential**	**Future Expansion**	**Environmental** Displacements Construction/Traffic	**Equity**	**ROM Cost Delta** (compared to realigned financial plan, 2019$)
C. • **Ballard (15th)** • **Interbay (Dravus shifted)** • **Smith Cove (Galer)** • **Seattle Center (Republican shifted)** • **SLU (Harrison)** • **Denny (Westlake)** • **Westlake (5th)** • **North of CID**		• N/A	• Improved vertical circulation redundancy at Westlake Station • Station North of CID 50-80 feet shallower than Midtown • Improved transfer experience at Pioneer Square Station compared with CID • Increased transfer time to Sounder (12 min from station North of CID) • Increased transfer time for East Link riders to areas to the south along the 1 Line to Tacoma by 3 min • Potential for greater volume of transfer activity at Westlake Station • Less convenient transfer to Jackson Streetcar • Potential to reroute RapidRide G Line to serve station, in coordination with City of Seattle and King County Metro	• Improved access to Ballard core • Consolidates stations in CID and Midtown • Increased potential for eTOD at station North of CID over DEIS alternatives • Station North of CID serves CID, Pioneer Square, and south end of downtown/midtown within a 10-minute walk • Potential for small reduction in overall daily Link boardings due to station North of CID	• Consolidated Westlake headhouse, North of CID entrances, and reconfigured existing Pioneer Square Station entrances could improve ability to accommodate future expansion/increase in ridership • Entrances in street ROW could limit ability to accommodate future expansion/increase in ridership	• Dravus Street traffic effects • 15th Avenue W traffic effects • Elliott Avenue traffic effects • Avoids temporary and permanent park effects at Seattle Center • Streetcar effects on Westlake Avenue • Social services displacement with station North of CID	• Avoids direct displacements in CID neighborhood due to station construction • Construction truck traffic would use main arterials	-$300m

Scenario	Map	**Feasibility** Constructability risk Schedule risk Operational issues Regulatory	**Passenger Experience** Station depth Transfers Travel time Reliability of vertical conveyance	**Ridership, Access, eTOD potential**	**Future Expansion**	**Environmental** Displacements Construction/Traffic	**Equity**	**ROM Cost Delta** (compared to realigned financial plan, 2019$)
D. • **Ballard (15th)** • **Interbay (Dravus shifted)** • **Smith Cove (Galer)** • **Seattle Center (Republican shifted)** • **SLU (Harrison)** • **Denny (Westlake)** • **Westlake (5th)** • **North of CID** • **South of CID**		• N/A	• Improved vertical circulation redundancy at Westlake Station • Station North of CID 50-80 feet shallower than Midtown • Improved transfer experience at Pioneer Square Station compared with CID • Increased transfer time to Sounder • Increased transfer time for East Link riders to areas to the south along the 1 Line to Tacoma by 3 min • Potential for greater volume of transfer activity at Westlake Station • Less convenient transfer to Jackson Streetcar • Potential to reroute RapidRide G Line to serve station, in coordination with City of Seattle and King County Metro	• Improved access to Ballard core • Increased potential for eTOD at station North of CID station over DEIS alternatives • Opportunity for eTOD and/or Joint Development at station South of CID • Station North of CID serves CID, Pioneer Square, and south end of downtown/midtown within a 10-minute walk • Station South of CID serves CID, Lumen Field/T-Mobile Park, and northern SODO within a 10-minute walk • Potential for small reduction in overall daily Link boardings due to stations North of CID and South of CID	• Consolidated Westlake headhouse, North of CID entrances, and reconfigured existing Pioneer Square Station entrances could improve ability to accommodate future expansion/increase in ridership • Entrances in street ROW could limit ability to accommodate future expansion/increase in ridership	• Dravus Street traffic effects • 15th Avenue W traffic effects • Elliott Avenue traffic effects • Avoids temporary and permanent park effects at Seattle Center • Streetcar effects on Westlake Avenue • Social services displacement with station North of CID	• Avoids direct displacements in CID neighborhood due to station construction • Construction truck traffic would use main arterials	+$200m

Scenario	Map	Feasibility Constructability risk Schedule risk Operational issues Regulatory	Passenger Experience Station depth Transfers Travel time Reliability of vertical conveyance	Ridership, Access, eTOD potential	Future Expansion	Environmental Displacements Construction/Traffic	Equity	ROM Cost Delta (compared to realigned financial plan, 2019$)
E. • **Ballard (15th)** • **Interbay-Smith Cove (Consolidated)** • **Seattle Center (Mercer)** • **SLU (Harrison)** • **Denny (Westlake)** • **Westlake (5th)** • **North of CID** • **South of CID**		• N/A	• Improved vertical circulation redundancy at Westlake Station • Station North of CID 50-80 feet shallower than Midtown • Improved transfer experience at Pioneer Square Station compared with CID • Increased transfer time to Sounder • Increased transfer time for East Link riders to areas to the south along the 1 Line to Tacoma by 3 min • Less convenient transfer to Jackson Streetcar • Potential to reroute RapidRide G Line to serve station, in coordination with City of Seattle and King County Metro	• Improved access to Ballard core • Consolidates Smith Cove and Interbay stations • Potential for moderate reduction in daily Link boardings related to consolidating Interbay and Smith Cove stations • Potential for greater volume of transfer activity at Westlake Station • Shifts Midtown Station location • Shifts station in CID location • Station North of CID serves CID, Pioneer Square, and south end of downtown/midtown within a 10-minute walk • South of CID serves CID, Lumen Field/T-Mobile Park, and northern SODO within a 10-minute walk • Potential for small drop of overall daily Link boardings due to North of CID and South locations	• Consolidated Westlake headhouse, North of CID entrances, and reconfigured existing Pioneer Square Station entrances could improve ability to accommodate future expansion/increase in ridership • Entrances in street ROW could limit ability to accommodate future expansion/increase in ridership	• Eliminates park/open space effects in Interbay • 15th Avenue W traffic effects • Avoids temporary and permanent park effects at Seattle Center • Mercer Street traffic effects • Streetcar effects on Westlake Avenue • Social services displacement with station North of CID	• Avoids direct displacements in CID neighborhood due to station construction • Construction truck traffic would use main arterials	+$600m

Scenario	Map	**Feasibility** Constructability risk Schedule risk Operational issues Regulatory	**Passenger Experience** Station depth Transfers Travel time Reliability of vertical conveyance	**Ridership, Access, eTOD potential**	**Future Expansion**	**Environmental** Displacements Construction/Traffic	**Equity**	**ROM Cost Delta** (compared to realigned financial plan, 2019$)
F. • **Ballard (15th)** • **Interbay (Dravus shifted)** • **Smith Cove (Galer)** • **Seattle Center (Republican shifted)** • **SLU (Harrison)** • **Denny (Terry)** • **Westlake (5th)** • **North of CID** • **South of CID**		• Terry fiber relocation schedule risk	• Less convenient transfers between Denny/Terry station and buses and streetcar at Denny/Westlake • Improved vertical circulation redundancy at Westlake Station • Station North of CID 50-80 feet shallower than Midtown • Improved transfer experience at Pioneer Square Station compared with CID • Increased transfer time to Sounder • Increased transfer time for East Link riders to areas to the south along the 1 Line to Tacoma by 3 min • Less convenient transfer to Jackson Streetcar • Potential to reroute RapidRide G Line to serve station, in coordination with City of Seattle and King County Metro	• Improved access to Ballard core • Steep slope pedestrian access to Denny Station • Potential for small shift in daily boardings from Denny Station to Westlake Station • Potential for greater volume of transfer activity at Westlake Station • Shifts Midtown Station location • Shifts station in CID location • Station North of CID serves CID, Pioneer Square, and south end of downtown/midtown within a 10-minute walk • Station South of CID serves CID, Lumen Field/T-Mobile Park, and northern SODO within a 10-minute walk • Potential for small reduction in overall daily Link boardings due to stations North of CID and South of CID	• Consolidated Westlake headhouse, North of CID entrances, and reconfigured existing Pioneer Square Station entrances could improve ability to accommodate future expansion/increase in ridership • Entrances in street ROW could limit ability to accommodate future expansion/increase in ridership	• Dravus Street traffic effects • 15th Avenue W traffic effects • Elliott Street traffic effects • Avoids temporary and permanent park effects at Seattle Center • Social services displacement with station North of CID	• Avoids direct displacements in CID neighborhood due to station construction • Construction truck traffic would use main arterials	+$400m

Scenario	Map	**Feasibility** Constructability risk Schedule risk Operational issues Regulatory	**Passenger Experience** Station depth Transfers Travel time Reliability of vertical conveyance	**Ridership, Access, eTOD potential**	**Future Expansion**	**Environmental** Displacements Construction/Traffic	**Equity**	**ROM Cost Delta** (compared to realigned financial plan, 2019$)
G. • **Ballard (14th)** • **Interbay (Dravus shifted)** • **Smith Cove (Galer)** • **Seattle Center (Republican shifted)** • **SLU (Harrison)** • **Denny (Westlake)** • **Westlake (5th)** • **North of CID** • **South of CID**		• N/A	• Improved vertical circulation redundancy at Westlake Station • Station North of CID 50-80 feet shallower than Midtown • Improved transfer experience at Pioneer Square Station compared with CID • Increased transfer time to Sounder • Increased transfer time for East Link riders to areas to the south along the 1 Line to Tacoma by 3 min • Less convenient transfer to Jackson Streetcar • Potential to reroute RapidRide G Line to serve station, in coordination with City of Seattle and King County Metro	• Potential for greater volume of transfer activity at Westlake Station • Shifts Midtown Station location • Shifts CID Station location • Station North of CID serves CID, Pioneer Square, and south end of downtown/midtown within a 10-minute walk • Station South of CID serves CID, Lumen Field/T-Mobile Park, and northern SODO within a 10-minute walk • Potential for small reduction in overall daily Link boardings due to stations North of CID and South of CID	• Consolidated Westlake headhouse, North of CID entrances, and reconfigured existing Pioneer Square Station entrances could improve ability to accommodate future expansion/increase in ridership • Entrances in street ROW could limit ability to accommodate future expansion/increase in ridership	• Streetcar effects on Westlake Avenue • Avoids temporary and permanent park effects at Seattle Center • Elliott Street traffic effects • Dravus Street traffic effects • Social services displacement with station North of CID	• Avoids direct displacements in CID neighborhood due to station construction • Construction truck traffic would use main arterials	+$100m

Scenario	Map	**Feasibility** Constructability risk Schedule risk Operational issues Regulatory	**Passenger Experience** Station depth Transfers Travel time Reliability of vertical conveyance	**Ridership, Access, eTOD potential**	**Future Expansion**	**Environmental** Displacements Construction/Traffic	**Equity**	**ROM Cost Delta** (compared to realigned financial plan, 2019$)
H. • **Ballard (14th)** • **Interbay (Dravus shifted)** • **Smith Cove (Galer)** • **Seattle Center (Republican shifted)** • **SLU (Harrison)** • **Denny (Westlake)** • **Westlake (5th)** • **North of CID**		• N/A	• Improved vertical circulation redundancy at Westlake Station • Station North of CID 50-80 feet shallower than Midtown • Improved transfer experience at Pioneer Square Station compared with CID • Increased transfer time to Sounder (12 min from station North of CID) • Increased transfer time for East Link riders to areas to the south along the 1 Line to Tacoma by 3 min • Potential for greater volume of transfer activity at Westlake Station • Less convenient transfer to Jackson Streetcar • Potential to reroute RapidRide G Line to serve station, in coordination with City of Seattle and King County Metro	• Consolidates CID and Midtown stations • Station North of CID serves CID, Pioneer Square, and south end of downtown/midtown within a 10-minute walk • Potential for small reduction in overall daily Link boardings due to station North of CID	• Consolidated Westlake headhouse, North of CID entrances, and reconfigured existing Pioneer Square Station entrances could improve ability to accommodate future expansion/increase in ridership • Entrances in street ROW could limit ability to accommodate future expansion/increase in ridership	• Dravus Street traffic effects • Elliott Street traffic effects • Avoids temporary and permanent park effects at Seattle Center • Streetcar effects on Westlake Avenue • Social services displacement with station North of CID	• Avoids direct displacements in CID neighborhood due to station construction • Construction truck traffic would use main arterials	-$400m