Appendix L4.2 Land Use

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Appendix L4.2 Land Use

L4.2.1 Land Conversion to Transportation Use

Tables 4.2.2.-1 through 4.2.2-4 in Section 4.2.2, Land Use, and Tables 4.3.2-1 through 4.3.2-5 in Section 4.3.2, Land Use, of the Draft Environmental Impact Statement summarize the estimated acres of land that would be converted by the West Seattle and Ballard Link Extensions (WSBLE) Project to a transportation-related use by alternative. Changes in the land use conversion amounts associated with station and alignment options are shown as an increase or decrease relative to each Build Alternative. The totals represent the amount of property that would be permanently converted outside of existing transportation rights-of-way. Figures L4.2-1 through L4.2-4 show existing land uses and zoning around the WSBLE Build Alternatives.

L4.2.2 Land Use Plans, Goals, and Policies

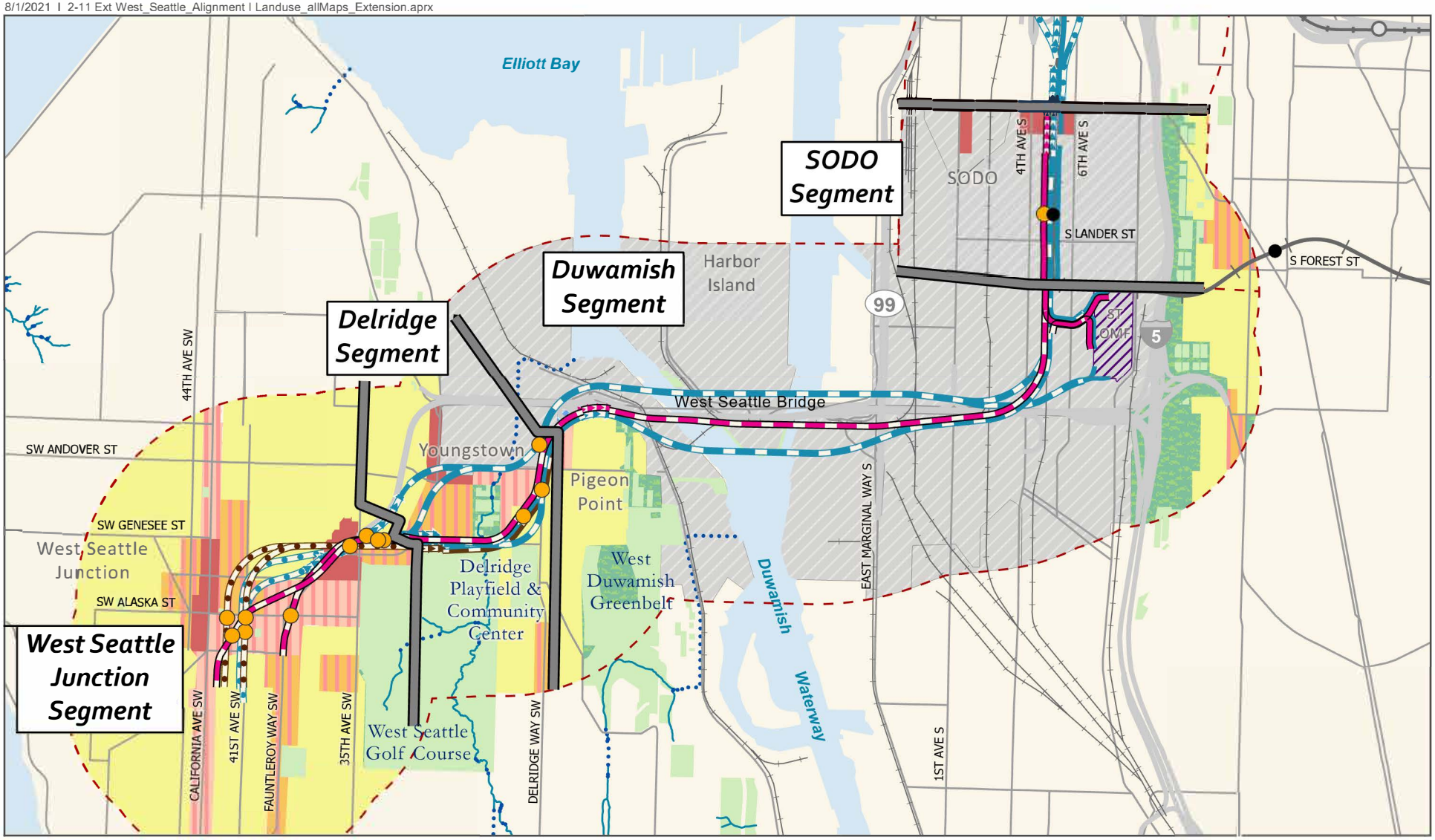
Sound Transit is the Regional Transit Authority for the central Puget Sound region (Revised Code of Washington Chapters 81.104 and 81.112). WSBLE is part of the Sound Transit 3 plan that voters approved in 2016. Sound Transit 3 aims to complete major mass transit extensions over a 25-year period in the Puget Sound region.

Sound Transit has reviewed applicable regional, state, and local plans for goals and/or policies pertinent to the WSBLE. The following sections summarize applicable plans and the consistency of the WSBLE Project with each of them. Tables L4.2-1 through L4.2-4 in Section L4.2.21, Project Consistency with Specific Regional and Local Goals and Policies, provide information on specific goals and policies and the project's consistency with each of them. The WSBLE Build Alternatives are consistent with plans and policies that cover the study area. In addition to the goals and policies identified, the WSBLE Project would also comply with applicable federal, state, and local permits and approvals.

L4.2.3 Regional and State Land Use Plans

Regional and state planning documents establish the framework for local land use and transportation programs and plans. The subsections below provide an overview of each document as follows:

- Washington State Growth Management Act (1990, as amended).
- Puget Sound Regional Council's VISION 2050 (2020), *Transportation 2040* (2010), *Regional Transportation Plan - 2018* (2018), and *Growing Transit Communities Strategy* (2013).
- *Port of Seattle 2018-2022 Long Range Plan* (Port of Seattle 2017a).
- Sound Transit's *Regional Transit Long-Range Plan* (2014a); *Transit-Oriented Development (TOD) Program: Strategic Plan Update* (2014b) and *Adopting an Equitable Transit Oriented Development Policy* (2018); *Sound Transit 3 Regional Transit System Plan for Central Puget Sound* (2016); *Real Property Excess, Surplus, and Disposition Policy* (2013).
- *King County Comprehensive Plan.* Updated July 24, 2020 (King County 2020).



Source: City of Seattle, King County (2019, 2020, 2021).

Alternatives
- Preferred Alternative
- Preferred Alternative with Third-party Funding
- Other Alternatives

Alternative Profile
- Elevated
- Tunnel
- At-Grade
- Retained Cut

Station
- New
- Existing

- Segment Line
- Sound Transit Operations and Maintenance Facility (ST OMF)
- Existing Link Light Rail
- East Link Light Rail (Under Construction)
- Railroad
- Stream
- Piped Stream
- Park

- Study Area

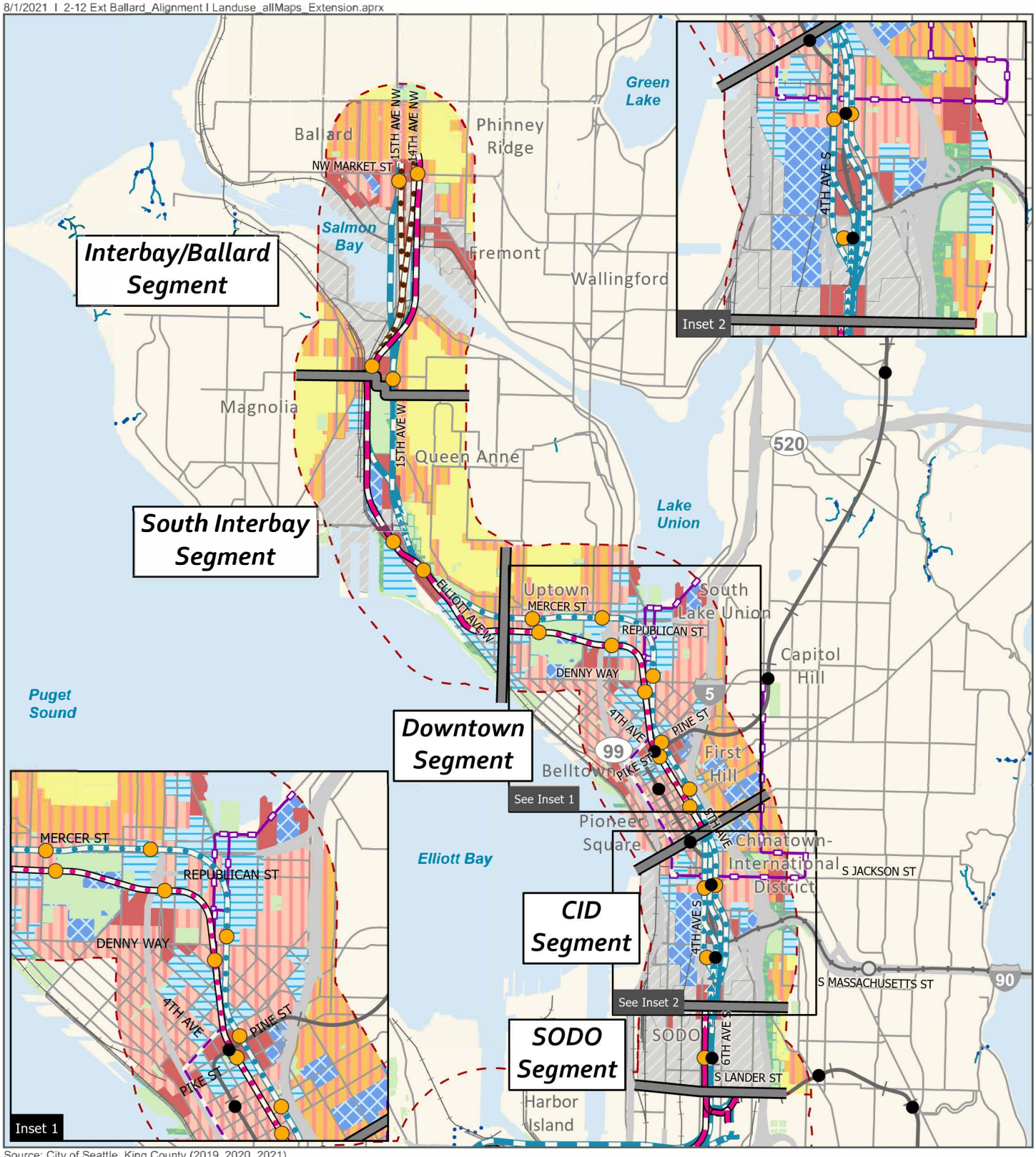
Existing Land Use
- Commercial
- Industrial
- Institutional/Public
- Mixed Use
- Multi-Family Residential
- City-Owned Open Space
- Single-Family Residential

0 0.5 1 Mile

N

FIGURE L4.2-1
Existing Land Use
West Seattle Link Extension

West Seattle and Ballard Link Extensions



Source: City of Seattle, King County (2019, 2020, 2021).

Alternatives
- Preferred Alternative
- Preferred Alternative with Third-party Funding
- Other Alternatives

Alternative Profile
- Elevated
- Tunnel
- At-Grade
- Retained Cut

Station
- New
- Existing

- Segment Line
- Existing Link Light Rail
- East Link Light Rail (Under Construction)
- Existing Streetcar
- Center City Connector Streetcar (Construction Paused)
- Railroad
- Stream
- Piped Stream
- Park
- Study Area

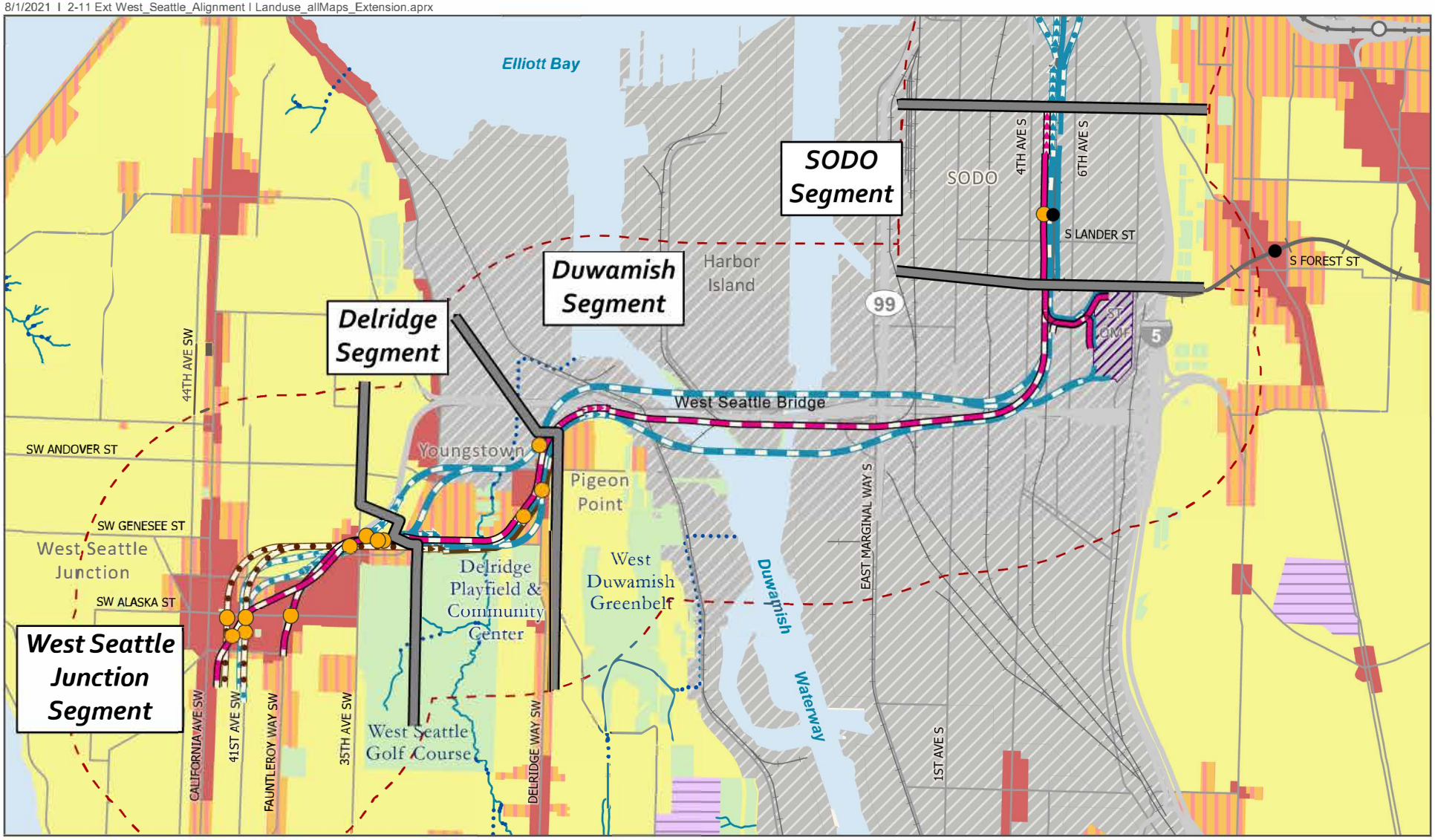
Existing Land Use
- Commercial
- Industrial
- Institutional/Public
- Mixed Use
- Multi-Family Residential
- Office
- City-Owned Open Space
- Single-Family Residential

0 0.5 1 Mile

N

FIGURE L4.2-2
Existing Land Use
Ballard Link Extension

West Seattle and Ballard Link Extensions



Source: City of Seattle, King County (2019, 2020, 2021).

Alternatives
- Preferred Alternative
- Preferred Alternative with Third-party Funding
- Other Alternatives

Alternative Profile
- Elevated
- Tunnel
- At-Grade
- Retained Cut

Station
- New
- Existing

- Segment Line
- Sound Transit Operations and Maintenance Facility (ST OMF)
- Existing Link Light Rail
- East Link Light Rail (Under Construction)
- Railroad
- Stream
- Piped Stream
- Park

- Study Area

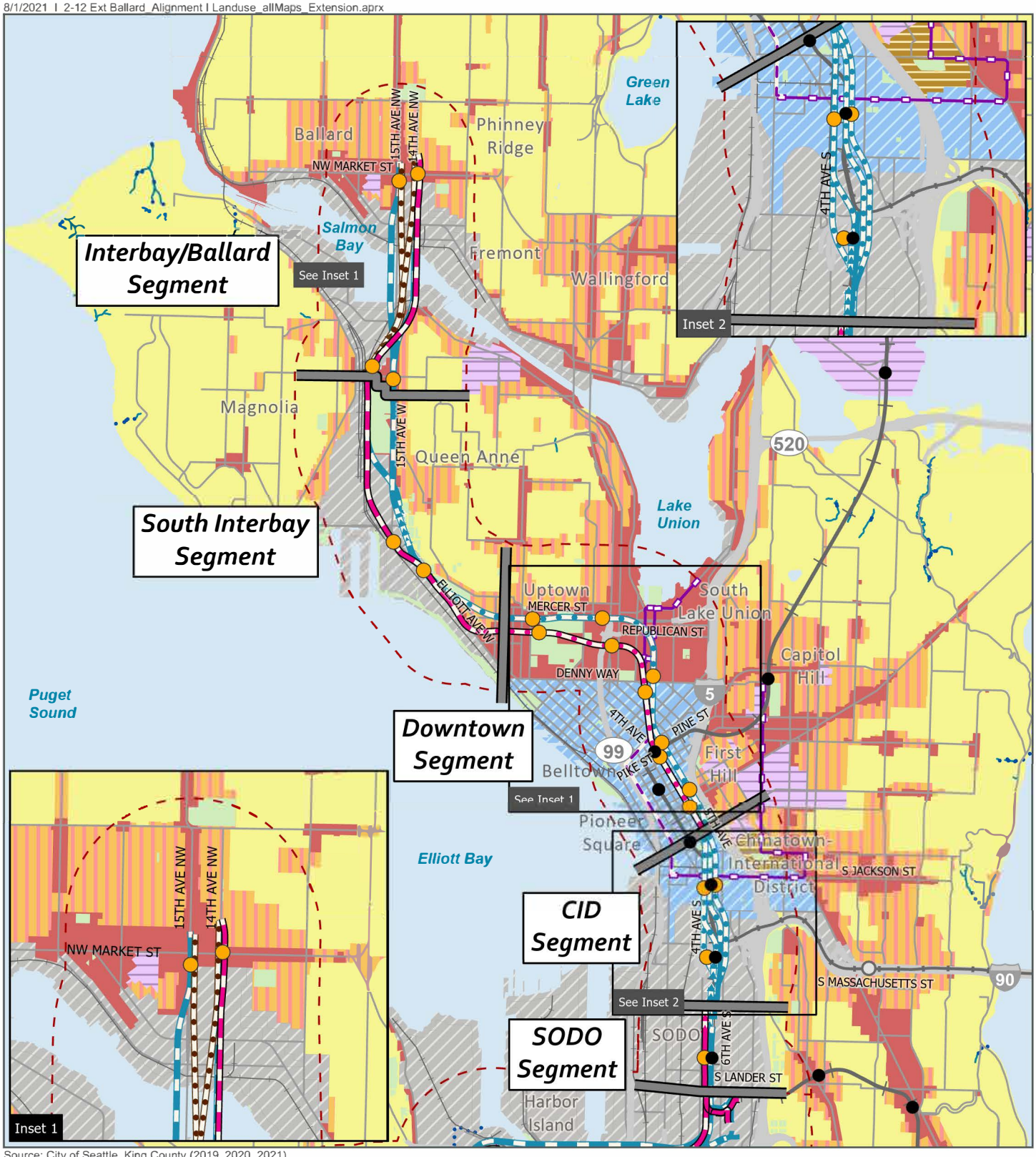
City of Seattle Zoning
- Commercial/Mixed Use
- Major Institutions
- Manufacturing/Industrial
- Multi-Family
- Single Family

FIGURE L4.2-3
City of Seattle Zoning
West Seattle Link Extension

West Seattle and Ballard Link Extensions

0 0.5 1 Mile

N



Source: City of Seattle, King County (2019, 2020, 2021).

Alternatives
- Preferred Alternative
- Preferred Alternative with Third-party Funding
- Other Alternatives

Alternative Profile
- Elevated
- Tunnel
- At-Grade
- Retained Cut

Station
- New
- Existing

- Segment Line
- Existing Link Light Rail
- East Link Light Rail (Under Construction)
- Existing Streetcar
- Center City Connector Streetcar (Construction Paused)
- Railroad
- Stream
- Piped Stream
- Park
- Study Area

City of Seattle Zoning
- Commercial/ Mixed Use
- Downtown
- Major Institutions
- Manufacturing/ Industrial
- Master Planned Community
- Multi-Family
- Single Family

FIGURE L4.2-4
City of Seattle Zoning
Ballard Link Extension

West Seattle and Ballard Link Extensions

0 0.5 1 Mile

N

L4.2.3.1 Washington State Growth Management Act

Plan Summary

The Growth Management Act, codified at Revised Code of Washington Chapter 36.70A, was adopted in 1990 to provide a framework for managing growth and coordinating land use development with construction of transportation facilities and other infrastructure. Consistency with the Growth Management Act is required for local, county, and regional plans. The overarching goal of the Growth Management Act is to focus development in urban areas that have adequate public facilities and services, while encouraging an efficient, multi-modal transportation system based on regional priorities and coordinated with comprehensive plans.

Local governments are required to develop and adopt growth management policies, plans, and regulations that are consistent with the Growth Management Act. Comprehensive plans require elements that address land use, housing, capital facilities, utilities, rural lands (counties only), and transportation. Coordination and consistency between the transportation and land use elements is a requirement and key component of the Growth Management Act. The Growth Management Act also requires cities and counties to establish a process in their comprehensive plans to make provisions for siting essential public facilities, such as state and regional transportation or transit facilities. The City of Seattle plans for land development by focusing growth within designated growth centers and making roadway and transit improvements to help meet increasing transportation demands.

Project Consistency

The WSBLE Project would connect major residential, employment, and retail centers throughout Seattle and comply with applicable City adopted comprehensive plans and regulations. The project would further the goals of the Growth Management Act by creating a consistent, safe, and effective alternative to single-occupant vehicle transportation within the city (and region); encourage growth within the urban areas surrounding new stations; and reduce sprawl and congestion. The project would be considered an essential public facility, and as such, under the Growth Management Act, the City of Seattle would have a “duty to accommodate” the light rail project’s final alignment and station locations in any existing or future land use plans.

L4.2.3.2 Puget Sound Regional Council VISION 2050

Plan Summary

Puget Sound Regional Council adopted VISION 2050 in 2020 to serve as the regional long-range growth strategy for the four-county area served by Puget Sound Regional Council (King County, Snohomish County, Kitsap County, and Pierce County). VISION 2050 is integrated with and supported by the Growth Management Act, and it contains regional planning policies that supply local framework for county and city comprehensive plans to help the region grow in a more sustainable and socially equitable manner. Multi-county planning policies and actions fall within nine elements: Regional Collaboration, Regional Growth Strategy, Environment, Climate Change, Development Patterns, Housing, Economy, Transportation, and Public Services.

VISION 2050 offers regional framework and direction for making local decisions to guide distributions of population and employment growth as well as environmental health. The regional growth strategy focuses most of the region’s housing and employment growth into cities and regional growth centers, creating walkable, compact, and transit-oriented communities. Areas within the city of Seattle are identified as regional growth centers.

Project Consistency

VISION 2050 identifies Seattle as a "Core City," which is a focal point of growth and development, specifically centered around transit stations. Development of the WSBLE would provide high-capacity transit in the core city of Seattle consistent with VISION 2050's plan. VISION 2050 prioritizes sustainable transportation projects and services that produce greater efficiency, reduce trips and greenhouse gas emissions, and provide more transportation choices. It has a goal for 65 percent of the region's population and 75 percent of the region's employment to occur in regional growth centers and within walking distance of transit. VISION 2050 also calls for reducing greenhouse gas by investing in multi-modal transportation improvements, including light rail, to create a transit network as identified in the Regional Transportation Plan, which includes the WSBLE. Relevant policies and project consistencies are summarized in Table L4.2-1.

L4.2.3.3 Puget Sound Regional Council Regional Transportation Plan

Plan Summary

Puget Sound Regional Council adopted *Transportation 2040* (the Regional Transportation Plan) in 2010 and an updated plan called *The Regional Transportation Plan - 2018* in 2018. *The Regional Transportation Plan - 2018* is the current long-range plan for transportation in the central Puget Sound region through 2040, and it is the transportation element of VISION 2040. The plan comprehensively describes how the region will meet transportation needs and implement VISION 2040 to meet anticipated growth in the central Puget Sound region. The plan focuses on specific projects to improve roadways and create walkable and bikeable neighborhoods well connected by transit to job centers. Puget Sound Regional Council is developing the next plan, *Regional Transportation Plan – 2022,* which will respond to priorities and strategies identified in VISION 2050.

Project Consistency

Puget Sound Regional Council's Regional Transportation Plan identifies WSBLE as part of the region's future integrated transit network and highlights its role in supporting equitable access to opportunity, reliable regional connections, and catalyzing economic and TOD within the region.

L4.2.3.4 Puget Sound Regional Council Growing Transit Communities Strategy

Plan Summary

The Growing Transit Communities Strategy, developed in 2013, supports the regional long range growth strategy by providing an implementation plan to promote equitable transit communities within the central Puget Sound region. Based on consensus-driven and corridor-based planning analysis and stakeholder engagement, the strategy identifies the tools and resources necessary to attract growth to the region's transit station areas, implement regional and local plans, and build prosperous and sustainable communities. The strategy addresses the challenges associated with living and working in walkable, transit-served communities; housing choices for low- and moderate-income households near transit; and equitable access to opportunity for all residents within the region by creating a 24-step toolkit of strategies and actions. Several of the strategies within the toolkit relate directly to transit, including:

- Establishing a regional program to support thriving and equitable transit communities.
- Conducting station area planning.

- Using land efficiently in transit communities.
- Supporting TOD.
- Investing in infrastructure.
- Assessing housing needs in transit communities.
- Minimizing displacement.
- Increasing housing support in transit-dependent populations.
- Investing in equitable mobility options.
- Investing in public safety in transit communities.

Project Consistency

The WSBLE Project would support the strategy's main goal of growing transit communities within the central Puget Sound region by establishing equitable transit options, building partnerships and promoting collaboration, and effectively engaging with community stakeholders. WSBLE would support concentrating residential and employment growth in identified growth areas.

L4.2.3.5 Port of Seattle 2018–2022 Long Range Plan

Plan Summary

The Port of Seattle's Long-Range Plan (Port of Seattle 2017a) provides strategies and objectives to effectively and transparently improve the Port's ability to support the local economy through job creation, while addressing environmental opportunities and social responsibility of all of its stakeholders. The plan focuses on two strategies, the Century Agenda and the High-Performance Organization. The Century Agenda focuses on external growth by efficiently moving increasing amounts of cargo and people, further developing community engagement, and excelling in environmental stewardship. The High-Performance Organization strategy focuses on operations excellence, organizational alignment, and people-centric organization. Several of the plan's objectives emphasize the need to reduce carbon emissions and air pollutants, prevent sprawl in less developed areas, and increase connectivity through major urban centers.

Project Consistency

The West Seattle Link Extension would not require acquisition of any area on Terminal 5, which is consistent with the Port's Long Range Plan. Some operational capacity would be affected by Alternative DUW-2 at the Port of Seattle Terminal 25, which is not compatible with the plan. The north and west buildings for the Harbor Marina Corporate Center, owned by Port of Seattle, would be displaced by Preferred Alternative DUW-1a and Option DUW-1b. Construction of Alternative DUW-2 across Harbor Island could impact freight traffic accessing Port of Seattle and Northwest Seaport Alliance terminals, including Terminal 18.

An alternative in the Interbay/Ballard Segment of the Ballard Link Extension would remove dockage at Fishermen's Terminal, affecting the Port's ability to move increased amounts of cargo to and from the terminal via the Salmon Bay However, the project would promote the strategies and goals of the Long-Range Plan by providing an alternative to single-occupancy vehicle travel to and from major port centers, such as Seattle-Tacoma International Airport. By providing an alternative to car travel, traffic growth on existing roadways would decrease, leading to improved traffic flow for cargo and freight vehicles traveling to and from port properties.

During construction, freight mobility to and from Harbor Island (West Seattle Link Extension Duwamish Segment) and Fishermen's Terminal (Ballard Link Extension Interbay/Ballard Segment) would be temporarily impacted. Where possible, Sound Transit would maintain access to and from these properties during construction. Alternatives in the Duwamish and Interbay/Ballard segments would acquire parcels owned by the Port of Seattle. See Section 4.2.1, Acquisitions, Displacements, and Relocations, and Section 4.3.1, Acquisitions, Displacements, and Relocations, in the Draft Environmental Impact Statement for additional information.

L4.2.3.6 Sound Transit Regional Transit Long-Range Plan

Plan Summary

As the Regional Transit Authority, Sound Transit is responsible for regional high-capacity transit system planning within the context of the Regional Transportation Plan. Puget Sound region voters approved financing for Sound Transit 2 in 2008 and for Sound Transit 3 in 2016, showing continuing popular support for regional transit investments. The *Regional Transit Long-Range Plan* serves as the basis for Sound Transit 3, the current phase of high-capacity transit investments (see Section L4.2.3.8). The plan was adopted in 2014 and includes goals, policies, and strategies for the long-term development of a high-capacity transit system within the central Puget Sound region. The plan identifies performance-related measures to assess and select projects and services to be included in any new system plan, including Sound Transit 3. All new system plans should provide a public transportation system that helps ensure long-term mobility, connectivity, and convenience; preserves communities and open space; contributes to the region's economic vitality; preserves the environment; and increases use of regional transit networks.

Project Consistency

The WSBLE Project is explicitly identified in Sound Transit's *Regional Transit Long-Range Plan* as a future project.

L4.2.3.7 Sound Transit Transit-Oriented Development Policy and Program Strategic Plan

Plan Summary

First adopted in 2012, Sound Transit's TOD policy provides the groundwork for the agency's TOD Program and establishes a framework for implementing TOD strategies within the regional transit system. The *Transit-Oriented Development (TOD) Program Strategic Plan,* adopted in 2010 and updated in 2014, defines Sound Transit's vision for TOD around its corridors, stations, park-and-ride lots, and transit centers (2014b). It describes the importance of integrating land use and transit in an environmentally responsible way and furthers the emphasis on the role of TOD in long-range and project planning. The plan is intended to be used by the Sound Transit Board of Directors, staff, local jurisdictions, and partner agencies to provide guidance on how to facilitate public and private development projects that create dense, pedestrian-oriented communities, which encourage people to use transit and foster a healthy, livable environment.

Recent state legislation (Revised Code of Washington Chapter 81.112.350) and the approval of Sound Transit 3 (and the WSBLE Project) triggered new requirements for Sound Transit to implement an equitable TOD strategy that creates stable, livable, and affordable transit communities adjacent to light rail stations. In response, Sound Transit adopted Resolution No. R2018-10: Adopting an Equitable Transit Oriented Development Policy in 2018. The policy conforms to regional growth plans by providing a strategy to implement equitable TOD within

transit projects; emphasizing partnerships and collaboration with local jurisdictions and regional stakeholders; committing the agency to an equitable engagement process that informs disposition strategies; and prioritizing housing surplus property disposition to nonprofit and governmental housing over for-profit and retail corporations.

Project Consistency

The WSBLE Project would act as a catalyst in station areas that have planned for and would allow increased densities. Following construction, remnant land could become available for redevelopment or joint development. TOD on surplus land owned by Sound Transit in station areas would follow the implementation strategy for Sound Transit's TOD program as laid out in the Sound Transit TOD Program Strategic Plan and Sound Transit's TOD policy.

L4.2.3.8 Sound Transit 3 Regional Transit System Plan for Central Puget Sound

Plan Summary

The Sound Transit 3 Regional Transit System Plan, adopted in 2016, builds on the success of Sound Move and Sound Transit 2 by adding over 60 miles of new light rail, including WSBLE, serving 37 new stations and 4 expanded stations. This addition to the Sound Transit light rail system will increase the region's total light rail network to 116 miles of laid track serving over 80 stations in 16 cities. The plans include a program to improve bus speed and reliability in specific corridors, improve bus-rail junctions, and expand Sounder commuter rail. The Sound Transit 3 Plan supports Puget Sound Regional Council's VISION 2040 and Regional Transportation Plan by investing in and creating the next phase of high-capacity-transit improvements for the central Puget Sound region.

The Sound Transit 3 Plan outlines the planning, construction, operation, and funding schedule for Sound Transit 3 while also incorporating a series of policies and programs to ensure the system supports TOD; improves the system through innovation and technology; is sustainable; and is accessible by walking, biking, transferring from other transit services, and safe drop-off and pick-up. The plan includes studies to continue planning beyond Sound Transit 3 to expand the regional transit system to meet the needs of Sound Transit's Long-Range Plan. The WSBLE Project is a key component within this voter-approved plan.

Project Consistency

The proposed WSBLE Project is a regional high-capacity-transit system project and is included in Sound Transit 3. The project would build upon the existing light rail system and increase ridership by providing connections between identified growth centers, and by supporting TOD and joint development opportunities around station areas.

L4.2.3.9 Sound Transit Real Property Excess, Surplus, and Disposition Policy

Plan Summary

The *Real Property Excess, Surplus, and Disposition Policy* was adopted by Sound Transit's Board of Directors as Resolution R2013-30 in 2013. The policy states that Sound Transit will consider a number of priorities in determining surplus real property disposition, including encouraging TOD, joint development, and public and private projects at and around Sound Transit facilities through early involvement in project planning and design. The policy also calls for careful consideration of and support for real property disposition that would:

- Increase transit ridership; support economic development efforts.
- Support state, regional, and local growth plans, policies, and strategies.
- Foster relationships with local jurisdictions, regional agencies, private developers, local residents, businesses, community groups, and other stakeholders.
- Encourage convenient, safe multi-modal access to the transit system, with an emphasis on non-motorized access.
- Encourage creation of housing options including market-rate and affordable units.

The policy serves as one of the cornerstones of the *Transit-Oriented Development (TOD) Program: Strategic Plan Update* (Sound Transit 2014b), and both policies are to be used in coordination to create TOD projects.

Project Consistency

The WSBLE Project would drive development in the station areas where the City of Seattle has planned for and allows increased density. Following construction, and where allowed, remnant land could become available for redevelopment or joint development. The Real Property Excess, Surplus, and Disposition Policy serves as a tool to determine how to dispose of surplus acquisitions to foster TOD communities and support other Sound Transit policies related to TOD.

L4.2.3.10 King County Comprehensive Plan

Plan Summary

The *King County Comprehensive Plan* was adopted in 2016 and updated in 2017, 2018, 2019, and 2020. The plan provides updated approaches to the following principles, first adopted in the 2012 Comprehensive Plan:

- Creating sustainable neighborhoods.
- Preserving and maintaining open space and natural resource lands.
- Directing development toward existing communities.
- Providing a variety of transportation choices.
- Addressing health, equity, and social and environmental justice.
- Achieving environmental sustainability.

The plan sets the policy framework that guides the creation of an integrated, sustainable, and safe transportation system by providing transportation choices that use less energy, produce fewer pollutants, and reduce greenhouse gases in the region. The plan also establishes increased convenience, accessibility, safety, and comfort of taking transit as a County priority. With these strategies and policies, the plan provides a foundation for Sound Transit and King County Metro Transit (Metro) to work collaboratively to create a seamless regional and local transportation system. The updated plan for 2020 includes an increased focus on climate change and accessibility to affordable housing within a 0.5-mile walkshed of high-capacity-transit options.

Project Consistency

The WSBLE Project would provide the most densely-populated areas of King County with an efficient, convenient, accessible, sustainable, and safe transportation option. The project would

provide increased connectivity to other transit options at station areas and increase pedestrian-friendly environments. By also employing Sound Transit's equitable TOD policies (see Section L4.2.3.7), WSBLE would increase affordable housing options near light rail stations.

L4.2.4 Local Land Use Plans

Local land use plans guide future growth and shape communities at the city planning level. The following subsections provide an overview of each document:

- *Seattle 2035 Comprehensive Plan: Managing Growth to Become an Equitable and Sustainable City 2015–2035* (Comprehensive Plan) *(*City of Seattle 2018a).
- *Neighborhood Plans* (City of Seattle 2019).
- *Transit Master Plan: Move Seattle 10-Year Strategic Vision for Transportation* (City of Seattle 2016a).
- *Pedestrian Master Plan* (City of Seattle 2017a).
- *Bicycle Master Plan* (City of Seattle 2017b).
- *Freight Master Plan* (City of Seattle 2016b).
- *Move Ballard* (City of Seattle 2016c).
- *Urban Forest Stewardship Plan* (City of Seattle 2013).
- Shoreline Master Program (Seattle Municipal Code Chapter 23.60A).
- *North Delridge Action Plan* (City of Seattle 2018b).
- *Uptown Urban Design Framework* (City of Seattle 2016d).
- *South Lake Union Urban Design Framework* (City of Seattle 2010).
- *Harborview Medical Center Compiled Major Institution Master Plan* (City of Seattle 1999).
- *Swedish Medical Center Major Final Major Institution Master Plan* (City of Seattle 2005).
- *Virginia Mason Medical Center Compiled Major Institution Master Plan* (City of Seattle 2014b).
- *Long-Term Strategic Plan: Fishermen's Terminal Development Phase I* (Port of Seattle 2017b).
- *Seaport Alliance Strategic Business Plan* (Port of Seattle and Port of Tacoma 2015).
- *Port of Seattle 2018-2022 Long Range Plan* (Port of Seattle 2017a).
- *Seattle University Final Compiled Major Institution Master Plan* (Seattle University 2013).
- *Seattle Center Century 21 Master Plan* (Seattle Center and Century 21 Committee 2008).

L4.2.4.1 City of Seattle Comprehensive Plan

Plan Summary

The City of Seattle's Comprehensive Plan (City of Seattle 2018a) was published in 2018 and adopted in 2019, and provides guidance on managing growth to support an equitable and sustainable city by the year 2035. Transportation is a key element in the comprehensive plan, as it calls for a robust transportation system that contributes to a safer city by working to eliminate serious injuries and fatalities on city streets; creates an interconnected city with reliable, easy-to-use travel options; creates streets and sidewalks that generate economic and social activity; and provides high-quality and affordable transportation options. Several of the transportation-related goals target increased development of transit infrastructure that connects urban centers and villages, reduces dependence on personal automobiles, and contributes to a citywide transit system that includes access to high-capacity transit stations. Although adopted before the passage of Sound Transit 3, the plan highlights the importance of the existing light rail system in providing equitable and sustainable movement through the city and encourages system expansion and focusing growth in areas within a 10-minute walk of existing and future light rail stations.

Project Consistency

Table L4.2-2 in Section L4.2.5, Project Consistency with Specific Region and Local Goals and Policies, summarizes the relevant Comprehensive Plan land use policies and plans and discusses how the WSBLE would be consistent with them. The project would provide high-capacity transit between urban centers and villages, which would be consistent with the City of Seattle Comprehensive Plan. This includes being consistent with the plan's Container Port Element because it fulfills a Growth Management Act mandate for the City's land use and transportation planning to accommodate the freight access needs of the Port of Seattle as a "Transportation Facility of Statewide Significance."

L4.2.4.2 City of Seattle Move Seattle 10-Year Strategic Vision for Transportation

Plan Summary

The City of Seattle's *Move Seattle 10-Year Strategic Vision for Transportation* was adopted in 2014 and implemented by the voter-approved Levy to Move Seattle in 2015. The plan lays out the City's transportation goals through three key elements: organizing daily work around core values, integrating modal plans to deliver transformational projects, and prioritizing projects to work to identify funding. The plan calls for a safe, interconnected, vibrant, affordable, and innovative city that integrates the master plans for freight, transit, walking, and bicycling into a near-term strategy for improving streets and sidewalks. Part of this vision includes providing 72 percent of Seattle residents with 10-minute all-day transit service within a 10-minute walk of their homes, improve ridership growth on existing and planned transit (Sound Transit 3), and improve the speed with which residents can connect between neighborhoods. The plan also supports improvements to the Ballard to Downtown Enhanced Transit Corridor in preparation for construction of the WSBLE Project.

Project Consistency

The *Move Seattle* plan references the incorporation of future light rail transit corridors within the WSBLE corridor. It lays the groundwork for TOD (where zoning allows) near new WSBLE

station areas. WSBLE would expand high-capacity transit accessibility to some of Seattle's densest neighborhoods and increase transit ridership growth for the entire transit system.

L4.2.4.3 City of Seattle Transit Master Plan

Plan Summary

The City of Seattle's *Transit Master Plan* (2016a) was adopted in 2012 and amended in 2016 to reflect *Move Seattle*. It is a 20-year blueprint establishing a transit system that meets Seattle's growing transit needs through 2030. The Transit Master Plan identifies the city's most important transit corridors, both current and future, and the transit modes that will be most effective in those corridors. The plan provides guidance on integrating transit capital facilities and services with walking and biking infrastructure, enhancing bus transit performance through roadway investments, and coordinating with Metro and Sound Transit to create a more integrated transit network. The Transit Master Plan establishes the planning, funding, and building of high-capacity transit projects (Sound Transit 3) as a priority strategy for Seattle Department of Transportation and the City of Seattle's leadership.

Project Consistency

The WSBLE Project is explicitly included in the Transit Master Plan as a top-priority project through 2030. It identifies the WSBLE and its associated stations as the City's highest-priority Sound Transit 3 project.

L4.2.4.4 City of Seattle Pedestrian Master Plan

Plan Summary

Seattle's *Pedestrian Master Plan* (2017a) was adopted in 2017 and updated in both 2018 and 2019. The 20-year plan describes a vision for Seattle to be the most walkable and accessible city within the United States while focusing on the safety and well-being of residents and vibrancy of neighborhoods. The *Pedestrian Master Plan* establishes a framework that prioritizes policies, programs, and funding opportunities to advance pedestrian safety and accessibility. The plan defines a Priority Investment Network to direct attention and resources to key pedestrian routes throughout the city. Streets within walksheds to all light rail stations, including WSBLE and other Sound Transit 3 projects, are listed as a critical component of the Priority Investment Network. As such, the plan directs Sound Transit to assess pedestrian needs for new stations and provide funding for station access improvements to new and existing stations, consistent with the Sound Transit 3 Regional Transit System Plan (Sound Transit 2016). The most recent update to the *Pedestrian Master Plan* (2019-2024) defines a suite of projects that will improve pedestrian and bicycle connectivity, accessibility, and safety when connecting to existing and future light rail.

Project Consistency

The WSBLE Project would encourage safe and accessible pedestrian communities, especially in station areas. The *Pedestrian Master Plan* emphasizes the importance of and encourages investment in light rail stations because of their positive influence on pedestrian mobility. The streets within the Priority Investment Network are within walksheds to the project stations, and therefore WSBLE is supportive of the Seattle *Pedestrian Master Plan*.

L4.2.4.5 City of Seattle Bicycle Master Plan

Plan Summary

The *Bicycle Master Plan* (City of Seattle 2017b) was adopted in 2014 and encourages the City to invest more in bicycling in a manner that purposefully benefits the city's livability, affordability, public health, economic competitiveness, and natural environment. The *Bicycle Master Plan* outlines an infrastructure plan to connect 100 miles of protected bicycle lanes and 250 miles of neighborhood greenways, while also identifying activities designed to support and encourage riding. The plan also provides a list of specific infrastructure projects Seattle Department of Transportation is planning to build each year to serve as an accountability and reporting tool and guide future budget requests. A key component of project evaluation is the project's ability to offer connections to major transit. As a result, several identified projects within the *Bicycle Master Plan* improve connectivity to existing or near-term light rail systems included in Sound Transit 2 and Sound Transit 3.

Project Consistency

The WSBLE Project would offer bicyclists additional connections to major transit networks throughout several neighborhoods in Seattle. Stations would be designed with bike storage lockers or racks, and light rail cars would have spaces to secure bicycles during transit. WSBLE would continue to work with Seattle Department of Transportation to ensure bicyclist safety and security at station locations.

L4.2.4.6 City of Seattle Freight Master Plan

Plan Summary

Adopted in 2016, the *Freight Master Plan* (City of Seattle 2016b) was developed to help determine freight's role in the economies of the city and the region, examine challenges of moving freight, and develop solutions to address these challenges. The focus of the *Freight Master Plan* is largely urban truck freight movement to support an increasing demand for goods and services within the Seattle region. In addition to integrating the *Freight Master Plan* with existing City and County plans, the *Freight Master Plan* outlines the role freight movement plays in social equity, economic productivity, sustainability, and livable neighborhoods. As such, the *Freight Master Plan* considers how to update and modernize the freight network based on where trucks are traveling and connections to other transportation modes.

Project Consistency

The WSBLE Project would increase transit ridership and decrease the number of commuters who rely on automobiles to travel through or around the city of Seattle. As a result, automotive congestion would decrease along the city's freight routes, leading to increased mobility and greater network connectivity for freight within Seattle. The project includes traffic mitigation measures that could improve freight corridors and increase mobility.

L4.2.4.7 City of Seattle Move Ballard

Plan Summary

In response to rapid residential growth in the Ballard neighborhood, the *Move Ballard* plan (City of Seattle 2016c) was adopted to identify and prioritize near-term multi-modal transportation studies and improvements to help meet the neighborhood's transportation needs. Designed with

the *Ballard Urban Design and Transportation Framework* (City of Seattle 2016e), the plan aims to:

- Identify existing accessibility and mobility challenges for all modes of transportation.
- Review project concepts that best meet the neighborhood's goals.
- Develop integrated land use and transportation strategies.
- Enhance safety and convenience of space-efficient modes of transportation.
- Identify preferences for future potential light rail stations.
- Understand TOD potential in Ballard.

Move Ballard includes instructions to introduce the WSBLE Project through community outreach and stakeholder meetings. This outreach would support effective collaboration and communication between Sound Transit, Seattle Department of Transportation, and the Ballard neighborhood.

Project Consistency

The WSBLE Project is included as critical component of the *Move Ballard* plan and the responses from community outreach are incorporated into the planning and design of the project.

L4.2.4.8 City of Seattle Urban Forest Stewardship Plan

Plan Summary

The City of Seattle *2013 Urban Forest Stewardship Plan* (City of Seattle 2013), originally adopted under the name *Urban Forest Management Plan* in 2007 and updated in 2013, provides recommendations for encouraging tree preservation and planting across the city over a 30-year period. The plan includes an overarching goal of increasing the city's tree canopy cover to 30 percent by 2037. The plan identifies existing conditions and goals for tree canopy cover by nine land use types, known in the plans as management units. For example, manufacturing/industrial land uses have a goal of 10 percent tree canopy cover, while natural areas have a goal of 80 percent tree canopy cover. The plan outlines an action agenda with recommended strategies for implementation, including community education about the benefits of the urban forest and proper tree care practices; ongoing research and assessments to better understand urban forest characteristics; interdepartmental and interagency coordination; tree preservation, restoration, and enhancement activities on City property; and private property regulations to ensure minimum standards of care for the urban forest.

Project Consistency

The WSBLE Project would result in tree removal for construction of the project. The project would minimize tree removal along the corridor, where practical. Sound Transit would coordinate with the City of Seattle on tree removal, while ensuring light rail safety, and on tree replacement requirements.

L4.2.4.9 Shoreline Master Program

Plan Summary

The Seattle Shoreline Master Program (Seattle Municipal Code Chapter 23.60A) includes goals and policies supporting the Seattle Comprehensive Plan Shoreline Areas element. It includes shoreline regulations and maps of shoreline districts with locations of shoreline environments

and provides the Restoration and Enhancement Plan required by Washington Administrative Code Section 173-26-201(2)(f). The program has policies to regulate development of, uses for, and modifications of the shoreline of the city. The program allows light rail development and provides standards for rail transit facilities (Seattle Municipal Code 23.60A.209). Light rail bridges and tunnels are classified as water-dependent uses, allowing for intermittent and temporary construction uses within the Shoreline District, and reducing the purview of shoreline substantial development permits from the entire project to only the portions of the light rail system within the shoreline area. The code instructs the Seattle Planning Director to impose conditions to ensure consistency with design guidelines, waive or modify development standards, or impose reasonable conditions on any waiver or modification of development standards to ensure consistency with the program.

Project Consistency

The WSBLE Project would cross shoreline areas. The Shoreline Master Program allows light rail development within the Shoreline District, with certain standards and conditions (Seattle Municipal Code 23.60A.209). The project would comply with the standards and coordinate with the City on any applicable conditions.

L4.2.4.10 North Delridge Action Plan

Plan Summary

The *North Delridge Action Plan* (City of Seattle 2018b) supports the vision of the Delridge Neighborhood Plan (City of Seattle 2019), identifies priorities and specific steps to achieve the neighborhood vision. It includes goals, policies, and strategies to guide projects to effectively support community development and manage growth, as well as guide future development that would occur in the neighborhood. The plan's vision is to support diverse and engaged communities, develop dynamic neighborhood destinations, improve access to healthy food, create active transportation choices, nurture a healthy Longfellow Creek watershed, and leverage parks and cultural facilities to support a healthy community. Priorities were developed through community workshops and involve supporting mixed-use neighborhoods and potential rezoning, as well as growth of transit, parks and cultural facilities, and food security initiatives. The plan recognizes the development of future light rail projects, and as a result it aims to coordinate with Sound Transit regarding specific station area planning and to improve access to transit stations for all travel modes.

Project Consistency

The WSBLE Project would serve the Delridge community and provide direct and frequent access to other areas in the project corridor as well as other regional destinations. The project would support mixed-use development in designated growth areas, focusing most growth in station areas where zoning and land use codes allow greater densities. It would encourage convenient and safe non-motorized access to stations, such as bicycle and pedestrian connections, and would provide linkages to other travel modes including rail, bus, biking, and walking. The project would avoid and minimize impacts to Longfellow Creek to the extent practicable.

L4.2.4.11 Uptown Urban Design Framework

Plan Summary

The *Uptown Urban Design Framework* (City of Seattle 2016d) provides a vision for an active and dynamic Uptown and identifies actions necessary to implement the vision. It provides guiding principles to assess the existing and future conditions of Uptown as well as the neighborhood's needs to identify a clear vision for Uptown as a growing urban center of housing, jobs, and major attractions of regional significance. The specific goals and actions listed are used by the City of Seattle in coordination with the neighborhood to develop land use and housing policies, streetscape design, transit investment, arts and culture branding, and strategic redevelopment of public property. A primary goal of the plan is to provide multiple transportation options, which will improve connectivity, accessibility, and safety when connecting to light rail projects.

Project Consistency

The goals and policies of this plan support high-capacity transit such as light rail to serve the neighborhood and Seattle Center. The WSBLE Project would include light rail stations in the Uptown community. The project would provide an alternative to the automobile and provide linkages to other travel modes including rail, bus, biking, and walking. The project would support mixed-use development in designated urban growth areas and would focus most growth in station areas where land use codes allow greater densities. Following construction, remnant land could become available for redevelopment or joint development.

L4.2.4.12 South Lake Union Urban Design Framework

Plan Summary

The *South Lake Union Urban Design Framework* (City of Seattle 2010) provides guidance for a range of specific public and private actions to support the vision for South Lake Union as a diverse, sustainable and thriving urban center that supports a mix of residents and innovative businesses. The plan gives specific recommendations to improve community character by clustering different land uses together, building a network of pedestrian nodes and corridors, enhancing park services, creating diverse housing options, and encouraging sustainable development. The plan proposes incentive zoning as a key tool to implement community goals as part of new development. The plan acknowledges the importance of high-capacity transit and supports improving transit, pedestrian, and bike access to increase connectivity and reduce dependence on automobiles.

Project Consistency

The WSBLE Project would provide high-capacity light rail transit, an additional option for mode of travel for people who live and work in the South Lake Union area. The project would promote a reduction in automobile use and number of vehicle miles traveled. It would encourage compact urban development within designated growth centers such as South Lake Union.

L4.2.4.13 Harborview Medical Center Compiled Major Institution Master Plan

Plan Summary

The *Harborview Medical Center Compiled Major Institution Master Plan* (City of Seattle 1999) includes major components required by Chapter 23.69 of the City of Seattle Land Use Code. The Harborview Medical Center Compiled Major Institution Master Plan directs improvement actions and establishes a basis for project implementation for the only Level I Trauma Center in Washington state. Potential projects are outlined for 2010 through 2020 and include zoning

changes and campus additions. The master plan includes a transportation management program with the goal of reducing the number of commuter trips in employee single-occupant vehicles.

Project Consistency

The WSBLE Project would provide high-capacity light rail transit as an alternative to single-occupant vehicles for people who work at or visit the Harborview Medical Center. The project would promote a reduction in automobile use and number of vehicle miles traveled. It would encourage compact urban development within designated growth centers.

L4.2.4.14 Swedish Medical Center Final Major Institution Master Plan

Plan Summary

The *Swedish Medical Center Final Major Institution Master Plan* (City of Seattle 2005) includes major components required by Chapter 23.69 of the City of Seattle Land Use Code. The Swedish Medical Center Master Plan presents the building, program, and campus needs for the First Hill campus. It includes development objectives that aim to mitigate growth impacts and achieve compatibility with the First Hill neighborhood and Downtown Urban Center. The plan covers both planned and potential projects as well as zoning standards that are tailored to the Swedish Medical Center First Hill campus. It includes a transportation management program that aims to reduce trips made in single-occupant vehicles.

Project Consistency

The WSBLE Project would provide high-capacity light rail transit as an alternative to single-occupant vehicles for people who work at or visit the Swedish Medical Center First Hill campus. The project would promote a reduction in automobile use and number of vehicle miles traveled. It would encourage compact urban development within designated growth centers.

L4.2.4.15 Virginia Mason Medical Center Compiled Major Institution Master Plan

Plan Summary

The *Virginia Mason Medical Center Compiled Major Institution Master Plan* (City of Seattle 2014b) includes major components required by Chapter 23.69 of the City of Seattle Land Use Code. The Virginia Mason Medical Center master plan provides planned and proposed projects aimed to provide campus redevelopments to meet the health care demands of regional growth. The plan includes goals to encourage use of transit over single-occupant vehicles and make transit easy and enjoyable, connecting transit stops with pedestrian routes.

Project Consistency

The WSBLE Project would provide high-capacity light rail transit as an alternative to single-occupant vehicles for people who work at or visit the Virginia Mason Medical Center. The project would include light rail stations downtown, where pedestrian routes are already established. The project would provide an alternative to automobiles and provide linkages to other travel modes including rail, bus, biking, and walking.

L4.2.4.16 Long-Term Strategic Plan: Fishermen's Terminal Development Phase I

Plan Summary

The *Long-Term Strategic Plan: Fishermen's Terminal Development Phase I* (Port of Seattle 2017b) supports achieving the Port of Seattle Century 21 Agenda goal of doubling the value of fishing and maritime cluster. The plan addresses physical development and offers a vision and plan for the terminal that leverages maritime and commercial fishing activities and industries. It includes goals to grow the economic value of the fishing and maritime cluster, prioritize uses that support the commercial fishing industry, and prioritize development that maximizes utilization of facility assets.

Project Consistency

The WSBLE Project would expand mobility for the corridor and region's residents, providing increased access for employees to commercial and industrial areas such as Fishermen's Terminal. Alternative IBB-3 would acquire part of Fishermen's Terminal and would displace one water-dependent business there, which is not compatible with the plan. Guideway columns for this alternative would introduce new constraints on outbound and inbound access between the navigation channel and Fishermen's Terminal. Fishermen's Terminal Docks 1 and 2 would only be accessible from west of Alternative IBB-3 because the gap between the light rail bridge pier protection system, and the Ballard Bridge fenders would not be wide enough for vessels to sail through. More detail about the existing freight use and potential impacts is included in Chapter 3, Transportation Environment and Consequences.

L4.2.4.17 Northwest Seaport Alliance 10-Year Strategic Business Plan

Plan Summary

The Northwest Seaport Alliance is an operating partnership of the Ports of Tacoma and Seattle. The Seaport Alliance Strategic Business Plan (Port of Seattle and Port of Tacoma 2015) outlines opportunities to develop strategic terminals, like Terminal 5 near the West Seattle Bridge, to handle ultra-large container ships and increased cargo volumes. The plan includes goals to provide service delivery excellence, create jobs and improve financial performance.

Project Consistency

The WSBLE Project would expand mobility for the corridor and region's residents, providing increased access for employees to commercial and industrial areas such as the port terminals. The project would not require acquisition of any area on Terminal 5. Some operational capacity would be affected by Alternative DUW-2 at the Port of Seattle Terminal 25, which is not compatible with the plan. The north and west buildings for the Harbor Marina Corporate Center, owned by Port of Seattle, would be displaced by Preferred Alternative DUW-1a and Option DUW-1b. Construction of Alternative DUW-2 across Harbor Island could impact freight traffic accessing Port of Seattle and Northwest Seaport Alliance terminals, including Terminal 18. Freight trains using the lead tracks of Terminals 5 and 18, along the south side of Klickitat Avenue Southwest, could also be impacted during construction. Sound Transit will work with the Port of Seattle and Northwest Seaport Alliance to limit construction impacts. More detail about the existing freight use and potential impacts is included in Chapter 3, Transportation Environment and Consequences.

L4.2.4.18 Port of Seattle 2018-2022 Long-Range Plan

Plan Summary

The Port of Seattle's Long-Range Plan supports the ability to support local job growth, position the Puget Sound region as a logistics hub and tourism destination, and become the most energy efficient port in North America. The Port's Century Agenda and High-Performance Organization Strategies and Objectives are key items in the development of the plan. Sound Transit will work with the City of Seattle and other agencies to maximize project benefits and limit construction impacts.

Project Consistency

The WSBLE Project would expand mobility for the corridor and region's residents, providing increased access for employees to commercial and industrial areas such as the port terminals. Some operational capacity would be affected by Alternative DUW-2 at the Port of Seattle Terminal 25, which is not compatible with the plan. The north and west buildings for the Harbor Marina Corporate Center, owned by Port of Seattle, would be displaced by Preferred Alternative DUW-1a and Option DUW-1b. Construction of Alternative DUW-2 across Harbor Island could impact freight traffic accessing Port of Seattle and Northwest Seaport Alliance terminals, including Terminal 18. Freight trains using the lead tracks of Terminals 5 and 18, along the south side of Klickitat Avenue Southwest could also be impacted during construction. Sound Transit will work with the Port of Seattle to limit construction impacts. More detail about the existing freight use and potential impacts is included in Chapter 3, Transportation Environment and Consequences.

L4.2.4.19 Seattle University Final Compiled Major Institution Master Plan

Plan Summary

The *Seattle University Final Compiled Major Institution Master Plan* (Seattle University 2013) includes major components required by Chapter 23.69 of the City of Seattle Land Use Code. It describes the planned and potential projects, development standards, and transportation management plan for the university. The plan includes goals to support growth of the university while enhancing the neighborhood over 20 years. The transportation management program includes goals to decrease the use of single-occupant vehicles using the percentage of campus population that arrives via a single-occupant vehicle.

Project Consistency

The WSBLE Project would provide high-capacity light rail transit as an alternative to single-occupant vehicles for people who attend, work at, or visit Seattle University and would provide linkages to other travel modes including rail, bus, biking, and walking.

L4.2.4.20 Seattle Center Century 21 Master Plan

Plan Summary

The *Seattle Center Century 21 Master Plan* (Seattle Center and Century 21 Committee) guides the direction for Seattle Center growth and development to enhance the Seattle Center and connect its facilities in a dynamic, sustainable, and accessible way. It calls for increasing mode and frequency of transit, improving pedestrian connections, and making it easier and safer to access the Seattle Center.

Project Consistency

The WSBLE Project would provide high-capacity light rail transit as an alternative to single-occupant vehicles for people who attend, work at, or visit the Seattle Center and would provide linkages to other travel modes including rail, bus, biking, and walking. The project would be entirely powered through electricity sourced from Seattle City Light, which uses hydroelectric power for almost all its power.

L4.2.4.21 Project Consistency with Specific Regional and Local Goals and Policies

Tables L4.2-1 through L4.2-4 summarize project consistency with applicable goals and policies in the various policy documents. The WSBLE Project would comply with applicable permits and approvals from federal, state, and local agencies prior to construction.

Table L4.2-1. Project Consistency with Puget Sound Regional Council VISION 2050

Topic	Policy and Goals	Discussion
Regional Growth Strategy	**Policy MPP-RGS-8:** Attract 65% of the region's residential growth and 75% of the region's employment growth to the regional growth centers and high-capacity transit station areas to realize the multiple public benefits of compact growth around high-capacity transit investments. As jurisdictions plan for growth targets, focus development near high-capacity transit to achieve the regional goal.	The WSBLE Project would increase connectivity between metro growth centers and urban growth centers in Seattle as well as provide easy access to light rail and transit stations. The project would support mixed-use development in designated growth areas and would help focus most growth in station areas where zoning and land use codes allow greater densities.
Environment	**Goal:** The region cares for the natural environment by protecting and restoring natural systems, conserving habitat, improving water quality, and reducing air pollutants. The health of all residents and the economy is connected to the health of the environment. Planning at all levels considers the impacts of land use, development, and transportation on the ecosystem. **Policy MPP-En-3:** Maintain and, where possible, improve air and water quality, soils, and natural systems to ensure the health and well-being of people, animals, and plants. Reduce the impacts of transportation on air and water quality, and climate change. **Policy MPP-En-7:** Reduce and mitigate noise and light pollution caused by transportation, industries, public facilities, and other sources. **Policy MPP-En-21**: Continue efforts to reduce pollutants from transportation activities, including the use of cleaner fuels and vehicles and increasing alternatives to driving alone, as well as design and land use. **Policy MPP-En-22**: Meet all federal and state air quality standards and reduce emissions of air toxics and greenhouse gases.	The WSBLE Project would be entirely powered through electricity sourced from Seattle City Light, which uses hydroelectric power for almost all its power. Regional vehicle miles traveled and average daily traffic for the project would be lower than the No Build Alternative when some people switch from driving to using light rail, thereby reducing regional vehicle emissions of criteria pollutants, mobile source air toxics, and greenhouse gases. As detailed in Section 3.3, the project is expected to reduce daily vehicle miles traveled by approximately 117,000 by 2042, helping to achieve Washington state's greenhouse gas emissions goals. The project is being designed to minimize effects to the natural environment and impacts will be mitigated consistent with local, state, and federal requirements. The project would include stormwater detention and treatment to address impacts related to stormwater runoff. Sound Transit's Environmental Sustainability and Management System requires that low-impact operational stormwater management techniques be investigated and considered during the project design. Low-impact development stormwater management techniques would be evaluated during the design process. As described in Sections 4.2.7, Noise and Vibration, and 4.3.7, Noise and Vibration, in Chapter 4 of the Draft Environmental Impact Statement, Sound Transit would provide noise mitigation where the project would exceed FTA noise criteria for operations. Sound Transit would adhere to the City of Seattle's noise ordinance for construction noise.

Topic	Policy and Goals	Discussion
Climate Change	**Goal:** The region substantially reduces emissions of greenhouse gases that contribute to climate change in accordance with the goals of the Puget Sound Clean Air Agency (50% below 1990 levels by 2030 and 80% below 1990 levels by 2050) and prepares for climate change impacts. **Policy MPP-CC-1:** Advance the adoption and implementation of actions that substantially reduce greenhouse gas emissions in support of state, regional, and local emissions reduction goals, including targets adopted by the Puget Sound Clean Air Agency. **Policy MPP-CC-3:** Reduce greenhouse gases by expanding the use of conservation and alternative energy sources, electrifying the transportation system, and reducing vehicle miles traveled by increasing alternatives to driving alone. **Policy MP-CC-12**: Prioritize transportation investments that support achievement of regional greenhouse gas emissions reduction goals, such as by reducing vehicle miles traveled.	The WSBLE Project would be entirely powered through electricity sourced from Seattle City Light, which uses hydroelectric power for almost all its power. Regional vehicle miles traveled and average daily traffic for the project would be lower than the No Build Alternative when some people switch from driving to using light rail, thereby reducing regional vehicle emissions of criteria pollutants, mobile source air toxics, and greenhouse gases. As detailed in Section 3.3, Regional Context and Travel, in Chapter 3, Transportation Environment and Consequences, the project is expected to reduce daily vehicle miles traveled by approximately 117,000 by 2042, thereby helping to achieve Washington state's greenhouse gas emissions goals. The project is being designed to minimize effects to the natural environment, and impacts would be mitigated consistent with local, state, and federal requirements.
Development Patterns	**Goal**: The region creates healthy, walkable, compact, and equitable transit-oriented communities that maintain unique character and local culture, while conserving rural areas and creating and preserving open space and natural areas.	The WSBLE Project would increase connectivity between metro growth centers and urban growth centers as well as provide easy pedestrian access to light rail and transit stations. The project would support TOD in station areas. Following construction, remnant land could become available for redevelopment or joint development. Any TOD on surplus land owned by Sound Transit in station areas would follow the implementation strategy for Sound Transit's TOD program. The project would provide high-quality rapid, reliable, and efficient light rail transit service to communities in the project corridor. The project would encourage convenient and safe non-motorized access to stations, such as bicycle and pedestrian connections.

Topic	Policy and Goals	Discussion
Development Patterns: Building Urban Communities	**Policy MPP-DP-1:** Develop high-quality, compact urban communities throughout the region's urban growth area that impart a sense of place, preserve local character, provide for mixed uses and choices in housing types, and encourage walking, bicycling, and transit use. **Policy MPP-DP-2**: Reduce disparities in access to opportunity for the region's residents through inclusive community planning and targeted public and private investments that meet the needs of current and future residents and businesses. **Policy MPP-DP-3**: Enhance existing neighborhoods to provide a high degree of connectivity in the street network to accommodate walking, bicycling, and transit use and sufficient public spaces. **Policy MPP-DP-12**: Design transportation projects and other infrastructure to achieve community development objectives and improve communities **Policy MPP-DP-13**: Allow natural boundaries to help determine the routes and placement of infrastructure connections and improvements.	The WSBLE Project would be located within King County's urban growth area. The project would increase connectivity between metro growth centers and urban growth centers as well as provide easy pedestrian access to light rail and transit stations. WSBLE would connect employment opportunities in Downtown Seattle to existing light rail lines and light rail extensions currently under construction in King, Pierce, and Snohomish counties, where more affordable housing is available. Improving mobility in the WSBLE corridor will help improve access to employment and educational opportunities for low-income people and people of color around the region. The project corridor also contains many regional activity centers and regional attractions. The WSBLE Project would improve access to these regional destinations for all populations. The project would support mixed-use development in designated growth areas and would help focus most growth in station areas where zoning and land use codes allow greater densities. The project would support TOD in station areas. Following construction, remnant land could become available for redevelopment or joint development. Any TOD on surplus land owned by Sound Transit in station areas would follow the implementation strategy for Sound Transit's TOD program. The project would provide high-quality rapid, reliable, and efficient light rail transit service to communities in the project corridor. t would expand mobility for the corridor and the region's residents, which include transit-dependent and low-income populations and people of color. Connecting to the existing light rail will provide access to additional destinations such as Sea-Tac Airport and Tacoma. The WSBLE Project will provide connections to light rail projects currently being planned or under construction to Northgate, Bellevue, Redmond, Lynnwood, Everett, Tacoma, and Federal Way. The WSBLE Project would efficiently move large numbers of people and encourage convenient and safe non-motorized access to stations, such as bicycle and pedestrian connections. It would generally follow existing transportation corridors, thereby limiting the amount of land that would be converted to a transportation use. Responses from community outreach are incorporated into the planning and design of the project.

Topic	Policy and Goals	Discussion
Development Patterns: Promoting Healthy Communities	**Policy MPP-DP-15**: Design communities to provide safe and welcoming environments for walking and bicycling. **Policy MPP-DP-17**: Promote cooperation and coordination among transportation providers, local government, and developers to ensure that joint- and mixed-use developments are designed to promote and improve physical, mental, and social health and reduce the impacts of climate change on the natural and built environments.	The WSBLE Project would increase connectivity between metro growth centers and urban growth centers as well as provide easy pedestrian access to light rail and transit stations. The project would support mixed-use development in designated growth areas and would help focus most growth in station areas where zoning and land use codes allow greater densities. The WSBLE Project would support TOD in station areas. Following construction, remnant land could become available for redevelopment or joint development. Any TOD on surplus land owned by Sound Transit in station areas would follow the implementation strategy for Sound Transit's TOD program. The project would provide high-quality rapid, reliable, and efficient light rail transit service to communities in the project corridor. The project would encourage convenient and safe non-motorized access to stations, such as bicycle and pedestrian connections. The project would be entirely powered through electricity sourced from Seattle City Light, which uses hydroelectric power for almost all its power. As detailed in Section 3.3, the project is anticipated to reduce daily vehicle miles traveled by approximately 117,000 by 2042, thereby helping to achieve Washington state's greenhouse gas emissions goals. The project is being designed to minimize effects to the natural environment, and impacts would be mitigated consistent with local, state, and federal requirements.
Development Patterns: Centers: Supporting Connection to Opportunity	**Policy MPP-DP-22**: Plan for densities that maximize benefits of transit investments in high-capacity transit station areas that are expected to attract significant new population or employment growth. **Policy MPP-DP-23**: Evaluate planning in regional growth centers and high-capacity transit station areas for their potential physical, economic, and cultural displacement of marginalized residents and businesses. Use a range of strategies to mitigate displacement impacts. **Policy MPP-DP-25**: Support the development of centers within all jurisdictions, including high-capacity transit station areas and countywide and local centers.	The project would support mixed-use development in designated growth areas and would help focus most growth in station areas where zoning and land use codes allow greater densities. The project would support TOD in station areas. Following construction, remnant land could become available for redevelopment or joint development. Any TOD on surplus land owned by Sound Transit in station areas would follow the implementation strategy for Sound Transit's TOD program. The WSBLE Project would connect metro growth centers and urban growth centers and implement a system that is technically and financially feasible to build, operate, and maintain. It would expand mobility for the corridor and the region's residents, which include transit-dependent and low-income populations and people of color. Connecting to the existing light rail would- provide access to additional destinations such as Sea-Tac Airport and Tacoma. The WSBLE Project would provide connections to light rail projects currently being planned or under construction to Northgate, Bellevue, Redmond, Lynnwood, Everett, Tacoma, and Federal Way.

Topic	Policy and Goals	Discussion
Development Patterns: Collaborating to Preserve and Enhance Important Uses	**Policy MPP-DP-50:** Protect industrial zoning and manufacturing/industrial centers from encroachment by incompatible uses and development on adjacent land.	The WSBLE Project would provide greater accessibility to the Duwamish Manufacturing/Industrial Center and BINMIC. Some industrial land would be converted to a transportation use. It would generally follow existing transportation corridors, thereby limiting the amount of land that would be converted to a transportation use.
Housing	**Goal:** The region preserves, improves, and expands its housing stock to provide a range of affordable, accessible, healthy, and safe housing choices to every resident. The region continues to promote fair and equal access to housing for all people. **Policy MPP-H-7:** Expand the supply and range of housing at densities to maximize the benefits of transit investments, including affordable units, in growth centers and station areas throughout the region. **Policy MPP-H-8**: Promote the development and preservation of long-term affordable housing options in walking distance to transit by implementing zoning, regulations, and incentives.	The project would support continued growth within the regional growth center and would support TOD in station areas where zoning allows for greater density. Following construction, remnant land could become available for redevelopment or joint development. Sound Transit's TOD and Real Property Excess, Surplus, and Disposition policies would promote racial and social equitability in development that occurs in station areas and minimize displacement potential.
Economy	**Policy MPP-EC-6**: Ensure the efficient flow of people, goods, services, and information in and through the region with infrastructure investments, particularly in and connecting designated centers, to meet the distinctive needs of the regional economy. **Policy MPP-EC-21**: Concentrate a significant amount of economic growth in designated centers and connect them to each other in order to strengthen the region's economy and communities and to promote economic opportunity.	The WSBLE Project is a voter-approved investment in high-capacity transit that would connect the region's metropolitan cities and designated growth areas. The regional growth strategy calls for a metropolitan cities to accommodate for a large portion of the regional population and job growth. The WSBLE Project would efficiently move large numbers of people and increase connectivity within the corridor and region. The project would provide reliable, safe, and efficient transit to Seattle's downtown urban and economic core, as well as the Duwamish Manufacturing/Industrial Center and BINMIC. It would support TOD in station areas where zoning allows for greater density. Sound Transit's TOD and Real Property Excess, Surplus, and Disposition policies would promote racial and social equitability in development that occurs in station areas and minimize displacement potential. Existing reduced-fare transit pass options would continue to exist and would apply to the project, when operational.

Topic	Policy and Goals	Discussion
Transportation	**Goal:** The region has a sustainable, equitable, affordable, safe, and efficient multi-modal transportation system, with specific emphasis on an integrated regional transit network that supports the Regional Growth Strategy and promotes vitality of the economy, environment, and health.	The WSBLE Project would connect regional centers and implement a system that is technically and financially feasible to build, operate, and maintain. It would expand mobility for the project corridor and the region's residents, which include transit-dependent and low-income populations and people of color. Connecting to the existing light rail would provide access to additional destinations such as Sea-Tac Airport and Tacoma. The WSBLE Project would provide connections to light rail projects currently being planned or under construction to Northgate, Bellevue, Redmond, Lynnwood, Everett, Tacoma. and Federal Way. The WSBLE Project would be entirely powered through electricity sourced from Seattle City Light, which uses hydroelectric power for almost all its power. Regional vehicle miles traveled and average daily traffic for the project would be lower than the No Build Alternative when some people switch from driving to using light rail, thereby reducing regional vehicle emissions of criteria pollutants, mobile source air toxics, and greenhouse gases. The project is being designed to minimize effects to the natural environment, and impacts would be mitigated consistent with local, state, and federal requirements. The WSBLE Project would support TOD in station areas where zoning allows for greater density. Sound Transit's TOD and Real Property Excess, Surplus, and Disposition policies would promote racial and social equitability in development that occurs in station areas and minimize displacement potential. Existing reduced-fare transit pass options would continue to exist and would apply to the project, once operational.

Topic	Policy and Goals	Discussion
Transportation- The Regional Transportation Plan	**Policy MPP-T-5**: Develop a transportation system that minimizes negative impacts to, and promotes, human health.	The project would also encourage convenient and safe non-motorized access to stations, such as bicycle and pedestrian connections. Sound Transit would develop design criteria that provide a consistent architectural theme for all elevated elements and for features such as stations, using durable materials, while reflecting the individual characters of station areas. These criteria would be developed with input from the City of Seattle. Visual and aesthetic resources are discussed in Section 4.2.5, Visual and Aesthetics, and Section 4.3.5, Visual and Aesthetics, of the Draft Environmental Impact Statement. Sound Transit would establish a Life and Safety Committee to oversee public safety and ensure it is maintained during planning, construction, and operation of the project. No new at-grade crossings of roadways are proposed as part of the WSBLE. Build Alternatives in the SODO Segment would eliminate one or two existing at-grade crossings of the existing Central Link light rail line. WSBLE station design would use the principles of CPTED and include numerous features, such as abundant light, open access, and visibility, to address security issues. CPTED design measures would also control passenger movements with specific traffic flow patterns and include closed-circuit television cameras, emergency telephones, controlled exits, and sealed fare boxes.
Transportation- The Regional Transportation Plan	**Policy MPP-T-7:** Fund, complete, and operate the highly efficient, multi-modal system in the Regional Transportation Plan to support the Regional Growth Strategy. Coordinate WSDOT, regional, and local transportation agencies, in collaboration with the state legislature, to build the multi-modal system. **Policy MPP-T-8:** Strategically expand capacity and increase efficiency of the transportation system to move goods, services, and people consistent with the Regional Growth Strategy. Focus on investments that produce the greatest net benefits to people and minimize the environmental impacts of transportation.	The project is a voter-approved investment in high-capacity transit that would connect regional centers and implement a system that is technically and financially feasible to build, operate, and maintain. The project would provide reliable, safe, and efficient transit to Seattle's downtown urban and economic core, as well as the Duwamish Manufacturing/Industrial Center and BINMIC. Regional Transportation Plan identifies WSBLE as part of the region's future integrated transit network and highlights its role in supporting equitable access to opportunity, reliable regional connections, and catalyzing economic and TOD within the region.

Topic	Policy and Goals	Discussion
Transportation- The Regional Transportation Plan	**Policy MPP-T-9:** Implement transportation programs and projects that provide access to opportunities while preventing or mitigating negative impacts to people of color, people with low incomes, and people with special transportation needs. **Policy MPP-T-10:** Ensure mobility choices for people with special transportation needs, including persons with disabilities, seniors, youth, and people with low incomes. **Policy MPP-T-11**: Design, construct, and operate a safe and convenient transportation system for all users while accommodating the movement of freight and goods, using best practices and context-sensitive design strategies.	The WSBLE Project would create key transfer points at the SODO, Delridge, and International District/Chinatown stations, thereby increasing connectivity to communities to the south of the project corridor, such as White Center, Westwood Village, High Point, and Burien. These communities have ethnically and economically diverse populations. The project would expand mobility for the project corridor and the region's residents, which include transit-dependent and low-income populations and people of color. Connecting to the existing light rail would provide access to additional destinations such as Sea-Tac Airport and Tacoma. The WSBLE Project would provide connections to light rail projects currently being planned or under construction to Northgate, Bellevue, Redmond, Lynnwood, Everett, Tacoma, and Federal Way. Sound Transit would establish a Life and Safety Committee to oversee public safety and ensure it is maintained during planning, construction, and operation of the project. The project would increase transit ridership and decrease the number of commuters who rely on automobiles to travel through or around the city of Seattle. As a result, automotive congestion would decrease along the city's freight routes, leading to increased mobility and greater network connectivity for freight within Seattle. The project includes traffic mitigation measures that could improve freight corridors and increase mobility.
Transportation - The Regional Transportation Plan	**Policy MPP-T-12**: Emphasize transportation investments that provide and encourage alternatives to single-occupancy vehicle travel and increase travel options, especially to and within centers and along corridors connecting centers. **Policy MPP-T-13**: Increase the proportion of trips made by transportation modes that are alternatives to driving alone, especially to and within centers and along corridors connecting centers, by ensuring availability of reliable and competitive transit options. **Policy MPP-T-14**: Integrate transportation systems to make it easier for people to move from one mode or technology or another.	The WSBLE Project would increase transit ridership and decrease the number of commuters who rely on automobiles to travel through or around the city of Seattle. As a result, automotive congestion would decrease along the city's freight routes, thereby leading to increased mobility and greater network connectivity for freight within Seattle. The project includes traffic mitigation measures that could improve freight corridors and increase mobility. It would serve as an alternative to the single-occupant vehicle and also provide linkages to other travel modes (bus, rail, walking, and biking). This would support a more efficient transportation system with fewer cars. Regional vehicle miles traveled and average daily traffic for the project would be lower than the No Build Alternative when some people switch from driving to using light rail.

Topic	Policy and Goals	Discussion
Transportation- The Regional Transportation Plan	**Policy MPP-T-15**: Prioritize investments in transportation facilities and services in the urban growth area that support compact, pedestrian- and transit-oriented densities and development. **Policy MPP-T-19:** Design transportation programs and projects to support local and regional growth centers and high-capacity transit station areas. **Policy MPP-T-20:** Promote the preservation of existing rights-of-way for future high capacity transit. **Policy MPP-T-21:** Design transportation facilities to fit within the context of the built or natural environments in which they are located.	The project would efficiently move large numbers of people and encourage convenient and safe non-motorized access to stations, such as bicycle and pedestrian connections. It would generally follow existing transportation corridors, thereby limiting the amount of land that would be converted to a transportation use. The WSBLE Project would also provide connections to light rail projects currently being planned or under construction to Northgate, Bellevue, Redmond, Lynnwood, Everett, Tacoma, and Federal Way. Sound Transit is coordinating with Metro, Seattle Department of Transportation, and several other governmental agencies to ensure the project is integrated with existing and future transit opportunities. It would support TOD and mixed-use development in station areas where zoning allows for greater density. Sound Transit's TOD and Real Property Excess, Surplus, and Disposition policies would promote racial and social equitability in development that occurs in station areas and minimize displacement potential. Existing reduced-fare transit pass options would continue to exist and would apply to the project, when operational.
Transportation – Supporting the Economy	**Policy MPP-T-23:** Make transportation investments that improve economic and living conditions so that industries and skilled workers continue to be retained and attracted to the region.	The project would provide reliable, safe, and efficient transit to Seattle's downtown urban and economic core, as well as the Duwamish Manufacturing/Industrial Center and BINMIC. The project would improve regional mobility by increasing connectivity and capacity through Downtown Seattle and the regional light rail system to meet the projected transit demand. It would generally follow existing transportation corridors, thereby limiting the amount of land that would be converted to a transportation use. The project would facilitate faster and more reliable transit service to various destinations and services, such as jobs, education, shopping, and medical care. The WSBLE Project would create key transfer points at the SODO, Delridge, and International District/Chinatown stations, thereby increasing connectivity to communities to the south of the project corridor, such as White Center, Westwood Village, High Point, and Burien. These communities have an ethnically and economically diverse population.

Topic	Policy and Goals	Discussion
Transportation – Protecting the Environment	**Policy MPP-T-29:** Support the transition to a cleaner transportation system through investments in zero emission vehicles, low-carbon fuels, and other clean energy options. **Policy MPP-T-31**: Advance the resilience of the transportation system by incorporating redundancies, preparing for disasters and other impacts, and coordinated planning for system recovery. **Policy MPP-T-32:** Reduce stormwater pollution from transportation facilities and improve fish passage, through retrofits and updated design standards. Where feasible, integrate with other improvements to achieve multiple benefits and cost efficiencies.	The WSBLE Project would be entirely powered through electricity sourced from Seattle City Light, which uses hydroelectric power for almost all its power. Regional vehicle miles traveled and average daily traffic for the project would be lower than with the No Build Alternative when some people switch from driving to using light rail, thereby reducing regional vehicle emissions of criteria pollutants, mobile source air toxics, and greenhouse gases. As detailed in Section 3.3, the project is expected to reduce daily vehicle miles traveled by approximately 117,000 by 2042, helping to achieve Washington state's greenhouse gas emissions goals. The project is being designed to minimize effects to the natural environment, and impacts would be mitigated consistent with local, state, and federal requirements. The project would include stormwater detention and treatment to address impacts related to stormwater runoff. Sound Transit's Environmental Sustainability and Management System requires that low-impact operational stormwater management techniques be investigated and considered during the project design. Low-impact development stormwater management techniques would be evaluated during the design process.
Public Services	**Goal:** The region supports development with adequate public facilities and services in a timely, coordinated, efficient, and cost-effective manner that supports local and regional growth planning objectives.	The project is a voter-approved investment in high-capacity transit that would connect regional centers and implement a system that is technically and financially feasible to build, operate, and maintain. It would expand mobility for the corridor and the region's residents, which include transit-dependent and low-income populations and people of color. The WSBLE Project would increase connectivity between metro growth centers and urban growth centers as well as provide easy access to light rail and transit stations. Connecting to the existing light rail would provide access to additional destinations such as Sea-Tac Airport and Tacoma. The WSBLE Project would provide connections to light rail projects currently being planned or under construction to Northgate, Bellevue, Redmond, Lynnwood, Everett, Tacoma, and Federal Way.

Topic	Policy and Goals	Discussion
Public Services	**Policy MPP-PS-1:** Protect and enhance the environment and public health and safety when providing services and facilities.	Sound Transit's Fire/Life Safety Committee would review safety requirements and develop solutions regarding access to the light rail system, emergency routes, water and fire hydrant needs, training, costs, and other design features; specific emergency procedures and necessary equipment would be determined during final design. The WSBLE Project would be entirely powered through electricity sourced from Seattle City Light, which uses hydroelectric power for almost all its power. Regional vehicle miles traveled and average daily traffic for the project would be lower than the No Build Alternative when some people switch from driving to using light rail, thereby reducing regional vehicle emissions of criteria pollutants, mobile source air toxics, and greenhouse gases. The project is being designed to minimize effects to the natural environment, and impacts would be mitigated consistent with local, state, and federal requirements. Design of stations would include context-sensitive design. Sound Transit would implement CPTED design principles aiming to reduce criminal activities at stations. Other measures to minimize crime could include use of security equipment, anti-crime programs, and security personnel. Sound Transit would also develop design criteria that provide a consistent architectural theme for all elevated elements and for features such as stations, using durable materials, while reflecting the individual characters of station areas. These criteria would be developed with input from the City of Seattle. Visual and aesthetic resources are discussed in Sections 4.2,5 and 4.3.5 in Chapter 4 of the Draft Environmental Impact Statement.

Topic	Policy and Goals	Discussion
Public Services	**Policy MPP-PS-2:** Promote affordability and equitable access of public services to all communities, especially the historically underserved. Prioritize investments to address disparities. **Policy MPP-PS-29**: Site or expand regional capital facilities in a manner that (1) reduces adverse social, environmental, and economic impacts on the host community, especially on historically marginalized communities, (2) equitably balances the location of new facilities away from disproportionately burdened communities, and (3) addresses regional planning objectives.	The project would support continued growth within the designated growth centers and would support TOD in station areas where zoning allows for greater density. It would support TOD in station areas where zoning allows for greater density. Sound Transit's TOD and Real Property Excess, Surplus, and Disposition policies would promote racial and social equitability in development that occurs in station areas and minimize displacement potential. Existing reduced-fare transit pass options would continue to exist and would apply to the project, once operational. The WSBLE Project would create key transfer points at the SODO, Delridge, and International District/Chinatown stations, increasing connectivity to communities to the south of the project corridor, such as White Center, Westwood Village, High Point, and Burien. These communities have an ethnically and economically diverse population. It would expand mobility for the corridor and the region's residents, which include transit-dependent and low-income populations and people of color. Connecting to the existing light rail would provide access to additional destinations such as Sea-Tac Airport and Tacoma. The WSBLE Project would also provide a connection to the existing light rail in the Chinatown-International District, thereby providing access to additional destinations such as Sea-Tac Airport.

Source: Puget Sound Regional Council 2020.
BINMIC = Ballard Interbay Northend Manufacturing/Industrial Center; CPTED = Crime Prevention Through Environmental Design; FTA = Federal Transit Administration; Sea-Tac Airport = Seattle-Tacoma International Airport; TOD = transit-oriented development

Table L4.2-2. Project Consistency with City of Seattle Comprehensive Plan

Topic	Policy and Goals	Discussion
Growth Strategy	**Goal GS G1:** Keep Seattle as a city of unique, vibrant, and livable urban neighborhoods, with concentrations of development where all residents can have access to employment, transit, and retail services that can meet their daily needs. **Policy GS 1.2:** Encourage investments and activities in urban centers and urban villages that will enable those areas to flourish as compact mixed-use neighborhoods designed to accommodate the majority of the city's new jobs and housing. **Policy GS 1.5:** Encourage infill development in underused sites, particularly in urban centers and villages. **Policy GS 1.6:** Plan for development in urban centers and urban villages in ways that will provide all Seattle households, particularly marginalized populations, with better access to services, transit, and educational and employment opportunities. **Policy GS 1.7:** Promote levels of density, mixed uses, and transit improvements in urban centers and villages that will support walking, biking, and use of public transportation.	The WSBLE Project would provide high-quality rapid, reliable, and efficient light rail transit service to communities in the project corridor, connecting urban villages and urban centers. The project would serve as a catalyst for TOD in the areas surrounding stations, where zoning allows greater densities. Following construction, remnant land could become available for redevelopment or joint development. Any TOD on surplus land owned by Sound Transit in station areas would follow the implementation strategy for Sound Transit's TOD program. The WSBLE Project would create key transfer points at the SODO, Delridge, and International District/Chinatown stations, increasing connectivity to communities to the south of the project corridor, such as White Center, Westwood Village, High Point and Burien. These communities have an ethnically and economically diverse population. The WSBLE Project would also provide a connection to the existing light rail in the Chinatown-International District, providing access to additional destinations such as Sea-Tac Airport. The project would facilitate faster and more reliable transit service to various destinations and services, such as jobs, education, shopping, and medical care.

Topic	Policy and Goals	Discussion
Growth Strategy	**Policy GS 2.1:** Plan for a variety of uses and the highest densities of both housing and employment in Seattle's urban centers, consistent with their role in the regional growth strategy. **Policy GS 2.3:** Accommodate a substantial portion of the city's growth in hub and residential urban villages. **Policy GS 2.4:** Work toward a distribution of growth that eliminates racial and social disparities by growing great neighborhoods throughout the city, with equitable access for all and with community stability that reduces the potential for displacement.	The WSBLE Project would provide high-quality rapid, reliable, and efficient light rail transit service to communities in the project corridor, connecting urban villages and urban centers. The WSBLE Project would serve as a catalyst for TOD in the areas surrounding stations, where zoning allows greater densities. Following construction, remnant land could become available for redevelopment or joint development. Any TOD on surplus land owned by Sound Transit in station areas would follow the implementation strategy for Sound Transit's TOD program. Sound Transit's TOD and Real Property Excess, Surplus, and Disposition policies promote racial and social equitability for development that occurs in station areas and minimize displacement potential. The project would expand mobility for the corridor and the region's residents, which include transit-dependent and low-income populations and people of color. Connecting to the existing light rail will provide access to additional destinations such as Sea-Tac Airport and Tacoma. The WSBLE Project will provide connections to light rail projects currently being planned or under construction to Northgate, Bellevue, Redmond, Lynnwood, Everett, Tacoma, and Federal Way.
Growth Strategy	**Policy GS 3.2:** Design public facilities to emphasize physical and visual connections to Seattle's natural surroundings, with special attention to public vistas of shorelines, the Olympic Mountains, and the Cascade Range. **Policy GS 3.10:** Design public infrastructure and private building developments to help visitors understand the existing block and street patterns and to reinforce the walkability of neighborhoods. **Policy GS 3.16:** Encourage designs for buildings and public spaces that maximize use of natural light and provide protection from inclement weather.	The WSBLE Project would generally follow existing transportation corridors, limiting the amount of land that would be converted to a transportation use. It would encourage convenient and safe non-motorized access to stations, such as bicycle and pedestrian connections, Sound Transit would develop design criteria that provide a consistent architectural theme for all elevated elements and for features such as stations, using durable materials, while reflecting the individual character of each station area. These criteria would be developed with input from the communities near stations and the City of Seattle. Station platforms and entrances would have overhead canopies, and elevated platforms would offer weather protection for customers.

Topic	Policy and Goals	Discussion
Growth Strategy	**Policy GS 3.26:** Design public spaces that consider the nearby physical context and the needs of the community. **Policy GS 3.27:** Use the principles of crime prevention through environmental design for public spaces, where appropriate.	Sound Transit would develop design criteria that provide a consistent architectural theme for all elevated elements and for features such as stations, using durable materials, while reflecting the individual character of each station area. These criteria would be developed with input from the communities near stations and the City of Seattle. WSBLE station design would use CPTED principles and include numerous features such as abundant light, open access, and visibility to address security issues. CPTED design measures would also control passenger movements with specific traffic flow patterns and include closed-circuit television cameras, emergency telephones, controlled exits, and sealed fare boxes.
Land Use	**Goal LU G1:** Achieve a development pattern consistent with the urban village strategy, concentrating most new housing and employment in urban centers and villages, while also allowing some infill development compatible with the established context in areas outside centers and villages. **Policy LU 1.6:** Consider and seek to reduce the potential health impacts of air pollution on residential populations and other sensitive uses near corridors with high volumes of vehicle traffic, the King County Airport, major rail yards, freight routes, and point sources of pollution.	The WSBLE Project would provide high-quality rapid, reliable, and efficient light rail transit service to communities in the project corridor, connecting urban villages and urban centers. Sound Transit's TOD policy supports and encourages the creation of market-rate and affordable housing options in station areas. It provides the groundwork for the TOD Program and establishes a framework for implementing TOD strategies with the regional transit system. Following construction, remnant land could become available for redevelopment or joint development. The WSBLE Project would be entirely powered through electricity sourced from Seattle City Light, which uses hydroelectric power for almost all its power. Regional vehicle miles traveled and average daily traffic for the WSBLE would be lower than the No Build Alternative when some people switch from driving to using light rail, thereby reducing regional vehicle emissions of criteria pollutants, mobile source air toxics, and greenhouse gases. The project is being designed to minimize effects to the natural environment and impacts will be mitigated consistent with local, state, and federal requirements.

Topic	Policy and Goals	Discussion
Land Use	**Goal LU G3:** Allow public facilities and small institutions to locate where they are generally compatible with the function, character, and scale of an area, even if some deviation from certain regulations is necessary. **Policy LU 3.2:** Allow public facilities and small institutions to depart from development standards, if necessary to meet their particular functional requirements, while maintaining general design compatibility with the surrounding area's scale and character. Require public facilities and small institutions to adhere to zoned height limits, Citywide Planning Land Use Seattle 2035 45 except for spires on religious institutions. Consider providing greater flexibility for schools in recognition of their important role in the community. **Policy LU 3.5:** Allow nonconforming public facilities and small institutions to expand or make structural changes, provided these alterations comply with the zone's development standards and do not increase the structure's nonconformity.	The WSBLE Project would generally be compatible with the function, character, and scale of station areas. Within the Delridge Segment, there would be a new station in a single-family residential zone. The top of this station would be higher than what is allowed in this zone. As provided in Seattle Municipal Code 23.80.004.C(5), the Seattle Department of Construction & Inspections' Director has the authority to waive or modify applicable development standards to allow the siting, proper functioning, and lessen environmental impacts of such facilities. The code also includes the Director's authority to accommodate future development that will comply with development standards in a manner that is better than if the waiver or modification were not granted.
Land Use – Off-Street Parking	**Policy LU 6.15:** Discourage the development of major stand-alone park-and-ride facilities within Seattle. Additions to park-and-ride capacity could be considered at the terminus of a major regional transit system, where opportunities exist for shared parking, or where alternatives to automobile use are particularly inadequate or cannot be provided in a cost-effective manner.	The WSBLE Project does not include any parking facilities, including park-and-rides. The WSBLE would increase connectivity with transit systems that include park-and-ride facilities.
Land Use	**Policy LU 9.2:** Encourage the development of compact, concentrated commercial/mixed-use areas, in urban centers and urban villages, where pedestrians can easily access transit and a variety of businesses.	Neighborhoods served by light rail stations would benefit from increased transit access to Downtown Seattle and other areas in the Puget Sound region accessible by light rail. The WSBLE Project would encourage convenient and safe non-motorized access to stations, such as bicycle and pedestrian connections. It would encourage equitable and sustainable urban growth in station areas through support of TOD and multi-modal integration.

Topic	Policy and Goals	Discussion
Land Use	**Goal LU G10:** Provide sufficient land with the necessary characteristics to allow industrial activity to thrive in Seattle and protect the preferred industrial function of these areas from activities that could disrupt or displace them. **Policy LU 10.2:** Preserve industrial land for industrial uses, especially where industrial land is near rail- or water-transportation facilities, in order to allow marine- and rail-related industries that rely on that transportation infrastructure to continue to function in the city.	The WSBLE Project would provide greater connectivity to the Duwamish Manufacturing/Industrial Center and BINMIC. It would generally follow existing transportation corridors, limiting the amount of land that would be converted to a transportation use. In some segments, the WSBLE would convert Manufacturing/Industrial Center land to a transportation use.
Land Use	**Goal LU G11:** Promote Downtown Seattle as an urban center with the densest mix of residential and commercial development in the region, with a vital and attractive environment that supports employment and residential activities and is inviting to visitors.	The WSBLE Project would improve regional mobility by increasing connectivity and capacity through Downtown Seattle and the regional light rail system. It would encourage equitable and sustainable urban growth in station areas through support of TOD and multi-modal integration.
Land Use	**Policy LU 17.1:** Use best available science to identify and protect environmentally critical areas. **Policy LU 17.10:** Limit disturbance and maintain and enhance vegetative cover on steep slopes to control erosion and water runoff in order to reduce the risk of siltation and other environmental impacts to streams, lakes, Puget Sound, and the City's stormwater facilities. **Policy LU 17.16:** Protect Seattle's unique remaining wetland resources and use mitigation sequencing to address construction and postconstruction impacts in wetlands and their buffers by strictly regulating development. **Policy LU 17.18:** Protect existing vegetation in wetlands and their buffers, unless augmenting or replanting can be shown to better protect the wetland's functions and values. **Policy LU 17.22:** Limit development within the riparian corridor to protect the natural functions and values of these areas from the potential negative effects of urban development. Retain vegetation in its natural condition. If the vegetation within the riparian corridor is degraded, allow new native plantings that enhance the functions and values of the riparian corridor.	The project will be designed to minimize vegetation removal where possible and implement best management practices to control erosion. The WSBLE Project would be designed to reduce risks of injury and loss of life during earthquake or seismic activity. The WSBLE Project would generally follow existing transportation corridors, limiting the amount of land that would be converted to a transportation use. The WSBLE Project would impact some wetlands within the project corridor. To the extent that impacts cannot be avoided, Sound Transit would provide compensatory mitigation to achieve no net loss of ecosystem function and acreage. The WSBLE Project would also include stormwater detention and treatment to address impacts related to stormwater runoff. Sound Transit's Environmental Sustainability and Management System requires that low-impact operational stormwater management techniques be investigated and considered during the project design. Low-impact development stormwater management techniques would be evaluated during the design process. Sound Transit would consider Green Stormwater Infrastructure, which would help filter pollutants, lessen urban heat islands, and sequester carbon while providing local neighborhoods with aesthetic and natural resource benefits.

Topic	Policy and Goals	Discussion
Transportation	**Goal TG1:** Ensure that transportation decisions, strategies, and investments support the City's overall growth strategy and are coordinated with this Plan's land use goals. **Policy T 1.1:** Provide safe and reliable transportation facilities and services to promote and accommodate the growth this Plan anticipates in urban centers, urban villages, and manufacturing/industrial centers. **Policy T 1.2:** Improve transportation connections to urban centers and villages from all Seattle neighborhoods, particularly by providing a variety of affordable travel options (pedestrian, transit, and bicycle facilities) and by being attentive to the needs of vulnerable and marginalized communities. **Policy T 1.3:** Design transportation infrastructure in urban centers and villages to support compact, accessible, and walkable neighborhoods for all ages and abilities. **Policy T 1.4:** Design transportation facilities to be compatible with planned land uses and consider the planned scale and character of the surrounding neighborhood. **Policy T1.7:** Recognize the connection between transportation choices and climate change and work to reduce vehicular emissions.	The WSBLE Project would provide high-quality rapid, reliable, and efficient light rail transit service to communities in the project corridor, connecting urban villages and urban centers. It would encourage equitable and sustainable urban growth in station areas through support of TOD and multi-modal integration. It would also encourage convenient and safe non-motorized access to stations, such as bicycle and pedestrian connections. The WSBLE Project would be entirely powered through electricity sourced from Seattle City Light, which uses hydroelectric power for almost all its power. Regional vehicle miles traveled and average daily traffic for the project would be lower than the No Build Alternative when some people switch from driving to using light rail, thereby reducing regional vehicle emissions of criteria pollutants, mobile source air toxics, and greenhouse gases. The project is being designed to minimize effects to the natural environment and impacts will be mitigated consistent with local, state, and federal requirements. Sound Transit would develop design criteria that provide a consistent architectural theme for all elevated elements and for features such as stations, using durable materials, while reflecting the individual character of each station area. These criteria would be developed with input from the communities near stations and the City of Seattle.
Transportation	**Goal TG 2:** Allocate space on Seattle's streets to safely and efficiently connect and move people and goods to their destinations while creating inviting spaces within the rights-of-way. **Policy T 2.1:** Devote space in the street right-of-way to accommodate multiple functions of mobility, access for commerce and people, activation, landscaping, and storage of vehicles. **Policy T 2.2:** Ensure that the street network accommodates multiple travel modes, including transit, freight movement, pedestrians, people with disabilities, bicycles, general purpose traffic, and shared-transportation options.	The WSBLE Project would generally follow existing transportation corridors, limiting the amount of land that would be converted to a transportation use. It would encourage convenient and safe non-motorized access to stations, such as bicycle and pedestrian connections. Stations would be designed to include art installations from local artists designed to enhance the public spaces they occupy. The WSBLE Project would expand mobility for the corridor and the region's residents, which include transit-dependent and low-income populations and people of color. Also, the WSBLE Project would provide increased connectivity for the local populations, which include low-income and people of color. Connecting to the existing light rail will provide access to additional destinations such as Sea-Tac Airport and Tacoma. The project will provide connections to light rail projects currently being planned or under construction to Northgate, Bellevue, Redmond, Lynnwood, Everett, Tacoma, and Federal Way.

Topic	Policy and Goals	Discussion
Transportation	**Goal TG 3:** Meet people's mobility needs by providing equitable access to, and encouraging use of, multiple transportation options. **Policy T 3.1:** Develop and maintain high-quality, affordable, and connected bicycle, pedestrian, and transit facilities. **Policy T 3.2:** Improve transportation options to and within the urban centers and urban villages, where most of Seattle's job and population growth will occur. **Policy T 3.4:** Develop a citywide transit system that includes a variety of transit modes to meet passenger capacity needs with frequent, reliable, accessible, and safe service to a wide variety of destinations throughout the day and week. **Policy T 3.9:** Expand light rail capacity and bus reliability in corridors where travel capacity is constrained, such as crossing the Lake Washington Ship Canal or the Duwamish River, or through the Center City. **Policy T 3.10:** Provide high-quality pedestrian, bicycle, and bus transit access to high-capacity transit stations, in order to support transit ridership and reduce single-occupant vehicle trips.	The WSBLE Project would provide high-quality rapid, reliable, and efficient light rail transit service to communities in the project corridor. It would encourage convenient and safe non-motorized access to stations, such as bicycle and pedestrian connections. It would also connect urban villages and urban centers, where most of the job and population growth will occur. The WSBLE Project would improve regional mobility by increasing connectivity and capacity through Downtown Seattle and the regional light rail system to meet the projected transit demand. Effective transit can help avoid or reduce the expense of automobile ownership and provide critical access to economic opportunity for disadvantaged populations. It would improve access to regional destinations for all populations. Existing reduced-fare transit pass options would continue to exist and would apply to the project, once operational. The WSBLE Project would generally follow existing transportation corridors, limiting the amount of land that would be converted to a transportation use. The project would cross the Lake Washington Ship Canal (Salmon Bay) and the Duwamish Waterway (also known as Duwamish River). The Ballard Link Extension includes in a new transit tunnel in Downtown Seattle.
Transportation	**Goal TG 4:** Promote healthy communities by providing a transportation system that protects and improves Seattle's environmental quality. **Policy T 4.3:** Reduce drive-alone vehicle trips, vehicle dependence, and vehicle miles traveled in order to help meet the City's greenhouse gas reduction targets and reduce and mitigate air, water, and noise pollution. **Policy T 4.4:** Manage the transportation system to support modes that reduce the use of fossil fuels and promote the use of alternative fuels.	The WSBLE Project would be entirely powered through electricity sourced from Seattle City Light, which uses hydroelectric power for almost all its power. Regional vehicle miles traveled and average daily traffic for the project would be lower than the No Build Alternative when some people switch from driving to using light rail, thereby reducing regional vehicle emissions of criteria pollutants, mobile source air toxics, and greenhouse gases. As described in Section 3.3, the project is expected to reduce daily vehicle miles traveled by approximately 115,000 by 2042, helping to achieve Washington state's greenhouse gas emissions goals. The project is being designed to minimize effects to the natural environment and impacts will be mitigated consistent with local, state, and federal requirements. As described in Section 4.2.7, Noise and Vibration, and Section 4.3.7, Noise and Vibration, Sound Transit would provide noise mitigation where the project would exceed FTA noise criteria for operations. Sound Transit would adhere to the City's noise ordinance for construction noise.

Topic	Policy and Goals	Discussion
Transportation	**Policy T 5.5:** Evaluate the feasibility of grade separation in locations where train-induced street closings result in significant delays and safety issues for other traffic and improve the safety and operational conditions at rail crossings of city streets. **Policy T 5.8:** Increase efficient and affordable access to jobs, education, and workforce training in order to promote economic opportunity. **Policy T 5.9:** Improve access to urban villages and other neighborhood business districts for customers and delivery of goods.	The WSBLE Project would not require any new at-grade roadway crossings. Build Alternatives in the SODO Segment would eliminate one or two existing at-grade crossings of the existing Central Link light rail line. It would provide high-quality rapid, reliable, and efficient light rail transit service to communities in the project corridor, connecting urban villages and urban centers. It would expand mobility for the corridor and the region's residents, which include transit-dependent and low-income populations and people of color. Effective transit can help avoid or reduce the expense of automobile ownership and provide critical access to economic opportunity for disadvantaged populations. The WSBLE Project would create key transfer points at the SODO, Delridge, and International District/Chinatown stations, thus increasing connectivity to communities to the south of the project corridor, such as White Center, Westwood Village, High Point, and Burien. These communities have an ethnically and economically diverse population. Connecting to the existing light rail will provide access to additional destinations such as Sea-Tac Airport and Tacoma. The project will provide connections to light rail projects currently being planned or under construction to Northgate, Bellevue, Redmond, Lynnwood, Everett, Tacoma, and Federal Way.
Transportation	**Goal TG 6:** Provide and maintain a safe transportation system that protects all travelers, particularly the most vulnerable users. **Policy T 6.1:** Reduce collisions for all modes of transportation and work toward a transportation system that produces zero fatalities and serious injuries by 2030 to attain the City's Vision Zero objectives. **Policy T 6.4:** Minimize right-of-way conflicts to safely accommodate all travelers. **Policy T 6.5:** Improve safety for all modes of transportation on streets heavily used by trucks. **Policy T 6.8:** Make safety a priority in all transportation plans and projects, including project prioritization criteria.	Sound Transit's Fire/Life Safety Committee would review safety requirements and develop solutions regarding access to the light rail system, emergency routes, water and fire hydrant needs, training, costs, and other design features; specific emergency procedures and necessary equipment would be determined during final design. No new at-grade crossings of roadways are proposed as part of the WSBLE. Build Alternatives in the SODO Segment would eliminate one or two existing at-grade crossings of the existing Central Link light rail line. WSBLE station design would use the principles of CPTED and include numerous features, such as abundant light, open access, and visibility, to address security issues. CPTED design measures would also control passenger movements with specific traffic flow patterns and include closed-circuit television cameras, emergency telephones, controlled exits, and sealed fare boxes.

Topic	Policy and Goals	Discussion
Transportation	**Policy T 7.1:** Coordinate with regional, state, and federal agencies; other local governments; and transit providers when planning and operating transportation facilities and services that reach beyond the city's borders. **Policy T 7.6:** Work with regional transit agency partners to expand and optimize cross-jurisdictional regional light rail and bus transit service investments that function as a single, coordinated system to encourage more trips to, from, and within Seattle on transit. **Policy T 7.7:** Work with regional transit agencies to encourage them to provide service that is consistent with this Plan's growth goals and strategy.	Sound Transit is coordinating with Metro, Seattle Department of Transportation, and several other governmental agencies to ensure the project is integrated with existing and future transit opportunities. The WSBLE Project would provide connections from within the city to other light rail projects, including connections under construction to Northgate, Bellevue, Redmond, Lynnwood, and Federal Way. Extension; commuter rail (Sounder); and bus routes that extend beyond the city and into the Puget Sound region. The WSBLE Project would serve as a catalyst for mixed-use development around station areas, where local zoning allows for it. This redevelopment would support concentrated growth in designated areas and reduce urban sprawl, consistent with Seattle's growth plan and strategy.

Topic	Policy and Goals	Discussion
Transportation	**Policy T 8.2:** Operate the transportation system in a way that balances the following priorities: safety, mobility, accessibility, social equity, placemaking, infrastructure preservation, and resident satisfaction. **Policy T 8.3:** Employ state-of-the-art intelligent transportation systems to increase efficiency of movement and reduce travel delays for all modes. **Policy T 8.7:** Mitigate construction impacts from City and private projects on the use of the street right-of-way and on the operation of the transportation system, especially for vulnerable populations. **Policy T 8.8:** Look for innovative ways to create training, youth employment, and living wage opportunities for marginalized populations in the construction and major maintenance of transportation facilities.	The WSBLE Project would expand mobility for the corridor and the region's residents, which include transit-dependent and low-income populations and people of color. It would provide fast, reliable light rail connections to dense residential and job centers throughout the Puget Sound region, while the new Downtown Seattle light rail tunnel would provide capacity for the entire regional system to operate efficiently. Connecting to the existing light rail will provide access to additional destinations such as Sea-Tac Airport and Tacoma. The project will provide connections to light rail projects currently being planned or under construction to Northgate, Bellevue, Redmond, Lynnwood, Everett, Tacoma, and Federal Way. The WSBLE Project would generally follow existing transportation corridors, limiting the amount of land that would be converted to a transportation use. The WSBLE Project would be tunneled or elevated in much of the corridor. Sound Transit would develop design criteria that provide a consistent architectural theme for all elevated elements and for features such as stations, using durable materials, while reflecting the individual character of each station area. These criteria would be developed with input from the communities near stations and the City of Seattle. Sound Transit's Fire/Life Safety Committee would review safety requirements and develop solutions regarding access to the light rail system, emergency routes, water and fire hydrant needs, training, costs, and other design features; specific emergency procedures and necessary equipment would be determined during final design. No new at-grade crossings of roadways are proposed as part of the WSBLE Project. Build Alternatives in the SODO Segment would eliminate one or two existing at-grade crossings of the existing Central Link light rail line. WSBLE station design would use the principles of CPTED and include numerous features, such as abundant light, open access, and visibility, to address security issues. CPTED measures would also control passenger movements with specific traffic flow patterns and include closed-circuit television cameras, emergency telephones, controlled exits, and sealed fare boxes. The WSBLE Project would provide a fast, efficient, and reliable transit system for people including low-income and special-needs populations and people of color. Connecting to the existing light rail will provide access to additional destinations such as Sea-Tac Airport and Tacoma. The WSBLE Project will provide connections to light rail projects currently being planned or under construction to Northgate, Bellevue, Redmond, Lynnwood, Everett, Tacoma, and Federal Way.

Topic	Policy and Goals	Discussion
Transportation	**Policy T 9.3:** Pursue strategies to reduce drive-alone trips in order to increase the ability of the city's transportation network to carry people and goods.	Regional vehicle miles traveled and average daily traffic for the project would be lower than the No Build Alternative when some people switch from driving to using light rail, thereby reducing regional vehicle emissions of criteria pollutants, mobile source air toxics, and greenhouse gases. As detailed in Section 3.3, the project is anticipated to reduce daily vehicle miles traveled by approximately 115,000 by 2042, helping to achieve Washington state's greenhouse gas emissions goals.
Transportation	**Goal TG 10:** Ensure that transportation funding is sufficient to operate, maintain, and improve the transportation system that supports the City's transportation, land use, economic, environmental, equity, and other goals. **Policy T 10.4:** Partner with other City departments, as well as regional transportation and public works agencies, to coordinate investments, maximize project integration, reduce improvement costs, and limit construction impacts on neighborhoods.	The WSBLE Project is part of the Sound Transit 3 plan of regional transit system investments, funding for which was approved by voters in the region in 2016. Sound Transit will work with the City and other agencies to maximize project benefits and limit construction impacts.
Environment	**Policy EN 1.9:** Work with other levels of government and with the private sector to support and encourage the cleanup of contaminated soil and other environmental remediation associated with the re-use or expansion of industrial sites.	To the extent practicable, Sound Transit would limit construction activities that would encounter contaminated soil and groundwater.
Environment	**Policy EN 2.6:** Promote quality wildlife habitats in Seattle's waterways by protecting and improving migratory fish passageways, spawning grounds, wetlands, estuaries, and river mouths.	Sound Transit would minimize long-term and construction impacts by avoiding contaminated sites or portions of sites when possible. Sound Transit would perform environmental due diligence for properties along the corridor before acquisition or construction to avoid or minimize impacts from contaminated sites. Section 4.2.12, Hazardous Materials, and Section 4.3.12, Hazardous Materials, provide more information. The project is being designed to minimize effects to the natural environment and impacts will be mitigated consistent with local, state, and federal requirements.

Topic	Policy and Goals	Discussion
Environment	**Goal EN G3:** Reduce Seattle's greenhouse gas emissions by 58 percent from 2008 levels by 2030, and become carbon neutral by 2050. **Policy EN 3.1:** Expand transit, walking, bicycling, and shared-transportation infrastructure and services to provide safe, affordable and effective options for getting around that produce low or zero emissions, particularly for lower-income households and communities of color. **Policy EN 3.2:** Implement the urban village strategy with the goal of meeting the growing demand for conveniently located homes and businesses in pedestrian-friendly neighborhoods where residents can walk to a variety of recreation and service offerings, in order to increase the number of trips that do not require automobile use and increase access to opportunity for lower-income households and communities of color. **Policy EN 4.1:** Consider projected climate impacts when developing plans or designing and siting infrastructure, in order to maximize the function and longevity of infrastructure investments, while also limiting impacts on marginalized populations and fostering resilient social and natural systems.	The WSBLE Project would provide a fast, efficient, and reliable transit system for people including low-income and special-needs populations and people of color. Connecting to the existing light rail will provide access to additional destinations such as Sea-Tac Airport and Tacoma. The project will provide connections to light rail projects currently being planned or under construction to Northgate, Bellevue, Redmond, Lynnwood, Everett, Tacoma, and Federal Way. The WSBLE Project would help reduce greenhouse gases and improve air quality by providing an alternative to automobile travel that would reduce vehicle miles traveled. The WSBLE Project would be entirely powered through electricity sourced from Seattle City Light, which uses hydroelectric power for almost all its power. Regional vehicle miles traveled and average daily traffic for the project would be lower than the No Build Alternative when some people switch from driving to using light rail, thereby reducing regional vehicle emissions of criteria pollutants, mobile source air toxics, and greenhouse gases. As detailed in Section 3.3, the project design considers climate impacts, and is anticipated to reduce daily vehicle miles traveled by approximately 115,000 by 2042, helping to achieve Washington state's greenhouse gas emissions goals. The project is being designed to minimize effects to the natural environment and impacts will be mitigated consistent with local, state, and federal requirements. The WSBLE Project would support the urban village strategy by providing connections to urban centers and urban villages with a fast, efficient, and reliable transit system. It would promote mixed-use development to allow growth at greater density, where existing land use policies and regulations allow. The increased density would be a more efficient use of land and promote efficient provision of services and facilities. Following construction, remnant land could become available for redevelopment or joint development. Any TOD on surplus land owned by Sound Transit in station areas would follow the implementation strategy for Sound Transit's TOD policy and program.

Topic	Policy and Goals	Discussion
Environment	**Goal EN G5:** Seek to ensure that environmental benefits are equitably distributed and environmental burdens are minimized and equitably shared by all Seattleites. **Policy EN 5.3:** Prioritize strategies with co-benefits that support other equity goals such as promoting living wage jobs or enhancing social connectedness.	The WSBLE Project would provide a fast, efficient, and reliable transit system for people including low-income and special-needs populations and people of color. Neighborhoods served by light rail stations would benefit from increased transit access to Downtown Seattle and other areas in the Puget Sound region accessible by light rail. The project would provide increased access to locations around the city for pedestrians, bicyclists, and those with mobility challenges. It would provide transfer points for communities south of the Delridge Station, including White Center, Westwood Village, and High Point. These communities have an ethnically and economically diverse population. Connecting to the existing light rail will provide access to additional destinations such as Sea-Tac Airport and Tacoma. The project will provide connections to light rail projects currently being planned or under construction to Northgate, Bellevue, Redmond, Lynnwood, Everett, Tacoma, and Federal Way. Sound Transit's TOD and Real Property Excess, Surplus, and Disposition policies would promote racial and social equitability in development that occurs in station areas and minimize displacement potential. Existing reduced-fare transit pass options would continue to exist and would apply to the project, once operational.
Parks and Open Space	**Policy P 4.3:** Recognize that visitors to major regional attractions can impact the neighborhoods surrounding those facilities, and look for ways to limit those impacts, including through enhanced walking, biking, and transit connections.	The WSBLE Project would provide a reliable, efficient, and fast light rail transit service to communities in the project corridor. It would encourage convenient and safe non-motorized access to stations, such as bicycle and pedestrian connections. The WSBLE Project would provide connections to attractions such as Seattle Center, and would expand transit options and connections to West Seattle, Downtown, and Ballard neighborhoods.

Topic	Policy and Goals	Discussion
Community Well-Being	**Policy CW 6.1:** Enhance opportunities for people with low incomes, disabilities, limited English, cultural barriers, time constraints, transportation limitations, and other barriers to gain access to services they need.	The WSBLE Project would provide a fast, efficient, and reliable transit system for people including low-income and special-needs populations and people of color. Neighborhoods served by light rail stations would benefit from increased transit access to Downtown Seattle and other areas in the Puget Sound region accessible by light rail. The project would provide increased access to locations around the city for pedestrians, bicyclists, and those with mobility challenges. It would provide transfer points for communities south of the Delridge Station, including White Center, Westwood Village, and High Point. These communities have an ethnically and economically diverse population. Connecting to the existing light rail will provide access to additional destinations such as Sea-Tac Airport and Tacoma. The project will provide connections to light rail projects currently being planned or under construction to Northgate, Bellevue, Redmond, Lynnwood, Everett, Tacoma, and Federal Way. Sound Transit's TOD and Real Property Excess, Surplus, and Disposition policies would promote racial and social equitability in development that occurs in station areas and minimize displacement potential. Existing reduced-fare transit pass options would continue to exist and would apply to the project, once operational.
Shoreline Areas	**Goal SA G4:** Protect ecological function of those areas of shoreline that are biologically significant or that are geologically fragile.	Several alignment alternatives include elevated guideways and bridges that could impact shorelines. However, the project will be designed to minimize impacts as appropriate. Sound Transit would provide mitigation for unavoidable impacts on shorelines protected under federal, state, and local regulations.
Shoreline Areas	**Goal SA G8:** Provide a transportation network that supports and enhances use of and access to the shorelines. **Policy SA P15:** Provide public transportation convenient to the shoreline.	The WSBLE Project would connect riders to stations close to the West Seattle, Downtown, Interbay, and Ballard shorelines. From these stations, riders could connect to other transportation options (bike, bus, walk) to access the shoreline. These new connections would reduce the need for automotive transportation.

Topic	Policy and Goals	Discussion
Shoreline Areas	**Goal SA G12:** Preserve, protect, and restore areas necessary for the support of terrestrial and aquatic life or those identified as having geological or biological significance. **Policy SA P19:** Use mitigation sequencing to meet no net loss of ecological functions. Mitigation sequencing refers to taking steps in this order: avoid, rectify, minimize, and/or compensate for the loss to ecological functions. **Policy SA P22:** Develop methods to measure both the impacts of development in the Shoreline District and the effects of mitigation so that no net loss of ecological function occurs through development projects. **Policy SA P24:** Conserve existing shoreline vegetation and encourage new shoreline plantings with native plants to protect habitat and other ecological functions, reduce the need for shoreline stabilization structures, and improve visual and aesthetic qualities of the shoreline. **Policy SA P32:** Work with other government agencies and shoreline users to reduce the input of pollutants, to restore contaminated areas, to control disposal of dredge spoils, and to determine the appropriate mitigation for project impacts.	The WSBLE Project incorporates avoidance and minimization techniques, which would continue to be refined during final design. For unavoidable impacts, Sound Transit would implement compensatory mitigation in accordance with applicable federal, state, and local requirements and guidelines.
Shoreline Areas	**Policy SA P48:** Avoid impacts to areas identified as archaeologically and historically significant, unless no reasonable alternative locations exist and impacts to the resource are mitigated.	The WSBLE Project would minimize impacts to archaeological and historic resources through the application of best management practices during construction and operation. Where impacts cannot be avoided or minimized, mitigation measures would be developed.
Shoreline Areas	**Policy SA P61:** Minimize impacts on navigation, public views, and ecological functions.	The WSBLE Project incorporates avoidance and minimization techniques, which would continue to be refined during final design. Sound Transit would implement compensatory mitigation in accordance with applicable federal, state, and local requirements and guidelines for unavoidable impacts. The project includes coordination with the Coast Guard to address navigational requirements.
Shoreline Areas	**Policy SA P88:** Preserve and enhance the resources of natural areas and fish migration routes, feeding areas, and spawning areas.	The WSBLE Project incorporates avoidance and minimization techniques, which would continue to be refined during final design. Sound Transit would implement compensatory mitigation in accordance with applicable federal, state, and local requirements and guidelines for unavoidable impacts.

Source: City of Seattle 2018a

Table L4.2-3. Project Consistency with City of Seattle Neighborhood Plans

Topic	Policy and Goals	Discussion
Ballard Interbay Northend Manufacturing/Industrial Center	**Policy BI-P2:** Preserve land in the BINMIC for industrial activities such as manufacturing, warehousing, marine uses, transportation, utilities, construction, and services to businesses. **Policy BI-P4:** Attract new businesses to the BINMIC.	The Ballard Link Extension would generally follow existing transportation corridors, limiting the amount of land that would be converted to a transportation use. The Ballard Link Extension would expand mobility for the corridor and region's residents, providing increased access for employees to commercial and industrial areas.
Ballard Interbay Northend Manufacturing/Industrial Center	**Goal BI-G3:** Work in conjunction with King County/Metro to promote increased transit to and through the BINMIC, and transit ridership to BINMIC businesses.	The Ballard Link Extension would provide reliable, safe, and efficient light rail transit services to communities in the project corridor. It would improve regional mobility by increasing connectivity and capacity through Downtown Seattle and the regional light rail system to meet the projected transit demand. Sound Transit has coordinated with Metro on the planning and design of the WSBLE.
Ballard Interbay Northend Manufacturing/Industrial Center	**Policy BI-P17:** Recognize the interdependence of maritime and fishing industries and related businesses and their special requirements for transportation, utilities, pier space, and chill facilities. Encourage retention of this cluster of businesses and facilitate attraction of related businesses.	In the Interbay/Ballard Segment, the project crosses Salmon Bay and Lake Washington Ship Canal, which has water-dependent industries. Displacements of businesses along the waterway could impact the operations of waterway transportation and shipment of goods and services. The WSBLE Project is designed to minimize impacts to maritime industries. Where businesses are displaced, location assistance would be provided.
Crown Hill/Ballard	**Policy CH/B-P7:** Improve mobility for people using all modes of transportation to, within, and around the Ballard Hub Urban Village to increase retail, commercial, and civic activity. Improve mobility for people using all modes of transportation to, within, and around the Crown Hill Urban Village to serve the residents and businesses there. **Policy CH/B-P8:** Emphasize accessibility by transit, bicycle, and pedestrians in the Downtown Ballard area.	The Ballard Link Extension would provide reliable, safe, and efficient transit options to several urban villages and centers in Seattle, including across the Crown Hill and Ballard Urban Villages and through the City Center. It would expand mobility for the corridor and region's residents while encouraging convenient and safe non-motorized access to stations, such as bicycle and pedestrian connections.

Topic	Policy and Goals	Discussion
Delridge	**Policy D-P7:** Seek to develop a pedestrian-oriented environment along Delridge Way that integrates adjacent storefront activities with transit, parking, bikeways, and walking areas. Seek to calm traffic on Delridge Way through the neighborhood anchors.	The West Seattle Link Extension would support mixed-use development in designated growth areas and would focus most growth in station areas where zoning and land use codes allow greater densities. The increased density would promote more efficient use of land, allowing for efficient provision of services and facilities, as well as promoting walkable neighborhoods. The WSBLE Project would serve as an alternative to the single-occupant vehicle and would also provide linkages to other travel modes, including rail, bus, and walking.
Delridge	**Goal D-G4:** A transportation system that provides convenient access for local travel within the neighborhood, and access to principal employment, shopping, and entertainment activities in the surrounding area.	The West Seattle Link Extension would provide reliable, safe, and efficient transit options to several urban villages and centers in Seattle, including across the Delridge neighborhood and through the City Center. The WSBLE Project would support mixed-use development in designated areas that could attract commercial and business uses and provide increased employment opportunities.
Downtown Urban Center	**Goal DT-G9:** Support transportation improvements that complement and reinforce desired land use patterns. Strive to accommodate growth in peak hour travel primarily by transit, and encourage transit and pedestrian travel as the primary means of internal circulation. Discourage vehicular traffic passing through Downtown on surface streets with a destination elsewhere. Recognize the importance of the automobile as a means of access to Downtown for nonwork trips. **Policy DT-TP1:** Recognize the critical role that high-capacity transit corridors play, including the transit tunnel, in supporting the distribution of development density and the movement of goods and people within and through Downtown. Seek to improve the system, through actions by the City, with Sound Transit and Metro, and other transit agencies that: 1. provide capacity to meet forecast transit growth; 2. reduce travel time by transit; 3. reduce transit rider crowding on sidewalks; 4. reduce diesel bus noise and odor; and 5. provide an attractive and pleasant street environment for the pedestrian and transit rider.	The Ballard Link Extension would provide reliable, safe, and efficient transit options to several urban villages and centers in Seattle. It would improve regional mobility by increasing connectivity and capacity through Downtown Seattle and the regional light rail system to meet the projected transit demand. The WSBLE Project would also provide convenient and safe non-motorized access to stations, such as bicycle and pedestrian connections. The alternatives in the Downtown Segment are all tunneled. The WSBLE Project would expand high-capacity regional transit, providing residents with an additional option for mode of travel. It would improve air quality by providing an option to the automobile and contributing to a mode shift from private automobiles to transit.

Topic	Policy and Goals	Discussion
Downtown Urban Center	**Policy DT-TP7:** To encourage improvements that enhance pedestrian circulation and increase pedestrian comfort, consider floor area bonuses for the following features provided in specified locations: 1. Hillclimb Assist. To assist pedestrian movement up and down steeply sloping sites between parallel avenues by providing pedestrian corridors that incorporate mechanical features such as elevators or escalators. 2. Shopping Corridor. To enhance pedestrian circulation and promote the concentration of shopping activity in the retail core and adjacent areas where pedestrian volumes are highest by providing through-block passages lined with shops connecting parallel avenues. 3. Transit Station Access. To integrate the pedestrian network with the transit tunnel system and to minimize sidewalk conflicts in office and retail areas on sites near transit stations by improving access to the system. Base approval of the bonus on special evaluation criteria to ensure that the location and design of the transit station access is well integrated with the transit system and street-level pedestrian network. Bonus eligibility of particular features may be discontinued if the City finds that the need for additional such features has declined in relation to other Downtown priorities.	The Ballard Link Extension would provide reliable, safe, and efficient transit options to several urban villages and centers in Seattle. It would improve regional mobility by increasing connectivity and capacity through Downtown Seattle and the regional light rail system to meet the projected transit demand. The WSBLE Project would also provide convenient and safe non-motorized access to stations, such as bicycle and pedestrian connections. The alternatives in the Downtown Segment are all tunneled. The WSBLE Project would expand high-capacity regional transit, providing residents with an additional option for mode of travel. It would improve air quality by providing an option to the automobile and contributing to a mode shift from private automobiles to transit.

Topic	Policy and Goals	Discussion
Downtown Urban Center	**Policy DT-HP2:** To strive to achieve an adequate balance in employment and housing activity and to meet Downtown housing goals, promote public and private actions for developing a significant supply of affordable Downtown housing to help meet demand generated by Downtown employment growth. Public/Private Partnerships. Work with Downtown neighborhoods, businesses, and public and nonprofit organizations to meet Downtown housing goals, especially with regard to implementing programs to develop and maintain affordable Downtown housing units. Light Rail Station Area Development. Review all light rail station area development plans to identify opportunities for high-density transportation efficient housing in these areas and to address potential impacts on existing housing resources.	The Ballard Link Extension would encourage mixed-use development in designated growth areas like Downtown, that could provide increased employment opportunities. It would focus most growth in station areas where zoning and land use codes allow greater densities. It would improve regional mobility by increasing connectivity and capacity through Downtown Seattle and the regional light rail system to meet the projected transit demand. The Ballard Link Extension would encourage equitable and sustainable urban growth in station areas through support of TOD and multi-modal integration in a manner that is consistent with local land use plans and policies. Sound Transit's TOD and Real Property Excess, Surplus, and Disposition policies would promote racial and social equitability in development that occurs in station areas and minimize displacement potential. Existing reduced-fare transit pass options would continue to exist and would apply to the project, once operational. Following construction, remnant land could become available for redevelopment or joint development. TOD on surplus land owned by Sound Transit in station areas would follow the implementation strategy for Sound Transit's TOD program.
Chinatown-International District	**Goal ID-G1:** Support the thriving businesses, organizations, and cultural institutions of the Chinatown-International District and recognize the neighborhood's rich and vital history as home to and center of many of the city's immigrant communities including the Chinese, Filipino, Japanese, and Vietnamese communities and as a historic center of the Native American and African-American communities in the city. **Policy ID-P4:** Encourage new business development and location within the neighborhood.	The Ballard Link Extension would support mixed-use development in designated areas that could attract commercial and business uses and provide increased employment opportunities in the Chinatown-International District. The project would efficiently move large numbers of people, increase the capacity of existing facilities, and expand mobility for the corridor, which includes people of color. The WSBLE Project would increase the ability of employees, customers, and businesses to access areas within the project corridor, including the Chinatown-International District. TOD on surplus land owned by Sound Transit in station areas would follow the implementation strategy for Sound Transit's TOD program.
Chinatown-International District	**Goal ID-G4:** An accessible neighborhood, with access within and to the neighborhood, for all transportation modes, while encouraging less dependence on cars and greater use of transit, bikes, and walking.	The Ballard Link Extension would be a fast, efficient, and reliable transportation system that would provide an alternative to the single-occupant vehicle and also linkages to other travel modes, including bus, bicycle, and walking. The WSBLE Project would encourage the use of non-motorized modes of transportation and would provide safe and efficient transit service with pedestrian- and bicycle-friendly facilities.

Topic	Policy and Goals	Discussion
Commercial Core	**Goal COM-G1:** Maintain the Commercial Core as a major employment center, tourist and convention attraction, shopping magnet, residential neighborhood, and regional hub of cultural and entertainment activities. **Policy COM-P11:** Work with transit providers to promote convenient transit and public access to and through the Commercial Core. **Policy COM-P12:** Seek opportunities to improve mobility throughout the Commercial Core.	The Ballard Link Extension would provide efficient, safe, and reliable transit and connect urban villages and urban centers. It would support mixed-use development in designated areas that could attract commercial and business uses and provide increased employment opportunities. The WSBLE Project would improve regional mobility by increasing connectivity and capacity through Downtown Seattle and the regional light rail system to meet the projected transit demand.
Denny Triangle	**Goal DEN-G4:** Reduce external transportation impacts while improving internal access and circulation. **Policy DEN-P15:** Use partnerships with transit providers to improve the basic transit route structure, system access, and connectivity to better serve the neighborhood.	The Ballard Link Extension would provide an alternative to single-occupant-vehicle transportation and opportunities for supportive land uses that would encourage more efficient use of land through increased density, where zoning and land use codes allow. The WSBLE Project would provide linkages to other modes of transit including bus, bicycle, and walking.
Pioneer Square	**Goal PS-G5:** A community with an efficient transportation system that provides efficient access to sites inside and outside neighborhood boundaries. **Policy PS-P17:** Coordinate with other responsible agencies to develop access opportunities to the neighborhood through transit and pedestrian methods. **Policy PS-P18:** Strive to improve infrastructure to accommodate increased pedestrian and traffic uses.	The Ballard Link Extension would provide a safe, fast, efficient, and reliable alternative to the automobile, connecting Pioneer Square to urban centers and other areas along the corridor and region. It would encourage convenient and safe non-motorized access to stations, such as bicycle and pedestrian connections. Stations would incorporate context-sensitive design and be designed to integrate into the pedestrian-friendly environment. Sound Transit has coordinated and will continue to coordinate with the City of Seattle and Metro on the project.
Duwamish Manufacturing/Industrial Center	**Goal GD-G2:** Public infrastructure adequate to serve business operations in the Duwamish Manufacturing/Industrial Center is provided. **Goal GD-G3:** Land in the Duwamish Manufacturing/Industrial Center is maintained for industrial uses including the manufacture, assembly, storage, repair, distribution, research about or development of tangible materials and advanced technologies; as well as transportation, utilities, and commercial fishing activities. **Policy GD-P1:** Recognize the significant contribution of the industries and businesses in the Duwamish Manufacturing/Industrial Center in terms of the jobs they create, and the export and tax revenues they generate.	The West Seattle Link Extension would provide a safe, fast, efficient, and reliable transportation system. It would support mixed-use development in designated areas that could attract commercial and business uses and provide increased employment opportunities. It would generally follow existing transportation corridors, limiting the amount of industrial land that would be converted to a transportation use.

Topic	Policy and Goals	Discussion
Duwamish Manufacturing/Industrial Center	**Policy GD-P8:** Strive to protect the limited and nonrenewable regional resource of industrial, particularly waterfront industrial, land from encroachment by nonindustrial uses.	The WSBLE Project would generally follow existing transportation corridors, limiting the amount of land that would be converted to a transportation use.
Duwamish Manufacturing/Industrial Center	**Goal GD-G9:** A high level of general mobility and access is attained within the Duwamish Manufacturing/Industrial Center. **Goal GD-G10:** The transportation network in the Duwamish Manufacturing/Industrial Center makes appropriate connections and minimizes conflicts between different travel modes. **Goal GD-G15:** Sufficient transportation infrastructure, particularly in the northern portion of the Duwamish Manufacturing/Industrial Center, minimizes the transportation impacts of special events on industrial users. **Goal GD-G16:** The public transit system provides employee access to the Duwamish Manufacturing/Industrial Center while minimizing impacts on freight mobility. **Policy GD-P27:** Pursue opportunities and develop partnerships to provide grade separations between rail and auto/truck traffic along key east–west routes for enhanced speed and reliability while maintaining safety for both travel modes. **Policy GD-P34:** Recognize the importance of intermodal connections for the movement of freight between the state highway system, rail yards, barge terminals, port terminals, airports, and warehouse/distribution centers. **Policy GD-P35:** Strive to minimize disruptions to freight mobility caused by construction (including construction of transportation facilities) in the Duwamish Manufacturing/Industrial Center. **Policy GD-P40:** Encourage the efficient use of transit opportunities, including the SODO Busway, to expedite the movement of event patrons in and out of the Duwamish Manufacturing/Industrial Center.	The WSBLE Project would provide high-quality, rapid, reliable, and efficient light rail transit service to communities in the project corridor. It would support mixed-use development in designated areas that could attract commercial and business uses and provide increased employment opportunities. The WSBLE Project would increase the ability of employees, customers, and businesses to access Seattle. The WSBLE Project would provide connections to other urban centers and urban villages in the project corridor, other urban communities, and other regional destinations. The WSBLE Project would generally follow existing transportation corridors, limiting the amount of land that would be converted to a transportation use. The WSBLE Project would not require any new at-grade roadway crossings. Build Alternatives in the SODO Segment would eliminate one or two existing at-grade crossings of the existing Central Link light rail line. It would reduce dependency on the automobile and provide a reliable mode of transit with linkages to other modes. The project would increase the ability of employees, customers, and businesses to access Seattle. It would provide connections to urban centers in the project corridor, to other communities, and to other regional destinations. The WSBLE Project would increase transit ridership and decrease the number of commuters who rely on automobiles to travel through or around the city of Seattle. As a result, automotive congestion would decrease along the city's freight routes, leading to increased mobility and greater network connectivity for freight within Seattle. All long-term impacts to intersection operations would be mitigated as agreed to with the City of Seattle. Sound Transit has coordinated with the City of Seattle and Metro on the siting of WSBLE facilities and will continue to coordinate.

Topic	Policy and Goals	Discussion
Queen Anne	**Goal QA-G8:** Queen Anne is a community that encourages access to a wide range of transportation modes. **Policy QA-P29:** Strive to diversify transportation modes and emphasize non-SOV travel within the Queen Anne neighborhood. **Policy QA-P30:** Seek to find solutions to Queen Anne's traffic congestion. **Policy QA-P32:** Promote enhanced mobility and mobility options between Queen Anne and other neighborhoods, employment centers, and recreation centers. **Policy QA-P33:** Transportation facilities and services should be consistent with and enhance Queen Anne's unique urban character. **Policy QA-P34:** Strive to provide multi-modal linkages and access to and within Queen Anne and adjacent employment centers. **Policy QA-P35:** Strive to provide high-capacity transit services, including light rail, to the urban center. **Policy QA-P36:** Strive to provide convenient and efficient transit linkages throughout Queen Anne with an emphasis on linking Upper Queen Anne and the urban center. **Policy QA-P37:** Strive to provide improved facilities for transit.	The Ballard Link Extension is a high-capacity transit alternative that would serve as an alternative to the automobile and would also provide linkages to other travel modes, including rail, bus, and walking. This would help the overall transportation system operate more efficiently with fewer cars and provide more walkable and livable communities. The WSBLE Project would provide a fast, reliable, and efficient mode of transit linking Queen Anne to urban centers and urban villages in the project corridor, as well as to other urban communities and destinations in the region.
South Lake Union	**Goal SLU-G1:** A vital and eclectic neighborhood where people both live and work, where use of transit, walking, and bicycling is encouraged, and where there are a range of housing choices, diverse businesses, arts, a lively and inviting street life, and amenities to support and attract residents, employees, and visitors.	The project would provide transit, in the form of light rail, in the South Lake Union neighborhood. The new system would promote mixed-use TOD in designated areas surrounding stations and allow for growth at greater density, where existing land use policies and regulations allow. It would provide a fast, reliable, and efficient mode of transit linking the South Lake Union area to other urban centers and urban villages in the project corridor as well as other urban communities and destinations in the region.

Topic	Policy and Goals	Discussion
South Lake Union	**Goal SLU-G6:** A livable, walkable community that is well served by transit and easy to get around by foot, bike, or transit. **Goal SLU-G7:** A transportation system that provides safe, convenient access to businesses, residences, and other activities in the neighborhood. **Policy SLU-P17:** Work with transit agencies to provide transit service to and through South Lake Union to meet growing demand and changing markets. **Policy SLU-P19:** Collaborate with businesses, developers, housing providers, and transit providers to reduce demand for automobile trips by making transit and other alternative modes attractive choices for residents and commuters. **Policy SLU-P22:** Explore transportation improvements to link South Lake Union with its surrounding neighborhoods. **Policy SLU-P24:** Create a street network that enhances local circulation and access for all modes of travel by balancing the need to move people and freight efficiently through the neighborhood with the need for increased accessibility and safety for pedestrians and bicyclists.	The Ballard Link Extension would provide a fast, reliable, and efficient mode of transit linking South Lake Union to other urban centers and urban villages in the project corridor. The WSBLE Project would serve as an alternative to the automobile and would also provide linkages to other travel modes including rail, bus, biking, and walking. It would encourage convenient and safe non-motorized access to stations, such as bicycle and pedestrian connections. The Ballard Link Extension would create a public service for South Lake Union residents and businesses and increase the capacity of existing transit facilities. The WSBLE Project would encourage mixed-use development in designated growth areas, like South Lake Union, and would focus most growth in station areas where zoning and land use codes allow greater densities.
West Seattle Junction	**Goal WSJ-G4:** A neighborhood that facilitates movement of people and goods with a particular emphasis on increasing safety, supporting the economic centers, and encouraging a full range of transportation choices. **Policy WSJ-P12:** Strive to protect the residential neighborhoods surrounding the West Seattle Junction from traffic impacts.	The West Seattle Link Extension would provide a fast, reliable, and efficient mode of transit linking West Seattle Junction to other urban centers and urban villages in the project corridor. The WSBLE Project would serve as an alternative to the automobile and would also provide linkages to other travel modes including rail, bus, biking, and walking. It would encourage convenient and safe non-motorized access to stations, such as bicycle and pedestrian connections. The WSBLE Project would generally follow existing transportation corridors, limiting the amount of land that would be converted to a transportation use. Chapter 3, Transportation Environment and Consequences, includes an analysis of traffic through West Seattle Junction. All long-term impacts to intersection operations would be mitigated as agreed to with the City of Seattle.

Source: City of Seattle 2018a.

Table L4.2-4. Project Consistency with King County Comprehensive Plan

Topic	Policy and Goals	Discussion
Regional Growth Management – King County Guiding Principles	**Policy RP- 203:** King County shall continue to support the reduction of sprawl by focusing growth and future development in the Urban Growth Area, consistent with adopted growth targets. **Policy RP-204:** King County shall continue to promote an efficient multi-modal transportation system that provides residents with a range of transportation choices that respond to community needs and reduce impacts on the natural environment.	The WSBLE Project would be within the urban growth boundary of King County and would support TOD where zoning and land use codes allow greater densities, including urban centers. The WSBLE Project would serve as an alternative to the automobile and would also provide linkages to other travel modes including rail, bus, biking, and walking. It would encourage convenient and safe non-motorized access to stations, such as bicycle and pedestrian connections.
Urban Communities – Urban Communities	**Policy U-108:** King County should support the development of urban centers to meet the region's needs for housing, jobs, services, culture and recreation and to promote healthy communities; improving access to these services helps address social and economic needs of all residents, including disadvantaged communities. Strategies may include exploring opportunities for joint development or transit-oriented development, siting civic uses in mixed-use areas, and leveraging or utilizing existing County assets in urban centers. **Policy U-109a:** King County should encourage development, facilities and policies that lead to compact communities that transit can serve efficiently and effectively. As funding permits, King County should partner with jurisdictions and the private sector to spur development of compact communities and infrastructure investments that enhance alternatives to single-occupant vehicles such as transit, safe walking paths and trails, bicycle facilities, car and van pools, and other modes.	The WSBLE Project would serve as an alternative to the automobile and would provide linkages to other travel modes including rail, bus, biking, and walking. It would encourage convenient and safe non-motorized access to stations, such as bicycle and pedestrian connections. The WSBLE Project would promote mixed-use development in designated urban growth areas and focus most growth in station areas, where zoning and land use codes allow for greater densities. The increased density would allow more efficient use of land, promote efficient provision of services and facilities, and encourage walkable neighborhoods. Sound Transit's TOD policy encourages the creation of market-rate and affordable housing options in station areas, where zoning and land use codes allow. Following construction, remnant land could become available for redevelopment or joint development. Any TOD on surplus land owned by Sound Transit in station areas would follow the implementation strategy for Sound Transit's TOD program as laid out in the Sound Transit TOD Program Strategic Plan (Sound Transit 2014b) and Sound Transit's TOD policy (Sound Transit 2018).

Topic	Policy and Goals	Discussion
Housing and Human Services – Housing	**Policy H-104:** King County shall work with the multiple partners outlined in this section to promote the preservation and expansion of affordable rental housing opportunities for households earning up to 80 percent of the King County median income. Preservation is a particularly acute need in areas that may experience redevelopment due to proximity to high capacity transit and/or an area experiencing changing market conditions. **Policy H-105:** King County shall work with the multiple partners outlined in this section to promote the preservation and expansion of affordable rental housing opportunities for households earning up to 120 percent of the King County median income. Preservation is a particularly acute need in areas that may experience redevelopment due to proximity to high capacity transit and/or an area experiencing changing market conditions. **Policy H-121:** King County shall support affordable and mixed-income housing development in transit-oriented locations that is compatible with surrounding uses by: a. Providing information and a process for accessing potential development sites in transit-oriented locations where King County has ownership or access to potential sites; b. Promoting land use patterns that cohesively connect affordable and mixed-income housing with active transportation choices; and c. Developing public financing techniques that will provide an advantage for projects that will create and/or preserve affordable and mixed-income housing within transit-oriented communities and neighborhoods that promote health, well-being and opportunity, or within a neighborhood plan for revitalization. **Policy H-122:** King County shall support transit-oriented development at transit supportive density and scale that preserves and expands affordable and mixed-income housing opportunities at locations near frequent and high-capacity transit service. King County shall engage in this work through a variety of strategies, including the engagement of funding partners, transit partners, jurisdictions, private for-profit and nonprofit development entities, and other transit-oriented development partners. **Policy H-124:** King County shall work with partners to reduce and prevent displacement of very-low to moderate-income households from transit-oriented locations, to the extent possible; and shall strive to align affordable housing investments and transit investments in order to increase the quality of life of disinvested communities as measured by the Determinants of Equity.	The WSBLE Project would provide a high-quality rapid, efficient, and reliable transportation option for people, including low-income and special-needs populations and people of color. Sound Transit's TOD policy supports and encourages the creation of market-rate and affordable housing options in station areas. It provides the groundwork for the TOD Program and establishes a framework for implementing TOD strategies with the regional transit system. Connecting to the existing light rail will provide access to additional destinations such as Sea-Tac Airport and Tacoma. The WSBLE Project will provide connections to light rail projects currently being planned or under construction to Northgate, Bellevue, Redmond, Lynnwood, Everett, Tacoma, and Federal Way. Following construction, remnant land could become available for redevelopment or joint development. Surplus property would be developed under an agreement with developers that includes conditions, which could include requiring a portion of housing units to be affordable. Sound Transit's TOD policy encourages the creation of market-rate and affordable housing options in the station areas. Any TOD on surplus land owned by Sound Transit in station areas would follow the implementation strategy for Sound Transit's TOD program as laid out in the Sound Transit TOD Program Strategic Plan and Sound Transit's TOD policy.

Topic	Policy and Goals	Discussion
Environment – Climate Change	**Policy E-201:** King County should participate in and support appropriate local, regional and national efforts and organizations focused on reducing greenhouse gas emissions and preparing for climate change impacts. **Policy E-214:** King County, through its Comprehensive Plan policies and development regulations, should promote healthy community designs that enable walking, bicycling, and public transit use, thereby reducing greenhouse gas emissions and regional air pollution.	The WSBLE Project would be entirely powered through electricity sourced from Seattle City Light, which uses hydroelectric power for almost all its power. Regional vehicle miles traveled and average daily traffic for the project would be lower than the No Build Alternative when some people switch from driving to using light rail, thereby reducing regional vehicle emissions of criteria pollutants, mobile source air toxics, and greenhouse gases. As detailed in Section 3.3, the project is anticipated to reduce daily vehicle miles traveled by approximately 115,000 by 2042, helping to achieve Washington state's greenhouse gas emissions goals. The project is being designed to minimize effects to the natural environment and impacts will be mitigated consistent with local, state, and federal requirements. The WSBLE Project would help improve air quality by providing an alternative to automobiles through reduction in the number of vehicle miles traveled and by encouraging compact urban development at regional centers and where the local jurisdictions have identified growth through their regulations.
Shorelines – Shoreline Policy Goals	**Policy S-201:** All proposed uses and development occurring within King County's shoreline jurisdiction must conform to the Shoreline Management Act and to King County's Shoreline Master Program.	The WSBLE Project alternatives are within the Shoreline Management Act jurisdiction for regulated waterbodies. The project would comply with the City of Seattle Shoreline regulations.

Topic	Policy and Goals	Discussion
Shorelines – Shoreline Element Policy Goals	**Policy S-309:** The King County Shoreline Master Program should guide the County's transportation plans and projects within the shoreline jurisdiction. **Policy S-313:** King County should ensure that public and private development proposals protect and restore the aesthetic quality of shorelines in the project design. **Policy S-321:** If development is proposed adjacent to an historic resource, the proposed development should be designed and operated so as to be compatible with continued protection of the historic, cultural or archaeological resource.	The WSBLE Project would be within King County's aquatic shoreline area. It would comply with the City of Seattle Shoreline regulations. The project could site support guideway columns and other elevated guideway features to span and avoid direct impacts to shorelines. Impacts to historic and archaeological resources would be avoided or minimized where possible. Where impacts would occur, Sound Transit would provide mitigation in consultation with the Washington Department of Archaeology and Historic Preservation, the City of Seattle, and affected Tribes, as appropriate.
Shorelines – Environment Protection Policies	**Policy S-601:** King County shall ensure that new uses, development and redevelopment within the shoreline jurisdiction do not cause a net loss of shoreline ecological processes and functions.	The project will be designed to avoid and minimize impacts on environmentally sensitive resources and provide suitable mitigation when impacts are unavoidable, ensuring no net loss of ecosystem function or acreage.
Shorelines – Shoreline Use and Shoreline Modification	**Policy S-704:** Shoreline Master Program development regulations shall ensure no net loss of shoreline ecological processes and functions. **Policy S-741:** The location and planning of in-water structures shall give due consideration to the full range of public interests and shoreline ecological processes and functions, with special emphasis on protecting and restoring habitat for threatened or endangered species. **Policy S-758:** Transportation and parking facilities located in the shoreline jurisdiction shall be planned, located and designed to have the least possible adverse impact on unique or fragile shoreline features, not result in a net loss of shoreline ecological processes and functions or adversely impact existing or planned water-dependent uses. Where other options are available and feasible, new transportation facilities or transportation facility expansions should not be constructed within the shoreline jurisdiction.	The project will be designed to avoid and minimize impacts on environmentally sensitive resources and provide suitable mitigation when impacts are unavoidable, ensuring no net loss of ecosystem function or acreage.

Topic	Policy and Goals	Discussion
Transportation – Creating an Integrated, Sustainable, and Safe Transportation System that Enhances Quality of Life	**Policy T-101:** King County should provide a system of transportation services and facilities that offers travel options to all members of the community. **Policy T-101a:** King County should seek to ensure that its system of transportation services and facilities serves the mobility needs of disadvantaged communities and people with limited transportation options, including people of color, low-income communities, people with limited English proficiency, immigrant and refugee populations, students, youth, seniors, and people with disabilities. **Policy T-102:** As a transportation provider and participant in regional transportation planning, King County should support, plan, design, and implement an integrated, coordinated and balanced multi-modal transportation system that serves the growing travel needs of the county safely, effectively and efficiently and promotes a decrease in the share of trips made by single-occupant vehicles.	The WSBLE Project would provide high-quality rapid, reliable, and efficient light rail transit service to communities in the project corridor, which include transit-dependent and low-income populations and people of color. It would reduce dependency on the automobile by providing a mode of transit with linkages to other travel modes. Connecting to the existing light rail will provide access to additional destinations such as Sea-Tac Airport and Tacoma. The WSBLE Project will provide connections to light rail projects currently being planned or under construction to Northgate, Bellevue, Redmond, Lynnwood, Everett, Tacoma, and Federal Way.
Transportation – Providing Services and Infrastructure that Support the County Land Use Vision	**Policy T-201:** Multi-modal transportation options such as public transportation, bicycling and walking, are most effective in densely developed urban areas. As resources allow, King County's transportation investments in urban areas should emphasize public transportation and road services and facilities that support multiple modes and facilitate connections between them. **Policy T-205:** King County should support, encourage, and implement high-capacity transit facilities and services that are consistent with, and supportive of, the Comprehensive Plan, Metro's Strategic Plan for Public Transportation, Metro's Long-Range Plan for Public Transportation and the King County Ferry District 2014 Strategic Plan, or successor plans.	The WSBLE Project would provide high-quality rapid, reliable, and efficient light rail transit service to communities in the project corridor. It would provide a high-capacity-transit alternative to the automobile and would also provide linkages to other travel modes (bus, rail, walking, biking). This would support a more efficient transportation system with fewer cars and more affordable transportation. It would move large numbers of people, increasing the capacity of existing facilities and promote more walkable neighborhoods. The WSBLE Project is consistent with and supportive of comprehensive plans and long-range plans for the jurisdictions in which the project would be.

Topic	Policy and Goals	Discussion
Transportation – Ensuring Effective Management and Efficient Operations	**Policy T-320:** Transportation improvements should be designed, built, and operated to minimize air, water and noise pollution, greenhouse gas emissions, and the disruption of natural surface water drainage in compliance with provisions and requirements of applicable federal, state and local environmental regulations. Natural and historic resource protection should also be considered. Particular care should be taken to minimize impacts where the location of such facilities could increase the pressure for development in critical areas or Rural Areas and Natural Resource Lands. **Policy T-322:** Through its own actions and through regional partnerships, King County will promote strategies to reduce emissions from the transportation sector. The County will promote new vehicle technologies, the use of low-carbon fuels, and strategies to reduce greenhouse gas emissions, including land use changes, provision of transit, promotion of non-motorized travel, joint purchasing, pilot projects, and actions to reduce vehicle miles traveled.	The WSBLE Project would be entirely powered through electricity sourced from Seattle City Light, which uses hydroelectric power for almost all its power. Regional vehicle miles traveled and average daily traffic for the project would be lower than the No Build Alternative when some people switch from driving to using light rail, thereby reducing regional vehicle emissions of criteria pollutants, mobile source air toxics, and greenhouse gases. As detailed in Section 3.3, the project is anticipated to reduce daily vehicle miles traveled by approximately 115,000 by 2042, helping to achieve Washington state's greenhouse gas emissions goals. The project is being designed to minimize effects to the natural environment and impacts will be mitigated consistent with local, state, and federal requirements. The WSBLE Project would help reduce greenhouse gases and improve air quality by providing an alternative to automobiles through reduction in the number of vehicle miles traveled and by encouraging compact urban development at regional centers and where the local jurisdictions have identified growth through their regulations. The WSBLE Project would include stormwater detention and treatment to address impacts related to stormwater runoff. Sound Transit's Environmental Sustainability and Management System requires that low-impact operational stormwater management techniques be investigated and considered during the project design. Low-impact-development stormwater management techniques would be evaluated during the design process. As described in Sections 4.2.7 and 4.3.7, Sound Transit would provide noise mitigation where the project would exceed FTA noise criteria for operations. Sound Transit would adhere to the City's noise ordinance for construction noise.

Topic	Policy and Goals	Discussion
Transportation – Coordination and Public Outreach	**Policy T-502:** King County should promote a multi-jurisdictional, multi-modal regional corridor approach to reducing congestion and improving efficiency on highways and arterial roads.	The WSBLE Project would provide high-capacity transit, providing residents with an option for mode of travel and connecting urban centers in the project corridor and region. The WSBLE Project would encourage convenient and safe non-motorized access to stations, such as bicycle and pedestrian connections. Sound Transit is coordinating with Metro, Seattle Department of Transportation, and several other governmental agencies to ensure the project is integrated with existing and future transit opportunities. The WSBLE Project would provide connections from within the city to other light rail projects, including connections under construction to Northgate, Bellevue, Redmond, Lynnwood, and Federal Way.
Services, Facilities and Utilities – Facilities and Services	**Policy F-201:** All facilities and services should be provided in compliance with provisions and requirements of the Endangered Species Act, the Clean Water Act and the Growth Management Act. **Policy F-226:** Proposed new or expansions to existing essential public facilities should be sited consistent with the King County Comprehensive Plan. Listed existing essential public facilities should be preserved and maintained until alternatives or replacements for such facilities can be provided.	Light rail is considered an essential public facility. Essential public facilities (e.g., airports, education facilities, and transportation facilities) are typically difficult to site. Local comprehensive plans must accommodate the siting of essential public facilities. Sound Transit has coordinated with the City of Seattle and King County on the siting of WSBLE facilities and will continue to do so. The WSBLE Project is consistent with and supportive of comprehensive plans and long-range plans for the jurisdictions in which the project would be. The WSBLE Project would comply with applicable local, state, and federal environmental regulations including the Endangered Species Act, the Clean Water Act, and the Growth Management Act.

Topic	Policy and Goals	Discussion
Services, Facilities and Utilities – Energy and Telecommunications	**Policy F-307:** King County should foster the development and increased use of clean, renewable and alternative fuel and energy technologies.	The WSBLE Project would be entirely powered through electricity sourced from Seattle City Light, which uses hydroelectric power for almost all its power. Regional vehicle miles traveled and average daily traffic for the project would be lower than the No Build Alternative when some people switch from driving to using light rail, thereby reducing regional vehicle emissions of criteria pollutants, mobile source air toxics, and greenhouse gases. As detailed in Section 3.3, the project is expected to reduce daily vehicle miles traveled by approximately 115,000 by 2042, helping to achieve Washington state's greenhouse gas emissions goals. The project is being designed to minimize effects to the natural environment and impacts will be mitigated consistent with local, state, and federal requirements.
Economic Development – Infrastructure Development	**Policy ED-401:** King County recognizes that adequate infrastructure is essential to support existing economic activity and to attract new industry and development. The County therefore supports and partners on programs and strategies to maintain existing infrastructure and construct new facilities (transportation, utilities, schools, information, communications, including an adequate supply of housing) necessary to accommodate current and future economic demand, in locations and at a size and scale that is consistent with other policies in the Comprehensive Plan.	The WSBLE Project would increase the ability of employees, customers, and businesses to access Seattle. The WSBLE Project would provide connections to urban centers in the project corridor, to other communities, and to other regional destinations. The WSBLE Project is consistent with and supportive of comprehensive plans and long-range plans for the jurisdictions in which the project would be.

Source: King County 2020.

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Appendix L4.3 Economics

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APPENDIX L4.3 ECONOMICS

L4.3.1 Regulatory Requirements

In addition to the federal and state regulations, policies, and related resources that guide a major transit project environmental impact statement, the following regulatory and resource requirements were considered in the assessment of economic effects: Title 42 United States Code Section 4601, Federal Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended; the Transit Cooperative Research Program Synthesis 128, Practices for Evaluating the Economic Impacts and Benefits of Transit (Transit Cooperative Research Program 2017); and the Economic Impact Case Study Tool for Transit (Transit Cooperative Research Program 2016).

L4.3.2 Region and County

Table L4.3-1 summarizes population, households, and employment forecasts for the Puget Sound Regional Council region and its four member counties.

Table L4.3-1. Population, Household, and Employment Forecasts by Region and County

Area	2015	2040	Average Annual Growth Rate, 2015 to 2040
Puget Sound Region Population	3,914,972	4,957,920	0.95%
Puget Sound Region Household	1,533,067	2,107,868	1.28%
Puget Sound Region Jobs	2,165,116	2,981,498	1.29%
King County Population	2,062,699	2,451,120	0.69%
King County Household	840,429	1,085,853	1.03%
King County Jobs	1,400,430	1,875,067	1.17%
Kitsap County Population	257,000	376,832	1.54%
Kitsap County Household	99,100	156,504	1.84%
Kitsap County Jobs	103,409	149,408	1.48%
Pierce County Population	837,111	1,085,041	1.04%
Pierce County Households	311,137	466,202	1.63%
Pierce County Jobs	350,208	498,086	1.42%
Snohomish County Population	758,162	1,044,927	1.29%
Snohomish County Household	282,401	399,309	1.40%
Snohomish County Jobs	311,069	458,937	1.57%

Source: Puget Sound Regional Council 2017.

Note: While an updated regional economic forecast was published in 2018, this forecast does not include county-level data. For consistency purposes, Sound Transit reports county and regional scale data from the Puget Sound Regional Council Land Use Vision dataset, published in 2017.

L4.3.3 West Seattle Link Extension

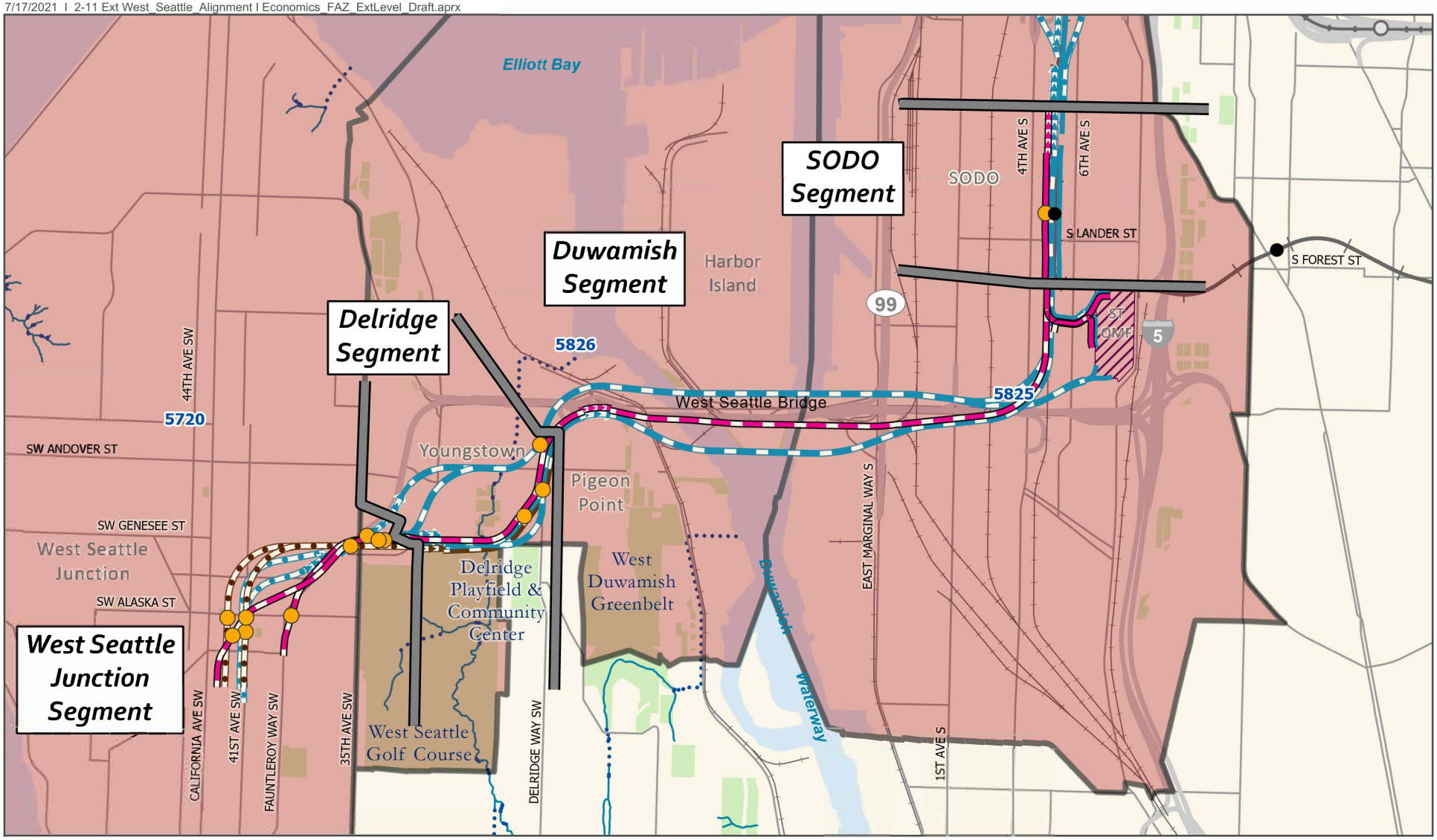
Demographic and economic trends in the West Seattle Link Extension study area were assessed by using forecast analysis zone estimates (Figure L4.3-1).

Table L4.3.-2 summarizes population, households, and employment forecasts from Puget Sound Regional Council for the West Seattle Link Extension study area by segment.

Table L4.3.-3 summarizes employment trends from Puget Sound Regional Council for the West Seattle Link Extension study area by segment using forecast analysis zones.

Table L4.3.-4 summarizes employment projections by industry sector from Puget Sound Regional Council for the West Seattle Link Extension study area by segment.

Table L4.3.-5 summarizes employment growth rates by industry sector from Puget Sound Regional Council for the West Seattle Link Extension study area by segment.



Source: City of Seattle, King County (2019, 2020, 2021).

Alternatives
- Preferred Alternative
- Preferred Alternative with Third-party Funding
- Other Alternatives

Alternative Profile
- Elevated
- Tunnel
- At-Grade
- Retained Cut

Station
- New
- Existing

- Segment Line
- Sound Transit Operations and Maintenance Facility (ST OMF)
- Existing Link Light Rail
- East Link Light Rail (Under Construction)
- Railroad
- Stream
- Piped Stream
- Park
- Forcast Analysis Zones

FIGURE L4.3-1
Forecast Analysis Zones
West Seattle Link Extension

West Seattle and Ballard Link Extensions

0 0.5 1 Mile

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Table L4.3-2. Population, Household, and Employment Forecast for the West Seattle Link Extension Study Area by Segment

Segment and Forecast Analysis Zone	2015	2040	Average Annual Growth Rate, 2015 to 2040
SODO Segment (Forecast Analysis Zone 5825) Population	4,376	5,219	0.71%
SODO Segment (Forecast Analysis Zone 5825) Households	1,766	2,328	1.11%
SODO Segment (Forecast Analysis Zone 5825) Jobs	45,475	50,016	0.38%
Duwamish and Delridge segments (Forecast Analysis Zone 5826) Population	4,700	4,799	0.08%
Duwamish and Delridge segments (Forecast Analysis Zone 5826) Households	4,683	4,905	0.19%
Duwamish and Delridge segments (Forecast Analysis Zone 5826) Jobs	6,813	7,219	0.23%
West Seattle Junction Segment (Forecast Analysis Zone 5720) Population	37,679	41,236	0.36%
West Seattle Junction Segment (Forecast Analysis Zone 5720) Households	18,567	21,324	0.56%
West Seattle Junction Segment (Forecast Analysis Zone 5720) Jobs	11,057	11,142	0.03%

Source: Puget Sound Regional Council 2017.

Table L4.3-3. Total Employment History for West Seattle Link Extension Forecast Analysis Zones

Area	2000	2005	2010	2015	2018
SODO Segment (Forecast Analysis Zone 5825)	68,234	61,894	70,108	71,402	77,034
Duwamish and Delridge segments (Forecast Analysis Zone 5826)	8,776	8,361	8,771	8,181	9,554
West Seattle Junction Segment (Forecast Analysis Zone 5720)	7,923	8,926	9,002	10,213	11,214

Source: Puget Sound Regional Council 2017.

Table L4.3-4. Employment Growth Projections by Sector for West Seattle Link Extension Study Area

Segment and Forecast Analysis Zone	Construction and Resources	Manufacturing and Wholesale Trade and Utilities	Retail and Food Services	Finance, Insurance, Real Estate, and Services	Government	Education
SODO Segment (Forecast Analysis Zone 5825): 2015 Number of Employees	3,429	11,522	6,070	16,335	7,943	176
SODO Segment (Forecast Analysis Zone 5825): 2040 Number of Employees	3,533	11,608	7,046	21,044	6,584	201
Duwamish and Delridge segments (Forecast Analysis Zone 5826): 2015 Number of Employees	782	3,736	197	1,925	93	80
Duwamish and Delridge segments (Forecast Analysis Zone 5826): 2040 Number of Employees	744	3,537	294	2,449	90	105
West Seattle Junction Segment (Forecast Analysis Zone 5720): 2015 Number of Employees	498	467	3,205	6,165	161	561
West Seattle Junction Segment (Forecast Analysis Zone 5720): 2040 Number of Employees	273	606	3,416	5,990	145	712

Source: Puget Sound Regional Council 2017.

Table L4.3-5. Employment Growth Rate Projections by Sector for West Seattle Link Extension Study Area

Segment and Forecast Analysis Zone	Construction and Resources	Manufacturing and Wholesale Trade and Utilities	Retail and Food Services	Finance, Insurance, Real Estate, and Services	Government	Education
SODO Segment (Forecast Analysis Zone 5825) Average Annual Growth Rate, 2015 to 2040	3%	1%	16%	29%	-17%	14%
Duwamish and Delridge Segment (Forecast Analysis Zone 5826) Average Annual Growth Rate, 2015 to 2040	-0.19%	-0.21%	1.97%	1.09%	-0.13%	1.25%
West Seattle Junction Segment (Forecast Analysis Zone 5720) Average Annual Growth Rate, 2015 to 2040	-45%	30%	7%	-3%	-10%	27%

Source: Puget Sound Regional Council 2017.

Note: Percentages refer to the average annual growth rate for the segment from the year 2015 to the year 2040.

L4.3.4 Ballard Link Extension

Demographic and economic trends in the Ballard Link Extension study area were assessed by using forecast analysis zone estimates (Figure L4.3-2).

Table L4.3.-6 summarizes population, households, and employment forecasts from Puget Sound Regional Council for the Ballard Link Extension study area by segment.

Table L4.3.-7 summarizes employment trends from Puget Sound Regional Council for the Ballard Link Extension study area by segment using forecast analysis zones.

Table L4.3.-8 summarizes employment projections by industry sector from Puget Sound Regional Council for the Ballard Link Extension study area by segment.

Table L4.3.-9 summarizes employment growth rates by industry sector from Puget Sound Regional Council for the Ballard Link Extension study area by segment.

L4.3.5 References

Puget Sound Regional Council. 2017. Projections for Cities and Other Places. https://www.psrc.org/projections-cities-and-other-places.

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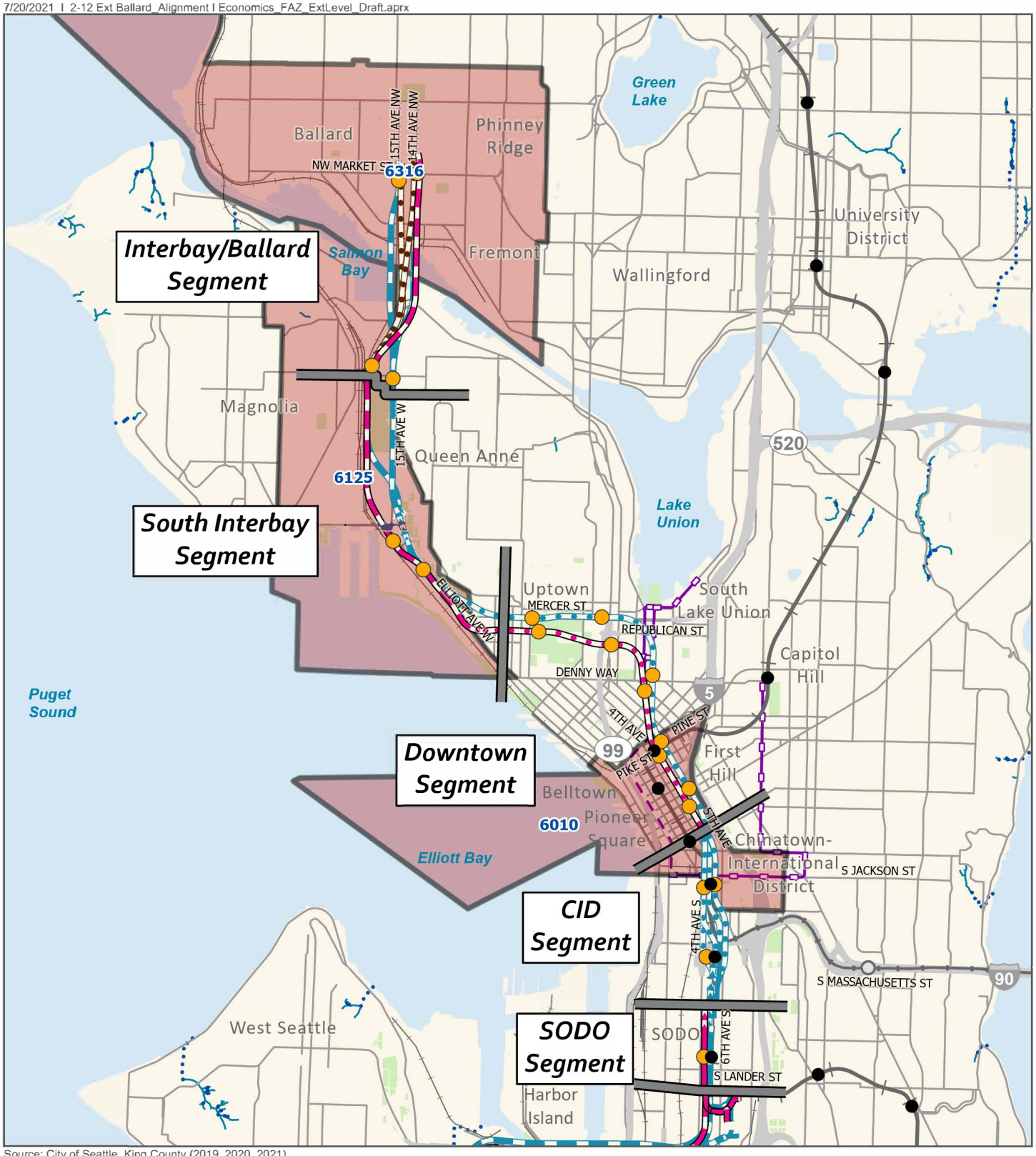

Source: City of Seattle, King County (2019, 2020, 2021).

Alternatives
- Preferred Alternative
- Preferred Alternative with Third-party Funding
- Other Alternatives

Alternative Profile
- Elevated
- Tunnel
- At-Grade
- Retained Cut

Station
- New
- Existing

- Segment Line
- Existing Link Light Rail
- East Link Light Rail (Under Construction)
- Existing Streetcar
- Center City Connector Streetcar (Construction Paused)
- Railroad
- Stream
- Piped Stream

- Forcast Analysis Zones

FIGURE L4.3-2
Forecast Analysis Zones
Ballard Link Extension

West Seattle and Ballard Link Extensions

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Table L4.3-6. Population, Household, and Employment Forecasts for the Ballard Link Extension Study Area by Segment

Segment and Forecast Analysis Zone	2015	2040	Average Annual Growth Rate, 2015 to 2040
Chinatown-International District Segment (Forecast Analysis Zone 6010) Population	14,466	24,129	2.07%
Chinatown-International District Segment (Forecast Analysis Zone 6010) Households	7,956	12,357	1.78%
Chinatown-International District Segment (Forecast Analysis Zone 6010) Jobs	114,980	138,068	0.73%
Downtown Segment (Forecast Analysis Zone 6123) Population	21,957	57,336	3.91%
Downtown Segment (Forecast Analysis Zone 6123) Households	13,847	29,856	3.12%
Downtown Segment (Forecast Analysis Zone 6123) Jobs	59,558	98,793	2.04%
South Interbay Segment (Forecast Analysis Zone 6125) Population	10,762	11,811	0.37%
South Interbay Segment (Forecast Analysis Zone 6125) Households	5,387	5,992	0.43%
South Interbay Segment (Forecast Analysis Zone 6125) Jobs	11,154	12,200	0.36%
Interbay/Ballard Segment (Forecast Analysis Zone 6316) Population	33,363	37,788	0.50%
Interbay/Ballard Segment (Forecast Analysis Zone 6316) Households	17,597	20,785	0.67%
Interbay/Ballard Segment (Forecast Analysis Zone 6316) Jobs	21,278	21,948	0.12%

Source: Puget Sound Regional Council 2017.

Table L4.3-7. Total Employment History for Ballard Link Extension Forecast Analysis Zones

Area	2000	2005	2010	2015	2018
Chinatown-International District Segment (Forecast Analysis Zone 6010)	131,510	119,097	110,002	121,721	136,844
Downtown Segment (Forecast Analysis Zone 6123)	73,195	74,685	64,060	89,675	122,468
South Interbay Segment (Forecast Analysis Zone 6125)	11,012	9,740	9,004	10,527	10,430
Interbay/Ballard Segment (Forecast Analysis Zone 6316)	18,317	21,966	22,814	25,826	25,115

Source: Puget Sound Regional Council 2017.

Table L4.3-8. Employment Growth Projections by Sector for the Ballard Link Extension Study Area

Segment and Forecast Analysis Zone	Construction and Resources	Manufacturing and Wholesale Trade and Utilities	Retail and Food Services	Finance, Insurance, Real Estate, and Services	Government	Education
Chinatown-International District Segment (Forecast Analysis Zone 6010): 2015 Number of Employees	Not available	3,185	15,348	15,348	18,443	Not available
Chinatown-International District Segment (Forecast Analysis Zone 6010): 2040 Number of Employees	Not available	2,811	17,554	100,976	15,564	Not available
Downtown Segment (Forecast Analysis Zone 6123): 2015 Number of Employees	2,015	4,236	20,837	30,030	2,321	119
Downtown Segment (Forecast Analysis Zone 6123): 2040 Number of Employees	3,081	4,975	28,788	59,809	1,892	248
South Interbay Segment (Forecast Analysis Zone 6125): 2015 Number of Employees	600	3,332	1,041	5,655	480	46
South Interbay Segment (Forecast Analysis Zone 6125): 2040 Number of Employees	452	3,336	1,283	6,564	477	88
Interbay/Ballard Segment (Forecast Analysis Zone 6316): 2015 Number of Employees	1,468	3,611	4,671	10,451	614	463
Interbay/Ballard Segment (Forecast Analysis Zone 6316): 2040 Number of Employees	1,177	3,269	5,031	11,314	532	625

Source: Puget Sound Regional Council 2017.

Note: Percentages refer to the average annual growth rate for the segment from the year 2015 to the year 2040.

Table L4.3-9. Employment Growth Rate Projections by Sector for the Ballard Link Extension Study Area

Segment and Forecast Analysis Zone	Construction and Resources	Manufacturing and Wholesale Trade and Utilities	Retail and Food Services	Finance, Insurance, Real Estate, and Services	Government	Education
Chinatown-International District Segment (Forecast Analysis Zone 6010) Average Annual Growth Rate, 2015 to 2040	Not available	-12%	14%	31%	16%	Not available
Downtown Segment (Forecast Analysis Zone 6123) Average Annual Growth Rate, 2015 to 2040	53%	17%	38%	99%	-18%	108%
South Interbay Segment (Forecast Analysis Zone 6125) Average Annual Growth Rate, 2015 to 2040	-25%	0%	23%	16%	-1%	91%
Interbay/Ballard Segment (Forecast Analysis Zone 6316) Average Annual Growth Rate, 2015 to 2040	-20%	-9%	8%	8%	-13%	35%

Source: Puget Sound Regional Council 2017.

Note: Percentages refer to the average annual growth rate for the segment from the year 2015 to the year 2040.

Appendix L4.4 Social Resources

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Appendix L4.4 Social Resources

L4.4.1 West Seattle Link Extension

Table L4.4-1 lists the social resources in the West Seattle Link Extension corridor by segment.

Table L4.4-1. Social Resources in the West Seattle Link Extension Segments

Segment	Name	Address	Type
SODO	Northwest Harvest SODO Community Market	1915 4th Avenue South	Social Service
SODO	Amazon Fresh Pick-up	Utah Avenue South and South Lander Street	Grocery Store/Market
SODO	Bright Horizons Child Care	2401 Utah Avenue South	Community Facility
SODO	Seattle Schools John Stanford Center	2445 3rd Avenue South	Community Facility
Duwamish	Seattle Unity	2931 1st Avenue South	Church/Religious Institution
Duwamish	Blazing Trails Childcare	1901 Southwest Genesee Street	Community Facility
Duwamish	Catholic Seafarers Ministry	3568 West Marginal Way Southwest	Social Service
Delridge	Delridge Deli Mart	3861 Delridge Way Southwest	Grocery Store/Market
Delridge	Washington State Department of Children, Youth, and Families	4045 Delridge Way Southwest	Social Service
Delridge	Youngstown Cultural Arts Center	4408 Delridge Way Southwest	Community Facility
Delridge	Delridge Community Center	4501 Delridge Way Southwest	Community Facility
Delridge	Seattle Housing Authority Property	4115 25th Avenue Southwest	Seattle Housing Authority Property
Delridge	Seattle Housing Authority Property	4117 25th Avenue Southwest	Seattle Housing Authority Property
Delridge	Seattle Housing Authority Property	4818 Delridge Way Southwest	Seattle Housing Authority Property
Delridge	Seattle Housing Authority Property	4822 Delridge Way Southwest	Seattle Housing Authority Property
Delridge	Seattle Housing Authority Property	4701 26th Avenue Southwest	Seattle Housing Authority Property
Delridge	Seattle Housing Authority Property	4113 25th Avenue Southwest	Seattle Housing Authority Property
Delridge	Seattle Housing Authority Property	4825 Delridge Way Southwest	Seattle Housing Authority Property
Delridge	Disabled American Veterans	4857 Delridge Way Southwest	Social Service
Delridge	Seattle Housing Authority Property	2851 Southwest Dakota Street	Seattle Housing Authority Property

Segment	Name	Address	Type
Delridge	Transitional Resources Supportive Housing	2970 Southwest Avalon Way	Housing with Services
Delridge	Transitional Resources Yancy Street Permanent Supportive Housing	2827/2829 Southwest Yancy Street	Housing with Services
Delridge	Transitional Resources Avalon Mutual Housing	2980 Southwest Avalon Way	Housing with Services
Delridge	Income-restricted Housing	3050 Southwest Avalon Way	Income-restricted Housing
West Seattle Junction	Holy Rosary Catholic Church	4139 42nd Avenue Southwest	Church/Religious Institution
West Seattle Junction	Whole Foods	4755 Fauntleroy Way Southwest #190	Grocery Store/Market
West Seattle Junction	Tibbets United Methodist Church	3940 41st Avenue Southwest	Church/Religious Institution
West Seattle Junction	Latter Day Saints Church	4001 44th Avenue Southwest	Church/Religious Institution
West Seattle Junction	First Lutheran Church	4105 California Avenue Southwest	Church/Religious Institution
West Seattle Junction	West Seattle Art Nest	4138 California Avenue Southwest	Community Facility
West Seattle Junction	Holy Rosary Church & Parsonage	4139 42nd Avenue Southwest	Church/Religious Institution
West Seattle Junction	The Junction Church	4157 California Avenue Southwest	Church/Religious Institution
West Seattle Junction	West Seattle Christian Church	4400 42nd Avenue Southwest	Church/Religious Institution
West Seattle Junction	Fraternal Order Of Eagles	4426 California Avenue Southwest	Social Service
West Seattle Junction	Hope Lutheran Church	4139 42nd Avenue Southwest	Church/Religious Institution
West Seattle Junction	West Seattle Stadium	4432 35th Avenue Southwest	Community Facility
West Seattle Junction	Senior Center of West Seattle	4217 Southwest Oregon Street	Community Facility
West Seattle Junction	Eastridge Church	4500 39th Avenue Southwest	Church/Religious Institution
West Seattle Junction	West Seattle Y.M.C.A.	3622 Southwest Snoqualmie Street	Social Service
West Seattle Junction	Trader Joe's	3622 Southwest Snoqualmie Street	Grocery Store/Market
West Seattle Junction	Bright Horizons at West Seattle	4470 35th Avenue Southwest	Community Facility
West Seattle Junction	Q.F.C.	4550 42nd Avenue Southwest	Grocery Store/Market

Segment	Name	Address	Type
West Seattle Junction	American Legion Post 160	3618 Southwest Alaska Street	Social Service
West Seattle Junction	West Seattle Farmers Market	Southwest Alaska Street and California Avenue Southwest	Community Facility
West Seattle Junction	Arts West	4711 California Avenue Southwest	Theater/ Performance Venue
West Seattle Junction	Veterans of Foreign Wars	3601 Southwest Alaska Street	Social Service
West Seattle Junction	Alki Masonic Center	4736 40th Avenue Southwest	Social Service
West Seattle Junction	Safeway	4754 42nd Avenue Southwest	Grocery Store/Market
West Seattle Junction	Camp Long	5200 35th Avenue Southwest	Community Facility
West Seattle Junction	Seattle Housing Authority Property	3225 Southwest Genesee Street	Seattle Housing Authority Property
West Seattle Junction	Seattle Housing Authority Property	4126 41st Avenue Southwest	Seattle Housing Authority Property
West Seattle Junction	Seattle Housing Authority Property	5243 Fauntleroy Way Southwest	Seattle Housing Authority Property
West Seattle Junction	Seattle Housing Authority Property	5247 Fauntleroy Way Southwest	Seattle Housing Authority Property
West Seattle Junction	Property with Mandatory Housing Affordability Units	4205 Southwest Genesee Street	Property with Mandatory Housing Affordability Units

L4.4.2 Ballard Link Extension

Table L4.4-2 lists the social resources in the Ballard Link Extension corridor by segment.

Table L4.4-2. Social Resources in the Ballard Link Extension Segments

Segment	Name	Address	Type
SODO	Northwest Harvest SODO Community Market	1915 4th Avenue South	Social Service
SODO	Amazon Fresh Pick-up	Utah Avenue South and South Lander Street	Grocery Store/Market
SODO	Bright Horizons Child Care	2401 Utah Avenue South	Community Facility
SODO	Seattle Schools John Stanford Center	2445 3rd Avenue South	Community Facility
Chinatown-International District	Showbox SODO	1700 1st Avenue South	Theater/ Performance Venue
Chinatown-International District	Bao An Tang Herb & Grocery Store	705 South King Street	Grocery Store/Market
Chinatown-International District	Golden Hong Market	516 7th Avenue South	Grocery Store/Market

Segment	Name	Address	Type
Chinatown-International District	Dong Sing Market	625 South Jackson Street	Grocery Store/Market
Chinatown-International District	King Street Kafe	414 2nd Avenue South	Grocery Store/Market
Chinatown-International District	Lam's Seafood Market	1221 South King Street	Grocery Store/Market
Chinatown-International District	Hau Hau Market	412 12th Avenue South	Grocery Store/Market
Chinatown-International District	Dong Hing Market	1001 South Jackson Street	Grocery Store/Market
Chinatown-International District	Fire Department Museum	301 2nd Avenue South	Museum
Chinatown-International District	Stockbox First Hill Grocery	901 James Street	Grocery Store/Market
Chinatown-International District	Hilltop House	1005 Terrace Street	Senior Housing
Chinatown-International District	Pioneer Fellowship House	220 11th Avenue	Social Service
Chinatown-International District	Spruce Street Inn	1102 East Spruce Street	Social Service
Chinatown-International District	Japanese Baptist Church	160 Broadway	Church/Religious Institution
Chinatown-International District	Yesler	1011 South Weller Street	Seattle Housing Authority Property
Chinatown-International District	Alefesh Tiku Childcare	115 8th Avenue #180	Community Facility
Chinatown-International District	Drexel Deli and Grocery	523 3rd Avenue	Grocery Store/Market
Chinatown-International District	Downtown Emergency Service Center Main Shelter	517 3rd Avenue	Social Service
Chinatown-International District	Downtown Emergency Service Center's Morrison Hotel	509 3rd Avenue	Social Service
Chinatown-International District	Department of Social and Health Services Child Support Office	500 1st Avenue	Social Service
Chinatown-International District	Reynolds Work Training Release Facility	410 4th Avenue	Government Facility
Chinatown-International District	Downtown Emergency Service Center Auxiliary Shelter	505 3rd Avenue	Social Service
Chinatown-International District	Raven Terrace	820 Yesler Way	Seattle Housing Authority Property
Chinatown-International District	Red Cedar, Yesler	808 Fir Street	Seattle Housing Authority Property
Chinatown-International District	Kebero Court, Yesler	1105 East Fir Street	Seattle Housing Authority Property
Chinatown-International District	Hoa Mai Gardens, Yesler	221 10th Avenue South	Seattle Housing Authority Property

Segment	Name	Address	Type
Chinatown-International District	Jefferson Terrace	800 Jefferson Street	Seattle Housing Authority Property
Chinatown-International District	Beacon Tower	1311 South Massachusetts Street	Seattle Housing Authority Property
Chinatown-International District	Seattle Housing Authority Property	1803 13th Avenue South	Seattle Housing Authority Property
Chinatown-International District	Beacon House	1545 12th Avenue South	Seattle Housing Authority Property
Chinatown-International District	Kebero Court Building A, B, C	110/120/130 Boren Avenue	Seattle Housing Authority Property
Chinatown-International District	Frye Hotel	223 Yesler Way	Income-restricted Housing
Chinatown-International District	Stadium Place	201 South King Street	Income-restricted Housing
Chinatown-International District	Bright Horizons at Pioneer Square	101 6th Avenue South, Suite 100	Community Facility
Chinatown-International District	Saveway Market	109 Occidental Avenue South	Grocery Store/Market
Chinatown-International District	Chief Seattle Club	410 2nd Avenue Ext South	Social Service
Chinatown-International District	Yesler Community Center	917 East Yesler Way	Community Facility
Chinatown-International District	Karlstrom Apartments	65 South Washington Street	Income-restricted Housing
Chinatown-International District	Compass Housing Alliance	77 South Washington Street	Social Service
Chinatown-International District	Seattle's Union Gospel Mission	318 2nd Avenue Ext South	Social Service
Chinatown-International District	Pioneer Square Men's Program	210 Alaskan Way South	Housing with Services
Chinatown-International District	Hirabayashi Place	442 South Main Street	Housing with Services
Chinatown-International District	Hana Apartments	101 6th Avenue South	Income-restricted Housing
Chinatown-International District	Bush Hotel	621 South Jackson Street	Income-restricted Housing
Chinatown-International District	Income-restricted Housing	1536 12th Avenue South	Income-restricted Housing
Chinatown-International District	Eastern Hotel	506 Maynard Avenue South	Income-restricted Housing
Chinatown-International District	Downtown Emergency Service Center Program of Assertive Community Treatment	507 3rd Avenue	Income-restricted Housing
Chinatown-International District	Evans House	415 10th Avenue	Income-restricted Housing

Segment	Name	Address	Type
Chinatown-International District	Legacy House	803 South Lane Street	Income-restricted Housing
Chinatown-International District	Nihonmachi Terrace	651 South Main Street	Income-restricted Housing
Chinatown-International District	NP Hotel	306 Sixth Avenue South	Income-restricted Housing
Chinatown-International District	Village Square II Apartments (Domingo Vieres Apartments)	721 South Lane Street	Income-restricted Housing
Chinatown-International District	Union Hotel	204 3rd Ave South	Income-restricted Housing
Chinatown-International District	International Terrace	202 6th Avenue South	Seattle Housing Authority Property
Chinatown-International District	Bread Of Life Mission	97 South Main Street, Seattle	Social Service
Chinatown-International District	Viet-Wah Supermarket	1032 South Jackson Street	Grocery Store/Market
Chinatown-International District	Union Station Market	509 South Jackson Street	Grocery Store/Market
Chinatown-International District	Japanese American Citizens League	671 South Jackson Street	Social Service
Chinatown-International District	Income-restricted housing	1029 South Jackson Street	Income-restricted Housing
Chinatown-International District	Indo-China Chinese Elderly Association	409 Maynard Avenue South	Social Service
Chinatown-International District	King Street Center	201 South Jackson Street	Community Facility
Chinatown-International District	Theatre Off Jackson	409 7th Avenue South	Theater/Performanc e Venue
Chinatown-International District	Seattle Nichiren Buddhist Temple	501 South Jackson Street	Church/Religious Institution
Chinatown-International District	Chinese Community Bulletin Board	511 7th Avenue South	Community Facility
Chinatown-International District	Wing Luke Museum of the Asian Pacific American Experience	719 South King Street	Community Facility
Chinatown-International District	Freehold Theatre	517 Maynard Avenue South	Theater/ Performance Venue
Chinatown-International District	Asian Counseling and Referral Service Food Bank	919 South King Street	Social Service
Chinatown-International District	Nichiren Buddhist Church	1042 South Weller Street	Church/Religious Institution
Chinatown-International District	Chong Wa Benevolent Association	522 7th Avenue South	Social Service
Chinatown-International District	Leschi House	1011 South Weller Street	Seattle Housing Authority Property
Chinatown-International District	Seattle Indian Health Board	611 12th Avenue South	Social Service

Segment	Name	Address	Type
Chinatown-International District	Uwajimaya Seattle	600 5th Avenue South	Grocery Store/Market
Chinatown-International District	Chinese Information & Service Center	611 South Lane	Social Service
Chinatown-International District	International District/Chinatown Community Center	719 8th Avenue South	Community Facility
Chinatown-International District	Lumen Field	800 Occidental Avenue South	Theater/ Performance Venue
Chinatown-International District	WAMU Theatre	800 Occidental Avenue South	Theater/ Performance Venue
Chinatown-International District	Inscape Arts and Cultural Center	815 Airport Way South	Community Facility
Chinatown-International District	Salvation Army	811 Maynard Avenue South	Social Service
Chinatown-International District	SODO Assessment Center/Recovery Center	1039 6th Avenue South	Housing with Services
Chinatown-International District	Chinese Baptist Church	925 South King Street	Church/Religious Institution
Chinatown-International District	T-Mobile Park	1250 1st Avenue South	Community Facility
Chinatown-International District	Grocery Outlet Bargain Market	1702 4th Avenue South	Grocery Store/Market
Chinatown-International District	Goodwill Seattle Outlet	1703 6th Avenue South	Community Facility
Chinatown-International District	Eagle Village	1505 6th Avenue South	Housing with Services
Downtown	St. Anne Catholic Church	1411 1st Avenue West	Church/Religious Institution
Downtown	Safeway	516 1st Avenue West	Grocery Store/Market
Downtown	Horizon Church	602 Valley Street	Church/Religious Institution
Downtown	Sacred Heart of Jesus Parish	205 2nd Avenue North	Church/Religious Institution
Downtown	A Seattle Church	400 Dexter Avenue North	Church/Religious Institution
Downtown	Brewster Apartments	133 Pontius Avenue North	Income-restricted Housing
Downtown	Pat Williams Apartments	219 Pontius Avenue North	Housing with Services
Downtown	Bright Horizons at Belltown	2124 7th Avenue	Community Facility
Downtown	Union Park Grocery & Deli	1312 Minor Avenue	Grocery Store/Market
Downtown	Clay's Market	815 Pike Street	Grocery Store/Market

Segment	Name	Address	Type
Downtown	Bite Square	2013 3rd Avenue	Grocery Store/Market
Downtown	Christ Our Hope Catholic Church	1902 2nd Avenue	Church/Religious Institution
Downtown	Church of Scientology Seattle Life Improvement Center	1530 3rd Avenue Unit 3	Church/Religious Institution
Downtown	City Center Baptist Church	1400 6th Avenue (Sheraton Grand Hotel)	Church/Religious Institution
Downtown	The Showbox	1426 1st Avenue	Theater/ Performance Venue
Downtown	Fifth Avenue Theatre	1308 5th Avenue	Theater/ Performance Venue
Downtown	Seattle Center Exhibition Hall	301 Mercer Street	Community Facility
Downtown	Queen Anne Heights	1212 Queen Anne Avenue North	Seattle Housing Authority Property
Downtown	Museum of History and Industry	860 Terry Avenue North	Museum
Downtown	Olympic West	110 Olympic Place West	Seattle Housing Authority Property
Downtown	Bayview Retirement Community	11 West Aloha Street	Senior Housing
Downtown	Brookdale Queen Anne	805 4th Avenue North	Senior Housing
Downtown	The Center for Wooden Boats	1010 Valley Street	Community Facility
Downtown	Hutch Kids Child Care Center	1210 Valley Street	Community Facility
Downtown	Saint Paul's Episcopal	15 Roy South	Church/Religious Institution
Downtown	Metropolitan Market	100 Mercer Street	Grocery Store/Market
Downtown	2nd Avenue & Mercer Street Supportive Housing	Mercer Street and 2nd Avenue North	Housing with Services
Downtown	Jensen Block Apartments	1320 Mercer Street, Suite C	Income-restricted Housing
Downtown	Seattle Repertory Theatre	155 Mercer Street	Theater/ Performance Venue
Downtown	Cornish Playhouse	201 Mercer Street	Theater/ Performance Venue
Downtown	McCaw Hall	321 Mercer Street	Theater/ Performance Venue
Downtown	Bright Horizons at South Lake Union	1275 Mercer Street	Community Facility
Downtown	Seattle International Film Festival Cinema Uptown	511 Queen Anne Avenue North	Theater/ Performance Venue
Downtown	Home Deli Grocery	500 Minor Avenue North	Grocery Store/Market
Downtown	Bart Harvey Apartments	430 Minor Avenue North	Income-restricted Housing

Segment	Name	Address	Type
Downtown	Memorial Stadium	401 5th Avenue North	Community Facility
Downtown	Goodwill South Lake Union	411 Westlake Avenue North	Community Facility
Downtown	Climate Pledge Arena	305 Harrison Street	Theater/ Performance Venue
Downtown	Horiuchi Mural Amphitheatre	305 Harrison Street	Theater/ Performance Venue
Downtown	Lakeview Apartments	1170 Harrison Street	Income-restricted Housing
Downtown	Saint Spiridon Orthodox Cathedral	400 Yale Avenue North	Church/Religious Institution
Downtown	MightyKidz Daycare	315 1st Avenue North	Community Facility
Downtown	Fisher Pavilion	305 Harrison Street	Community Facility
Downtown	Seattle Center	305 Harrison Street	Community Facility
Downtown	Museum of Pop Culture	5th Avenue North and Harrison Street	Museum
Downtown	Sacred Heart Shelter	232 Warren Avenue North	Social Service
Downtown	Queen Anne Food Bank at Sacred Heart	232 Warren Avenue North	Social Service
Downtown	Denny Park Apartments	230 8th Avenue North	Income-restricted Housing
Downtown	Seattle Children's Theatre	201 Thomas Street	Theater/ Performance Venue
Downtown	Space Needle	400 Broad Street	Community Facility
Downtown	Immanuel Lutheran Church	1215 Thomas Street	Church/Religious Institution
Downtown	Cosmopolitan Kids	200 1st Avenue West	Community Facility
Downtown	Compass on Dexter	756 John Street	Social Service
Downtown	Haggard Nelson Child Care	214 Minor Avenue North	Community Facility
Downtown	Seattle Denny Park Lutheran Church	766 John Street	Church/Religious Institution
Downtown	Pacific Science Center	200 2nd Avenue North	Museum
Downtown	Seattle Housing Authority	190 Queen Anne Avenue North	Social Service
Downtown	Mirabella Retirement Community	116 Fairview Avenue North	Senior Housing
Downtown	Cascade Women’s Program	1207 Thomas Street	Housing with Services
Downtown	Colwell Apartments	111 Yale Avenue North	Income-restricted Housing
Downtown	Casa Pacifica	1167 Republican Street	Income-restricted Housing
Downtown	Cascade Court	1201 Summit Street	Income-restricted Housing

Segment	Name	Address	Type
Downtown	Mary's Place	113 Dexter Avenue North	Social Service
Downtown	First United Methodist Church	180 Denny Way	Church/Religious Institution
Downtown	Compass Blaine Center Emergency Shelter	150 Denny Way	Social Service
Downtown	Whole Foods Market	2210 Westlake Avenue	Grocery Store/Market
Downtown	City Foods	2522 5th Avenue	Grocery Store/Market
Downtown	Cornish College of the Arts - Raisbeck Performance Hall	2015 Boren Avenue	Theater/ Performance Venue
Downtown	Eastlake Supportive Housing	1811 Eastlake Avenue	Income-restricted Housing
Downtown	Graham Terry Apartments	2020 Terry Avenue	Income-restricted Housing
Downtown	Larned Apartments	2030 7th Avenue	Income-restricted Housing
Downtown	Olive Tower	1624 Boren Avenue	Income-restricted Housing
Downtown	Oleta Apartments	1814 Bellevue Avenue	Income-restricted Housing
Downtown	Bellevue Olive Apartments	1641 Bellevue Avenue	Income-restricted Housing
Downtown	Pardee Townhomes	1405 East Olive Way	Income-restricted Housing
Downtown	Tate Mason House	1100 Minor Avenue	Income-restricted Housing
Downtown	Kerner-Scott House	510 Minor Avenue	Income-restricted Housing
Downtown	Alfi's Food and Deli	1830 Minor Avenue	Grocery Store/Market
Downtown	YouthCares Orion Center	1828 Yale Avenue	Social Service
Downtown	Arion Court	1814 Minor Avenue	Income-restricted Housing
Downtown	Plymouth Place Housing	94 Bay Street	Income-restricted Housing
Downtown	Bremer Apartments	2905 1st Avenue	Income-restricted Housing
Downtown	John Carney Apartments	2911 1st Avenue	Income-restricted Housing
Downtown	Labor Temple	2800 1st Avenue	Social Service
Downtown	Puget Sound Labor Agency	2800 1st Avenue	Social Service
Downtown	First and Vine Apartments	2519 1st Avenue	Income-restricted Housing

Segment	Name	Address	Type
Downtown	Vine Court Apartments	103 Vine Street	Income-restricted Housing
Downtown	A.L. Humphrey House	111 Cedar Street	Income-restricted Housing
Downtown	Julie Apartments	1922 9th Avenue	Income-restricted Housing
Downtown	Stewart Court Apartments	1831 8th Avenue	Income-restricted housing
Downtown	Bright Horizons at West 8th	2001 8th Avenue, Suite 200	Community Facility
Downtown	Gethsemane Lutheran Church	911 Stewart Street	Church/Religious Institution
Downtown	Dekko Place	919 Stewart Street	Income-restricted Housing
Downtown	Saint Martin's on Westlake	2008 Westlake Avenue	Housing with Services
Downtown	Fare Start	700 Virginia Street	Social Service
Downtown	Abyssinia Market	2225 4th Avenue	Grocery Store/Market
Downtown	Traugott Terrace	2317 3rd Avenue	Housing with Services
Downtown	Matt Talbot Center	2313 3rd Avenue	Housing with Services
Downtown	Belltown Market	2424 1st Avenue	Grocery Store/Market
Downtown	Oregon Apartments	2305 1st Avenue	Income-restricted Housing
Downtown	Fleming Apartments	2321 4th Avenue	Income-restricted Housing
Downtown	Bayview Tower	2614 4th Avenue	Seattle Housing Authority Property
Downtown	Devonshire Apartments	420 Wall Street	Income-restricted Housing
Downtown	Downtown Public Health Center	2124 4th Avenue	Social Service
Downtown	Seattle KinderCare	1827 8th Avenue	Community Facility
Downtown	Dan's Belltown Grocery	2221 3rd Avenue	Grocery Store/Market
Downtown	Scargo/Lewiston Apartments	2209 1st Avenue	Income-restricted Housing
Downtown	Bell Tower	2215 1st Avenue	Seattle Housing Authority Property
Downtown	Langdon and Anne Simons Senior Apartments	2119 3rd Avenue	Housing with Services
Downtown	First Covenant Church	400 East Pike Street	Church/Religious Institution

Segment	Name	Address	Type
Downtown	Noel House & Rose of Lima at Bakhita Gardens	118 Bell Street	Housing with Services
Downtown	Lillian Rice Center and Belltown Senior Apartments	2208 2nd Avenue	Senior Housing
Downtown	Dorothy Day House	106 Bell Street	Housing with Services
Downtown	Ward Joan	2133 3rd Avenue #107	Social Service
Downtown	Wintonia Community Housing	1431 Minor Avenue	Housing with Services
Downtown	Salvation Army Food Bank	1101 Pike Street	Social Service
Downtown	Paramount Theatre	911 Pine Street	Theater/ Performance Venue
Downtown	Y.W.C.A. Opportunity Place	2024 3rd Avenue	Housing with Services
Downtown	Opportunity Place & Angeline's Day Center	2024 3rd Avenue	Housing with Services
Downtown	Department of Social and Health Services Belltown Community Service Center	2106 2nd Avenue	Social Service
Downtown	Merrill Gardens At First Hill	1421 Minor Avenue	Senior Housing
Downtown	Wally's Grocery	2129 2nd Avenue	Grocery Store/Market
Downtown	Pike Grocery	1011 Pike Street	Grocery Store/Market
Downtown	Sylvia Odom's Place	2013 3rd Avenue	Housing with Services
Downtown	Haddon Hall	1921 3rd Avenue	Income-restricted Housing
Downtown	Plymouth on Stewart	116 Stewart Street	Income-restricted Housing
Downtown	The Summit at First Hill	1200 University Street	Senior Housing
Downtown	Moore Hotel & Theatre	1926 2nd Avenue	Theater/ Performance Venue
Downtown	Washington State Convention Center	705 Pike Street	Community Facility
Downtown	Josephinum	1902 2nd Avenue	Housing with Services
Downtown	Women's Wellness Center	1900 2nd Avenue	Social Service
Downtown	Market Grocery and Deli	2003 1st Avenue	Grocery Store/Market
Downtown	Eagles Auditorium and A.C.T. Theatre	700 Union Street	Theater/ Performance Venue
Downtown	Eagles Apartments	706 Union Street	Income-restricted Housing

Segment	Name	Address	Type
Downtown	Denny Terrace	100 Melrose Avenue East	Seattle Housing Authority Property
Downtown	Cambridge Apartments	903 Union Street	Income-restricted Housing
Downtown	Horizon House	900 University Street	Senior Housing
Downtown	Virginia Mason T.L.C. Day Care	909 University Street	Community Facility
Downtown	Pike Place Market	85 Pike Street	Community Facility
Downtown	Glen Hotel	1413 3rd Avenue	Income-restricted Housing
Downtown	Gilmore Apartments	1526 3rd Avenue	Income-restricted Housing
Downtown	Pike Market Food Bank	1531 Western Avenue	Social Service
Downtown	Bloodworks Northwest Seattle Central Donor Center	921 Terry Avenue	Social Service
Downtown	Pike Market Child Care and Preschool	1501 Pike Place #222	Community Facility
Downtown	Plymouth Church	1217 6th Avenue	Church/Religious Institution
Downtown	Providence Vincent House	1423 1st Avenue	Housing with Services
Downtown	Ross Manor	1420 Western Avenue	Seattle Housing Authority Property
Downtown	Seattle First Presbyterian Church	1013 8th Avenue	Church/Religious Institution
Downtown	Seattle Unity Church	210 8th Avenue North	Church/Religious Institution
Downtown	Benaroya Hall	200 University Street	Theater/ Performance Venue
Downtown	Y.W.C.A. Seneca Residence	1118 5th Avenue	Housing with Services
Downtown	Solanus Casey Center	804 9th Avenue	Social Service
Downtown	Seattle Aquarium	1483 Alaskan Way	Museum
Downtown	Archdiocese of Seattle	710 9th Avenue	Church/Religious Institution
Downtown	Seattle Art Museum	1300 1st Avenue	Museum
Downtown	Frederic Ozanam House	801 9th Avenue	Housing with Services
Downtown	Frye Art Museum	704 Terry Avenue	Museum
Downtown	Seattle Public Library Central Branch	1000 4th Avenue, Seattle	Community Facility
Downtown	Skyline	725 9th Avenue	Senior Housing
Downtown	KidsCentre Inc. Post Alley	1211 Post Alley	Community Facility
Downtown	Bishop Lewis House	703 8th Avenue	Social Service

Segment	Name	Address	Type
Downtown	Cosmopolitan Kids Downtown Academy	1000 2nd Avenue #204	Community Facility
Downtown	University of Washington Children's Center at Harborview	601 9th Avenue	Community Facility
Downtown	Bright Horizons at Fourth and Madison	925 4th Avenue, Suite 200	Community Facility
Downtown	Department of Social and Health Services	800 5th Avenue, Suite 2000	Social Service
Downtown	Y.M.C.A. Downtown Branch	909 4th Avenue	Social Service
Downtown	Saint Charles Apartments	619 3rd Avenue	Income-restricted Housing
Downtown	Pacific Apartments	317 Marion Street	Income-restricted Housing
Downtown	Plymouth on First Hill	710 Cherry Street	Housing with Services
Downtown	KidsCentre Inc. Spring Street	99 Spring Street	Community Facility
Downtown	Trinity Episcopal Church	609 8th Avenue	Church/Religious Institution
Downtown	Lyon Building	607 3rd Avenue	Income-restricted Housing
Downtown	Leighton Apartments	814 Columbia Street	Income-restricted Housing
Downtown	Seattle Underground Tour	614 1st Avenue	Museum
Downtown	Washington Talking Book and Braille Library	2021 9th Avenue	Social Service
Downtown	Aldercrest Apartments	303 10th Avenue	Income-restricted Housing
Downtown	N/A	1415 Belmont Avenue	Property with Mandatory Housing Affordability Units
South Interbay	Ken's Market	2400 6th Avenue West	Grocery Store/Market
South Interbay	Zella Apartments	429 2nd Avenue West	Property with Mandatory Housing Affordability Units
South Interbay	Kirin Apartments	417 2nd Avenue West	Property with Mandatory Housing Affordability Units
South Interbay	West Town View	1407 2nd Avenue West	Seattle Housing Authority Property
South Interbay	Center West	533 3rd Avenue West	Seattle Housing Authority Property
South Interbay	Queen Anne United Methodist Church	1606 5th Avenue West	Church/Religious Institution
South Interbay	Carroll Terrace	600 5th Avenue West	Seattle Housing Authority Property

Segment	Name	Address	Type
South Interbay	Whole Foods	2001 15th Avenue West	Grocery Store/Market
South Interbay	Mount Pleasant Cemetery	700 West Raye Street	Cemetery
South Interbay	Seattle Church of Christ	2555 8th Avenue West	Church/Religious Institution
South Interbay	Queen Anne Lutheran Church	2400 8th Avenue West	Church/Religious Institution
South Interbay	Bright HorizFons at Interbay	1570 West Armory Way	Community Facility
South Interbay	Little Explorers Family Day Care	1906 10th Avenue West	Community Facility
South Interbay	Elliott Junction	601 Elliott Avenue West	Housing with Services
South Interbay	Interbay Place Apartments	2208 15th Avenue West	Housing with Services
South Interbay	Interbay Village Tiny Houses	1601 15th Avenue West	Housing with Services
South Interbay	Seattle Housing Authority Property	2620 23rd Avenue West	Seattle Housing Authority Property
South Interbay	Seattle Housing Authority Property	2651 Thorndyke Avenue West	Seattle Housing Authority Property
South Interbay	Seattle Housing Authority Property	1830 10th Avenue West	Seattle Housing Authority Property
South Interbay	Seattle Housing Authority Property	1828 10th Avenue West	Seattle Housing Authority Property
South Interbay	Seattle Housing Authority Property	2649 Thorndyke Avenue West	Seattle Housing Authority Property
South Interbay	Seattle Housing Authority Property	2644 22nd Avenue West	Seattle Housing Authority Property
South Interbay	ChefShop.Com	1425 Elliott Avenue West	Grocery Store/Market
South Interbay	Queen Anne Christian Church	1316 3rd Avenue West	Church/Religious Institution
South Interbay	Michaelson Manor	320 West Roy Street	Seattle Housing Authority Property
Interbay/Ballard	Q.F.C.	5700 24th Avenue Northwest	Grocery Store/Market
Interbay/Ballard	Bright Horizons at Belltown	1401 Northwest 46th Street	Community Facility
Interbay/Ballard	Refuge Church of Seattle	1715 Northwest Market Street	Church/Religious Institution
Interbay/Ballard	Market Terrace	1115 Northwest Market Street	Income-restricted Housing
Interbay/Ballard	Bar Church	5449 Ballard Avenue Northwest	Church/Religious Institution
Interbay/Ballard	Safeway	1423 Northwest Market Street	Grocery Store/Market

Segment	Name	Address	Type
Interbay/Ballard	Trader Joe's	4609 14th Avenue Northwest	Grocery Store/Market
Interbay/Ballard	Q.F.C.	1600 West Dravus Street	Grocery Store/Market
Interbay/Ballard	Ballard Boys & Girls Club	1767 Northwest 64th Street	Community Facility
Interbay/Ballard	Ballard Baptist Church	2004 Northwest 63rd Street	Church/Religious Institution
Interbay/Ballard	Interfaith Community Church	1763 Northwest 62nd Street	Church/Religious Institution
Interbay/Ballard	First Slavic Full Gospel Church	2004 Northwest 63rd Street	Church/Religious Institution
Interbay/Ballard	Saint Alphonsus Church	5816 15th Avenue Northwest	Church/Religious Institution
Interbay/Ballard	Saint Luke's Episcopal Church	5710 22nd Avenue Northwest	Church/Religious Institution
Interbay/Ballard	Saint Paul's United Church of Christ	6512 12th Avenue Northwest	Church/Religious Institution
Interbay/Ballard	Cheryl Chow Court	2014 Northwest 57th Street	Income-restricted Housing
Interbay/Ballard	Sunrise Manor	1530 Northwest 57th Street	Seattle Housing Authority Property
Interbay/Ballard	Nelson Manor	2200 Northwest 58th Street	Seattle Housing Authority Property
Interbay/Ballard	Schwabacher House	1715 Northwest 59th Street	Seattle Housing Authority Property
Interbay/Ballard	Nyer Urness House	1753 Northwest 56th Street	Housing with Services
Interbay/Ballard	Leif Erikson Lodge	2245 Northwest 57th Street	Community Facility
Interbay/Ballard	Ballard Market	1400 Northwest 56th Street	Grocery Store/Market
Interbay/Ballard	Ballard Odd Fellows	1706 Northwest Market Street	Social Service
Interbay/Ballard	Ballard Alki Lodge Independent Order of Odd Fellows	1706 Northwest Market Street	Social Service
Interbay/Ballard	Ballard Landmark	5433 Leary Avenue Northwest	Senior Housing
Interbay/Ballard	Salmon Bay Eagles	5216 20th Avenue Northwest	Community Facility
Interbay/Ballard	Ballard Farmers Market	5345 Ballard Avenue Northwest	Community Facility
Interbay/Ballard	Ballard Food Bank	5130 Leary Avenue Northwest	Social Service
Interbay/Ballard	Ballard Food Bank (future location)	1400 Northwest Leary Way	Social Service

Segment	Name	Address	Type
Interbay/Ballard	Quest Church	1401 Northwest Leary Way	Church/Religious Institution
Interbay/Ballard	PCC Community Markets - Ballard	1451 Northwest 46th Street	Grocery Store/Market
Interbay/Ballard	Fred Meyer	915 Northwest 45th Street	Grocery Store/Market
Interbay/Ballard	Kidspace Childcare Center	3837 13th Avenue West #200	Community Facility
Interbay/Ballard	Werner Apartments	3046 17th Avenue West	Income-restricted Housing
Interbay/Ballard	Ivy at Interbay	3008 16th Avenue West	Income-restricted Housing
Interbay/Ballard	Seattle Housing Authority Property	3819 13th Avenue West	Seattle Housing Authority Property
Interbay/Ballard	Seattle Housing Authority Property	3255 21st Avenue West	Seattle Housing Authority Property
Interbay/Ballard	Seattle Housing Authority Property	1126/1128 Northwest 59th Street	Seattle Housing Authority Property
Interbay/Ballard	Seattle Housing Authority Property	4306/4308 6th Avenue Northwest	Seattle Housing Authority Property
Interbay/Ballard	Seattle Housing Authority Property	830 Northwest 51st Street	Seattle Housing Authority Property
Interbay/Ballard	Seattle Housing Authority Property	1752 Northwest 62nd Street	Seattle Housing Authority Property
Interbay/Ballard	Seattle Housing Authority Property	4326 5th Avenue Northwest	Seattle Housing Authority Property
Interbay/Ballard	Seattle Housing Authority Property	5803 5th Avenue Northwest	Seattle Housing Authority Property
Interbay/Ballard	Seattle Housing Authority Property	334 Northwest 41st Street	Seattle Housing Authority Property
Interbay/Ballard	Saint Margaret Church	3221 14th Avenue West	Church/Religious Institution
Interbay/Ballard	Tower Memorial Church	2116 West Dravus Street	Church/Religious Institution

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Appendix L4.6 Air Quality

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Appendix L4.6A
Applicable Laws, Regulations, Guidance, and Policies

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Appendix L4.6A Applicable Laws, Regulations, Guidance, and Policies

The following federal, state, and local laws, regulations, guidance, and policies are applicable to the air quality analysis for the West Seattle and Ballard Link Extensions Project:

- Clean Air Act (United States Code Title 42 Section 7401).
- Code of Federal Regulations Title 40, Section 50, United States Environmental Protection Agency, National Primary and Secondary Air Quality Standards.
- Code of Federal Regulations Title 40, Section 93, Determining Conformity of Federal Actions to State or Federal Implementation Plans.
- Washington Clean Air Act (Revised Code of Washington 70.94).
- Washington Administrative Code Chapter 173-420, Conformity of Transportation Activities to Air Quality Implementation Plans.
- Federal Highway Administration, Updated Interim Guidance on Mobile Source Air Toxic Analysis in NEPA [National Environmental Policy Act] Documents. 2016.
- Federal Transit Administration, Greenhouse Gas Emissions from Transit Projects: Programmatic Assessment. 2017.
- Puget Sound Clean Air Agency Regulation I, Article 9, Section 15, Fugitive Dust Control Measures.
- United States Environmental Protection Agency, National Ambient Air Quality Standards.
- Washington State Department of Transportation (WSDOT), *WSDOT Guidance – Project Level Greenhouse Gas Evaluations under NEPA and SEPA* [State Environmental Policy Act]. 2018.

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Appendix L4.6B
Air Monitoring Data from the Study Area

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Appendix L4.6B Air Monitoring Data from the Study Area

Table L4.6B-1. Air Monitoring Data from the Study Area

Parameter	National Ambient Air Quality Standard	2017	2018	2019
Carbon monoxide maximum 1-hour concentration (parts per million)	35	2.9	1.4	1.5
Carbon monoxide maximum 8-hour concentration (parts per million)	9	2.2	1.3	1.1
Ozone fourth-highest 8-hour concentration (parts per million)	0.070	0.047	0.045	0.046
Nitrogen oxides 98th-percentile 1-hour concentration (parts per million)	0.100	0.065	0.064	0.057
Nitrogen oxides annual average (parts per million)	0.053	0.02049	0.0201	0.01807
PM_{10} maximum 24-hour concentration (micrograms per cubic meter)	150	Information not available	104	26
$PM_{2.5}$ 98th-percentile 24-hour concentration (micrograms per cubic meter)	35	39	42	20
$PM_{2.5}$ Weighed Annual Mean (micrograms per cubic meter)	12	9.7	9.3	8.3
Sulfur dioxide 99th-percentile 1-hour concentration (micrograms per cubic meter)	0.075	0.006	0.008	0.006

Source: United States Environmental Protection Agency 2020.

Note: If the same pollutant was monitored at more than one of the three monitoring stations closest to the project corridor, the highest monitored concentrations among the stations is presented.

$PM_{2.5}$ = particulate matter less than 2.5 microns in diameter

PM_{10} = particulate matter less than 10 microns in diameter

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Appendix L4.6C
Limitations of the Mobile Source Air Toxics Analysis

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Appendix L4.6C Limitations of the Mobile Source Air Toxics Analysis

The mobile source air toxics analysis in Sections 4.2.6 and 4.3.6, Air Quality, of the Environmental Impact Statement includes a basic analysis of the likely mobile source air toxics impacts of the proposed project. Due to the limitations of information and methodology of the analysis, the following discussion is included in accordance with Council on Environmental Quality regulations regarding incomplete or unavailable information (Code of Federal Regulations Title 40 Section 1502.22[b]). The discussion regarding the limitations of the mobile source air toxics analysis is prototype language taken from Appendix C of the Federal Highway Administration *Updated Interim Guidance on Mobile Source Air Toxic Analysis in NEPA Documents* (Federal Highway Administration 2016).

Information is incomplete or unavailable to credibly predict the project-specific health impacts due to changes in mobile source air toxics emissions associated with a proposed set of highway alternatives. The outcome of such an assessment, adverse or not, would be influenced more by the uncertainty introduced into the process through assumption and speculation rather than any genuine insight into the actual health impacts directly attributable to mobile source air toxics exposure associated with a proposed action.

The United States Environmental Protection Agency is responsible for protecting the public health and welfare from any known or anticipated effects of an air pollutant. The United States Environmental Protection Agency is the lead authority for administering the Clean Air Act and its amendments and has specific statutory obligations with respect to hazardous air pollutants and mobile source air toxics. The United States Environmental Protection Agency is in the continual process of assessing human health effects, exposures, and risks posed by air pollutants. It maintains the Integrated Risk Information System (IRIS), which is “a compilation of electronic reports on specific substances found in the environment and their potential to cause human health effects” (https://www.epa.gov/iris). Each report provides assessments of noncancerous and cancerous effects for individual compounds and quantitative estimates of risk levels from lifetime oral and inhalation exposures with uncertainty spanning perhaps an order of magnitude.

Other organizations are also active in the research and analyses of the human health effects of mobile source air toxics, including the Health Effects Institute. A number of Health Effects Institute studies are summarized in Appendix D of the Federal Highway Administration’s *Updated Interim Guidance on Mobile Source Air Toxic Analysis in NEPA Documents* (Federal Highway Administration 2016). Among the adverse health effects linked to mobile source air toxics compounds at high exposures are cancer in humans in occupational settings, cancer in animals, and irritation to the respiratory tract, including the exacerbation of asthma. Less obvious is the adverse human health effects of mobile source air toxics compounds at current environmental concentrations (Health Effects Institute 2007) or in the future as vehicle emissions substantially decrease.

The methodologies for forecasting health impacts include emissions modeling, dispersion modeling, exposure modeling, and then final determination of health impacts, with each step in the process building on the model predictions obtained in the previous step. All are encumbered by technical shortcomings or uncertain science that prevents a more complete differentiation of the mobile source air toxics health impacts among a set of project alternatives. These difficulties are magnified for lifetime (i.e., 70-year) assessments, particularly because unsupportable assumptions would have to be made regarding changes in travel patterns and vehicle technology (which affects emissions rates) over that timeframe, since such information is unavailable.

It is particularly difficult to reliably forecast 70-year lifetime mobile source air toxics concentrations and exposure near roadways, to determine the portion of time that people are actually exposed at a specific location, and to establish the extent of exposure attributable to a specific proposed action, especially given that some of the information needed is unavailable.

There are considerable uncertainties associated with the existing estimates of toxicity of the various mobile source air toxics because of factors such as low-dose extrapolation and translation of occupational exposure data to the general population, a concern expressed by the Health Effects Institute (2007). As a result, there is no national consensus on air dose-response values assumed to protect the public health and welfare for mobile source air toxics compounds, and in particular for diesel particulate matter. The United States Environmental Protection Agency states that with respect to diesel engine exhaust, "[t]he absence of adequate data to develop a sufficiently confident dose-response relationship from the epidemiologic studies has prevented the estimation of inhalation carcinogenic risk" (United States Environmental Protection Agency IRIS database, Diesel Engine Exhaust, Section II.C, https://iris.epa.gov/static/pdfs/0642_summary.pdf).

There is also a lack of national consensus on an acceptable level of risk. The current context is the process used by the United States Environmental Protection Agency as provided by the Clean Air Act to determine whether more stringent controls are required in order to provide an ample margin of safety to protect public health or to prevent an adverse environmental effect for industrial sources subject to the maximum achievable control technology standards, such as benzene emissions from refineries. The decision framework is a two-step process. The first step requires United States Environmental Protection Agency to determine an "acceptable" level of risk due to emissions from a source, which is generally no greater than approximately 100 in a million. Additional factors are considered in the second step, the goal of which is to maximize the number of people with risks less than one in a million due to emissions from a source. The results of this statutory two-step process do not guarantee that cancer risks from exposure to air toxics are less than one in a million; in some cases, the residual risk determination could result in maximum individual cancer risks that are as high as approximately 100 in a million. In a June 2008 decision, the United States Court of Appeals for the District of Columbia Circuit upheld the United States Environmental Protection Agency's approach to addressing risk in its two-step decision framework. Information is incomplete or unavailable to establish that even the largest of highway projects would result in levels of risk greater than deemed acceptable (https://www.cadc.uscourts.gov/internet/opinions.nsf/284E23FFE079CD59852578000050C9DA/$file/07-1053-1120274.pdf).

Because of the limitations in the methodologies for forecasting health impacts described, any predicted difference in health impacts between alternatives is likely to be much smaller than the uncertainties associated with predicting the impacts. Consequently, the results of such assessments would not be useful to decision-makers, who would need to weigh this information against project benefits, such as reducing traffic congestion, accident rates, and fatalities plus improved access for emergency response, that are better suited for quantitative analysis.

References

Federal Highway Administration. 2016. *Updated Interim Guidance on Mobile Source Air Toxic Analysis in NEPA Documents*. Memorandum from Emily Biondi, Acting Director, Office of Natural Environment. https://www.fhwa.dot.gov/environMent/air_quality/air_toxics/policy_and_guidance/msat/2016msat.pdf. October 18.

Health Effects Institute. 2007. *Health Effects Institute Special Report 16*, *Mobile-Source Air Toxics: A Critical Review of the Literature on Exposure and Health Effects.* https://www.healtheffects.org/publication/mobile-source-air-toxics-critical-review-literature-exposure-and-health-effects. Accessed January 3, 2020.

Appendix L4.6D
Greenhouse Gas Emissions Calculations

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Appendix L4.6D1
Greenhouse Gas Emission Calculations – Construction

Project Information

Scenario	Stations				Track Miles				Overhead Catenary System (two sets equal to track miles)
	At-Grade	Elevated	Tunnel	Total	At-Grade	Elevated	Tunnel	Total	
West Seattle Low Cost [a]	1	3	0	4	1.4	7.0	0.3	8.7	8.7
West Seattle High Cost [b]	0	2	2	4	0.6	6.6	2.4	9.6	9.6
Ballard Low Cost [c]	0	3	6	9	0.6	7.4	7.0	14.9	14.9
Ballard High Cost [d]	2	1	7	10	2.5	1.9	11.4	15.8	15.8

[a] The West Seattle low-cost scenario includes Preferred Alternative SODO-1a, Preferred Alternative DUW-1a, Alternative DEL-5, and Preferred Alternative WSJ-2.

[b] The West Seattle high-cost scenario includes Alternative SODO-2, Preferred Alternative DUW-1a, Option DEL-2b*, and Preferred Option WSJ-3b*.

[c] The Ballard low-cost scenario includes Alternative CID-2a, Preferred Alternative DT-1, Preferred Alternative SIB-1, and Preferred Alternative IBB-1a.

[d] The Ballard high-cost scenario includes Alternative CID-1a*, Alternative DT-2, Alternative SIB-3, and Preferred Alternative IBB-2b*. Alternative CID-1a* would require the existing Stadium Station to be rebuilt.

Construction Emission Factors

Source		Upstream Material	Upstream Transport	Downstream	Units
Tracks	Underground	163,642	4,592	4,246	Metric tons of carbon dioxide equivalent/mile
	Elevated	4,901	146	793	Metric tons of carbon dioxide equivalent/mile
	At-grade	348	77	138	Metric tons of carbon dioxide equivalent/mile
Overhead Catenary System	All	3,161	Not Applicable	Not Applicable	Metric tons of carbon dioxide equivalent/mile
Station	Underground	52,253	1,487	782	Metric tons of carbon dioxide equivalent/facility
	Elevated	8,337	2,399	383	Metric tons of carbon dioxide equivalent/facility
	At-grade	3,674	112	11	Metric tons of carbon dioxide equivalent/facility

Source: Federal Transit Administration Greenhouse Gas Estimator (2021), https://www.transit.dot.gov/regulations-and-guidance/environmental-programs/ftas-transit-greenhouse-gas-emissions-estimator.

Notes:

Upstream construction emissions are associated with the extraction, transport, and production of the materials used in the construction of the facilities (e.g., asphalt, concrete, base stone, and steel).

Downstream construction emissions are tailpipe emissions resulting from the operation of construction vehicles and equipment.

Greenhouse Gas Emission Calculations

Element	Units	Quantity				Upstream Material Emissions Metric Tons of Carbon Dioxide Equivalent				Upstream Transport Emissions Metric Tons of Carbon Dioxide Equivalent				Downstream Emissions Metric Tons of Carbon Dioxide Equivalent			
		West Seattle Low	West Seattle High	Ballard Low	Ballard High	West Seattle Low	West Seattle High	Ballard Low	Ballard High	West Seattle Low	West Seattle High	Ballard Low	Ballard High	West Seattle Low	West Seattle High	Ballard Low	Ballard High
Tracks	Underground (miles)	0.3	2.4	7.0	11.4	49,093	39,2741	1,141,567	1,862,246	1,378	11,021	32,034	52,257	1,274	10,190	29,620	48,319
	Elevated (miles)	7.0	6.6	7.4	1.9	34,307	32,347	36,169	9,312	1,022	964	1,077	277	5,551	5,234	5,852	1,507
	At-grade (miles)	1.4	0.6	0.6	2.5	487	209	198	863	108	46	44	191	193	83	79	342
Overhead Catenary System	miles	8.7	9.6	14.9	15.8	27,501	30,346	47,181	49,817	0	0	0	0	0	0	0	0
Station	Underground (number of facilities)	0	2	6	7	0	104,506	313,518	365,771	0	2,974	8,922	10,409	0	1,564	4,692	5,474
	Elevated (number of facilities)	3	2	3	1	25011	16,674	25,011	8,337	7,197	4,798	7,197	2,399	1,149	766	1,149	383
	At-grade (number of facilities)	1	0	0	2	3674	0	0	7,348	112	0	0	224	11	0	0	22

Notes:

Upstream construction emissions are associated with the extraction, transport, and production of the materials used in the construction of the facilities (e.g., asphalt, concrete, base stone, and steel).

Downstream construction emissions are tailpipe emissions resulting from the operation of construction vehicles and equipment.

Total Greenhouse Gas Construction Emissions

Alignment	Upstream Material Greenhouse Gas Emissions (metric tons of carbon dioxide equivalent)	Upstream Transport Greenhouse Gas Emissions (metric tons of carbon dioxide equivalent)	Downstream Greenhouse Gas Emissions (metric tons of carbon dioxide equivalent)	Total Greenhouse Gas Emissions (metric tons of carbon dioxide equivalent)
West Seattle Low Cost [a]	140,073	9,816	8,178	158,067
West Seattle High Cost [b]	576,822	19,803	17,837	614,461
Ballard Low Cost [c]	1,563,644	49,274	41,392	1,654,311
Ballard High Cost [d]	2,303,694	65,757	56047	2,425,499

Notes:

Upstream construction emissions are associated with the extraction, transport, and production of the materials used in the construction of the facilities (e.g., asphalt, concrete, base stone, and steel).

Downstream construction emissions are tailpipe emissions resulting from the operation of construction vehicles and equipment.

[a] The West Seattle low-cost scenario includes Preferred Alternative SODO-1a, Preferred Alternative DUW-1a, Alternative DEL-5, and Preferred Alternative WSJ-2.

[b] The West Seattle high-cost scenario includes Alternative SODO-2, Preferred Alternative DUW-1a, Option DEL-2b*, and Preferred Option WSJ-3b*.

[c] The Ballard low-cost scenario includes Alternative CID-2a, Preferred Alternative DT-1, Preferred Alternative SIB-1, and Preferred Alternative IBB-1a.

[d] The Ballard high-cost scenario includes Alternative CID-1a*, Alternative DT-2, Alternative SIB-3, and Preferred Alternative IBB-2b*. Alternative CID-1a* would require the existing Stadium Station to be rebuilt.

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Appendix L4.6D2
Greenhouse Gas Emissions Calculations – Regional Vehicle Miles Traveled

Regional Daily Vehicle Miles Traveled

Mode	2019 Existing	2032 No Build	2032 Build	2042 No Build	2042 Build
Cars and Light Trucks	79,532,000	82,623,000	82,623,000	85,364,000	85,247,000
Heavy Trucks	9,012,000	10,208,000	10,208,000	11,269,000	11,269,000
Transit Buses	205,100	231,697	231,697	257,700	259,900
Total	88,749,100	93,062,697	93,062,697	96,890,700	96,775,900

Greenhouse Gas Emissions: Carbon Dioxide Equivalent Emission Factors (grams/mile)

Mode	2019 Existing	2032 No Build	2032 Build	2042 No Build	2042 West Seattle Build/ Ballard Build
Cars and Light Trucks	371	286	286	221	221
Heavy Trucks	1,831	1,780	1,780	1,741	1,741
Transit Buses	1,067	1,039	1,039	1,018	1,018

Notes:

Carbon dioxide equivalent emission factors were modeled using the United States Environmental Protection Agency's MOVES2014b, https://www.epa.gov/moves/latest-version-motor-vehicle-emission-simulator-moves.

2019 emission factors were developed using 2017 regionally specific data provided by Puget Sound Regional Council and adapted for 2019.

2042 emission factors were developed using 2040 regionally specific data provided by Puget Sound Regional Council and adapted for 2042.

2032 emission factors were developed based upon a linear approximation between 2019 and 2042 emission factors due to the lack of regionally specific data for this time period from Puget Sound Regional Council.

Passenger vehicle emission factors were developed based upon a 60 percent/40 percent split of cars to trucks based upon Puget Sound Regional Council provided population data.

Regional Greenhouse Gas Emissions (metric tons/day)

Mode	2019 Existing	2032 No Build	2032 Build	2042 No Build	2042 Build
Cars and Light Trucks	29,471.6	23,627.3	23,627.3	18,856.0	18,830.2
Heavy Trucks	16,500.8	18,170.1	18,170.1	19,616.5	19,616.5
Transit Buses	218.7	240.8	240.8	262.5	264.7

Regional Greenhouse Gas Emissions (metric tons/year)

Mode	2019 Existing	2032 No Build	2032 Build	2042 No Build	2042 Build
Cars and Light Trucks	10,757,146	8,623,962	8,623,962	6,882,447	6,873,014
Heavy Trucks	6,022,805	6,632,073	6,632,073	7,160,027	7,160,027
Transit Buses	79,841	87,898	87,898	95,797	96,615
Total	16,859,792	15,343,932	15,343,932	14,138,271	14,129,656
Total with 0.27 factor for fuel production	**21,411,936**	**19,486,794**	**19,486,794**	**17,955,605**	**17,944,663**

Appendix L4.6E
Evaluation of PM_{10} Hot Spots Impacts

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Appendix L4.6E Evaluation of PM_{10} Hot Spots Impacts

L4.6E.1 West Seattle Link Extension

Potential localized particulate matter with aerodynamic diameter equal to or smaller than 10 micrometers (PM_{10}) impacts of the project were performed following the criteria listed in *Transportation Conformity Guidance for Quantitative Hot-spot Analyses in $PM_{2.5}$ and PM_{10} Nonattainment and Maintenance Areas* (United States Environmental Protection Agency 2015). According to this guidance, the first step in the hot-spot evaluation for PM_{10} is to determine whether the project is a "project of air quality concern." A project that is not a project of air quality concern is unlikely to cause localized PM_{10} hot-spot impacts.

The United States Environmental Protection Agency specified in Code of Federal Regulations Title 40, Section 93.123(b)(1) that projects of air quality concern are certain highway and transit projects that involve significant levels of diesel-fueled vehicle traffic, such as major highway projects and projects at congested intersections that handle significant diesel traffic, or any other project that is identified in the State Implementation Plan as a localized air quality concern for particulate matter with aerodynamic diameter equal to or smaller than 2.5 micrometers ($PM_{2.5}$) or PM_{10}. A preliminary evaluation of PM_{10} hot-spot impacts was conducted for the West Seattle Link Extension following the criteria described in Code of Federal Regulations Title 40, Section 93.123. This evaluation concluded that the project is not expected to be a project of air quality concern because:

- The West Seattle Link Extension is not a new highway project or highway expansion project, and it would not attract diesel traffic to the project area. As shown in Table L.4E-1, the annual average daily traffic on affected roadways in the project area ranges from 8,600 to 110,800 vehicles, and the heavy diesel truck traffic ranges from zero to 8 percent of the annual average daily traffic in 2040 under the No Build Alternative. The West Seattle Link Extension Build Alternatives would have an overall slightly lower annual average daily traffic compared to the No Build Alternative in 2040, and would range from 8,700 to 110,500 vehicles. The percentages of diesel traffic on each of the affected roadways would not change between No Build Alternative and Build Alternatives.

- The West Seattle Link Extension is expected to improve the area's traffic conditions by providing a transit option. While the project would be beneficial to traffic congestion relief when people switch from driving to taking light rail, there would be increased vehicle trips near the stations for alternatives in the West Seattle Link Extension. The increased vehicle trips to and from the stations may cause increased delays and deteriorated level of service at some of the intersections near these stations. However, because the West Seattle Link Extension would not increase diesel truck traffic in the study area or attract large amount of diesel vehicles to the stations, the deteriorated level of service at intersections near the stations are likely caused by passenger vehicles accessing the light rail stations. Therefore, the project is not expected to affect intersections that are at level of service D, E, or F with a significant number of diesel vehicles or cause a significant increase of diesel truck traffic at these intersections.

Table L4.6E-1. Annual Average Daily Traffic and Diesel Truck Percentage at Affected Roadways – West Seattle Link Extension

Screenline	2019 Annual Average Daily Traffic	2019 Heavy Diesel Truck Traffic	2032 No Build/Build Annual Average Daily Traffic [a]	2032 No Build/Build Heavy Diesel Truck Traffic [a]	2042 No Build Annual Average Daily Traffic	2042 No Build Heavy Diesel Truck Traffic	2042 Build Annual Average Daily Traffic	2042 Build Heavy Diesel Truck Traffic
Duwamish Waterway: Southwest Spokane Street	26,000	6%	26,100	7%	25,600	8%	25,300	8%
Duwamish Waterway: West Seattle Bridge Eastbound	45,600	3%	45,000	4%	44,900	4%	44,600	4%
Duwamish Waterway: West Seattle Bridge Westbound	44,200	3%	44,200	3%	43,800	4%	43,300	4%
Lander Street: State Route 99	100,600	6%	104,200	7%	109,900	7%	109,100	7%
Lander Street: 1st Avenue	35,400	6%	33,600	7%	34,000	8%	33,700	8%
Lander Street: 4th Avenue	38,500	6%	38,700	7%	40,100	7%	40,000	7%
Lander Street: 6th Avenue	8,700	6%	8,600	7%	8,600	8%	8,700	8%
Lander Street: Airport Way	24,800	6%	26,800	6%	28,200	7%	28,100	7%
Lander Street: Interstate 5 Northbound	111,300	6%	111,000	7%	110,800	8%	110,500	8%
Lander Street: Interstate 5 Southbound	100,900	6%	101,800	7%	101,300	8%	101,200	8%
Lander Street: Interstate 5 High-occupancy Vehicle Lane	23,200	0%	24,400	0%	24,900	0%	24,600	0%
Lander Street: East Marginal Way South	13,600	6%	13,600	7%	13,500	7%	13,500	7%

[a] Information is provided as one number because the No Build and Build alternatives for 2032 would have the same results.

- No new bus or rail terminals would be constructed or expanded for the West Seattle Link Extension.
- The West Seattle Link Extension would not cause diesel vehicles to congregate at a single location.
- The project location was not identified in the region's State Implementation Plan as a site of possible violation of PM_{10} or $PM_{2.5}$.

In summary, although a portion of the project is in a maintenance area for PM_{10} under National Ambient Air Quality Standards, the project would not be a project of air quality concern based on the United States Environmental Protection Agency criteria discussed above. Therefore, the project is not expected to cause or contribute to new localized PM_{10} violations or increase frequency or severity of existing violations. As such, the project would meet the conformity requirements of Code of Federal Regulations Title 40, Section 93.116 without a quantitative hot-spot analysis.

L4.6E.2 Ballard Link Extension

Evaluation of the PM_{10} hot spot impacts for the Ballard Link Extension was performed following the same approach as for the West Seattle Link Extension. A preliminary evaluation of PM_{10} hot-spot impacts was conducted for the Ballard Link Extension following the criteria described in Code of Federal Regulations Title 40, Section 93.123. This evaluation concluded that the project is not expected to be a project of air quality concern because:

- The Ballard Link Extension is not a new highway project or highway expansion project, and it would not induce diesel traffic to the project area. As shown in Table L.4E-2, the annual average daily traffic on affected roadways in the project area ranges from 4,100 to 91,400 vehicles, and the heavy diesel truck traffic ranges from zero to 8 percent of the annual average daily traffic in 2040 under the No Build Alternative. The Ballard Link Extension Build Alternatives would have an overall slightly lower annual average daily traffic compared to the No Build Alternative in 2040, ranging from 3,900 to 91,500 vehicles. The percentages of diesel traffic on each of the affected roadways would not change between No Build Alternative and Build Alternatives.
- The Ballard Link Extension is expected to improve the area's traffic conditions by providing a transit option. While the project would be beneficial to traffic congestion relief when people switch from driving to taking light rail, there would be increased vehicle trips near stations for the Ballard Link Extension alternatives. The increased vehicle trips to and from the stations may cause increased delays and deteriorated level of service at some of the intersections near these stations. However, because the Ballard Link Extension would not increase diesel truck traffic in the study area or attract large amount of diesel vehicles to the stations, the deteriorated level of service at intersections near the stations are likely caused by passenger vehicles accessing the light rail stations. Therefore, the project is not expected to affect intersections that are at level of service D, E, or F with a significant number of diesel vehicles or cause a significant increase of diesel truck traffic at these intersections.

Table L4.6E-2. Annual Average Daily Traffic and Diesel Truck Percentage at Affected Roadways – Ballard Link Extension

Screenline	2019 Annual Average Daily Traffic	2019 Heavy Diesel Truck Traffic	2032 No Build/Build Annual Average Daily Traffic [a]	2032 No Build/Build Heavy Diesel Truck Traffic [a]	2042 No Build Annual Average Daily Traffic	2042 No Build Heavy Diesel Truck Traffic	2042 Build Annual Average Daily Traffic	2042 Build Heavy Diesel Truck Traffic
Main Street: Alaskan Way South	43,900	3%	44,200	3%	42,900	4%	42,800	4%
Main Street: State Route 99	48,500	6%	53,800	6%	64,400	6%	63,600	6%
Main Street: 1st Avenue South	31,300	3%	31,500	3%	31,000	4%	30,900	4%
Main Street: 2nd Avenue South Ext	22,400	3%	23,100	4%	23,400	4%	23,300	4%
Main Street: 4th Avenue	24,300	3%	24,700	3%	24,400	4%	24,300	4%
Main Street: 5th Avenue	6,400	3%	8,100	3%	8,400	2%	8,300	2%
Main Street: 6th Avenue	8,900	3%	9,100	3%	9,700	3%	9,600	3%
Main Street: Interstate 5 Northbound	92,300	6%	92,300	7%	91,300	7%	91,000	8%
Main Street: Interstate 5 Southbound	63,800	6%	65,400	7%	65,800	7%	65,600	7%
Main Street: Interstate 5 Collector/Distributor Northbound	51,500	6%	53,300	7%	54,500	7%	54,400	7%
Main Street: Interstate 5 Collector/Distributor Southbound	61,200	6%	61,000	7%	60,700	8%	60,500	8%
Denny Way: State Route 99	48,500	6%	53,800	6%	64,400	6%	63,600	6%
Denny Way: Interstate 5 Northbound	90,800	6%	89,800	7%	90,500	7%	90,400	7%
Denny Way: Interstate 5 Southbound	89,700	6%	91,000	7%	91,400	7%	91,500	7%
Denny Way: Interstate 5 Express Lanes	30,900	0%	33,100	0%	33,800	0%	33,400	0%
Denny Way: 1st Avenue North (Northbound)	8,200	2%	8,300	2%	8,100	3%	7,700	3%
Denny Way: 5th Avenue North	19,700	3%	20,500	3%	20,000	4%	19,700	4%
Denny Way: 6th Avenue North	2,900	3%	4,300	2%	4,100	2%	3,900	3%

Screenline	2019 Annual Average Daily Traffic	2019 Heavy Diesel Truck Traffic	2032 No Build/Build Annual Average Daily Traffic [a]	2032 No Build/Build Heavy Diesel Truck Traffic [a]	2042 No Build Annual Average Daily Traffic	2042 No Build Heavy Diesel Truck Traffic	2042 Build Annual Average Daily Traffic	2042 Build Heavy Diesel Truck Traffic
Denny Way: 7th Avenue North	25,200	3%	27,300	3%	27,400	4%	27,300	4%
Denny Way: 9th Avenue North	5,100	4%	6,800	3%	8,000	3%	7,700	3%
Denny Way: Elliott Avenue West	31,600	3%	32,100	3%	32,900	3%	31,400	4%
Denny Way: Western Avenue South	35,300	3%	35,600	3%	35,800	4%	34,900	4%
Denny Way: Queen Anne Avenue North	6,500	3%	6,400	3%	6,000	3%	5,700	4%
Denny Way: Broad Street	6,700	3%	7,100	3%	6,700	3%	6,600	3%
Denny Way: Dexter Avenue North	5,300	4%	5,300	4%	5,400	4%	5,300	4%
Denny Way: Westlake Avenue North	12,900	3%	13,100	4%	13,500	4%	13,300	5%
Denny Way: Fairview Avenue North	28,900	3%	31,500	3%	33,100	3%	32,900	3%
Denny Way: Eastlake Avenue North (Northbound)	8,800	3%	11,100	3%	11,800	3%	11,800	3%
Denny Way: Stewart Street (Southbound)	25,400	3%	25,900	4%	27,100	4%	27,100	4%
Salmon Bay: 15th Avenue West (Ballard Bridge)	52,700	3%	53,500	3%	55,500	4%	54,100	4%

[a] Information is provided as one number because the No Build and Build alternatives for 2032 would have the same results.

- No new bus or rail terminals would be constructed or expanded for the Ballard Link Extension.
- The Ballard Link Extension would not cause diesel vehicles to congregate at a single location.
- The project location was not identified in the region's State Implementation Plan as a site of possible violation of PM_{10} or $PM_{2.5}$.

In summary, although a portion of the Ballard Link Extension project is in a maintenance area for PM_{10} under National Ambient Air Quality Standards, the project would not be a project of air quality concern based on the United States Environmental Protection Agency criteria discussed above. Therefore, the project is not expected to cause or contribute to new localized PM_{10} violations or increase frequency or severity of existing violations. As such, the project would meet the conformity requirements of Code of Federal Regulations Title 40, Section 93.116 without a quantitative hot-spot analysis.

References

United States Environmental Protection Agency. 2015. *Transportation Conformity Guidance for Quantitative Hot-spot Analyses in $PM_{2.5}$ and PM_{10} Nonattainment and Maintenance Areas*. https://www.epa.gov/state-and-local-transportation/project-level-conformity-and-hot-spot-analyses.

Appendix L4.6F
Air Quality Best Management Practices

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Appendix L4.6F Air Quality Best Management Practices

Sound Transit would minimize or avoid potential air quality impacts during construction of the West Seattle and Ballard Link Extensions Project by selecting best management practices appropriate for the circumstances. Best management practices may include the following:

- Spray exposed soil with a dust-control agent, such as water, as necessary to reduce emissions of particulate matter.
- Cover all transported loads of soil and wet materials before transport or provide adequate freeboard (i.e., space from the top of the material to the top of the truck bed) to reduce particulate matter emissions during transport.
- Provide wheel washes where necessary to reduce dust and mud that would be carried offsite by vehicles and decrease particulate matter on area roadways.
- Remove any dust and mud deposited by construction vehicles or other project activities on paved public roads.
- Route and schedule high volumes of construction traffic, where practicable, to reduce additional congestion during peak travel periods and reduce carbon monoxide and nitrogen oxide emissions.
- Require appropriate emissions-control devices on all construction equipment powered by gasoline or diesel fuel to reduce carbon monoxide and nitrogen oxide emissions.
- Use well-maintained heavy equipment to reduce carbon monoxide and nitrogen oxide emissions, which may also reduce greenhouse gas emissions.
- Cover, install mulch, or plant vegetation as soon as practicable after grading to reduce windblown particulates in the area.
- Encourage contractors to employ emissions-reduction technologies and practices for both on-road and off-road equipment and vehicles (e.g., retrofit equipment with diesel emission-control technology, use ultra-low-sulfur diesel, or do both).
- Implement idling restrictions for construction trucks.
- Locate construction equipment and truck-staging zones away from air-quality-sensitive receptors when possible and considering other factors such as noise and safety.

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Appendix L4.8 Water Resources

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Table of Contents

Figures

Tables

Acronyms and Abbreviations

Ecology	Washington State Department of Ecology
WAC	Washington Administrative Code
WSBLE	West Seattle and Ballard Link Extensions

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1 REGULATORY REQUIREMENTS

The following laws, statutes, local ordinances, and guidelines address hydrology, water quality, and flooding issues relevant to the West Seattle and Ballard Link Extensions (WSBLE). Under the Washington Administrative Code (WAC) 173-201A, the state has assigned water uses to each of the waterbodies in the study area. These are shown in Table 1-1. These uses define the Washington State Department of Ecology (Ecology) water quality standards that must be met for each waterbody and that are enforced by Ecology.

1.1 Federal

- Clean Water Act, 33 United States Code 1251 *et seq.*, including Sections 401 – Water Quality Certification, 402 – National Pollutant Discharge Elimination System, and 404 – Permits for Dredge or Fill.
- Coastal Zone Management Act, 16 United States Code 1451 *et seq*.
- Floodplain Management Presidential Executive Order 11988.
- Safe Drinking Water Act, 42 United States Code 300 *et seq.*, Chapter 6A.

1.2 State

- Water Quality Standards for Surface Waters, WAC 173-201A.
- Water Quality Standards for Groundwater, WAC 173-200.
- Flood Control Management Act, Revised Code of Washington 89.
- Water Pollution Control Act, Revised Code of Washington 90.48.
- Shoreline Management Act, Revised Code of Washington 90.58, WAC 173-26.
- National Pollutant Discharge Elimination System Construction Stormwater General Permit (Ecology 2017).
- *Stormwater Management Manual for Western Washington* (Ecology 2019).
- Washington State Department of Transportation *Hydraulics Manual* (2019a).
- Washington State Department of Transportation *Highway Runoff Manual* (2019b).
- Washington State Hydraulic Code (WAC 220-660).

Table 1-1. Designated Water Uses for Waterbodies in the Study Area

Waterbody Name	Total Basin Area (square miles)	Receiving Water	Extension – Segment(s)	Water Resource Inventory Area Basin Designation	Designated Use - Aquatic Life	Designated Use - Recreation Uses [a]	Designated Use - Water Supply Uses [b]	Designated Use - Miscellaneous Uses [c]
Longfellow Creek	5.1	Duwamish Waterway	West Seattle Link Extension – Delridge Segment	9 - Duwamish-Green	Rearing/migration only	Primary contact	All, except domestic water	All
Duwamish Waterway	21.6	Elliott Bay	West Seattle Link Extension – Duwamish Segment	9 - Duwamish-Green	Rearing/migration only	Primary contact	All, except domestic water	All
Salmon Bay	13.5	Lake Union	Ballard Link Extension – Interbay/Ballard Segment	8 – Cedar-Sammamish	Core summer habitat	Primary contact	All	All
Elliott Bay	8.1	Puget Sound	Ballard Link Extension – South Interbay Segment and Downtown Segment	8 – Cedar-Sammamish and 9 - Duwamish-Green	Rearing/migration only	Secondary contact	All, except domestic water	All

[a] Examples of recreation uses include swimming, wading, boating, and surfing.

[b] Examples of water supply uses include domestic water, industrial water, agricultural water, and stock water.

[c] Examples of miscellaneous uses include wildlife habitat, harvesting, commerce/navigation, boating, and aesthetics.

1.3 Regional

- Sound Transit *Link Design Criteria Manual*, Rev. 5 (Sound Transit 2021).
- Low Impact Development Technical Guidance Manual for Puget Sound (Puget Sound Partnership 2012).
- Sound Transit Environmental Policy (2004).
- Sound Transit Sustainability Initiative (Resolution No. R2007-12).
- Sound Transit Sustainability Plan (2011).
- King County Surface Water Design Manual (2016).

1.4 Local

- City of Seattle Municipal Code Title 22, Subtitle VIII, Stormwater Code.
- City of Seattle Department and Planning and Development, Seattle Public Utilities Stormwater Manual Volumes 1 through 5, Appendices A to I. Director's Rule DWW-200 (City of Seattle 2021).
- City of Seattle Department of Construction and Inspections, Seattle Municipal Code Chapter 25.06 – Floodplain Development Code.
- City of Seattle, Seattle Municipal Code Chapter 21.16 – Side Sewers.
- City of Seattle, Seattle Municipal Code Chapter 23.60A – Seattle Shoreline Master Program Regulations, including applicable standards in 23.60A.152 – General Development, and 23.60A.158 – Standards for Mitigation Sequencing.
- City of Seattle, Seattle Municipal Code Chapter 25.09 – Floodplain/Floodways.
- City of Seattle Department of Construction and Inspections, Director's Rules 4-2011, Requirements for Design and Construction of Side Sewers (Drainage and Wastewater Discharges).
- City of Seattle Department of Construction and Inspections, Director's Rules 13-2010/Seattle Public Utilities 5-2010: Groundwater/Dewatering.
- CAM1180: Design Guidelines for Public Storm Drain Facilities (2012).
- Port of Seattle Stormwater Management Manual (2018).

Under WAC 173-201A, the state has assigned water uses to each of the waterbodies in the study area. These are shown in Table 1-1. These uses define the Ecology water quality standards that must be met for each waterbody and that are enforced by Ecology.

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2 HYDROLOGIC SOIL GROUPS

The soils in King County have been classified into lettered groups. Each soil group has similar soil properties. Hydrologic soil group is one of the classified soil properties. Hydrologic soil group is a relative measure of the soil's infiltration rate. There are four hydrologic soil groups (A to D), defined as follows:

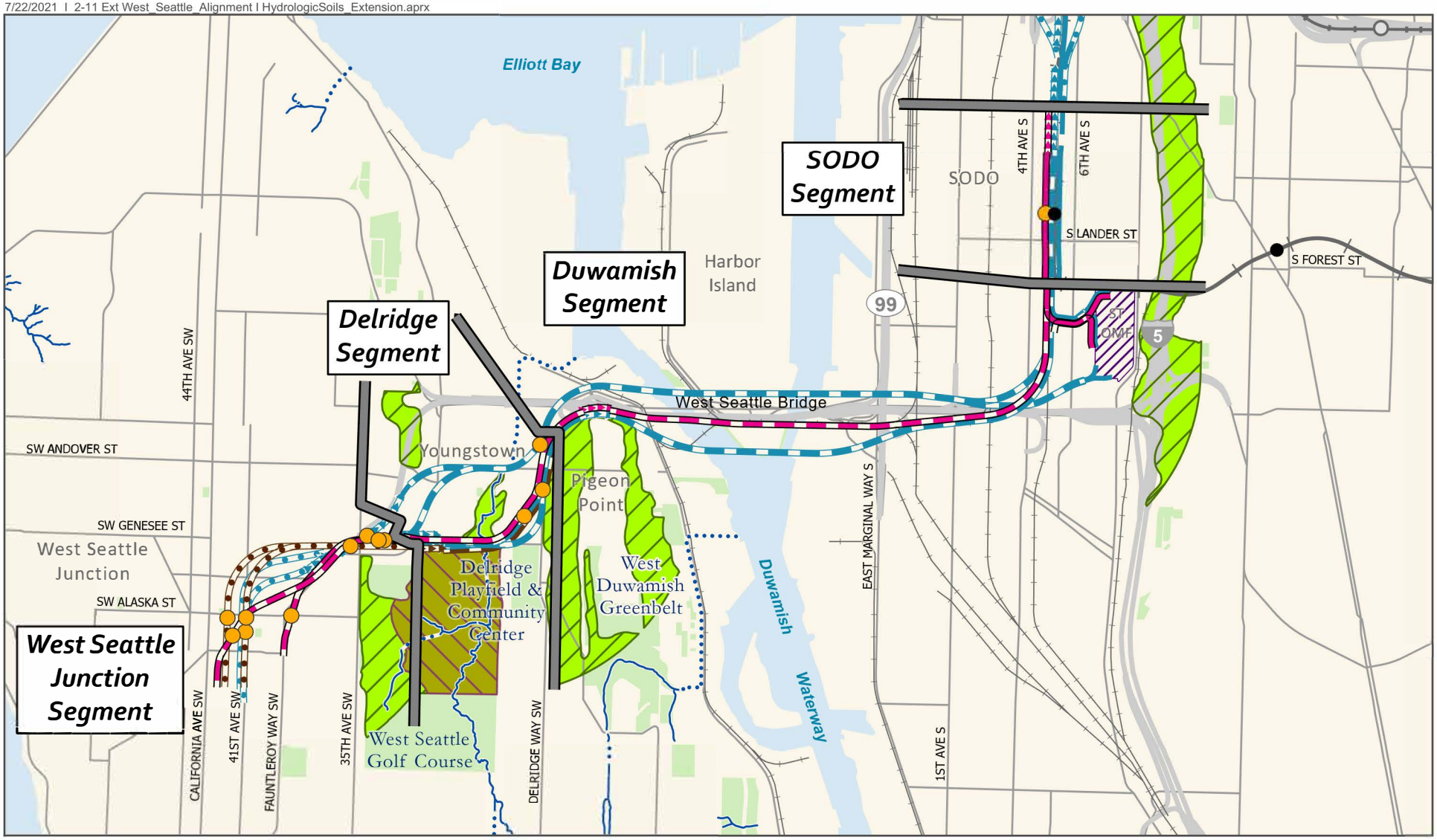
- **Group A soils** have a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

- **Group B soils** have a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

- **Group C soils** have a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

- **Group D soils** have a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

Some areas are classified with soils from two groups such as A/D. These are areas that could have characteristics of both groups, such as different soil layers (a shallow porous layer over a till layer). Figures 2-1 and 2-2 show the hydrologic soils groups in the study area. Most of the study area is heavily urbanized with imported fill, so the hydrologic soil groups are not available.



Source: City of Seattle, King County (2019, 2020, 2021), NRCS Soils (2019).

Alternatives
- Preferred Alternative
- Preferred Alternative with Third-party Funding
- Other Alternatives

Alternative Profile
- Elevated
- Tunnel
- At-Grade
- Retained Cut

Station
- New
- Existing

- Segment Line
- Sound Transit Operations and Maintenance Facility (ST OMF)
- Existing Link Light Rail
- East Link Light Rail (Under Construction)
- Railroad
- Stream
- Piped Stream
- Park

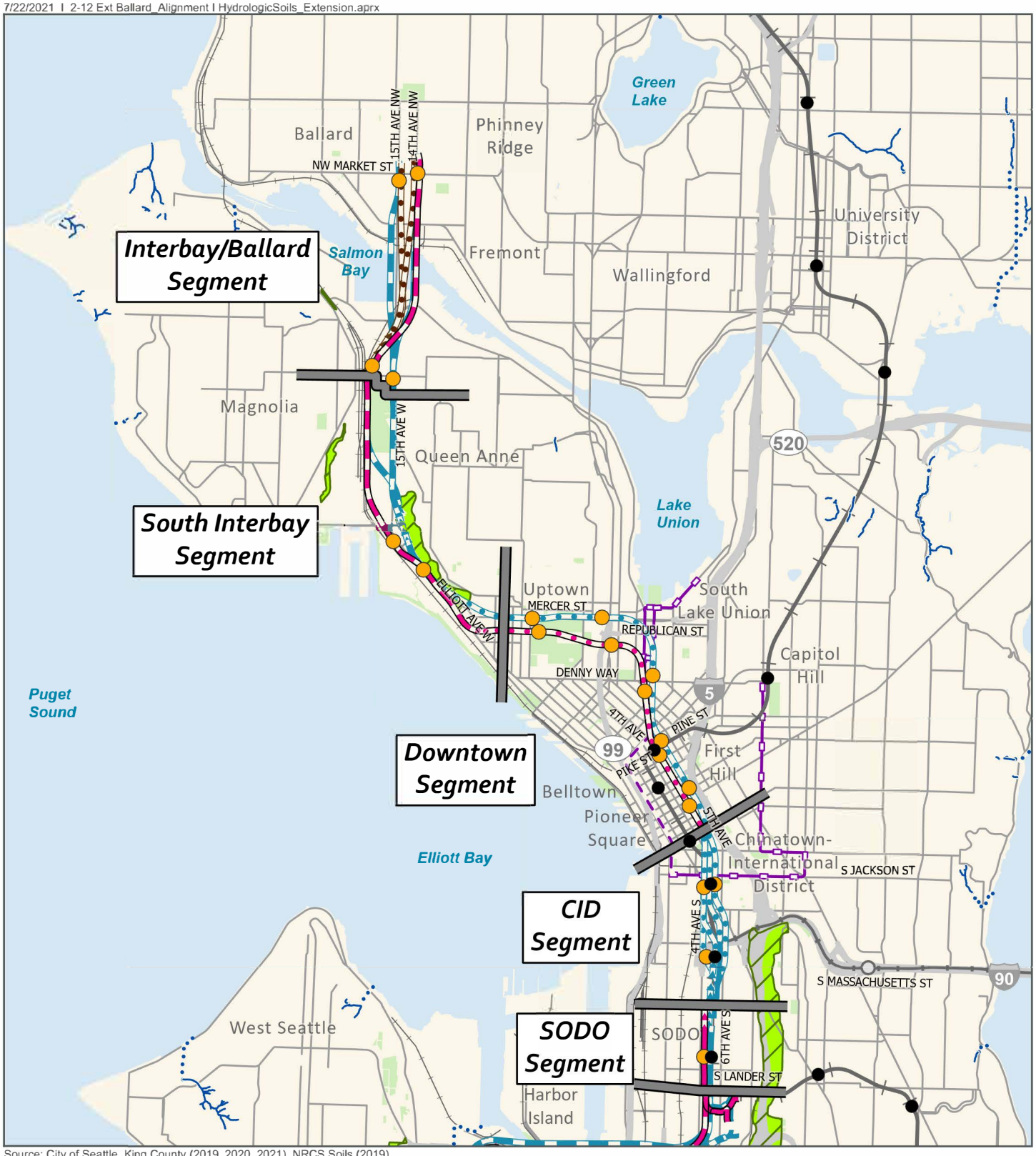
NRCS Hydrologic Soil Group
- A
- A/D

FIGURE 2-1
Hydrologic Soil Groups
West Seattle Link Extension

West Seattle and Ballard Link Extensions

0 0.5 1 Mile

N



Source: City of Seattle, King County (2019, 2020, 2021), NRCS Soils (2019).

Alternatives
- Preferred Alternative
- Preferred Alternative with Third-party Funding
- Other Alternatives

Alternative Profile
- Elevated
- Tunnel
- At-Grade
- Retained Cut

Station
- New
- Existing

- Segment Line
- Existing Link Light Rail
- East Link Light Rail (Under Construction)
- Existing Streetcar
- Center City Connector Streetcar (Construction Paused)
- Railroad
- Stream
- Piped Stream
- Park

NRCS Hydrologic Soil Group
- A
- A/D

FIGURE 2-2
Hydrologic Soil Groups
Ballard Link Extension

West Seattle and Ballard Link Extensions

0 0.5 1 Mile

N

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3 ESTIMATES OF IMPERVIOUS SURFACES

To compare aspects of water resource impacts, computer-aided design files of the WSBLE Project operational footprints of the build alternatives were examined and overlaid on recent aerial photos. Where the footprint is within arterial right-of-way, the edges of the sidewalks on either side of the arterial represented the project limits. Where the footprint is outside an arterial right-of-way, the footprint (such as the edge of the guideway) was used as the project limits. Impervious areas that are proposed to be added to each alternative were then visually delineated, totaled, and summarized in Table 4.2.8-1 in Section 4.2.8, Water Resources, and Table 4.3.8-1 in Section 4.3.8, Water Resources, of the Draft Environmental Impact Statement. The additional impervious areas were also visually delineated by drainage basin or combined sewer overflow basin as shown on the figures in this section.

Non-pollution-generating impervious surfaces in the study area consist of the light rail guideway[1] (both at-grade and elevated), roofs, sidewalks, at-grade or elevated stations, and the infrequently used access roads to traction power substations and stormwater facilities. Pollution-generating impervious surfaces consist of roads, driveways, parking areas, and any other areas subject to frequent motor vehicle traffic. Commercial and industrial areas are also considered pollution-generating impervious surfaces, although these latter areas would not be created as a result of this project.

Surfaces associated with underground alignments and underground stations are not included in the estimates for added impervious areas because the underground areas would not be subject to rainfall and would not produce runoff. However, where tunnel alternatives would have surface construction, such as cut-and-cover, pervious areas could be removed and replaced with impervious areas, resulting in an increase in impervious surfaces. These areas are included in estimates of new impervious surfaces.

In addition to added impervious surfaces, there will be some older existing impervious surfaces on the streets and at stations that would be replaced. Where required, runoff from replaced surfaces would also receive water quality treatment and flow control prior to discharging to surface waters. The replaced surfaces have not been quantified in these estimates, but they would be identified in future design phases, based on pavement condition data to be collected.

Portions of the WSBLE Project consist of elevated guideways that would intercept rainfall before it reaches the underlying ground surface. For this analysis, it was assumed that the guideway runoff would be collected at discrete discharge locations and then conveyed by pipe down the guideway columns. For this reason, if the guideway would be located over existing pervious area, the guideway would represent new impervious area. In areas where guideway would be located over existing impervious area, no change in impervious area would result.

In areas where guideway would be over existing pollution-generating impervious surfaces, such as crossing a road or parking lot, no net change in pollution-generating impervious surfaces is assumed. Even though the overlying guideway (non-pollution-generating impervious surfaces) would intercept precipitation, the runoff from surrounding, at-grade pollution-generating

[1] Sound Transit and the Washington State Department of Ecology entered into a Memorandum of Understanding dated December 9, 2019, in which Sound Transit agreed to conduct a study to characterize the quality of the stormwater discharged from the light rail guideway. The data and analysis from the study will be used to inform the design of light rail projects that are scheduled in the Sound Transit 3 Plan to be completed between 2030 and 2041, and Sound Transit will identify all known, available, and reasonable methods of prevention, control, and treatment (AKART) to define light-rail specific best management practices.

impervious surfaces would pick up and transport pollutants from the underlying ("sheltered") pollution-generating impervious surfaces and carry them to the local drainage system. Discharges would continue to their current locations (typically into the same municipal stormwater systems). Thus, from a practical standpoint, there would be no net reduction in existing pollution-generating impervious surfaces. In the case of a guideway situated over existing non-pollution-generating impervious surfaces, there would be no change in non-pollution-generating impervious surfaces.

3.1 West Seattle Link Extension

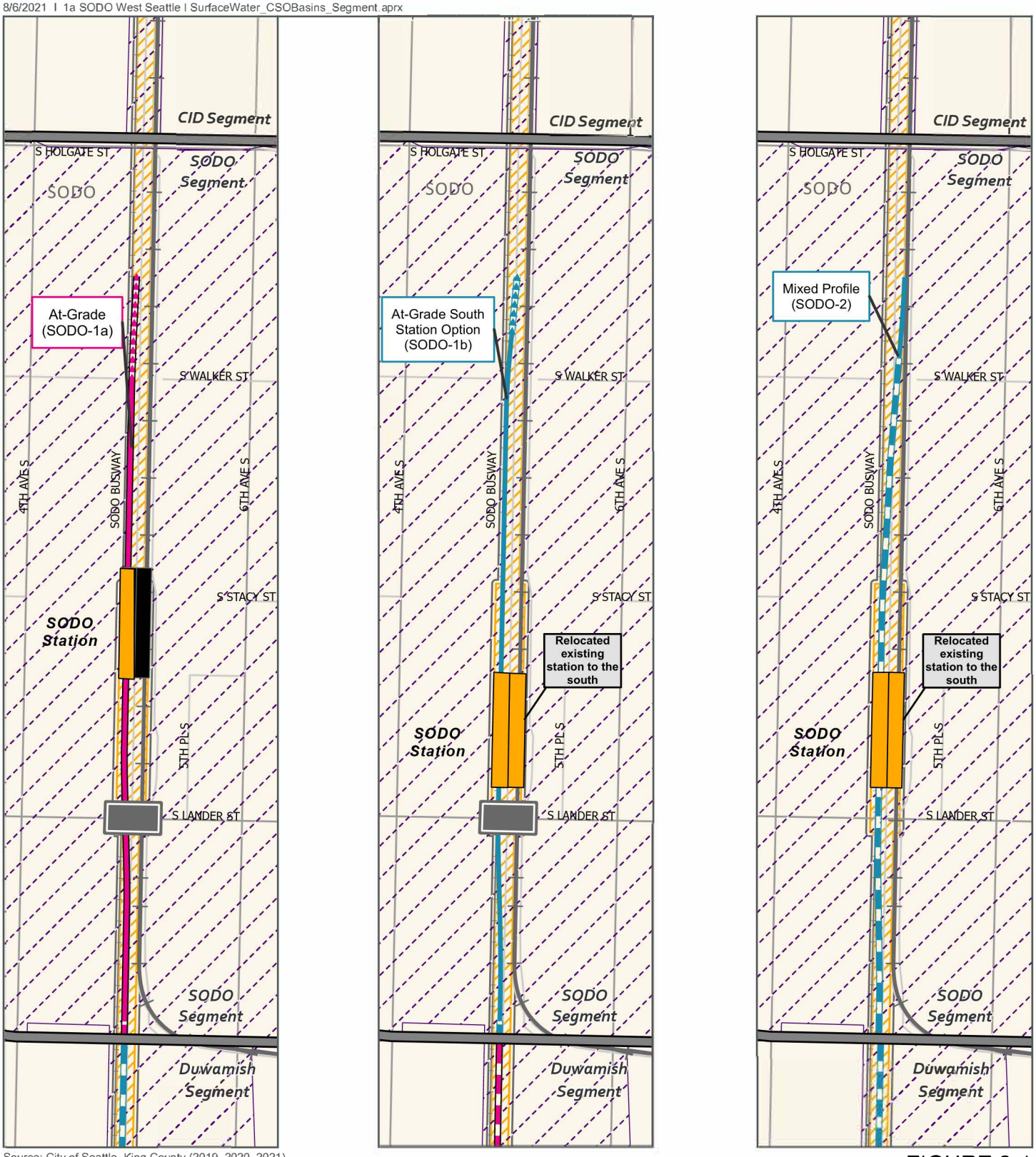
3.1.1 SODO Segment

Because the SODO Segment is in an industrialized and urbanized area, existing land cover is primarily impervious. Runoff from added impervious areas for all alternatives in this segment would drain to the Duwamish Waterway (also known as Duwamish River) (Figure 3-1). As shown in Table 3-1, Option SODO-1b would have the highest total added impervious areas because this alternative would remove the largest area of existing planter strip between the guideways in the SODO Busway. Required flow-control and water quality facilities in this segment would reduce flows to the storm drain system, while controlling flows and pollutants to the Duwamish Waterway.

Preferred Alternative SODO-1a and Option SODO-1b include the Lander Street overpass. However, the structure adds very little new impervious area because it is constructed over an existing impervious roadway. In addition, since a new bridge over South Lander Street would eliminate the need for vehicles to stop for train traffic, fewer pollutants from those vehicles are expected to concentrate at that location, which would improve the quality of water draining to the Duwamish Waterway from this area.

3.1.2 Duwamish Segment

Stormwater in the Duwamish Segment would flow primarily directly through storm drains to the Duwamish Waterway (Figure 3-2). As shown in Table 3-1, Preferred Alternative DUW-1a would add the most impervious areas and associated runoff from converting undeveloped areas in the West Duwamish Greenbelt to impervious surfaces. Option DUW-1b would have a smaller but similar increase. Alternative DUW-2 would be constructed over more existing paved areas west of Harbor Island, avoiding the West Duwamish Greenbelt; therefore, it would have substantially less increase in impervious area. Required flow-control and water quality facilities in this segment would reduce flows to the storm drain system, while controlling flows and pollutants to the Duwamish Waterway.



Source: City of Seattle, King County (2019, 2020, 2021).

Alternatives
- Preferred Alternative
- Preferred Alternative with Third-party Funding
- Other Alternatives

Alternative Profile
- Elevated
- Tunnel
- At-Grade
- Retained Cut

Station
- New
- Existing

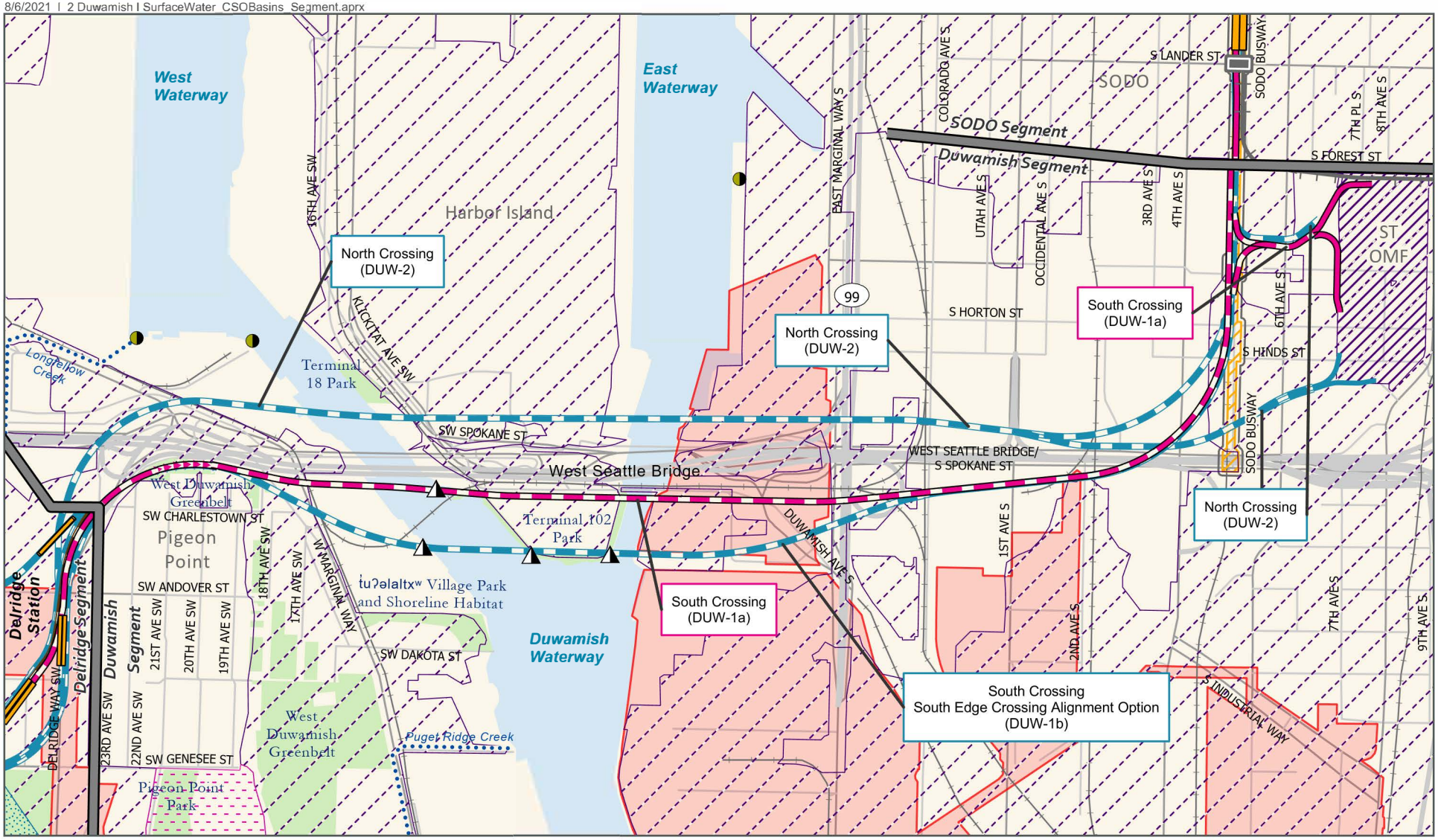
- Segment Line
- Existing Link Light Rail
- Railroad
- SODO Busway
- Proposed Overpass
- Drainage Areas to Receiving Waterbodies

Notes: 1) Areas outside of the basins shown are served by King County Combined Sewer. 2) Within drainage areas to receiving waters, stormwater is collected and conveyed in city storm drain systems.

FIGURE 3-1
Surface Water and Combined Sewer Overflow Drainage Basins
West Seattle Link Extension - SODO Segment
West Seattle and Ballard Link Extensions

0 300 600 Feet

N



Source: City of Seattle, King County (2019, 2020, 2021).

Alternatives
- Preferred Alternative
- Preferred Alternative with Third-party Funding
- Other Alternatives

Alternative Profile
- Elevated
- Tunnel
- At-Grade
- Retained Cut

Station
- New

- Segment Line
- Existing Link Light Rail
- Railroad
- SODO Busway
- Proposed Overpass
- Sound Transit Operations and Maintenance Facility (ST OMF)
- Piped Stream
- Park

- Combined Sewer Overflow (CSO) Outfall
- Storm Drain Outfall to be Relocated
- City of Seattle Combined Sewer Basins
- Drainage Areas to Receiving Waterbodies
- Longfellow Creek Watershed
- Puget Creek Watershed

Notes: 1) Areas outside of the basins shown are served by King County Combined Sewer. 2) Within drainage areas to receiving waters, stormwater is collected and conveyed in city storm drain systems.

FIGURE 3-2
Surface Water and Combined Sewer Overflow Drainage Basins
West Seattle Link Extension - Duwamish Segment
West Seattle and Ballard Link Extensions

0 800 1,600 Feet
N

Table 3-1. Summary of Added Impervious Areas for West Seattle Link Extension Alternatives

Segment	Alternative	New Non-Pollution-Generating Impervious Surfaces in Non-Combined Sewer Drainage Areas [a] (square feet)	New Pollution-Generating Impervious Surfaces in Non-Combined Sewer Drainage Areas [a] (square feet)	New Impervious Surface in Combined Sewer Basins (square feet)	Total New Impervious Surface (square feet)
SODO	Preferred At-Grade (SODO-1a)	0	3,100	0	3,100
SODO	At-Grade South Station Option (SODO-1b)	4,400	2,700	0	7,100
SODO	Mixed Profile (SODO-2)	2,100	1,600	0	3,700
Duwamish	Preferred South Crossing (DUW-1a)	35,300	27,600	2,800	65,700
Duwamish	South Crossing South Edge Crossing Alignment Option (DUW-1b)	30,300	27,600	2,200	60,100
Duwamish	North Crossing (DUW-2)	3,400	0	1,400	4,800
Delridge	Preferred Dakota Street Station (DEL-1a)	21,200	2,600	29,600	53,400
Delridge	Dakota Street Station North Alignment Option (DEL-1b)	16,500	0	28,100	44,600
Delridge	Preferred Dakota Street Station Lower Height (DEL-2a)*	16,800	100	34,400	51,300
Delridge	Dakota Street Station Lower Height North Alignment Option (DEL-2b)*	9,700	100	12,100	21,900
Delridge	Delridge Way Station (DEL-3)	29,700	6,900	11,700	48,300
Delridge	Delridge Way Station Lower Height (DEL-4)*	1,900	700	29,100	31,700
Delridge	Andover Street Station (DEL-5)	23,400	1,400	2,500	27,300
Delridge	Andover Street Station Lower Height (DEL-6)*	19,600	2,000	7,800	29,400
West Seattle Junction	Preferred Elevated 41st/42nd Avenue Station (WSJ-1)	4,000	0	31,900	35,900

Segment	Alternative	New Non-Pollution-Generating Impervious Surfaces in Non-Combined Sewer Drainage Areas [a] (square feet)	New Pollution-Generating Impervious Surfaces in Non-Combined Sewer Drainage Areas [a] (square feet)	New Impervious Surface in Combined Sewer Basins (square feet)	Total New Impervious Surface (square feet)
West Seattle Junction	Preferred Elevated Fauntleroy Way Station (WSJ-2)	0	0	30,700	30,700
West Seattle Junction	Preferred Tunnel 41st Avenue Station (WSJ-3a)*	0	13,000	51,100	64,100
West Seattle Junction	Preferred Tunnel 42nd Avenue Station Option (WSJ-3b)*	2,800	7,600	20,300	30,700
West Seattle Junction	Short Tunnel 41st Avenue Station (WSJ-4)*	0	13,000	68,700	81,700
West Seattle Junction	Medium Tunnel 41st Avenue Station (WSJ-5)*	0	13,000	51,100	64,100

* As described in the introduction to Chapter 2, Alternatives Considered, at the time the Sound Transit Board identified alternatives for study in the Draft Environmental Impact Statement some alternatives were anticipated to require third-party funding based on early cost estimates. The asterisk identifies these alternatives and the alternatives that would only connect to these alternatives in adjacent segments.

[a] Includes direct discharge areas and drainage areas to receiving waters in partially separated drainage systems.

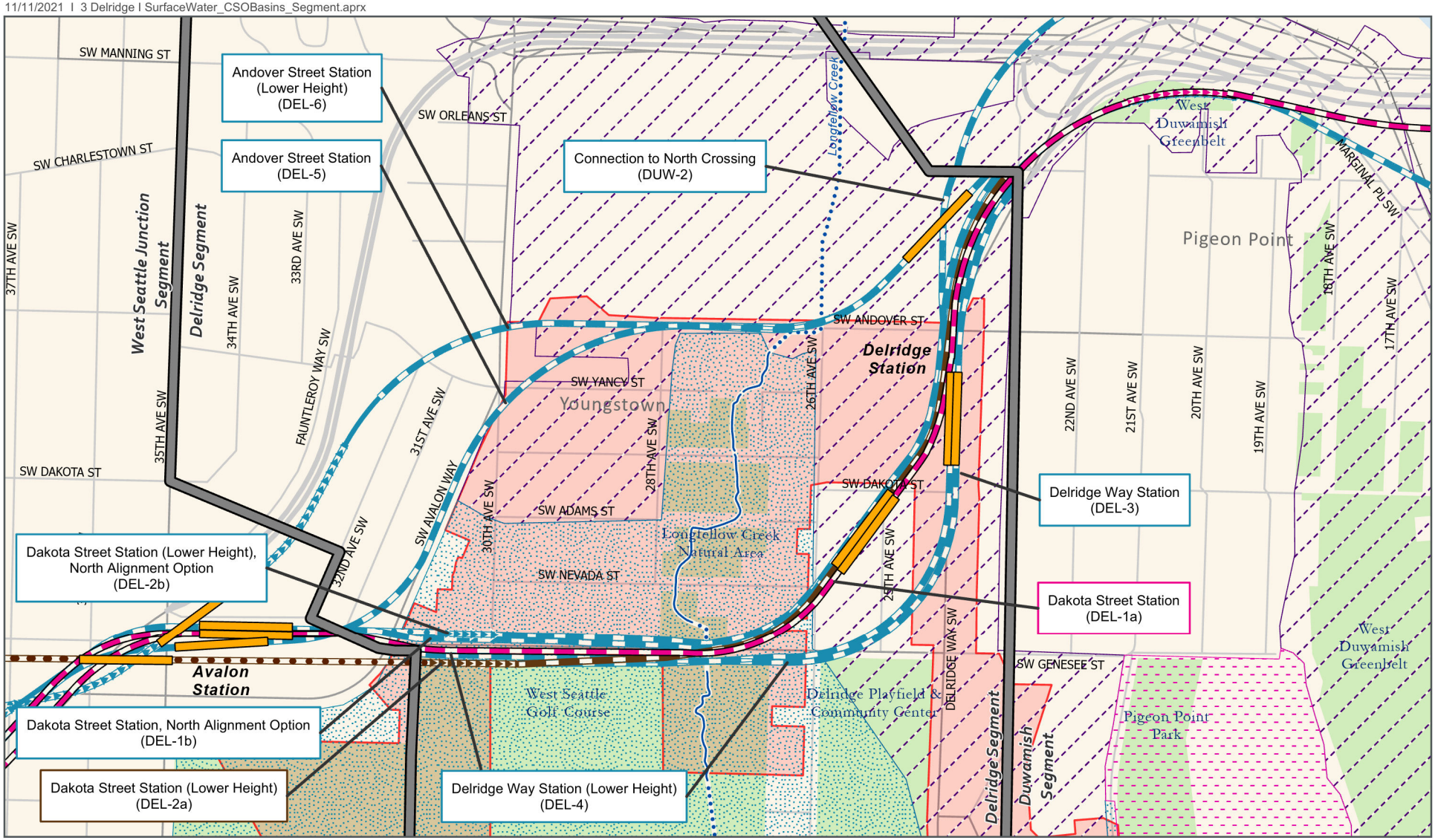
3.1.3 Delridge Segment

As shown in Table 3-1, Preferred Alternative DEL-1a would have the greatest increase in impervious surface; it passes over a longer strip of the West Seattle Golf Course on the south side of Southwest Genesee Street, as well as other vegetated residential areas (Figure 3-3). Option DEL-2b* would add the least impervious area because it would not pass over these pervious areas. Alternative DEL-3 would have the most added pollution-generating impervious surface in the Duwamish Waterway drainage basin. All other alternatives would have a very small amount of added pollution-generating impervious surface in the basin.

Most of the drainage in this segment currently flows to partially separated sewer systems. Drainage from the project in this area would be directed to the storm drainage system along Delridge Way Southwest, which drains into the West Duwamish Waterway. Other portions of the study area flow to a combined sewer system that conveys flow to the West Point Wastewater Treatment Plant, where it is treated and then discharged to Puget Sound. Required flow-control and water quality facilities from this and similar areas would reduce flows to the combined sewer system, while controlling flows and pollutants to the Duwamish Waterway.

3.1.4 West Seattle Junction Segment

As shown in Table 3-1, most of the new impervious surface in this segment would be in a combined sewer system basin, so runoff from new impervious surfaces would be conveyed to and treated at the West Point Wastewater Treatment Plant (Figure 3-4). Alternative WSJ-4* would add the most total impervious area due to cut-and-cover stations and associated roadway improvements in residential areas with areas of pervious areas. Preferred Alternative WSJ-3a*, Alternative WSJ-4*, and Alternative WSJ-5* would add the most pollution-generating impervious area to the Puget Sound basin because they would remove more vegetated areas during cut-and-cover construction of the tunnel than the other alternatives. Preferred Alternative WSJ-1 and Preferred Alternative WSJ-2 would have the least added pollution-generating impervious surface impacts because they would disturb fewer existing street surfaces.



Source: City of Seattle, King County (2019, 2020, 2021).

Alternatives
- Preferred Alternative
- Preferred Alternative with Third-party Funding
- Other Alternatives

Alternative Profile
- Elevated
- Tunnel
- At-Grade
- Retained Cut

Station
- New

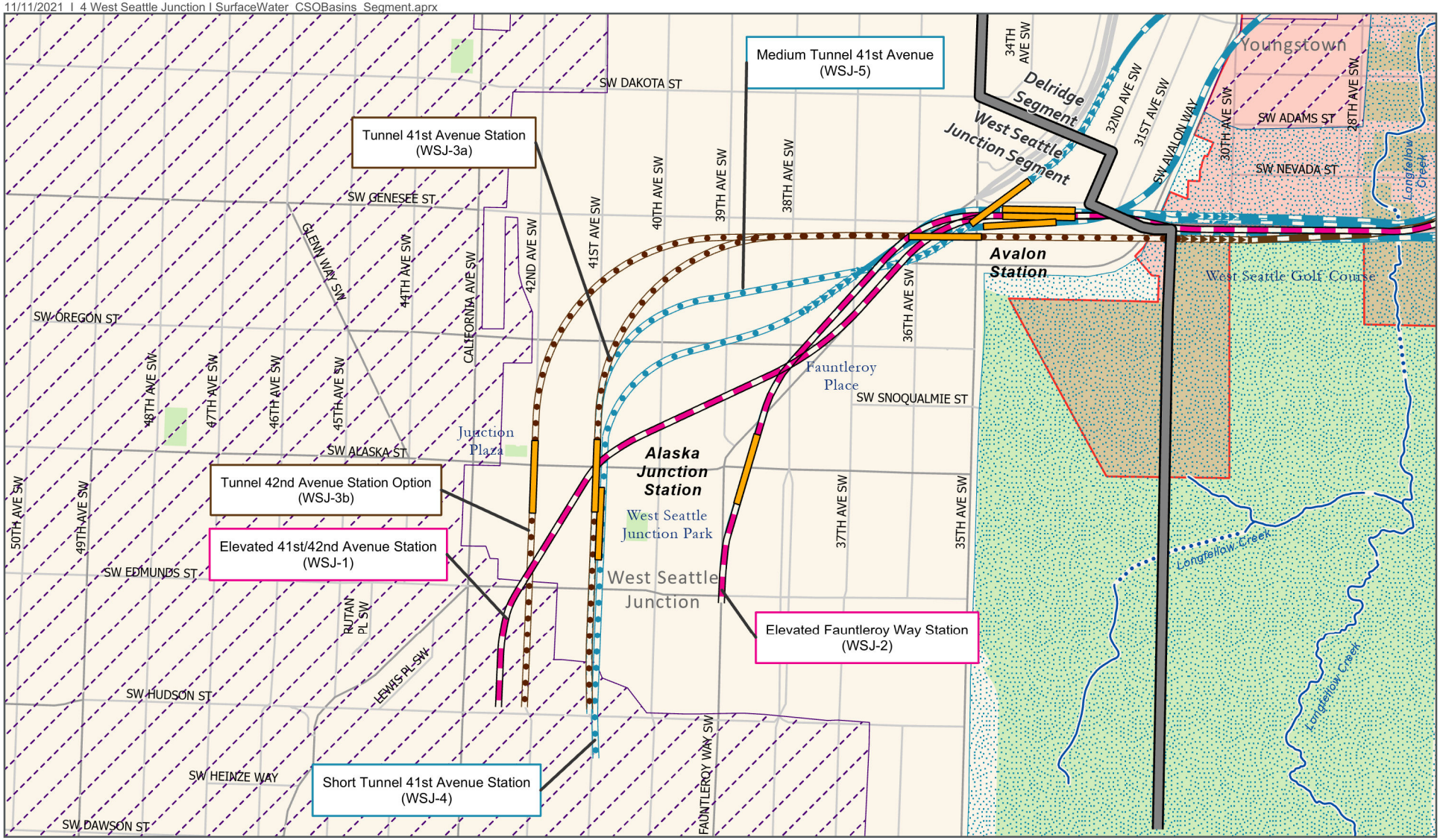
- Segment Line
- Railroad
- Stream
- Piped Stream
- Park

- City of Seattle Combined Sewer Basins
- Drainage Areas to Receiving Waterbodies
- Longfellow Creek Watershed
- Puget Creek Watershed

Notes: 1) Areas outside of the basins shown are served by King County Combined Sewer. 2) Within drainage areas to receiving waters, stormwater is collected and conveyed in city storm drain systems.

FIGURE 3-3
Surface Water and Combined Sewer Overflow Drainage Basins
West Seattle Link Extension - Delridge Segment
West Seattle and Ballard Link Extensions

0 400 800 Feet
N



Source: City of Seattle, King County (2019, 2020, 2021).

Alternatives
- Preferred Alternative
- Preferred Alternative with Third-party Funding
- Other Alternatives

Alternative Profile
- Elevated
- Tunnel
- At-Grade
- Retained Cut

Station
- New

- Segment Line
- Stream
- Piped Stream
- Park

- City of Seattle Combined Sewer Basins
- Drainage Areas to Receiving Waterbodies
- Longfellow Creek Watershed

Notes: 1) Areas outside of the basins shown are served by King County Combined Sewer. 2) Within drainage areas to receiving waters, stormwater is collected and conveyed in city storm drain systems.

FIGURE 3-4
Surface Water and Combined Sewer Overflow Drainage Basins
West Seattle Link Extension - West Seattle Junction Segment
West Seattle and Ballard Link Extensions

0 500 1,000 Feet
N

3.2 Ballard Link Extension

3.2.1 SODO Segment

In addition to the impacts discussed in Section 3.1, West Seattle Link Extension, the Ballard Link Extension would increase impervious surface in the SODO Segment (Figure 3-5).

Nearly all of the new impervious surface from the Ballard Link Extension in this segment would be associated with removal of an existing planter strip along the east side of the SODO Busway. As shown in Table 3-2, Preferred Alternative SODO-1a and Alternative SODO-2 would have the least added impervious area, and Option SODO-1b would have the most because it impacts another planter strip. All added impervious surfaces in the Duwamish Waterway drainage basin are pollution-generating. However, flow-control and treatment vaults would be included as a part of the project for new pollution-generating impervious surfaces, reducing the potential impact of increased flow to the City pipelines and pollutants discharging to the Duwamish Waterway.

3.2.2 Chinatown-International District Segment

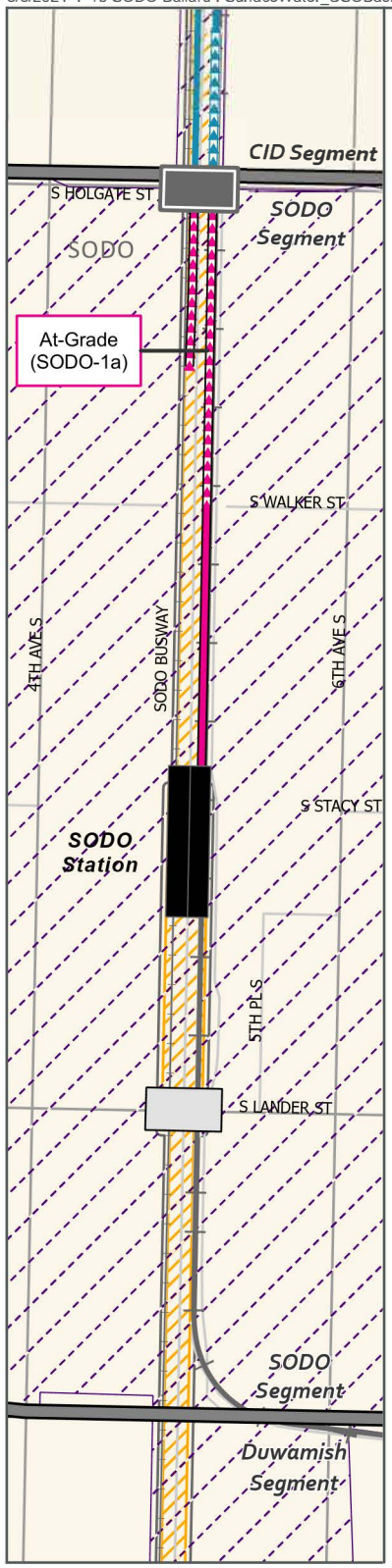
An existing planter strip would be removed along the Union Station Parking Garage for most of the alternatives. As seen in Table 3-2, Alternative CID-2a would add the most impervious surface. While all alternatives increase impervious surfaces, there is a larger increase for this alternative, particularly around the station entrance. Option CID-1b* and Option CID-2b have the least added impervious area. Note that all alternatives drain to the combined sewer system (Figure 3-6), so all runoff from new impervious surfaces would be conveyed to and treated at the West Point Wastewater Treatment Plant.

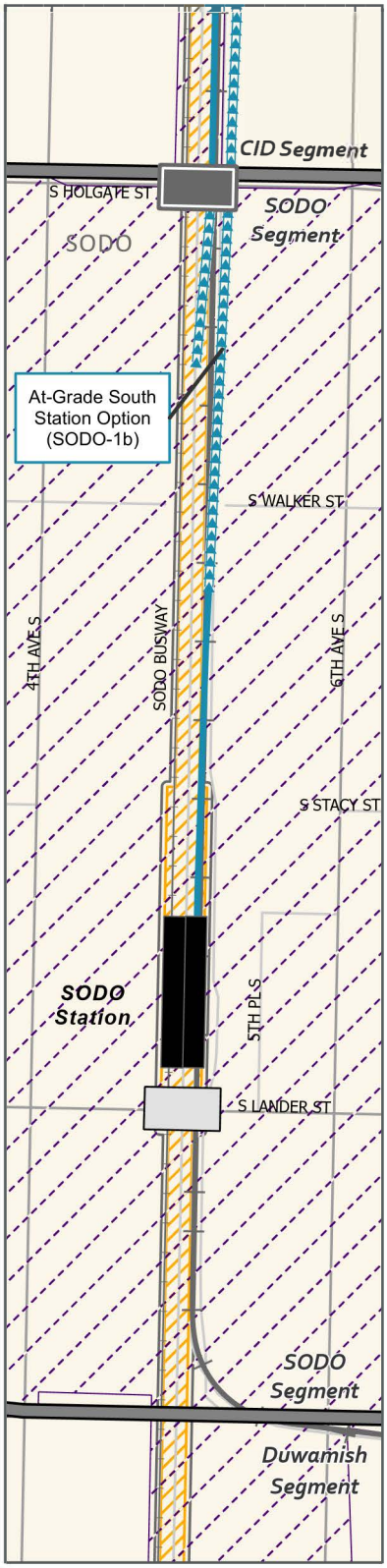
3.2.3 Downtown Segment

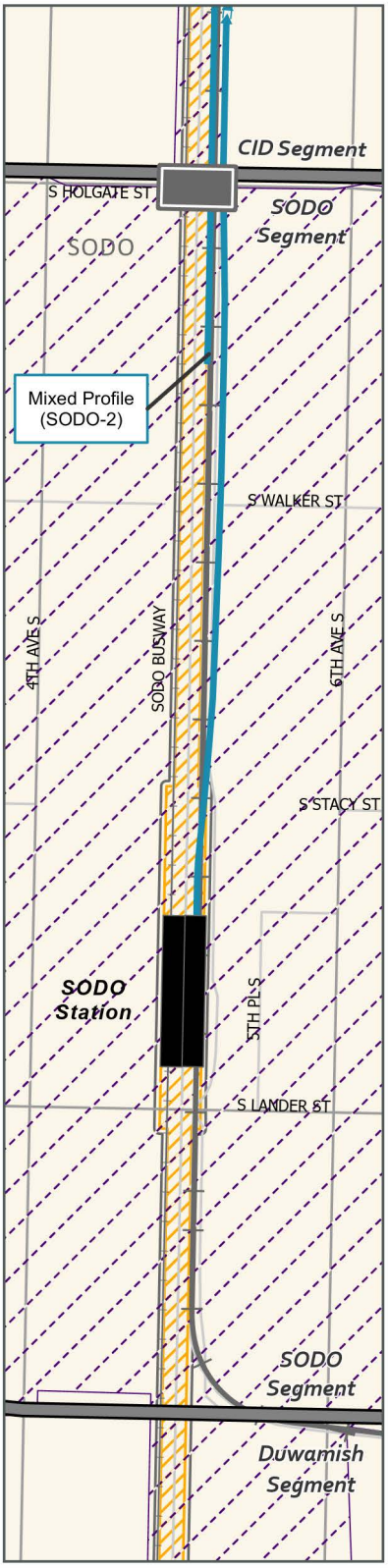
Both Downtown Segment alternatives are mined tunnels with some cut-and-cover stations. Added impervious surface associated with these alternatives would be for the stations and roadway improvements. As shown in Table 3-2, Preferred Alternative DT-1 would have less added impervious surface than Alternative DT-2. Both alternatives would be within a combined sewer system basin (Figure 3-7), so any runoff from new impervious surfaces would be conveyed to and treated at the West Point Wastewater Treatment Plant.

3.2.4 South Interbay Segment

Preferred Alternative SIB-1 and Alternative SIB-3 would have similar amounts of total added impervious surface area. Alternative SIB-2 would add the least total impervious area because it would be primarily over existing impervious surfaces. It would, however, add the most pollution-generating impervious area to the Puget Sound drainage basin. Alternative SIB-3 would not add any new pollution-generating impervious area to the Puget Sound drainage basin. All of the South Interbay Segment alternatives would drain to storm drains that discharge to either Puget Sound or to the King County combined sewer system, which conveys flows to the West Point Wastewater Treatment Plant (Figure 3-8).







Source: City of Seattle, King County (2019, 2020, 2021).

Alternatives
- Preferred Alternative
- Preferred Alternative with Third-party Funding
- Other Alternatives

Alternative Profile
- Elevated
- Tunnel
- At-Grade
- Retained Cut

Station
- Existing

- Segment Line
- Existing Link Light Rail
- Railroad
- SODO Busway
- Existing Overpass
- Proposed Overpass
- Drainage Areas to Receiving Waterbodies

Notes: 1) Areas outside of the basins shown are served by King County Combined Sewer. 2) Within drainage areas to receiving waters, stormwater is collected and conveyed in city storm drain systems.

FIGURE 3-5
Surface Water and Combined Sewer Overflow Drainage Basins
Ballard Link Extension - SODO Segment
West Seattle and Ballard Link Extensions

0 300 600 Feet

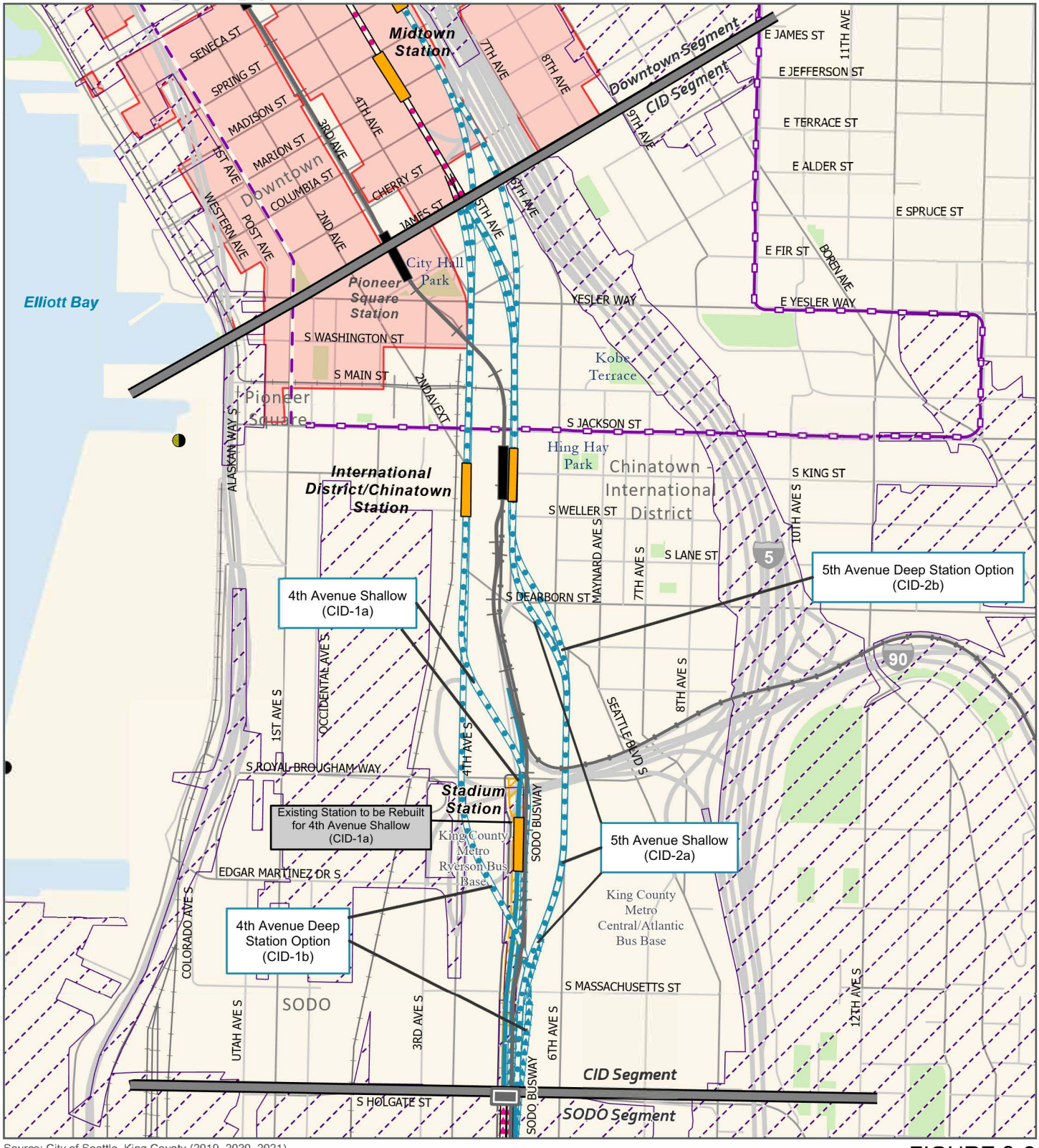
N

Table 3-2. Summary of Added Impervious Areas for Ballard Link Extension Alternatives

Segment	Alternative	New Non-Pollution-Generating Impervious Surfaces in Non-Combined Sewer Drainage Areas [a] (square feet)	New Pollution-Generating Impervious Surfaces in Non-Combined Sewer Drainage Areas [a] (square feet)	New Impervious Surface in Combined Sewer Basins (square feet)	Total New Impervious Surface (square feet)
SODO	Preferred At-Grade (SODO-1a)	6,100	0	0	6,100
SODO	At-Grade South Station Option (SODO-1b)	6,700	0	0	6,700
SODO	Mixed Profile (SODO-2)	6100	0	0	6,100
CID	4th Avenue Shallow (CID-1a)*	0	0	9,600	9,600
CID	4th Avenue Deep Station Option (CID-1b)*	0	0	5,300	5,300
CID	5th Avenue Shallow (CID-2a)	0	0	13,100	13,100
CID	5th Avenue Deep Station Option (CID-2b)	0	0	8,100	8,100
Downtown	Preferred 5th Avenue/Harrison Street (DT-1)	0	0	18,600	18,600
Downtown	6th Avenue/Mercer Street (DT-2)	0	0	20,700	20,700
South Interbay	Preferred Galer Street Station/Central Interbay (SIB-1)	106,800	700	32,400	139,900
South Interbay	Prospect Street Station/15th Avenue (SIB-2)	23,200	7,500	79,100	109,800
South Interbay	Prospect Street Station/Central Interbay (SIB-3)	104,400	0	34,600	139,000
Interbay/Ballard	Preferred Elevated 14th Avenue (IBB-1a)	9,800	0	20,700	30,500
Interbay/Ballard	Elevated 14th Avenue Alignment Option (from Prospect Street Station/15th Avenue) (IBB-1b)	0	0	29,100	29,100
Interbay/Ballard	Preferred Tunnel 14th Avenue (IBB-2a)*	3,800	19,800	2,300	25,900
Interbay/Ballard	Preferred Tunnel 15th Avenue Station Option (IBB-2b)*	14,900	5,900	2,300	23,100
Interbay/Ballard	Elevated 15th Avenue (IBB-3)	1,800	0	22,800	24,600

* As described in the introduction to Chapter 2, Alternatives Considered, at the time the Sound Transit Board identified alternatives for study in the Draft Environmental Impact Statement some alternatives were anticipated to require third-party funding based on early cost estimates. The asterisk identifies these alternatives and the alternatives that would only connect to these alternatives in adjacent segments.

[a] Includes direct discharge areas and drainage areas to receiving waters in partially separated drainage systems.



Source: City of Seattle, King County (2019, 2020, 2021).

Alternatives
- Preferred Alternative
- Preferred Alternative with Third-party Funding
- Other Alternatives

Alternative Profile
- Elevated
- Tunnel
- At-Grade
- Retained Cut

Station
- New
- Existing

- Segment Line
- Existing Link Light Rail
- East Link Light Rail (Under Construction)
- Existing Streetcar
- Center City Connector Streetcar (Construction Paused)
- Railroad
- SODO Busway
- Proposed Overpass
- Park

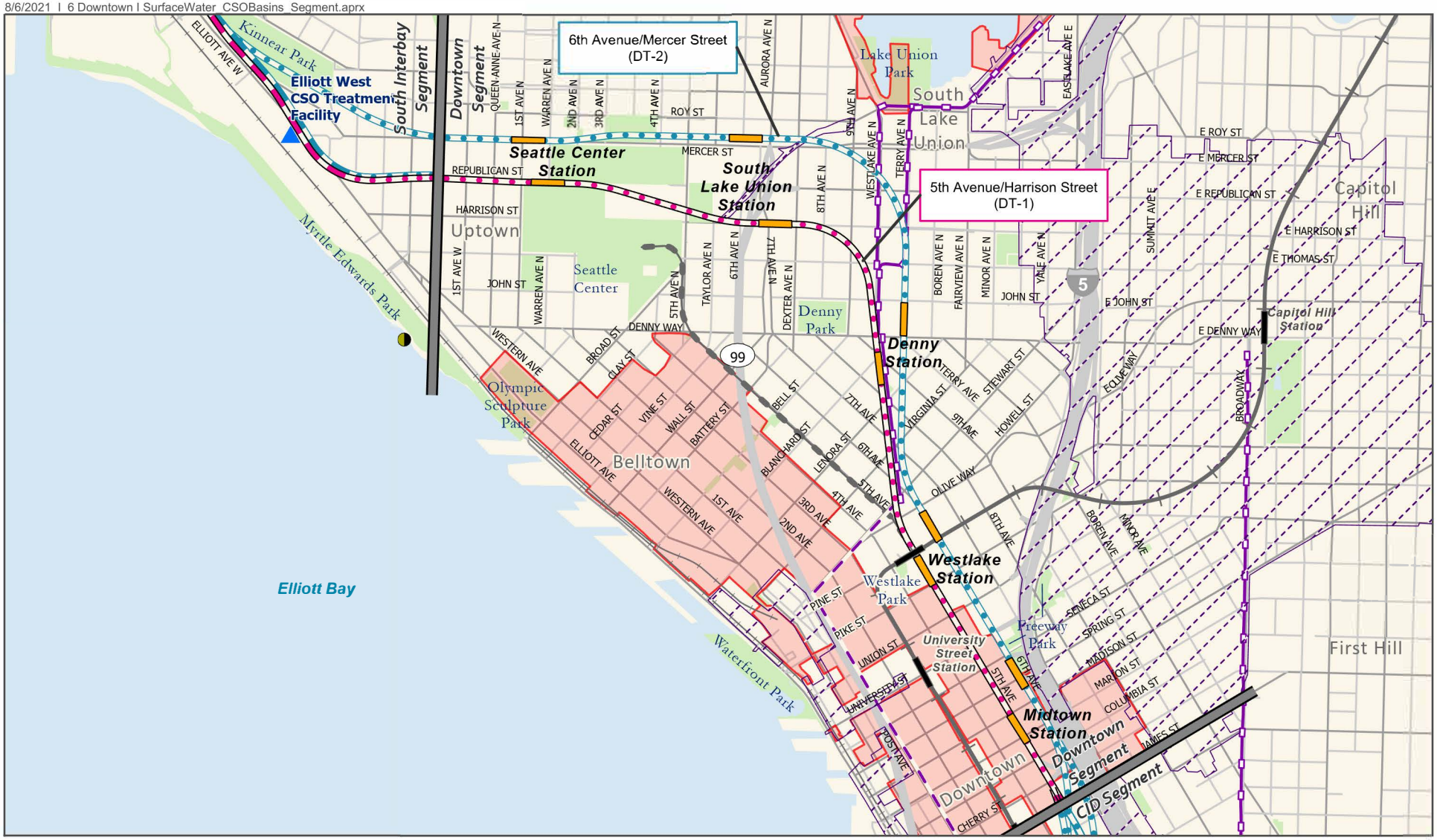
- Combined Sewer Overflow (CSO) Outfall
- City of Seattle Combined Sewer Basins
- Drainage Areas to Receiving Waterbodies

Notes: 1) Areas outside of the basins shown are served by King County Combined Sewer. 2) Within drainage areas to receiving waters, stormwater is collected and conveyed in city storm drain systems.

FIGURE 3-6
Surface Water and Combined Sewer Overflow Drainage Basins
Ballard Link Extension - Chinatown-International District Segment
West Seattle and Ballard Link Extensions

0 700 1,400 Feet

N



Source: City of Seattle, King County (2019, 2020, 2021).

Alternatives
- Preferred Alternative
- Preferred Alternative with Third-party Funding
- Other Alternatives

Alternative Profile
- Elevated
- Tunnel
- At-Grade
- Retained Cut

Station
- New
- Existing

- Segment Line
- Existing Link Light Rail
- Monorail
- Existing Streetcar
- Center City Connector Streetcar (Construction Paused)
- Railroad
- Park

- Water Resource Facility
- Combined Sewer Overflow (CSO) Outfall
- City of Seattle Combined Sewer Basins
- Drainage Areas to Receiving Waterbodies

Notes: 1) Areas outside of the basins shown are served by King County Combined Sewer. 2) Within drainage areas to receiving waters, stormwater is collected and conveyed in city storm drain systems.

FIGURE 3-7
Surface Water and Combined Sewer Overflow Drainage Basins
Ballard Link Extension - Downtown Segment
West Seattle and Ballard Link Extensions

0 1,000 2,000 Feet

N

Source: City of Seattle, King County (2019, 2020, 2021).

Alternatives
- Preferred Alternative
- Preferred Alternative with Third-party Funding
- Other Alternatives

Alternative Profile
- Elevated
- Tunnel
- At-Grade
- Retained Cut

Station
- New

- Segment Line
- Railroad
- Park
- Water Resource Facility
- City of Seattle Combined Sewer Basins
- Drainage Areas to Receiving Waterbodies

Notes: 1) Areas outside of the basins shown are served by King County Combined Sewer. 2) Within drainage areas to receiving waters, stormwater is collected and conveyed in city storm drain systems.

FIGURE 3-8
Surface Water and Combined Sewer Overflow Drainage Basins
Ballard Link Extension - South Interbay Segment
West Seattle and Ballard Link Extensions

0 800 1,600 Feet

N

3.2.5 Interbay/Ballard Segment

In this segment, new impervious surfaces are primarily non-pollutant-generating in basins flowing to both Salmon Bay and to the combined sewer system basin (Figure 3-9). As shown in Table 3-2, Option IBB-1b would add the most total impervious area because it would be in areas that are currently more pervious north and south of the Salmon Bay.

The cut-and-cover improvements of the two tunnel alternatives, Preferred Alternative IBB-2a* and Preferred Option IBB-2b*, are in more developed areas, such as the industrial areas south of Salmon Bay compared to the elevated alternatives that span over Salmon Bay. As a result, they add less new impervious areas. In addition, there is more existing impervious area around the Ballard Station for Preferred Option IBB-2b* compared to the station on 14th Avenue Northwest for the other tunnel alternative.

Comparing impacts of new pollution-generating impervious surfaces, Preferred Alternative IBB-1a, Option IBB-1b, Preferred Alternative IBB-2a*, and Preferred Option IBB-2b* would add pollutant-generating impervious surface to the Ship Canal/Lake Union drainage basin because they would remove planting strips along 14th Avenue Northwest between Northwest 50th Street and Northwest 59th Street for the cut-and-cover Ballard Station and tail track. Preferred Alternative IBB-1a, Option IBB-1b, Preferred Option IBB-2b*, and Alternative IBB-3 would not add new pollution-generating impervious surfaces to the Ship Canal drainage basin.

Source: City of Seattle, King County (2019, 2020, 2021).

Alternatives
- Preferred Alternative
- Preferred Alternative with Third-party Funding
- Other Alternatives

Alternative Profile
- Elevated
- Tunnel
- At-Grade
- Retained Cut

Station
- New

- Segment Line
- Railroad
- Stream
- Park

- Combined Sewer Overflow (CSO) Outfall
- Storm Drain Outfall to be Relocated
- City of Seattle Combined Sewer Basins
- Drainage Areas to Receiving Waterbodies

Notes: 1) Areas outside of the basins shown are served by King County Combined Sewer. 2) Within drainage areas to receiving waters, stormwater is collected and conveyed in city storm drain systems.

FIGURE 3-9
Surface Water and Combined Sewer Overflow Drainage Basins
Ballard Link Extension - Interbay/Ballard Segment
West Seattle and Ballard Link Extensions

0 800 1,600 Feet

N

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4 POTENTIAL FLOODPLAIN IMPACTS

Table 4-1 provides information on the potential number of columns within the Longfellow Creek 100-year floodplain, as well as the estimated area of impact.

Table 4-1. Potential Number and Area of Columns within Longfellow Creek 100-year Floodplain

Alternative	Potential Number of Columns	Potential Area of Impact (square feet)
Preferred Dakota Street Station (DEL-1a)	1	150
Dakota Street Station North Alignment Option (DEL-1b)	4	900
Preferred Dakota Street Station Lower Height (DEL-2a)*	3	100
Dakota Street Station Lower Height North Alignment Option (DEL-2b)*	4	100
Delridge Way Station (DEL-3)	1	200
Delridge Way Station Lower Height (DEL-4)*	1	50
Andover Street Station (DEL-5)	0	Not applicable
Andover Street Station Lower Height (DEL-6)*	0	Not applicable

* As described in the introduction to Chapter 2, Alternatives Considered, at the time the Sound Transit Board identified alternatives for study in the Draft Environmental Impact Statement some alternatives were anticipated to require third-party funding based on early cost estimates. The asterisk identifies these alternatives and the alternatives that would only connect to these alternatives in adjacent segments.

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5 BEST MANAGEMENT PRACTICES

5.1 Long-term Operations

The proposed stormwater management for the WSBLE Project follows the Sound Transit *Link Design Criteria Manual* (Sound Transit 2021), which requires stormwater design for Sound Transit projects to conform to the requirements of the local jurisdictions. The project would comply with the state and local design. Based on the guidance provided in the *Link Design Criteria Manual*, low-impact development is a preferred stormwater management method and would be employed wherever possible. This method uses techniques that encourage natural processes of managing stormwater such as infiltration, evaporation, and dispersion. Also, the 2019 Ecology *Stormwater Management Manual for Western Washington* requires low-impact development approaches to stormwater management to the extent feasible. However, in areas where use of low-impact development measures is not feasible because of physical site constraints, other techniques may be used. Stormwater flow-control techniques may include detention ponds, vaults, bioretention, and dispersion. Discharge of groundwater collected in tunnels to a storm sewer, sanitary sewer, or combined sewer would require approval from the utility provider.

5.2 Construction

The risk of construction-related impacts to water resources would be controlled by complying with the National Pollutant Discharge Elimination System Construction Stormwater General Permit process and best management practices, as appropriate. If discharge of treated construction or process water to a combined or sanitary sewer is proposed, approval must be obtained from the King County Industrial Waste Division and the City of Seattle. For construction within and over streams or other waterbodies, a Hydraulic Project Approval would be obtained from the Washington Department of Fish and Wildlife before work begins. A Section 404 permit would be needed for work within a Water of the United States, and a Section 10 permit would be needed for work in navigable waters. Both permits are issued by the United States Army Corps of Engineers Section 404 permit. A Section 401 Water Quality Certification would also be needed from Ecology.

Through compliance with these requirements, Sound Transit would develop and implement an approved Construction Stormwater Pollution Prevention Plan for the project. The Construction Stormwater Pollution Prevention Plan would describe overall procedural and structural pollution prevention and flow-control best management practices, including location, size, maintenance requirements, and monitoring. An Ecology-certified erosion and sediment control lead would conduct compliance inspections. In addition, the Construction Stormwater Pollution Prevention Plan would include each of the following plans:

- Temporary Erosion and Sediment Control Plan – This plan would outline the design and construction specifications for best management practices to be used to identify, reduce, eliminate, or prevent sediment and erosion problems.

- Spill Prevention, Control, and Countermeasures Plan – This plan would outline requirements for and implementation of spill prevention, inspection protocols, equipment, material containment measures, and spill response procedures.

- Concrete Containment and Disposal Plan – This plan would outline the management, containment, and disposal of concrete debris, slurry, and dust, and discuss best management practices that would be used to reduce high pH.
- Dewatering Plan – This plan would outline procedures for pumping groundwater away from the construction area, and storing (as necessary), testing, treating (as necessary), and discharging or disposing of the dewatering water.
- Fugitive Dust Plan – This plan would outline measures to prevent the generation of fugitive dust from exposed soil, construction traffic, and material stockpiles.

Potential best management practices include the following:

- Minimizing the amount of cleared area at a construction site.
- Stabilizing construction entrances and haul roads using quarry spall rock.
- Washing truck tires at construction entrances, as necessary.
- Constructing silt fences downslope from exposed soils.
- Protecting catch basins from sediment.
- Containing and controlling concrete and hazardous materials onsite.
- Installing temporary ditches to route runoff around or through construction sites, with periodic straw bales or rock check dams to slow and settle runoff.
- Providing temporary plastic or mulch to cover soil stockpiles and exposed soil.
- Using straw wattles to reduce the length of unbroken slopes and minimize runoff concentration.
- Using temporary erosion-control blankets or mulch on exposed steep slopes to minimize erosion before vegetation is established.
- Constructing temporary sedimentation ponds to remove solids from concentrated runoff and dewatering before being discharged.
- Conducting vehicle fueling and maintenance activities no closer than 100 feet from a waterbody or ditch.
- Implementing stream-protection measures, as necessary, including diverting stream flow around the construction area and limiting the construction period to the required “in-water work window,” a period of the year identified in the Hydraulic Project Approval and United States Army Corps of Engineers Section 404 permit when impacts to fish would be reduced.

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Washington State Department of Transportation. 2019b. *Highway Runoff Manual*. https://www.wsdot.wa.gov/publications/manuals/fulltext/M31-16/highwayrunoff.pdf. April.

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Appendix L4.11 Geology and Soils

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Table L4.11-1. Summary of Geology Documents Reviewed

Author	Date	Title and Source Information
Altiney and Associates	1926	*Elliott Tire and Service*.
Associated Earth Sciences, Inc.	1988	*21-Unit Apartment/Commercial Building, Seattle, Washington*.
Blakely, R.J., Wells, R.E., Weaver, C.S., and Johnson, S. Y.	2002	*Location, Structure, and Seismicity of The Seattle Fault Zone, Washington: Evidence from Aeromagnetic Anomalies, Geologic Mapping, and Seismic-Reflection Data*.
Brown, R.	2011	The Puget Lobe Glaciation.
City of Seattle	2008	Landslide Prone Areas. https://www.seattle.gov/Documents/Departments/SDCI/About/LandslideProneAreas.pdf.
Dames & Moore	1967	*Report of Soils Investigation – Phase I Proposed Warehouse Site Sixth Avenue South and South Forest Street Seattle, Washington.*
Earth Consultants, Inc.	1983	*Geotechnical Engineering Study Proposed Industrial Building 3605 6th Avenue South, Seattle Washington*.
Geotech Consultants	1997	*Geotechnical Engineering Study Proposed Addition to Existing Duplexes 3656 and 3658 – 13*th *Avenue West Seattle, Washington.*
Geotech Consultants	2001	*Geotechnical Engineering Study Proposed Sound Mind andBody Gym Thorndyke Avenue West and West Bertona Street Seattle, Washington.*
Golder Associates, Inc.	2001	*Final Draft Report on Central Link Light Rail Geotechnical Design Investigation Design Segment 700 Royal Brougham Way to Airport Way South*.
Golder Associates, Inc.	2018	*WSBLE Project Memo – Field Geological Reconnaissance: North Slope of Pigeon Point and Proposed Portal Locations at Southwest Genesee Street.*
Government Technology	2015	Seattle Natural Hazards Map. http://www.govtech.com/em/emergency-blogs/disaster-zone/seattlenaturalhazardsmap.html.
Hart Crowser, Inc.	1986	*Subsurface Exploration and Geotechnical Engineering Study 5th Avenue South Viaduct and Retaining Wall Seattle, Washington*.
Hart Crowser, Inc.	1986	*Subsurface Explorations and Design Phase Geotechnical Engineering Study SR-90, Seattle Access General Purpose and Transit/HOV Lanes, Seattle, Washington*. Volume II of III.
HNTB and Golder Associates, Inc.	2020	*Geotechnical Data Report – Duwamish Crossing, Draft 3, October 2020.*
HNTB and Golder Associates, Inc.	2020	*Geotechnical Data Report – Salmon Bay Bridge Crossing, Draft 2, October 2020.*
HNTB and Golder Associates, Inc.	2021	*Geotechnical Data Report – South Interbay and Interbay Segments, Draft 2, August 2021.*
HNTB and Golder Associates, Inc.	2021	*Phase 2 Geotechnical Data Report – Pigeon Point, Draft 3, August 2021.*
HNTB and Golder Associates, Inc.	2021	*Phase 2 Geotechnical Data Report – Salmon Bay Tunnel, Draft 2, August 2021*.
HNTB and Golder Associates, Inc.	2021	*Phase 2 Geotechnical Data Report – Delridge and West Seattle Junction Segments, Draft 2, August 2021.*
HNTB and Golder Associates, Inc.	2021	*Geotechnical Recommendations Report; Advanced Conceptual Design - Duwamish Crossing, Draft 2, February 2021.*

Author	Date	Title and Source Information
HNTB and Golder Associates, Inc.	2021	*Geotechnical Recommendations Report Salmon Bay Bridge Crossing, Draft 3, June 2021.*
HNTB and Shannon & Wilson	2021	*Geotechnical Data Report – Downtown Tunnel, Draft 2, August 2021.*
Landau Associates	2009	*Ballard Siphon Replacement Seattle Washington.*
Liu & Associates	2004	*Geotechnical Engineering Study Twin Duplex Buildings 3420 – 14th Avenue West Seattle, Washington.*
Metropolitan Engineers	1965	*Final Soils Investigation Elliott Bay Interceptor, Section 8, Seattle, Washington.*
Morse, R.W.	1989	Regrading Years in Seattle. In *Engineering Geology in Washington*, Vol. 2.
Neil H. Twelker and Associates	1965	*John M. McFarland Apartments at 3401 14th Avenue West Seattle, Washington.*
Neil H. Twelker and Associates	1974	*Soils and Foundation Investigation for Proposed Plate Warehouse at South Hinds Street and 6th Avenue South, Seattle, Washington.*
Pacific Northwest Seismic Network	2019	Cascadia Subduction Zone. https://pnsn.org/outreach/earthquakesources/csz.
PanGeo, Inc.	2001	*Geotechnical Report Docks 5 to 10 Reconstruction 15% Conceptual Design Fishermen's Terminal Port of Seattle, Washington.*
PanGeo, Inc.	2002	*Addendum #1 to Geotechnical Report Proposed Duplex 4110 – Delridge Way Southwest, Seattle, Washington.*
Pratt, T., Troost, K.G., Odum, J.K. and Stephenson, W.J.	2016	*Kinematics of Shallow Backthrusts in the Seattle Fault Zone, Washington State.*
Robinson, R.A.	2013	Lesson's Learned from 130 Years of Tunneling in Seattle's Complex Soils. *Proceedings of the Rapid Excavation and Tunneling Conference.*
Roger Lowe and Associates	1978	*Washington Fish and Oyster Company.*
Seattle Department of Construction & Inspections	2017	GIS Maps. http://seattlecitygis.maps.arcgis.com/apps/webappviewer/index.html?id=f822b2c6498c4163b0cf908e2241e9c2.
Seattle Engineering Department	1924	*23rd Avenue Southwest et al. Concrete Walks etc., Local Improvement District 3874.*
Seattle Engineering Department	1969	*Ballard #1 Construction 1, 2, 3 & 4.*
Seattle Engineering Department	1973	*Preliminary Foundation Investigation Longfellow Storm Separation.*
Seattle Engineering Department	1980	*West Seattle Bridge Design Team.*
Shannon & Wilson	1974	*West Seattle Freeway Pigeon Point Wall Number 1 Soil-Structure interaction Design Report.*
Shannon & Wilson	1977	*Proposed Triplex Complex Delridge Way Southwest Seattle, Washington.*
Shannon & Wilson	1981	*Geotechnical Engineering Studies West Seattle Freeway Bridge Replacement City of Seattle West Interchange East Interchange – Volume 1 Engineering Studies and Recommendations.*
Shannon & Wilson	1986	*Geotechnical Report Field & Laboratory Test Results, Volume 1 of 2 – Field Explorations and Testing.*

Author	Date	Title and Source Information
Shannon & Wilson	1994	*Seismic Retrofit Study 15th Avenue West Interchange West Emerson Street Viaduct Seattle, Washington.*
Shannon & Wilson	1994	*Seismic Retrofit Study Magnolia Extension Seattle, Washington.*
Shannon & Wilson	1994	*S.E.D. Seismic Retrofit Study West Dravus Street Bridge Seattle, Washington.*
Shannon & Wilson	1997	*Seattle Public Utilities Southwest Dakota Street Slide Seattle, Washington.*
Shannon & Wilson	1997	*Geotechnical Report 1300 West Garfield Street Landslide Seattle, Washington.*
Shannon & Wilson	1997	*Geotechnical Report West Central Maintenance Facility Landslide Seattle, Washington.*
Shannon & Wilson	1999	*Geotechnical Report Garfield Street Landslide Seattle Transportation Seattle, Washington.*
Shannon & Wilson	2003	*Revised Geotechnical Data Report Magnolia Bridge Replacement Type, Size, and Location Study Seattle, Washington.*
Shannon & Wilson	2004	*Report Addendum No. 095-1, Geotechnical Data Report (G.D.R.), Seattle Monorail Project (S.M.P.), Seattle, Washington.*
Shannon & Wilson	2008	*Geotechnical Engineering Report South Spokane Street Viaduct Eastbound – Fourth Avenue Off-ramp Seattle, Washington.*
Shannon & Wilson	2017	*Seattle Public Utilities Ship Canal Water Quality Project Geotechnical Data Report.*
Thompson, R.H.	1893	*Excerpt from Report by City Engineer of Public Works Regarding Lake Union Sewer Tunnel Construction.* Available from Seattle Public Library.
Troost, K.G., Booth, D.B., Wisher, A.P., and Shimel, S.A.	2005	*The Geologic Map of Seattle*. United States Geological Survey. Open-File Report 2005-1252.
Washington Department of Natural Resources	2019	Puget Sound and Coastal Geology. https://www.dnr.wa.gov/programs-and-services/geology/explore-popular-geology/puget-sound-and-coastal-geology#puget-sound-geology.
Wells, R.E., and Simpson, R.W.	2001	*Northward Migration of the Cascadia Forearc in the Northwestern U.S. and Implications for Subduction Deformation*.
Yount, J.C., Dembroff, G.R., and Barats, G.M.	1985	Map showing depth to bedrock in the Seattle 30-foot by 60-foot quadrangle, Washington. United States Geological Survey Miscellaneous Field Studies Map MF-1692, scale 1:100,000.

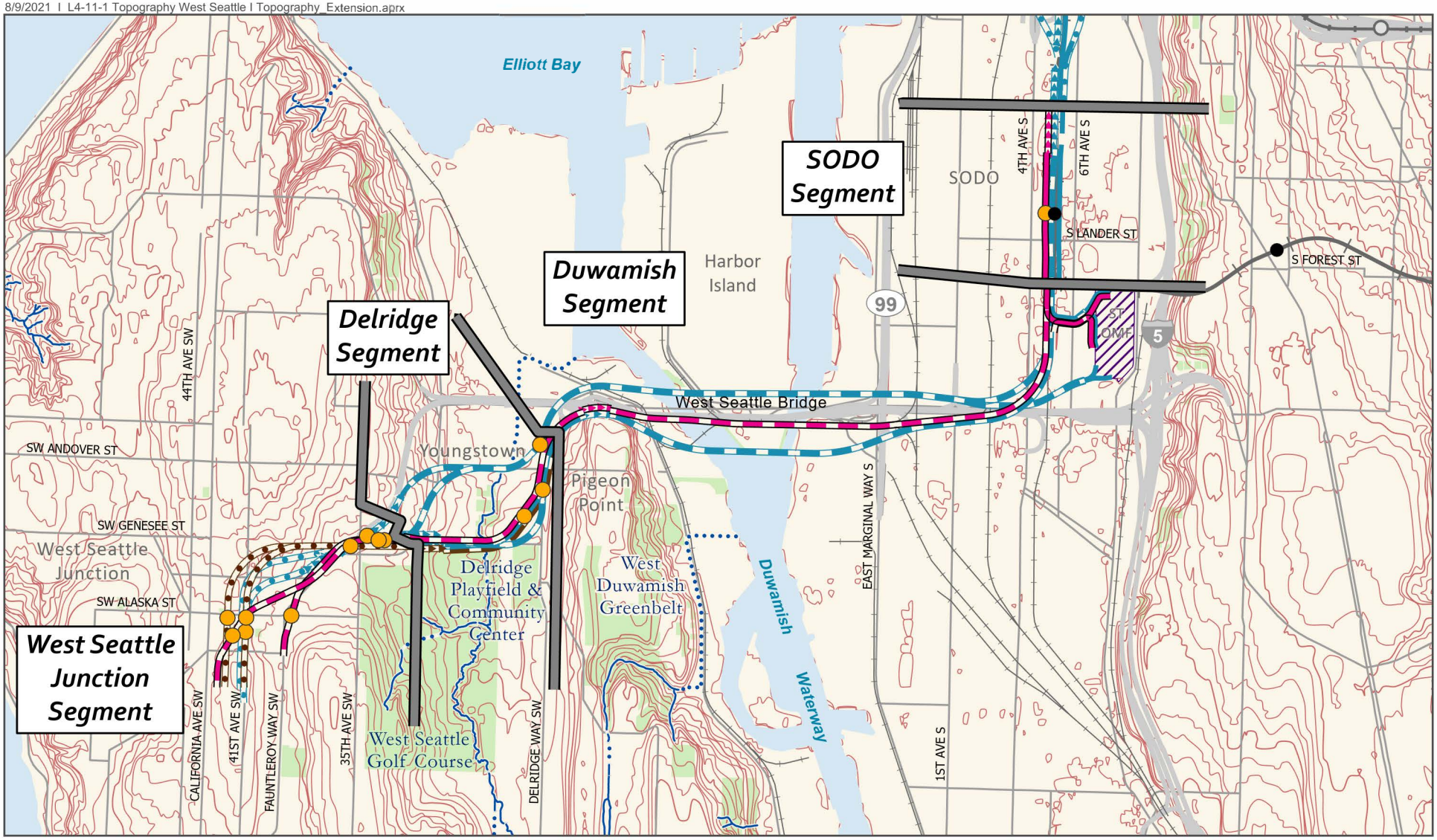
Table L4.11-2. Geologic Units

Geologic Unit (Map Symbol)	Description	Density and/or Hardness	Permeability Factors
Alluvium (Qal)	Sand, silt, gravel, and cobbles deposited by streams and running water. May include landslide debris and colluvium at margins. Locally contains very soft peat lenses.	Loose to dense or soft to stiff	Predominantly sandy and horizontally bedded, fine and coarser-grained lenses
Beach deposits (Qb)	Loose sand and gravel deposited or reworked by modern wave action. Along the Puget Sound shoreline, on the east side of Duwamish Head, west of Harbor Island, and along Lake Washington, where it is commonly overlain by fill.	Loose to dense	Uniformly to well graded
Uplifted beach deposits (Qbu)	Loose sand and gravel deposited by wave action and subsequently uplifted above modern tide level by tectonic movement.	Loose to dense	Uniformly to well graded
Lake Deposits (Ql)	Silt and clay with local sand layers, peat, and other organic sediments, deposited in slow-flowing water. Locally gradational with units Qvrl, Qal, and Qp.	Very soft to medium stiff or very loose to medium dense	Predominantly fine-grained and horizontally bedded
Olympia beds (Qob)	Sand, silt (locally organic-rich), gravel, and peat, discontinuously and thinly interbedded; may contain tephra and/or diatomaceous layers. Sand and gravel clast lithology varies depending on source area, from volcanic to reworked northern lithologies.	Very dense to hard	Localized iron-oxide cemented layers, interbedded and intermixed fine- and coarse-grained layers
Peat (Qp)	Predominantly organic matter consisting of plant material and woody debris, accumulated in bodies greater than about 1 meter in thickness and of mappable extent. Accumulations are greatest in the floors of recessional outwash channels and where lowering of Lake Washington has exposed extensive lake-floor deposits. Commonly interbedded with silt and clay.	Very soft to medium stiff or very loose to medium dense	Commonly saturated
Possession glaciolacustrine deposits (Qpdf)	Laminated silt and clay exposed along the west, north, and east faces of Beacon Hill; assigned to this unit based on a single infra-red stimulated luminescence date just southeast of the Interstate 5 and Interstate 90 junction. Correlative with Marine Isotope Stage 4, with an age range from 60 to 80 thousand years ago. Dated exposure displays strongly contorted and faulted beds, plausibly related to motion on the Seattle fault but also possibly a result of glaciotectonic shear or postglacial landsliding. Correlative diamict (unit Qpdt) is identifiable in subsurface borings and in outcrop to the south and is assigned to this unit based on spatial and stratigraphic proximity to dated exposure.	Hard	Localized iron-oxide cemented layers and sand partings; locally deformed and jointed
Deposits of pre-Fraser glaciation age (Qpf)	Interbedded sand, gravel, silt, and diamicts of indeterminate age and origin. Locally divided.	Very dense and hard	Localized iron-oxide cemented layers, interbedded and intermixed fine- and coarse-grained layers

Geologic Unit (Map Symbol)	Description	Density and/or Hardness	Permeability Factors
Nonglacial deposits (Qpfn)	Sand, gravel, silt, clay, and organic deposits of inferred nonglacial origin, based on the presence of peat, paleosols, and tephra layers.	Very dense and hard	Localized iron-oxide cemented layers, interbedded and intermixed fine- and coarse-grained layers
Deposits of pre-Olympia age (Qpo)	Interbedded sand, gravel, silt, and diamicts of indeterminate age and origin. Locally divided into Qpof, Qpoc.	Very dense and hard	Localized iron-oxide cemented layers, interbedded and intermixed fine- and coarse-grained layers
Coarse-grained deposits (Qpoc)	Sand and gravel, clean to silty, with some silt layers, lightly to moderately oxidized.	Very dense	Localized iron-oxide cemented layers and channels
Fine-grained deposits (Qpof)	Silt and clay, may have sandy interbeds, laminated to massive.	Hard	Localized iron-oxide cemented layers and sandy partings
Glacial deposits (Qpog)	Silt, sand, gravel and till of glacial origin. Weakly to strongly oxidized. Underlies Vashon-age deposits and thus must also be of pre-Olympia age. Sediment is of inferred glacial (northern) origin, based on presence of clasts or mineral grains requiring southward ice-sheet transport.	Very dense and hard	Localized iron-oxide cemented layers, interbedded and intermixed fine- and coarse-grained layers
Glacial diamict (Qpogd)	Till-like material, but finer grained and with fewer gravel clasts than most Puget Lowland tills.	Very dense and hard	Localized iron-oxide cemented layers, sandy partings, and lenses
Fine-grained glacial deposits (Qpogf)	Silt and clay, may have sandy interbeds, laminated to massive.	Hard	Localized iron-oxide cemented layers and sandy partings
Till deposits (Qpogt)	Till thick enough to show at map scale. Most extensive on west slopes of Queen Anne hill, and in the west wall of the Duwamish valley.	Very dense and hard	Localized iron-oxide cemented layers, sandy partings, and lenses
Nonglacial deposits (Qpon)	Sand, gravel, silt, clay, and organic deposits of inferred nonglacial origin, based on the presence of paleosols, and tephra layers; or a southern Cascade Range provenance for sedimentary clasts.	Very dense and hard	Localized iron-oxide cemented layers, interbedded and intermixed fine- and coarse-grained layers
Fine-grained nonglacial deposits (Qponf)	Silt and clay, may have sandy interbeds, with peat and tephra layers, laminated to massive.	Hard	Localized iron-oxide cemented layers and sandy partings
Terrace Deposits (Qt)	Sand, silt, gravel, and cobbles, deposited by streams and running water; elevated bench forms resulting from subsequent down cutting. May include slide debris and colluvium, locally gradational with unit Qal.	Loose to dense or soft to stiff	Predominantly sandy and horizontally bedded, fine and coarser-grained lenses
Tideflat deposits (Qtf)	Silt, sand, organic sediment, and detritus, with some shells, historically exposed in broad coastal benches at low tide and now fill covered. Along Duwamish Waterway, valley thickens to north at mouth; initially	Very loose to dense and/or very soft to stiff	Micaceous, saturated, lenses of shell and wood debris

Geologic Unit (Map Symbol)	Description	Density and/or Hardness	Permeability Factors
	deposited post-glacially when marine water extended up the Duwamish valley to Georgetown. Aggraded northward with rising sea level and alluvial filling of the Duwamish valley. Elsewhere, present along much of Puget Sound coastline and now fill covered.		
Advance Outwash Deposits (Qva)	Well-sorted sand and gravel deposited by streams issuing from advancing ice sheet. May grade upward into till. Silt lenses locally present in upper part and are common in lower part. Generally unoxidized to only slightly oxidized. May be overlain by Vashon till in areas too small to show at map scale. Includes Esperance Sand Member of the Vashon Drift. Grades downward into unit Qvlc with increasing silt content.	Dense to very dense	Predominantly medium grained sand, horizontally to cross bedded, hard silt beds common throughout
Ice-contact deposits (Qvi)	Intercalated till and outwash, irregularly shaped bodies of till and outwash. Outwash consists of sand and gravel, clean to silty, horizontally bedded to steeply dipping. The till consists of matrix-supported gravelly sandy silt that may or may not have been glacially overridden.	Loose to very dense	Intermixed irregularly shaped bodies of till and coarse-grained deposits
Lawton Clay (Qvlc)	Laminated to massive silt, clayey silt, and silty clay with scattered drop stones deposited in lowland proglacial lakes. Locally may include fine-grained sediment of unit Qob or distal deposits from the Cascade Mountains where indistinguishable from Qvlc.	Very stiff to hard	Vertical fractures, fine sand partings common near top and bottom of unit
Recessional outwash deposits (Qvr)	Stratified sand and gravel, moderately sorted to well sorted, and less common silty sand and silt. Deposited in outwash channels that carried south-draining glacial meltwater during the ice retreat away from the ice margin. Also includes deposits that accumulated in or adjacent to recessional lakes. Discontinuous. May include thin lag on glacial till uplands.	Loose to dense	Horizontally bedded to cross-bedded, uniformly to well graded, channelized, coarse lag deposits common
Recessional lacustrine deposits (Qvrl)	Laminated silt and clay, low to high plasticity, with local sand layers, peat, and other organic sediments, deposited in slow-flowing water and ephemeral lakes. Locally includes high-plasticity clay with swell potential. Lenses and layers of ash and diatomite may be present.	Very soft to stiff	Horizontally bedded; sandy channels may breach the lacustrine deposits
Vashon till (Qvt)	Compact diamict of silt, sand, and sub-rounded to well-rounded gravel, glacially transported and deposited under ice. Commonly fractured and has intercalated sand lenses. Generally, forms undulating, elongated surfaces. Upper 1 meter of unit generally weathered and only medium dense to dense.	Very dense	Vertical fractures, sand lenses, and crude sub-horizontal bedding common
Younger Alluvium (Qyal)	Sand, silt, gravel, and cobbles deposited by streams and running water. Locally contains soft peat lenses.	Loose to dense or soft to stiff	Predominantly sandy and horizontally bedded, fine and coarser-grained lenses

Source: United States Geological Survey. 2005. *The Geologic Map of Seattle – a Progress Report*, by Kathy Goetz Troost, Derek B. Booth, Aaron P. Wisher, and Scott A. Shimel. Open-File Report 2005-1252, Version 1.0.



Source: City of Seattle, King County (2019, 2020, 2021), NRCS Soils (2019).

Alternatives
- Preferred Alternative
- Preferred Alternative with Third-party Funding
- Other Alternatives

Alternative Profile
- Elevated
- Tunnel
- At-Grade
- Retained Cut

Station
- New
- Existing

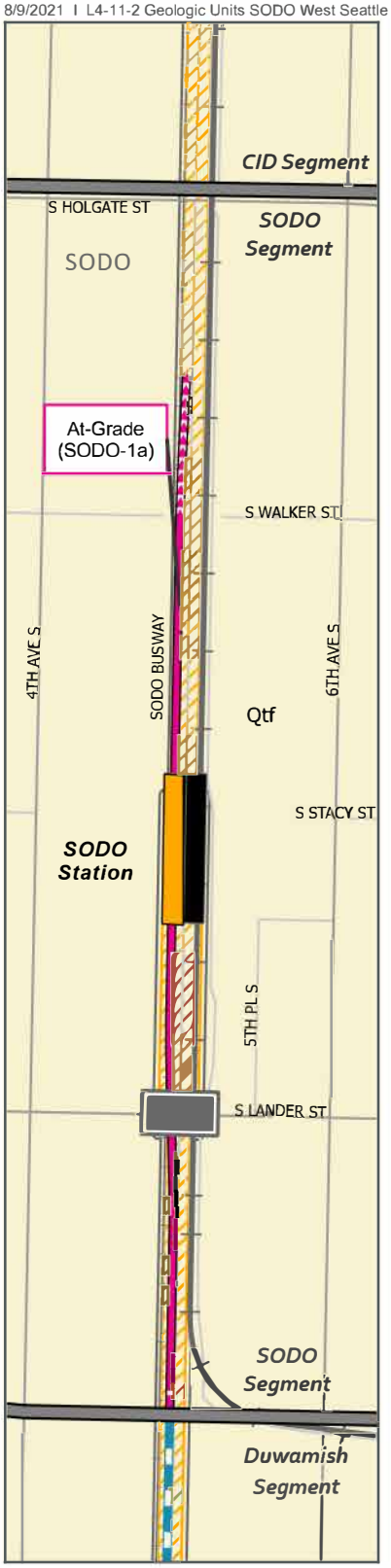
- Segment Line
- Sound Transit Operations and Maintenance Facility (ST OMF)
- Existing Link Light Rail
- East Link Light Rail (Under Construction)
- Railroad
- Stream
- Piped Stream
- Park
- 20-ft Contour

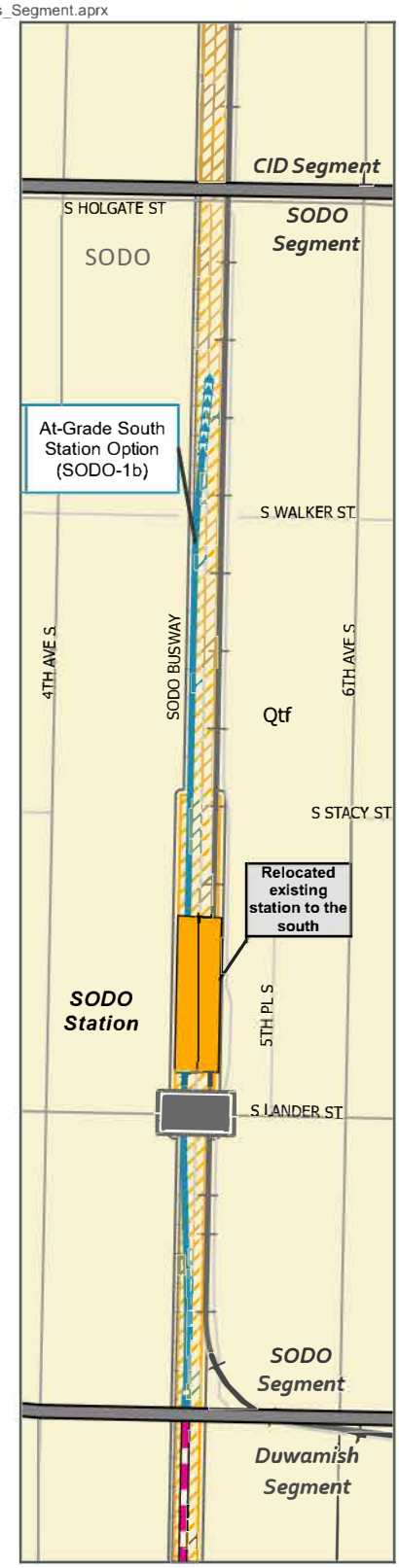
FIGURE L4.11-1
West Seattle - Topography
West Seattle Link Extension

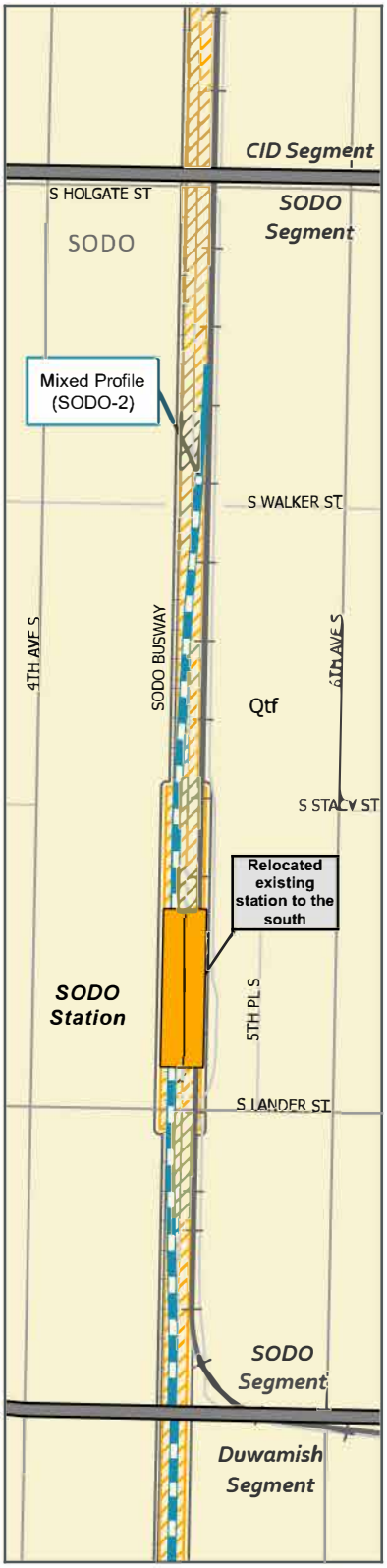
West Seattle and Ballard Link Extensions

0 0.5 1 Mile

N







Source: U.S. Geologic Survey (2019), City of Seattle, King County (2019, 2020, 2021).

Alternatives
- Preferred Alternative
- Preferred Alternative with Third-party Funding
- Other Alternatives

Alternative Profile
- Elevated
- Tunnel
- At-Grade
- Retained Cut

Station
- New
- Existing

- Segment Line
- Existing Link Light Rail
- Railroad
- SODO Busway
- Proposed Overpass

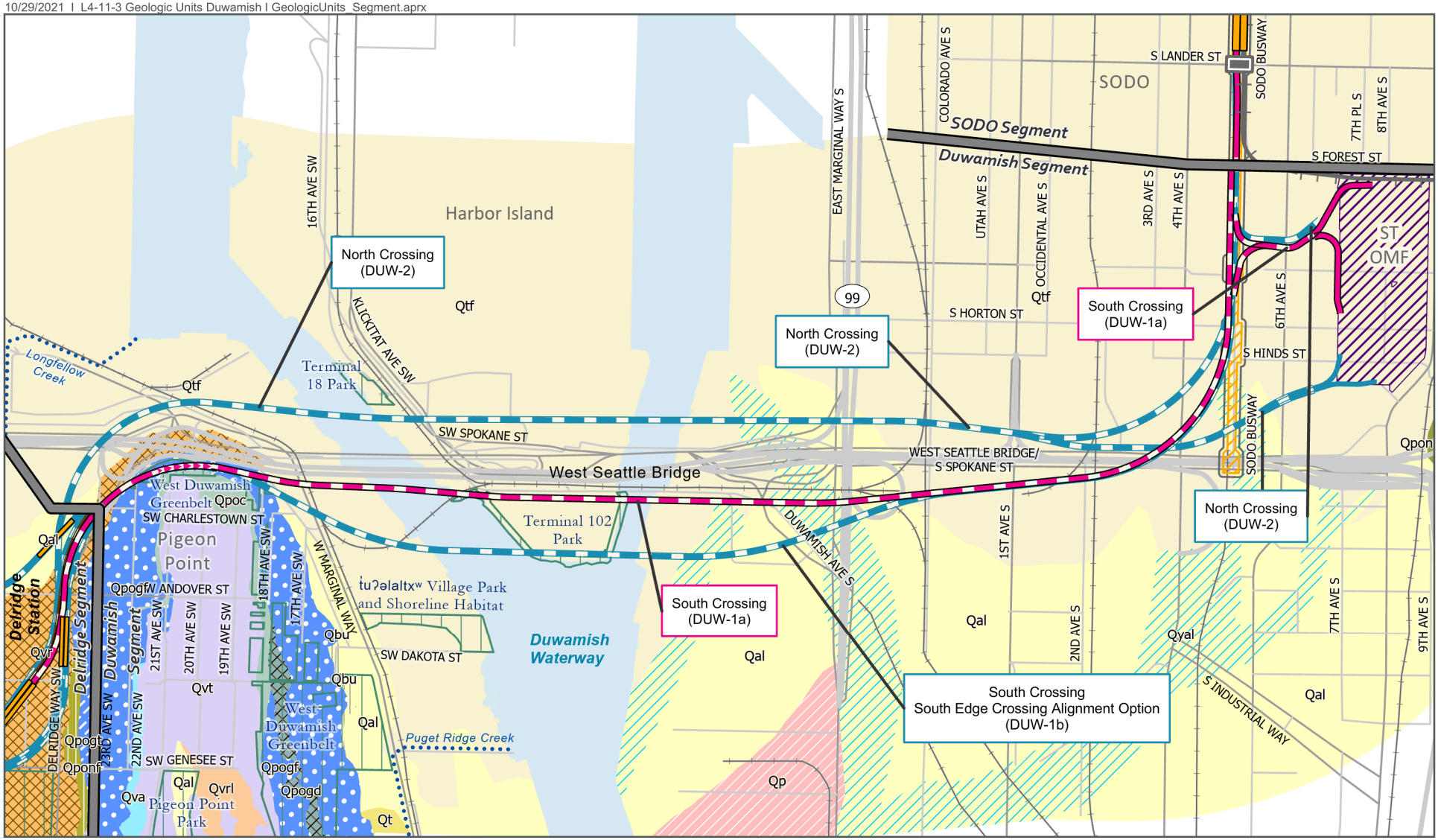
Geologic Unit
- Qtf

FIGURE L4.11-2
Geologic Units
West Seattle Link Extension - SODO Segment

West Seattle and Ballard Link Extensions

0 300 600 Feet

N



Source: U.S. Geologic Survey (2019), City of Seattle, King County (2019, 2020, 2021).

Alternatives
- Preferred Alternative
- Preferred Alternative with Third-party Funding
- Other Alternatives

Alternative Profile
- Elevated
- Tunnel
- At-Grade
- Retained Cut

Station
- New

- Segment Line
- Existing Link Light Rail
- Railroad
- SODO Busway
- Proposed Overpass
- Sound Transit Operations and Maintenance Facility (ST OMF)
- Piped Stream
- Park

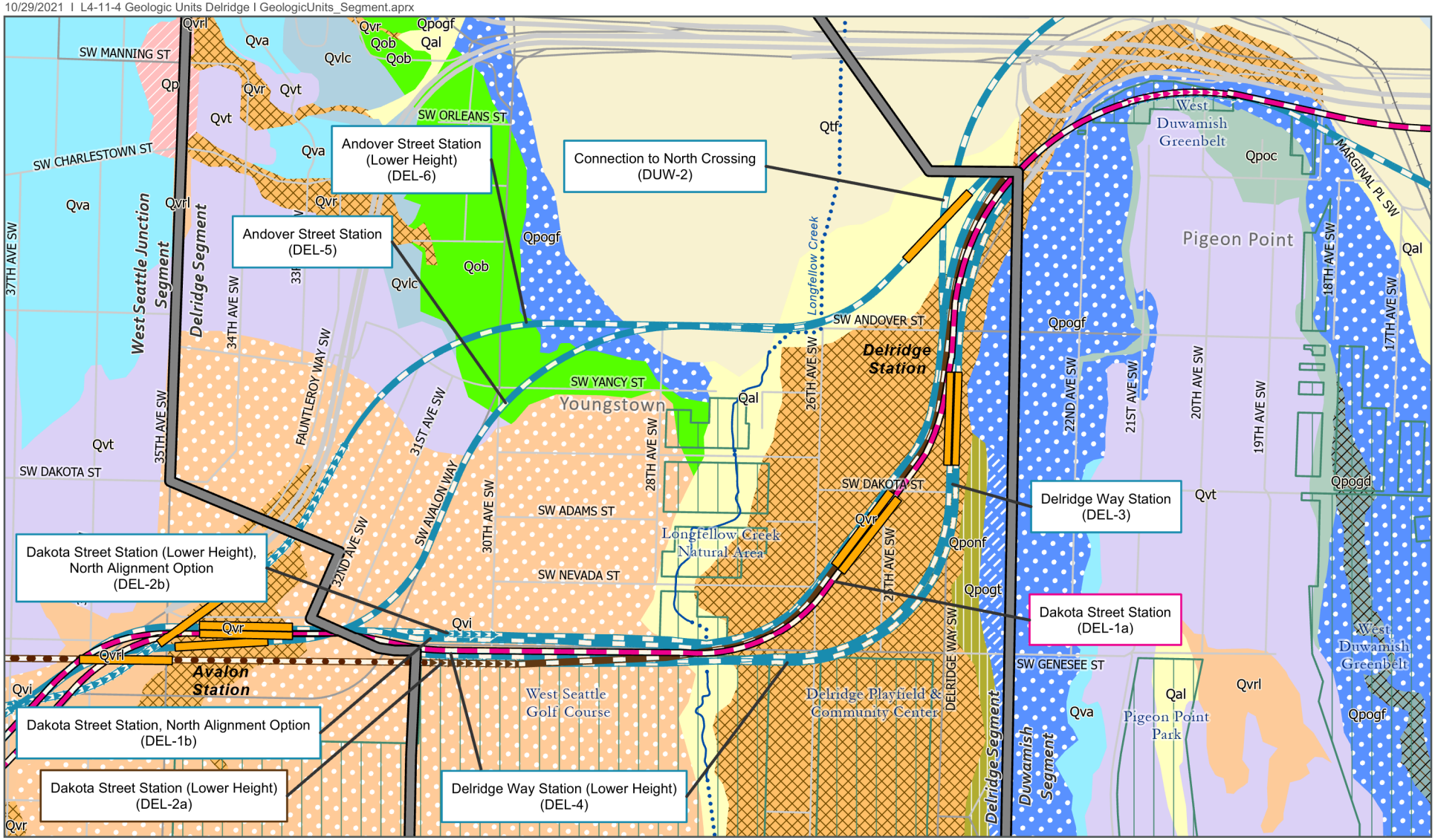
Geologic Unit
- Qal
- Qbu
- Qp
- Qpoc
- Qpogd
- Qpogf
- Qpogt
- Qpon
- Qponf
- Qt
- Qtf
- Qva
- Qvr
- Qvrl
- Qvt
- Qyal

FIGURE L4.11-3
Geologic Units
West Seattle Link Extension - Duwamish Segment

West Seattle and Ballard Link Extensions

0 800 1,600 Feet

N



Source: U.S. Geologic Survey (2019), City of Seattle, King County (2019, 2020, 2021).

Alternatives
- Preferred Alternative
- Preferred Alternative with Third-party Funding
- Other Alternatives

Alternative Profile
- Elevated
- Tunnel
- At-Grade
- Retained Cut

Station
- New

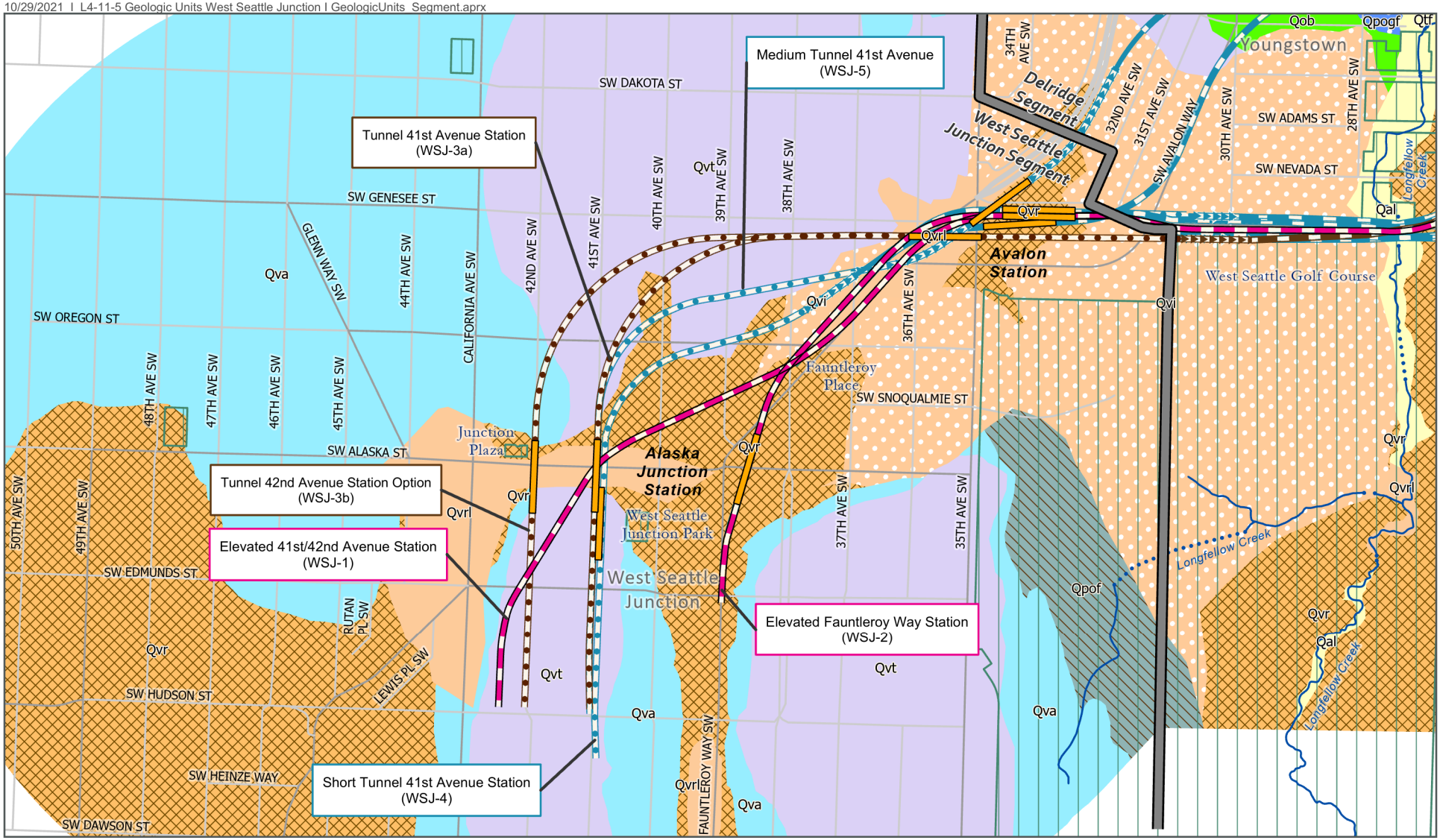
- Segment Line
- Railroad
- Stream
- Piped Stream
- Park

Geologic Unit
- Qal
- Qob
- Qp
- Qpoc
- Qpogd
- Qpogf
- Qpogt
- Qponf
- Qtf
- Qva
- Qvi
- Qvlc
- Qvr
- Qvrl
- Qvt

FIGURE L4.11-4
Geologic Units
West Seattle Link Extension - Delridge Segment

West Seattle and Ballard Link Extensions

0 400 800 Feet N



Source: U.S. Geologic Survey (2019), City of Seattle, King County (2019, 2020, 2021).

Alternatives
- Preferred Alternative
- Preferred Alternative with Third-party Funding
- Other Alternatives

Alternative Profile
- Elevated
- Tunnel
- At-Grade
- Retained Cut

Station
- New

- Segment Line
- Stream
- Piped Stream
- Park

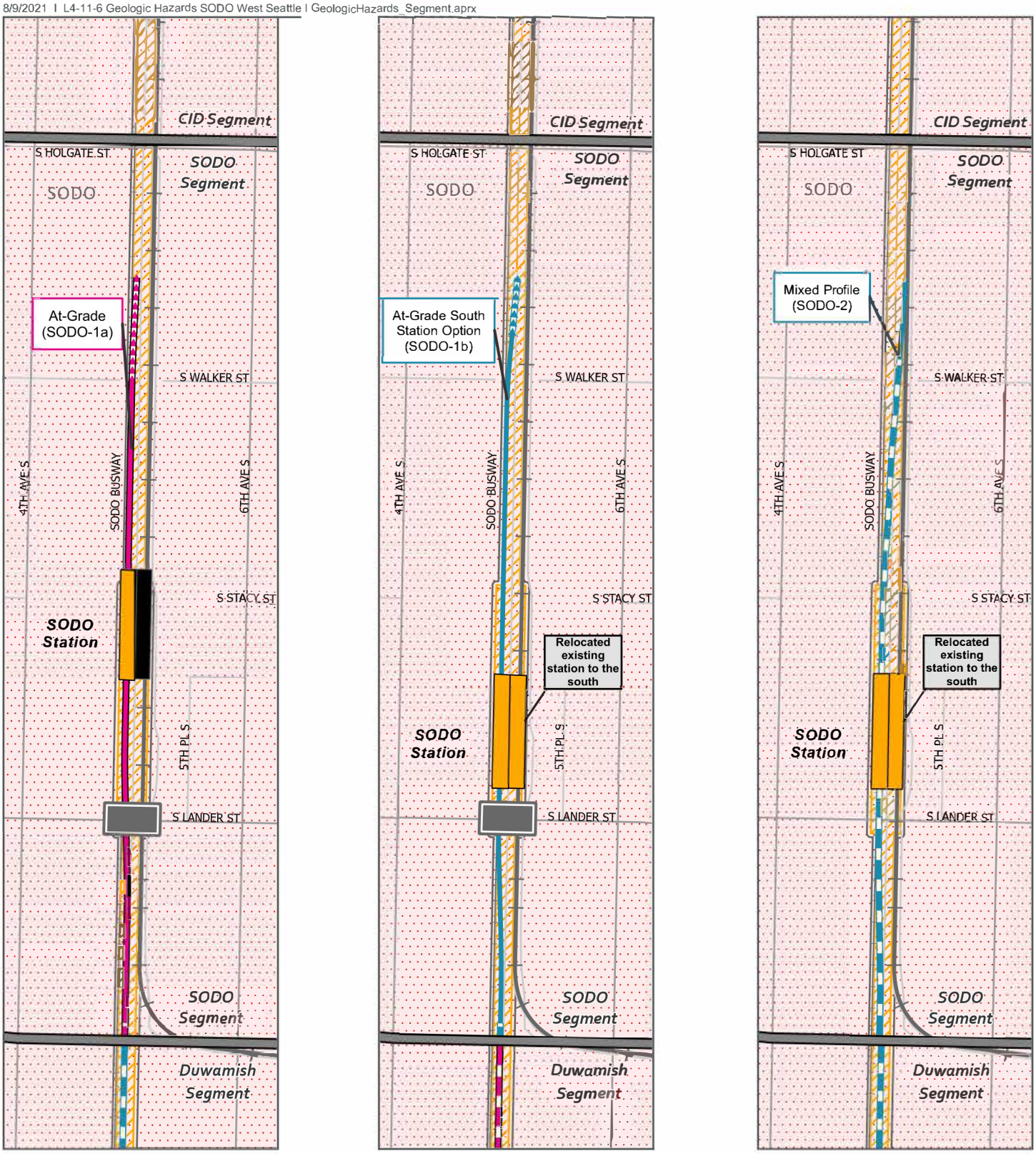
Geologic Unit
- Qal
- Qob
- Qpof
- Qpogf
- Qtf
- Qva
- Qvi
- Qvr
- Qvrl
- Qvt

FIGURE L4.11-5
Geologic Units
West Seattle Link Extension - West Seattle Junction Segment

West Seattle and Ballard Link Extensions

0 500 1,000 Feet

N



Source: U.S. Geologic Survey (2019), City of Seattle, King County (2019, 2020, 2021).

Alternatives
- Preferred Alternative
- Preferred Alternative with Third-party Funding
- Other Alternatives

Alternative Profile
- Elevated
- Tunnel
- At-Grade
- Retained Cut

Station
- New
- Existing

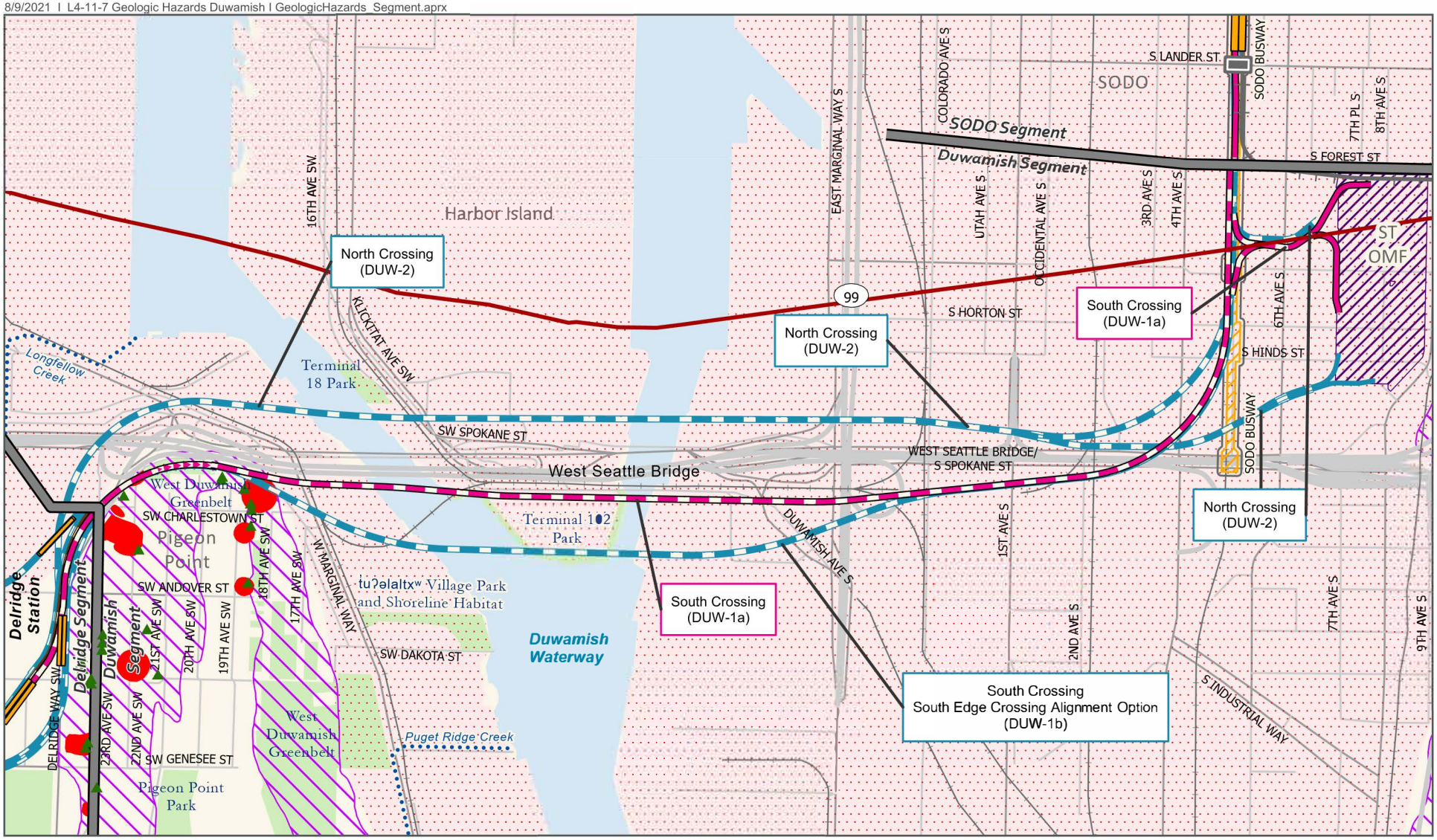
- Segment Line
- Existing Link Light Rail
- Railroad
- SODO Busway
- Proposed Overpass
- Liquefaction-Prone Area

FIGURE L4.11-6
Geologic Hazards
West Seattle Link Extension - SODO Segment

West Seattle and Ballard Link Extensions

0 300 600 Feet

N



Source: U.S. Geologic Survey (2019), City of Seattle, King County (2019, 2020, 2021).

Alternatives
- Preferred Alternative
- Preferred Alternative with Third-party Funding
- Other Alternatives

Alternative Profile
- Elevated
- Tunnel
- At-Grade
- Retained Cut

Station
- New

- Segment Line
- Existing Link Light Rail
- Railroad
- SODO Busway
- Proposed Overpass
- Sound Transit Operations and Maintenance Facility (ST OMF)
- Piped Stream
- Park

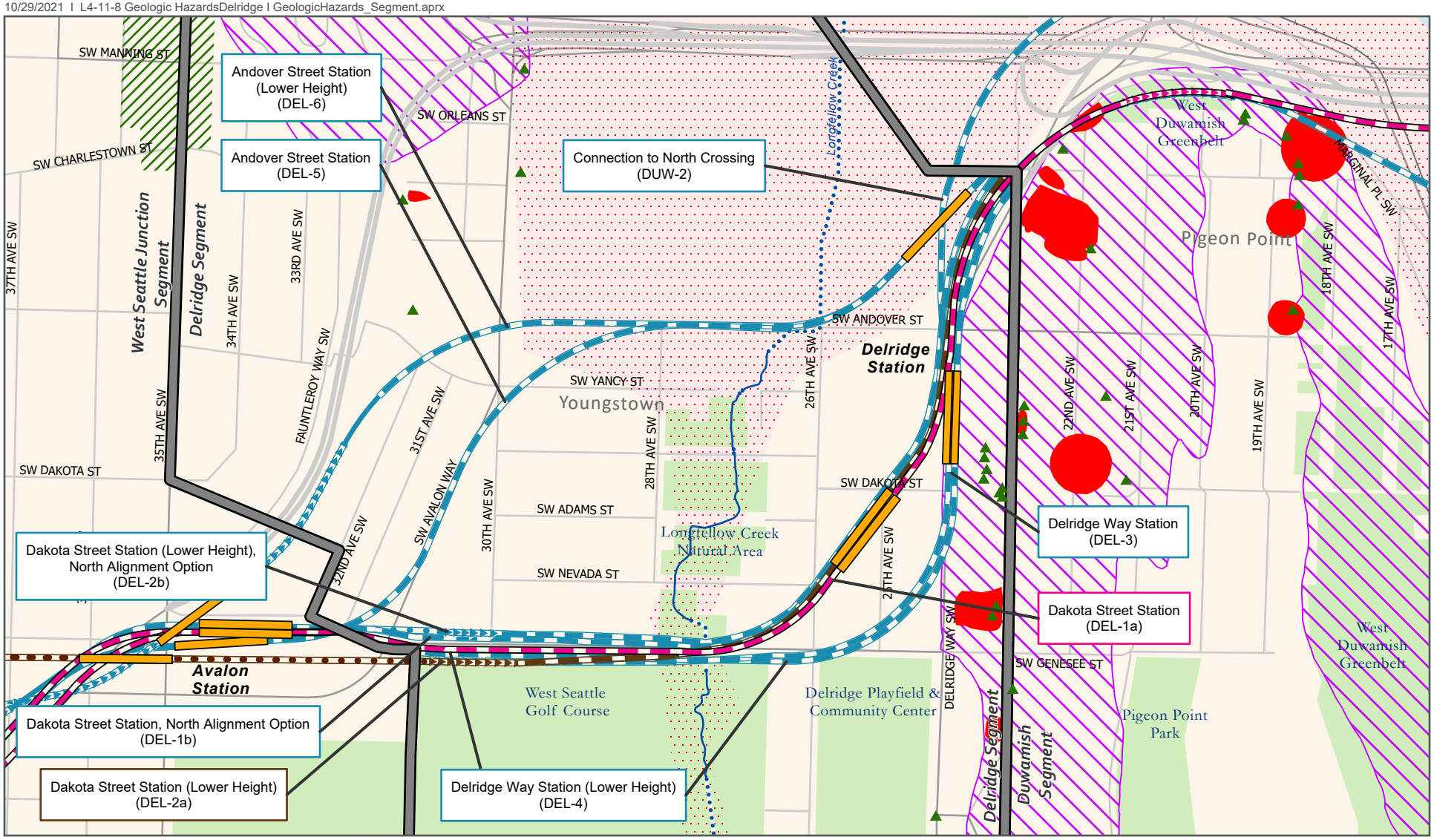
- Known Landslide
- Known Landslide Area
- Potential Landslide Area
- Liquefaction-Prone Area
- Seattle Fault Zone

FIGURE L4.11-7
Geologic Hazards
West Seattle Link Extension - Duwamish Segment

West Seattle and Ballard Link Extensions

0 800 1,600 Feet

N



Source: U.S. Geologic Survey (2019), City of Seattle, King County (2019, 2020, 2021).

Alternatives
- Preferred Alternative
- Preferred Alternative with Third-party Funding
- Other Alternatives

Alternative Profile
- Elevated
- Tunnel
- At-Grade
- Retained Cut

Station
- New

- Segment Line
- Railroad
- Stream
- Piped Stream
- Park

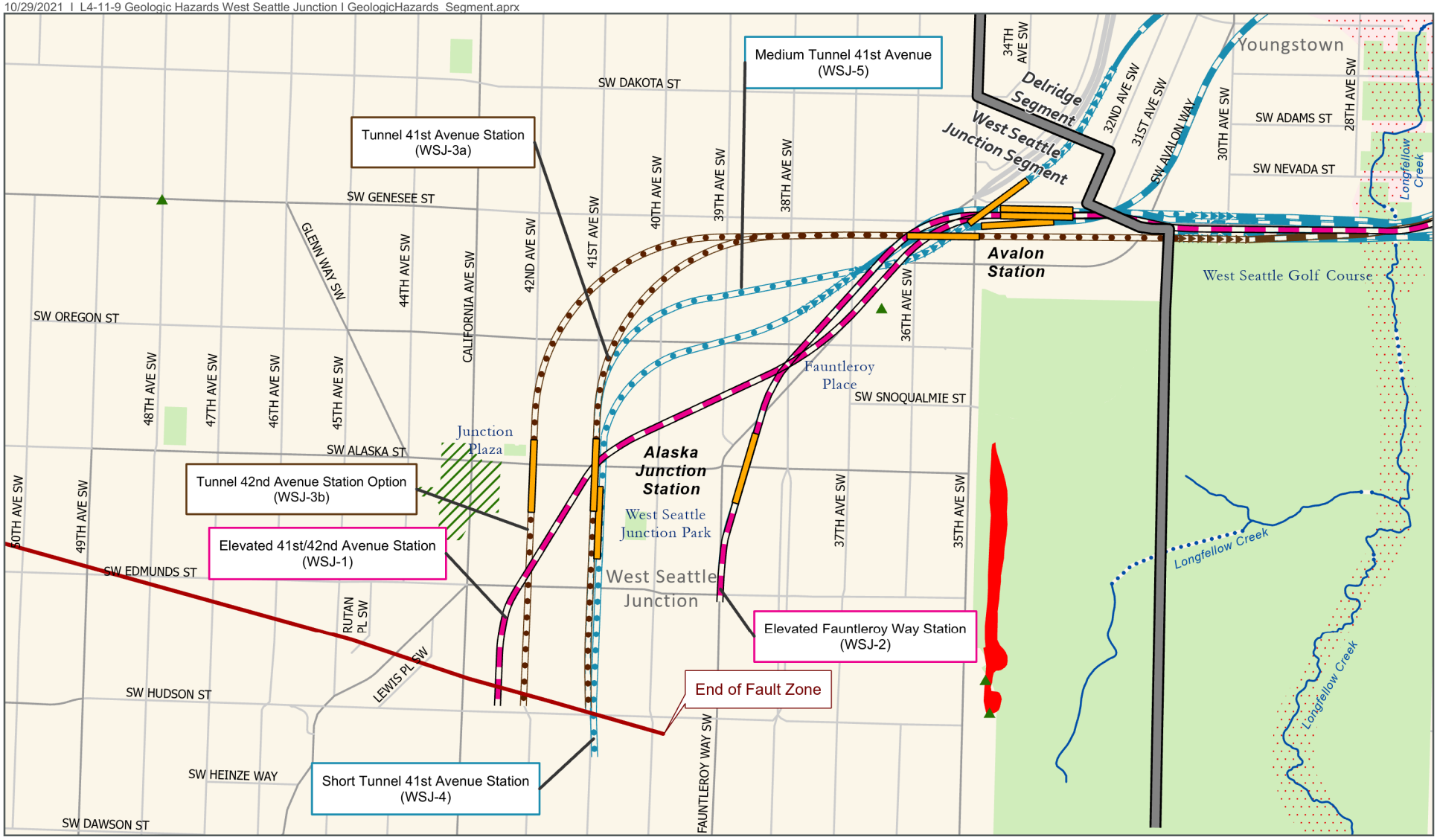
- Known Landslide
- Known Landslide Area
- Potential Landslide Area
- Peat Settlement-Prone Area
- Liquefaction-Prone Area

FIGURE L4.11-8
Geologic Hazards
West Seattle Link Extension - Delridge Segment

West Seattle and Ballard Link Extensions

0 400 800 Feet

N



Source: U.S. Geologic Survey (2019), City of Seattle, King County (2019, 2020, 2021).

Alternatives
- Preferred Alternative
- Preferred Alternative with Third-party Funding
- Other Alternatives

Alternative Profile
- Elevated
- At-Grade
- Tunnel
- Retained Cut

Station
- New

- Segment Line
- Stream
- Piped Stream
- Park

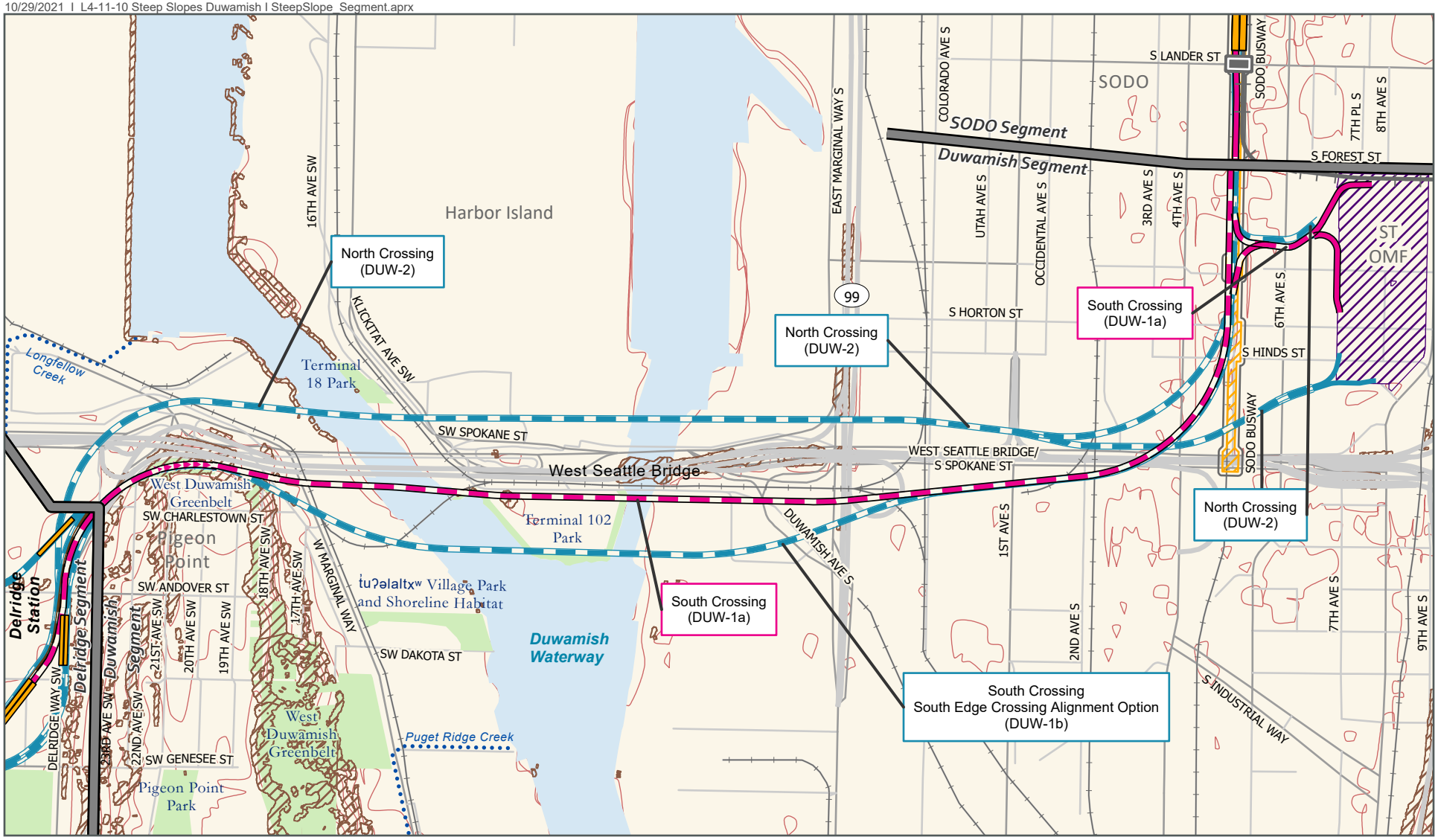
- Known Landslide
- Known Landslide Area
- Peat Settlement-Prone Area
- Liquefaction-Prone Area
- Seattle Fault Zone

FIGURE L4.11-9
Geologic Hazards
West Seattle Link Extension - West Seattle Junction Segment

West Seattle and Ballard Link Extensions

0 500 1,000 Feet

N



Source: City of Seattle, King County (2019, 2020, 2021).

Alternatives
- Preferred Alternative
- Preferred Alternative with Third-party Funding
- Other Alternatives

Alternative Profile
- Elevated
- Tunnel
- At-Grade
- Retained Cut

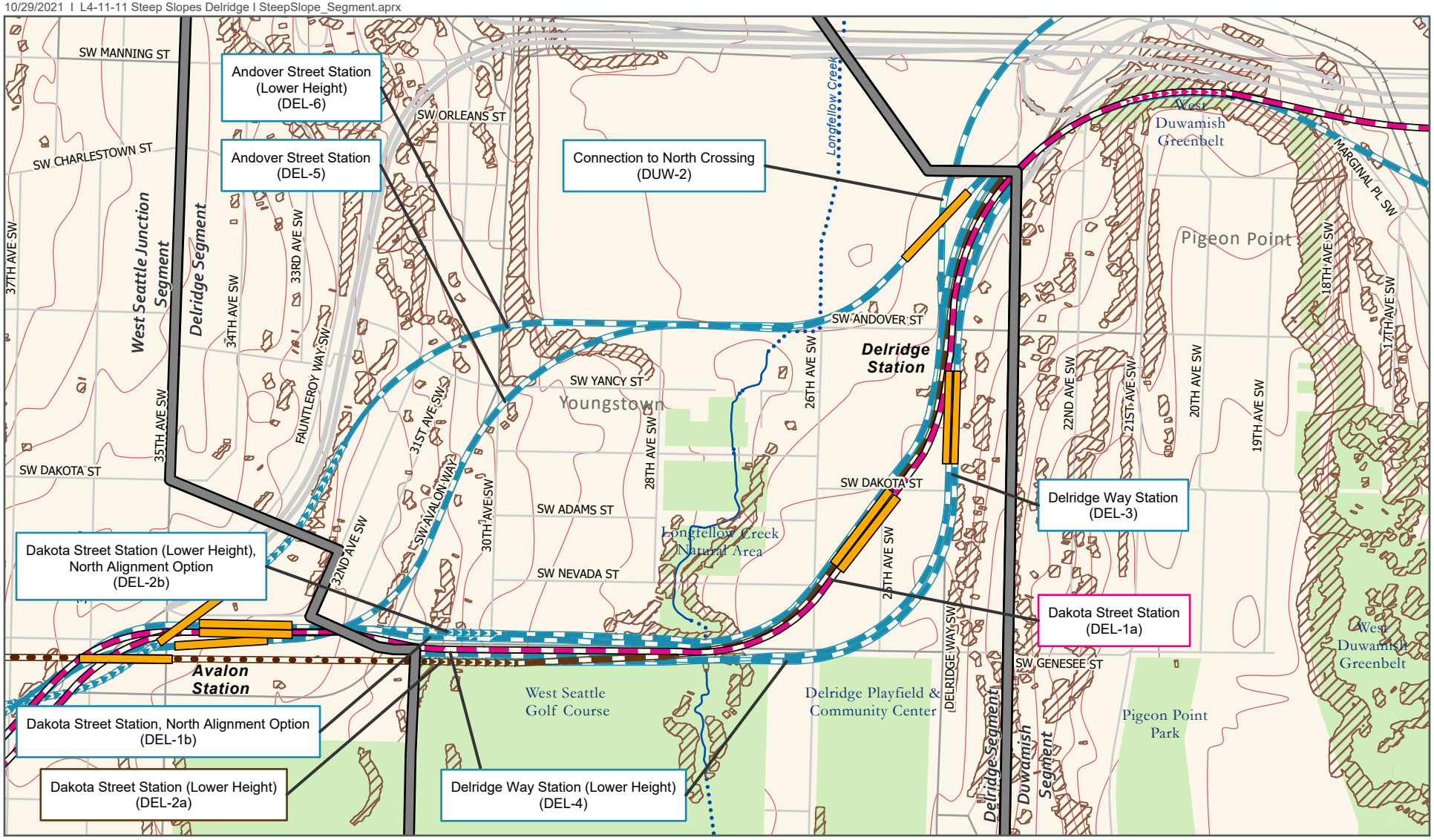
Station
- New

- Segment Line
- Existing Link Light Rail
- Railroad
- SODO Busway
- Proposed Overpass
- Sound Transit Operations and Maintenance Facility (ST OMF)
- Piped Stream
- Park
- 20-ft Contour
- Steep Slope Greater Than 40%

FIGURE L4.11-10
Steep Slopes > 40%
West Seattle Link Extension - Duwamish Segment
West Seattle and Ballard Link Extensions

0 800 1,600 Feet

N



Source: City of Seattle, King County (2019, 2020, 2021).

Alternatives
- Preferred Alternative
- Preferred Alternative with Third-party Funding
- Other Alternatives

Alternative Profile
- Elevated
- Tunnel
- At-Grade
- Retained Cut

Station
- New

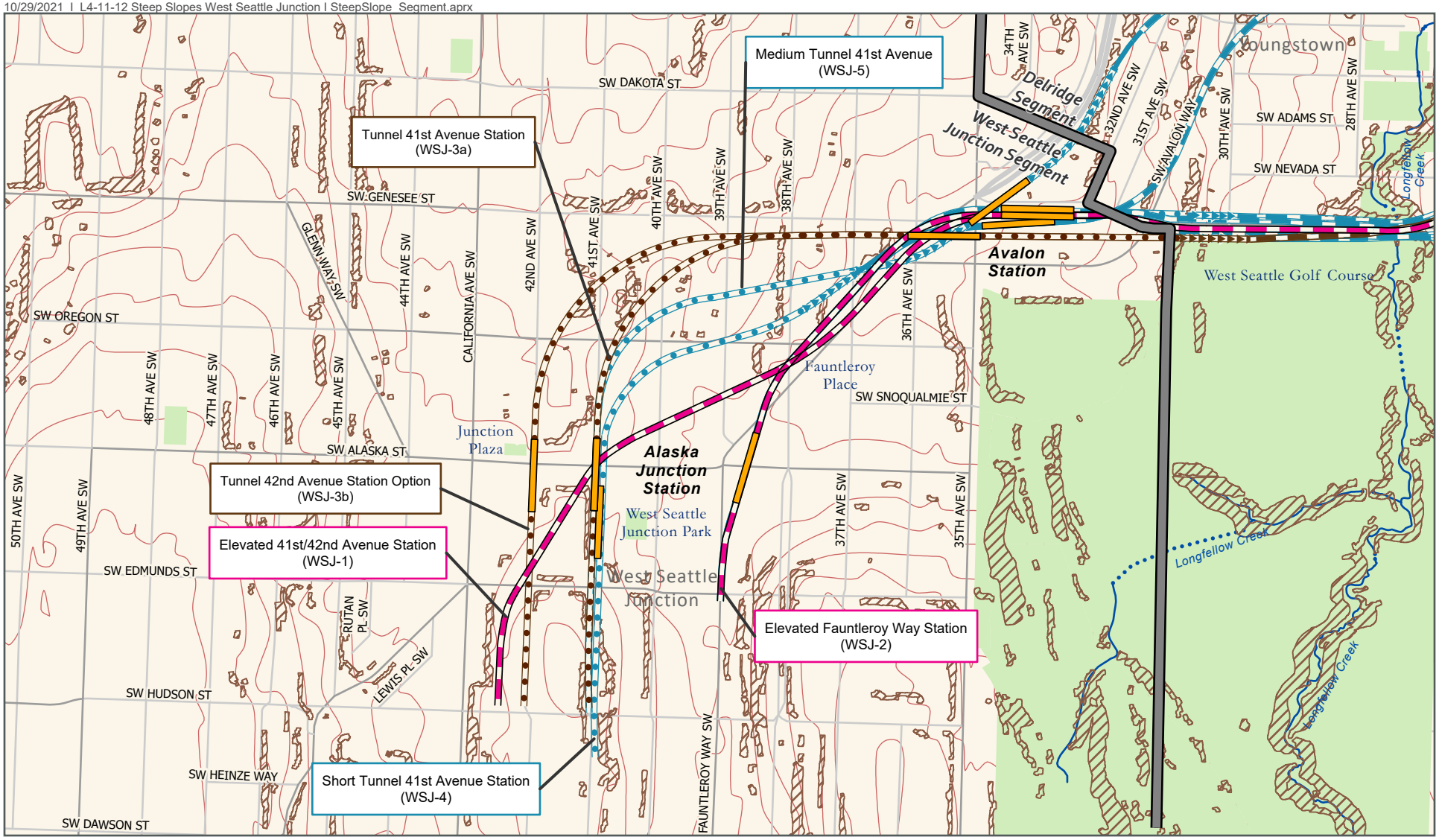
- Segment Line
- Railroad
- Stream
- Piped Stream
- Park
- 20-ft Contour
- Steep Slope Greater Than 40%

FIGURE L4.11-11
Steep Slopes > 40%
West Seattle Link Extension - Delridge Segment

West Seattle and Ballard Link Extensions

0 400 800 Feet

N



Source: City of Seattle, King County (2019, 2020, 2021).

Alternatives
- Preferred Alternative
- Preferred Alternative with Third-party Funding
- Other Alternatives

Alternative Profile
- Elevated
- Tunnel
- At-Grade
- Retained Cut

Station
- New

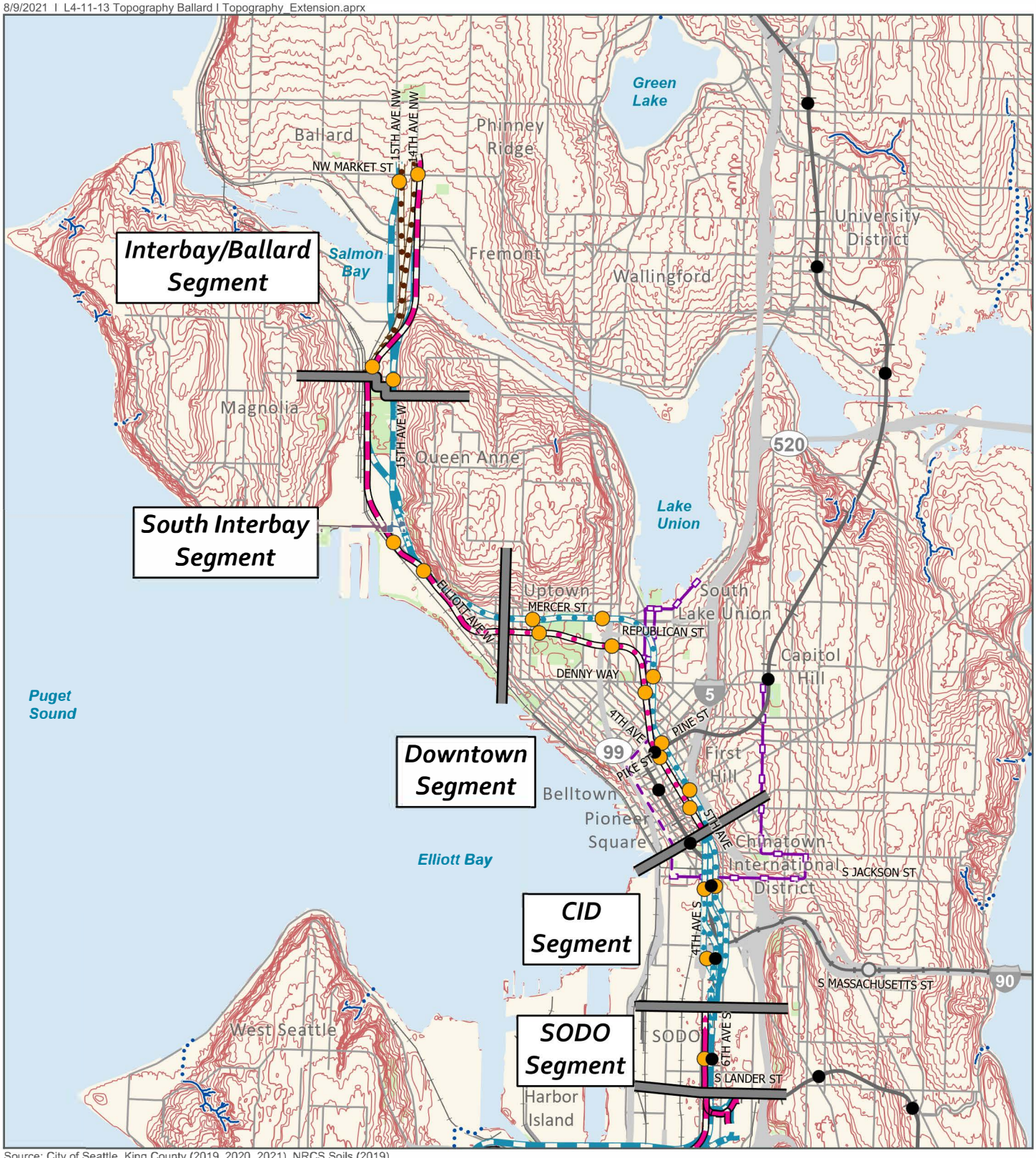
- Segment Line
- Stream
- Piped Stream
- Park
- 20-ft Contour
- Steep Slope Greater Than 40%

FIGURE L4.11-12
Steep Slopes > 40%
West Seattle Link Extension - West Seattle Junction Segment

West Seattle and Ballard Link Extensions

0 500 1,000 Feet

N



Source: City of Seattle, King County (2019, 2020, 2021), NRCS Soils (2019).

Alternatives
- Preferred Alternative
- Preferred Alternative with Third-party Funding
- Other Alternatives

Alternative Profile
- Elevated
- Tunnel
- At-Grade
- Retained Cut

Station
- New
- Existing

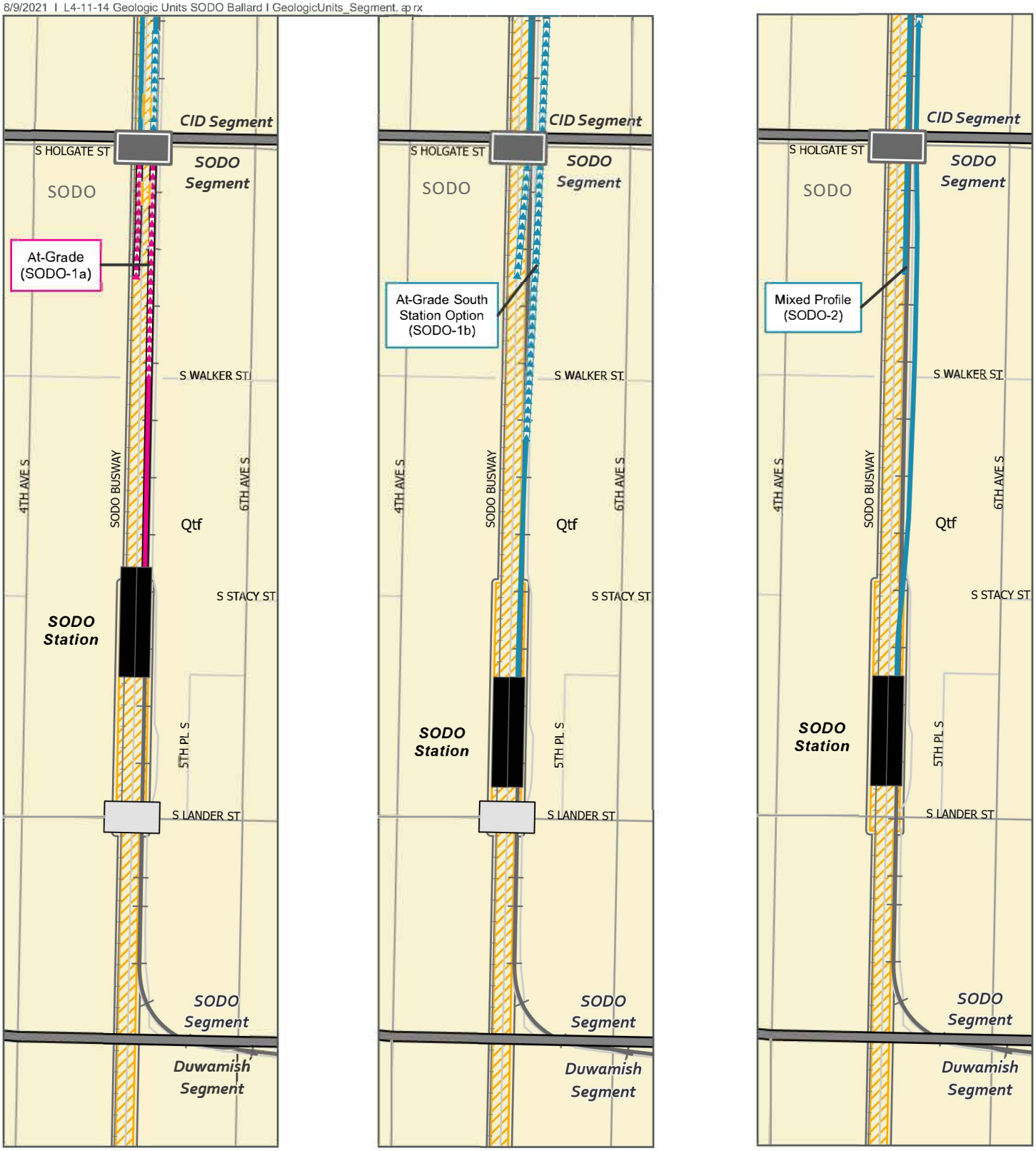
- Segment Line
- Existing Link Light Rail
- East Link Light Rail (Under Construction)
- Existing Streetcar
- Center City Connector Streetcar (Construction Paused)
- Railroad
- Stream
- Piped Stream
- Park
- 20-ft Contour

FIGURE L4.11-13
Ballard - Topography
Ballard Link Extension

West Seattle and Ballard Link Extensions

0 0.5 1 Mile

N



Source: U.S. Geologic Survey (2019), City of Seattle, King County (2019, 2020, 2021).

Alternatives
- Preferred Alternative
- Preferred Alternative with Third-party Funding
- Other Alternatives

Alternative Profile
- Elevated
- Tunnel
- At-Grade
- Retained Cut

Station
- Existing

- Segment Line
- Existing Link Light Rail
- Railroad
- SODO Busway
- Existing Overpass
- Proposed Overpass

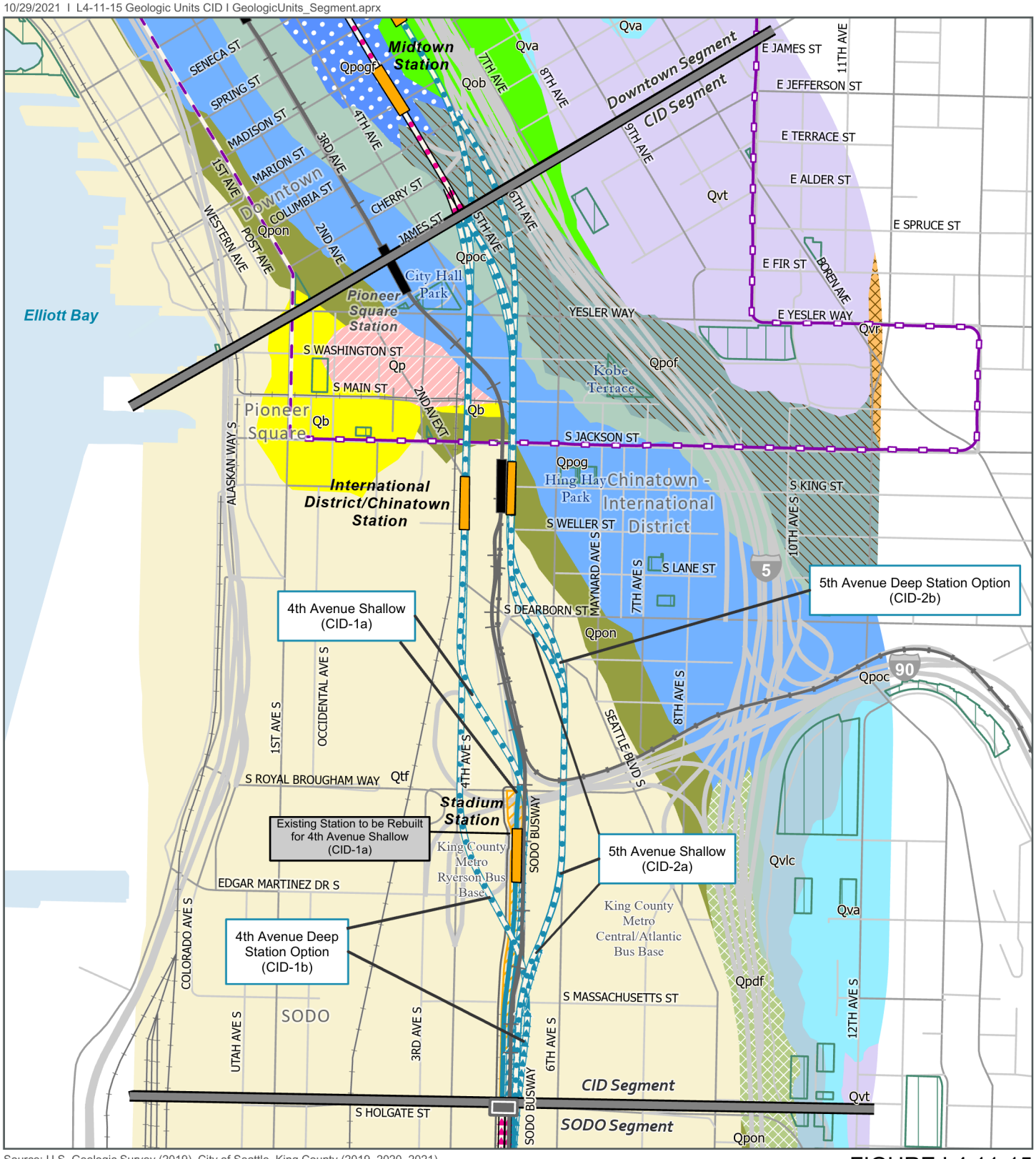
Geologic Unit
- Qtf

FIGURE L4.11-14
Geologic Units
Ballard Link Extension - SODO Segment

West Seattle and Ballard Link Extensions

0 300 600 Feet

N



Source: U.S. Geologic Survey (2019), City of Seattle, King County (2019, 2020, 2021).

Alternatives
- Preferred Alternative
- Preferred Alternative with Third-party Funding
- Other Alternatives

Alternative Profile
- Elevated
- Tunnel
- At-Grade
- Retained Cut

Station
- New
- Existing

- Segment Line
- Existing Link Light Rail
- East Link Light Rail (Under Construction)
- Existing Streetcar
- Center City Connector Streetcar (Construction Paused)
- Railroad
- SODO Busway
- Proposed Overpass
- Park

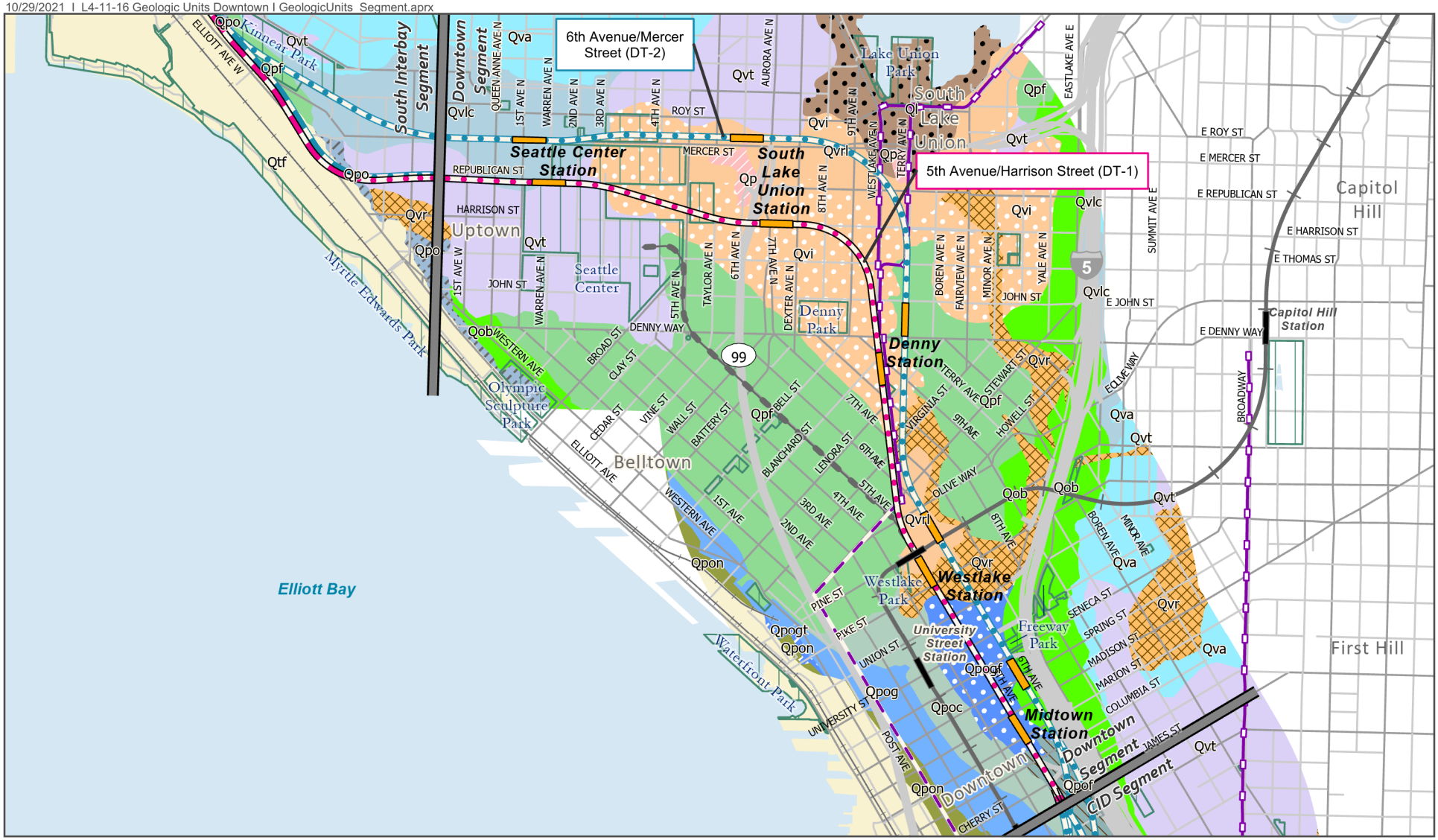
Geologic Unit
- Qb
- Qob
- Qp
- Qpdf
- Qpoc
- Qpof
- Qpog
- Qpogf
- Qpon
- Qtf
- Qva
- Qvlc
- Qvr
- Qvt

FIGURE L4.11-15
Geologic Units
Ballard Link Extension - Chinatown-International District Segment

West Seattle and Ballard Link Extensions

0 700 1,400 Feet

N



Source: U.S. Geologic Survey (2019), City of Seattle, King County (2019, 2020, 2021).

Alternatives
- Preferred Alternative
- Preferred Alternative with Third-party Funding
- Other Alternatives

Alternative Profile
- Elevated
- Tunnel
- At-Grade
- Retained Cut

Station
- New
- Existing

- Segment Line
- Existing Link Light Rail
- Monorail
- Existing Streetcar
- Center City Connector Streetcar (Construction Paused)
- Railroad
- Park

Geologic Unit

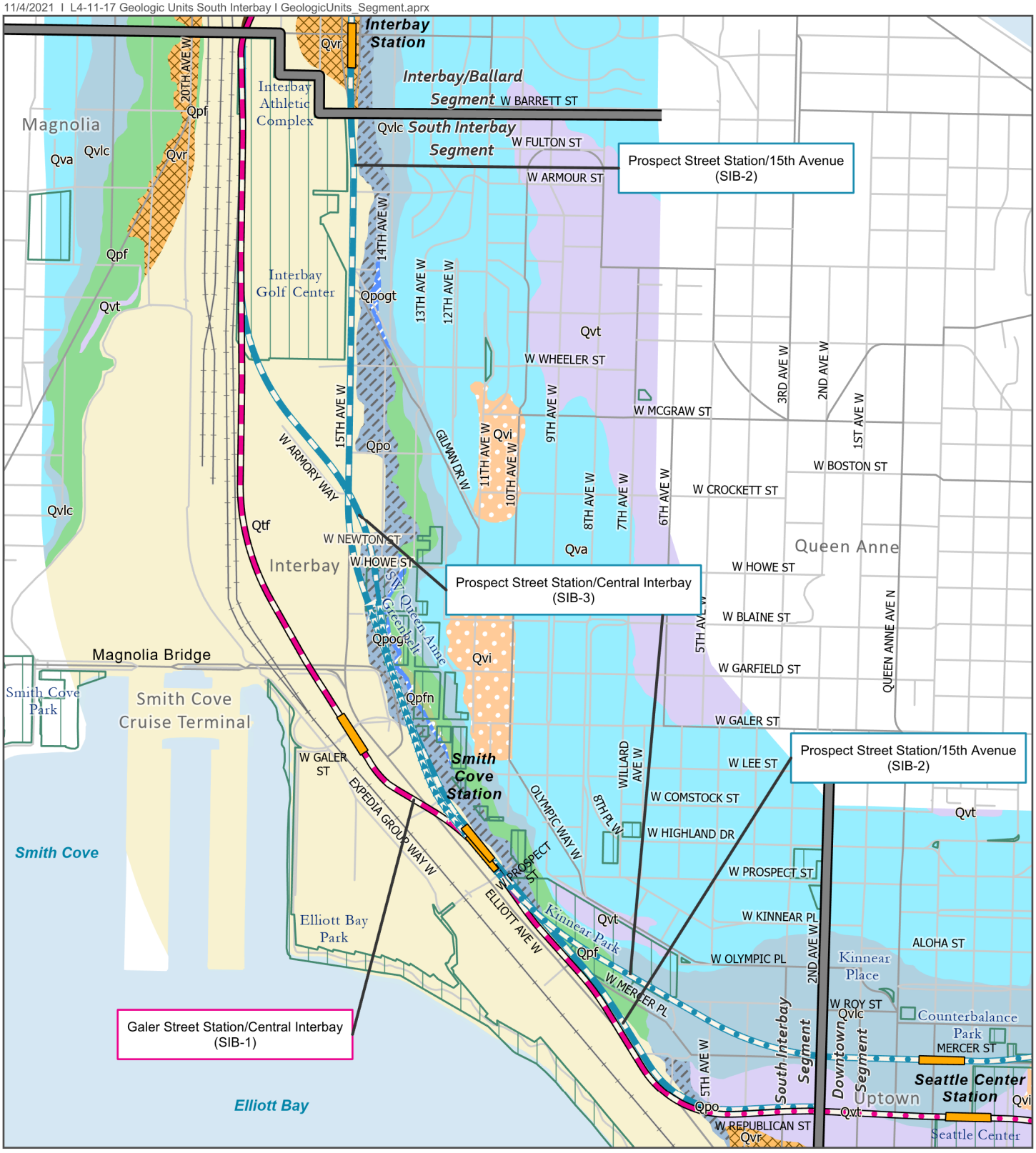
Ql	Qpoc	Qva
Qob	Qpof	Qvi
Qp	Qpog	Qvlc
Qpf	Qpogf	Qvr
Qpo	Qpogt	Qvrl
	Qpon	Qvt
	Qtf	

FIGURE L4.11-16
Geologic Units
Ballard Link Extension - Downtown Segment

West Seattle and Ballard Link Extensions

0 1,000 2,000 Feet

N



Source: U.S. Geologic Survey (2019), City of Seattle, King County (2019, 2020, 2021).

Alternatives
- Preferred Alternative
- Preferred Alternative with Third-party Funding
- Other Alternatives

Alternative Profile
- Elevated
- Tunnel
- At-Grade
- Retained Cut

Station
- New

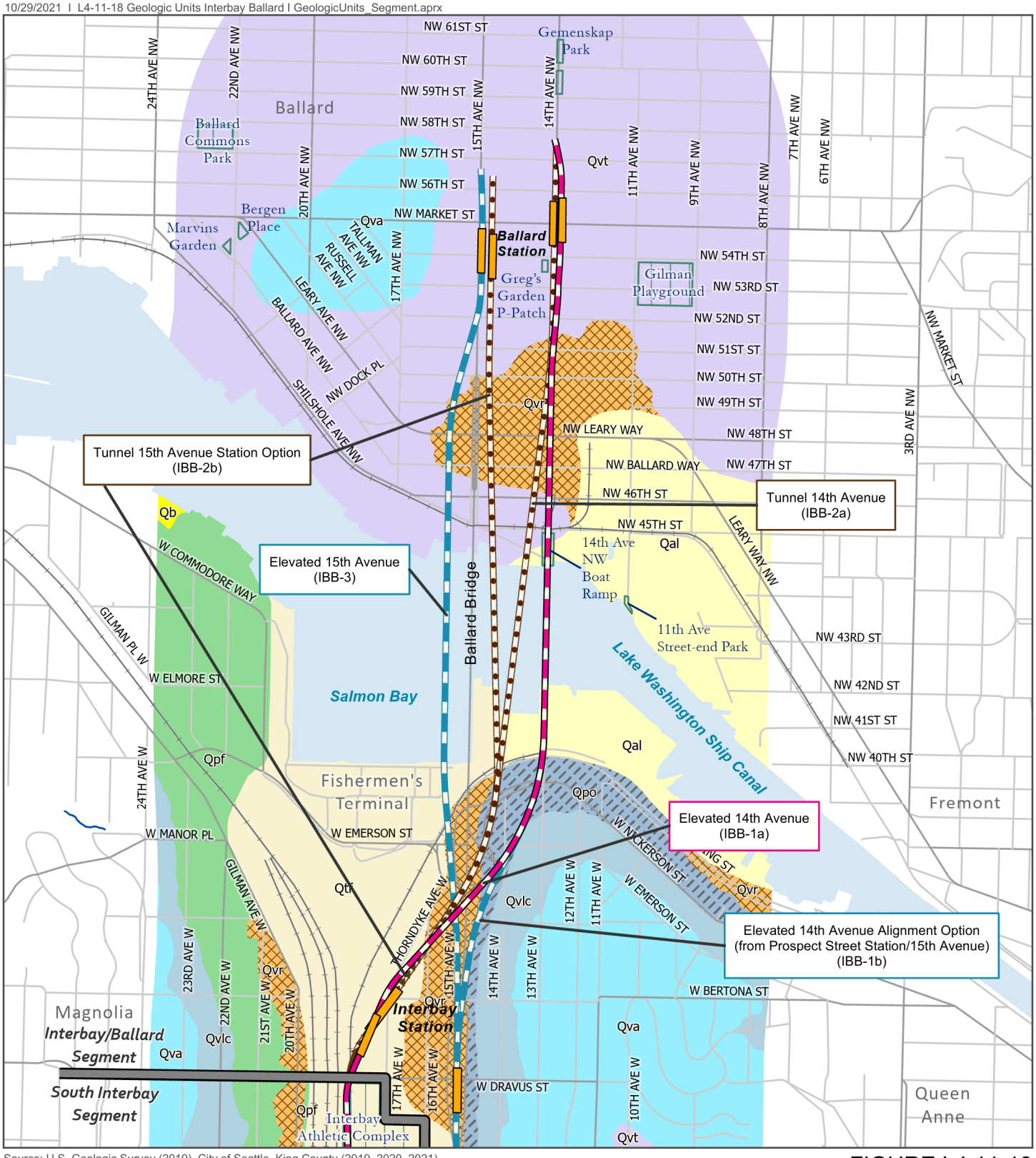
- Segment Line
- Railroad
- Park

Geologic Unit
- Qpf
- Qpfn
- Qpo
- Qpogt
- Qtf
- Qva
- Qvi
- Qvlc
- Qvr
- Qvt

FIGURE L4.11-17
Geologic Units
Ballard Link Extension - South Interbay Segment
West Seattle and Ballard Link Extensions

0 800 1,600 Feet

N



Source: U.S. Geologic Survey (2019), City of Seattle, King County (2019, 2020, 2021).

Alternatives
- Preferred Alternative
- Preferred Alternative with Third-party Funding
- Other Alternatives

Alternative Profile
- Elevated
- Tunnel
- At-Grade
- Retained Cut

Station
- New

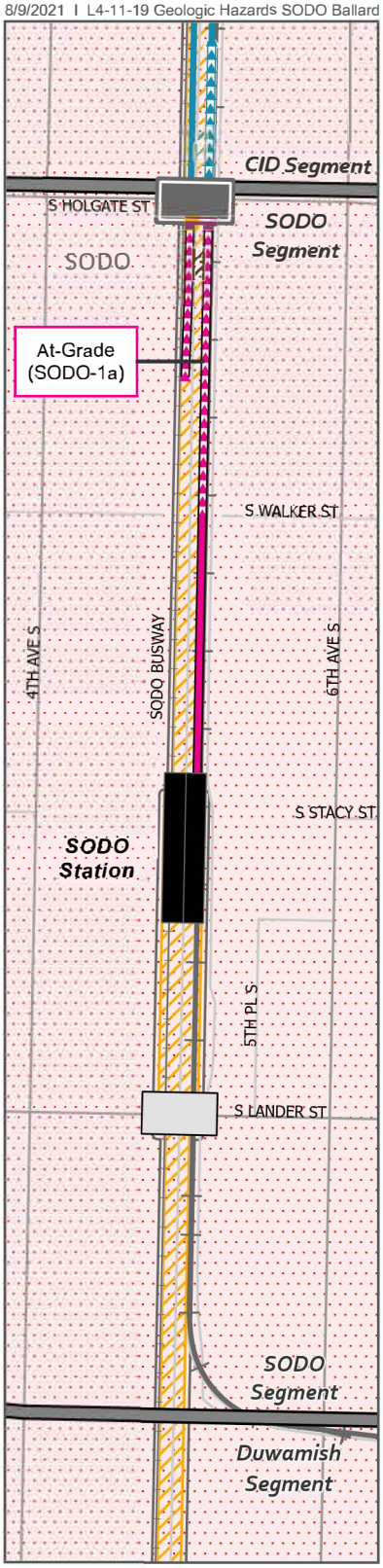
- Segment Line
- Railroad
- Stream
- Park

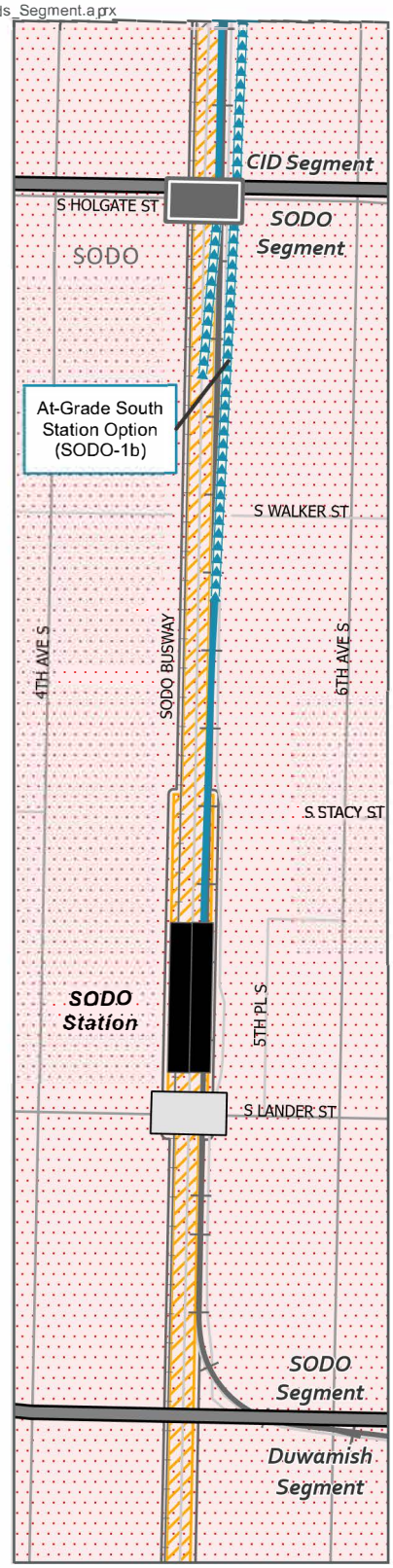
Geologic Unit
- Qal
- Qb
- Qpf
- Qpo
- Qtf
- Qva
- Qvlc
- Qvr
- Qvt

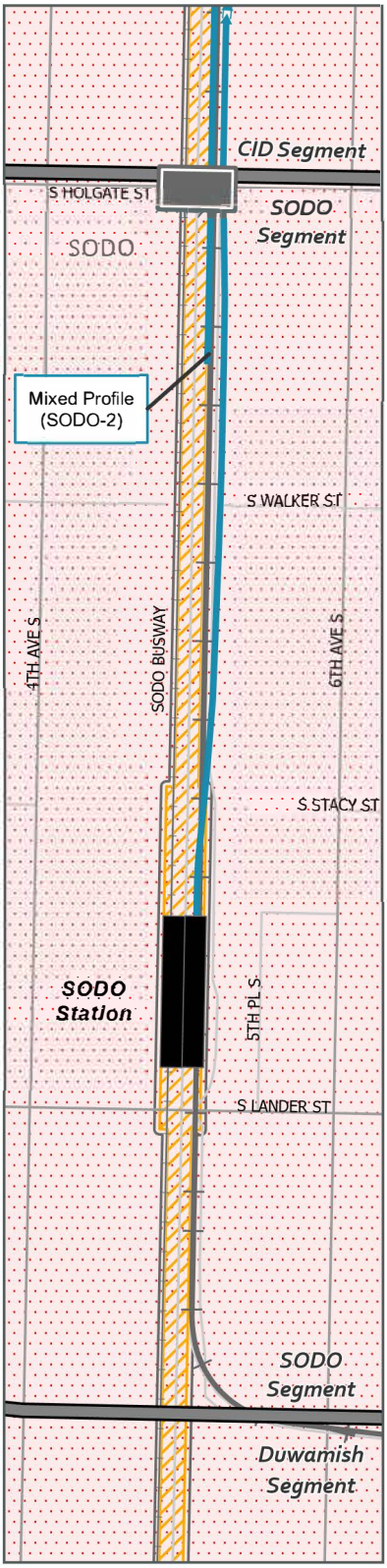
0 800 1,600 Feet

N

FIGURE L4.11-18
Geologic Units
Ballard Link Extension - Interbay/Ballard Segment
West Seattle and Ballard Link Extensions







Source: U.S. Geologic Survey (2019), City of Seattle, King County (2019, 2020, 2021).

Alternatives
- Preferred Alternative
- Preferred Alternative with Third-party Funding
- Other Alternatives

Alternative Profile
- Elevated
- Tunnel
- At-Grade
- Retained Cut

Station
- Existing

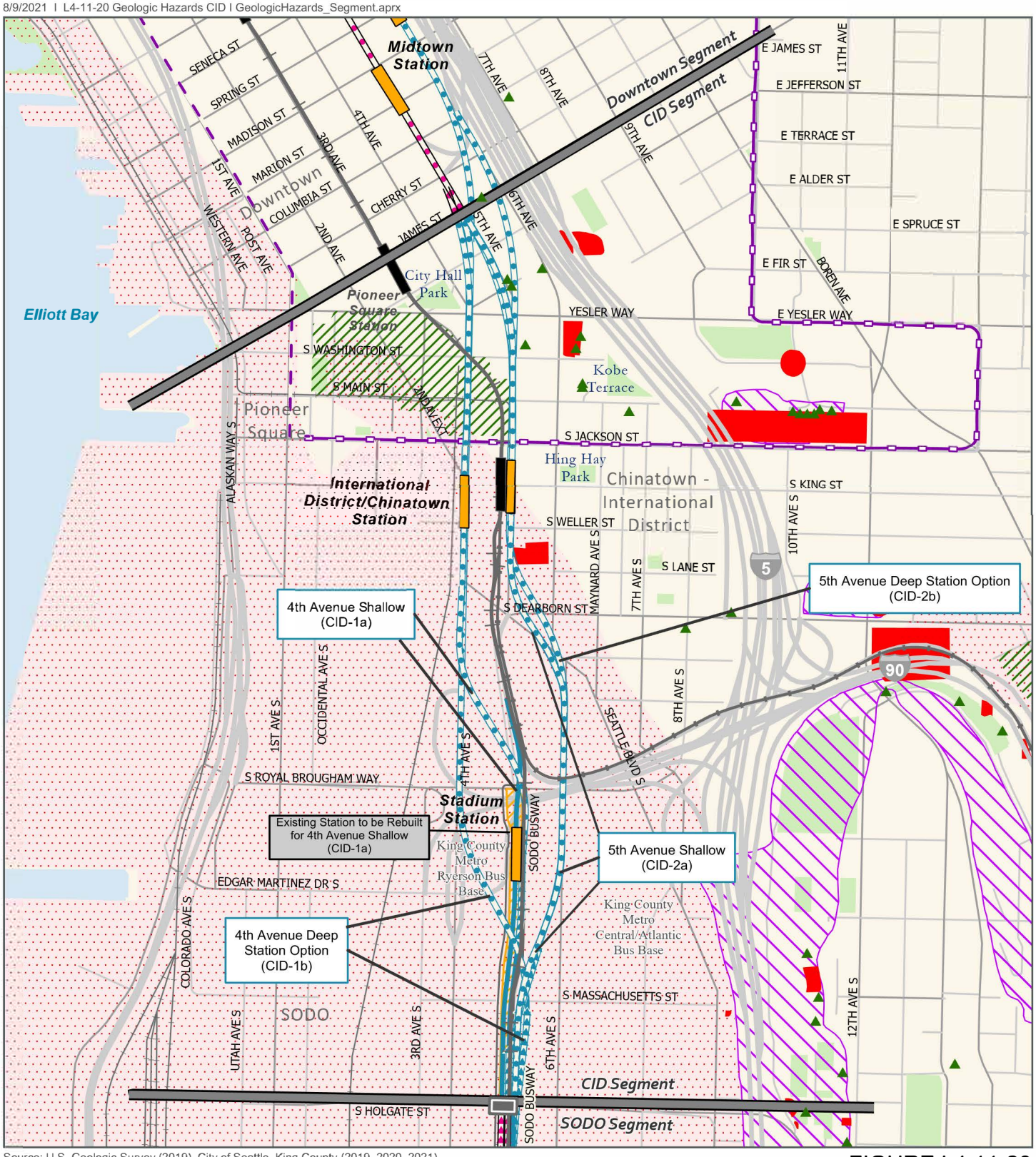
- Segment Line
- Existing Link Light Rail
- Railroad
- SODO Busway
- Existing Overpass
- Proposed Overpass
- Liquefaction-Prone Area

FIGURE L4.11-19
Geologic Hazards
Ballard Link Extension - SODO Segment

West Seattle and Ballard Link Extensions

0 300 600 Feet

N



Source: U.S. Geologic Survey (2019), City of Seattle, King County (2019, 2020, 2021).

Alternatives
- Preferred Alternative
- Preferred Alternative with Third-party Funding
- Other Alternatives

Alternative Profile
- Elevated
- Tunnel
- At-Grade
- Retained Cut

Station
- New
- Existing

- Segment Line
- Existing Link Light Rail
- East Link Light Rail (Under Construction)
- Existing Streetcar
- Center City Connector Streetcar (Construction Paused)
- Railroad
- SODO Busway
- Proposed Overpass
- Park

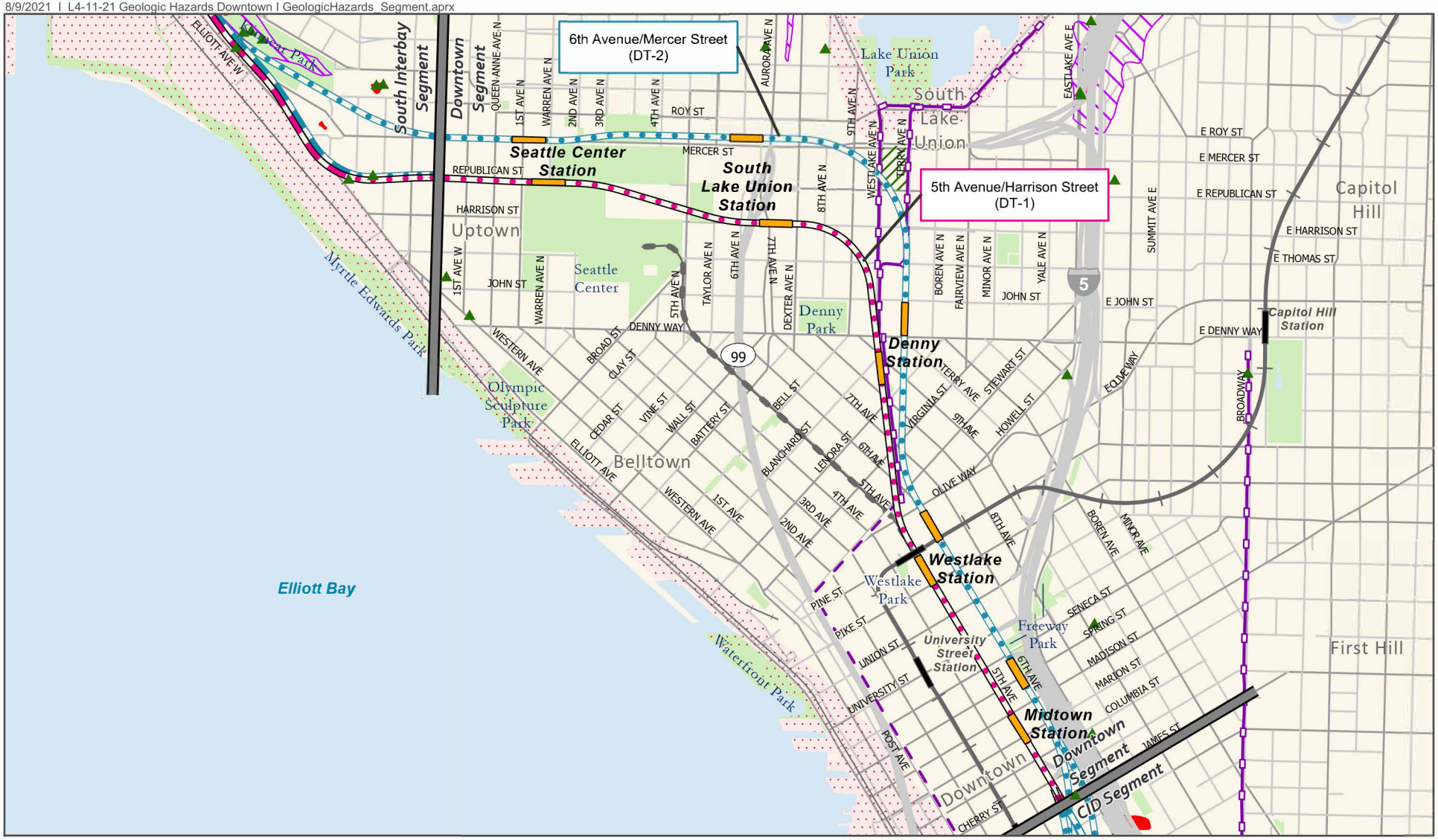
- Known Landslide
- Known Landslide Area
- Potential Landslide Area
- Peat Settlement-Prone Area
- Liquefaction-Prone Area

FIGURE L4.11-20
Geologic Hazards
Ballard Link Extension - Chinatown-International District Segment

West Seattle and Ballard Link Extensions

0 700 1,400 Feet

N



Source: U.S. Geologic Survey (2019), City of Seattle, King County (2019, 2020, 2021).

Alternatives
- Preferred Alternative
- Preferred Alternative with Third-party Funding
- Other Alternatives

Alternative Profile
- Elevated
- Tunnel
- At-Grade
- Retained Cut

Station
- New
- Existing

- Segment Line
- Existing Link Light Rail
- Monorail
- Existing Streetcar
- Center City Connector Streetcar (Construction Paused)
- Railroad
- Park

- Known Landslide
- Known Landslide Area
- Potential Landslide Area
- Peat Settlement-Prone Area
- Liquefaction-Prone Area

FIGURE L4.11-21
Geologic Hazards
Ballard Link Extension - Downtown Segment

West Seattle and Ballard Link Extensions

0 1,000 2,000 Feet

N

Source: U.S. Geologic Survey (2019), City of Seattle, King County (2019, 2020, 2021).

Alternatives
- Preferred Alternative
- Preferred Alternative with Third-party Funding
- Other Alternatives

Alternative Profile
- Elevated
- Tunnel
- At-Grade
- Retained Cut

Station
- New

- Segment Line
- Railroad
- Park

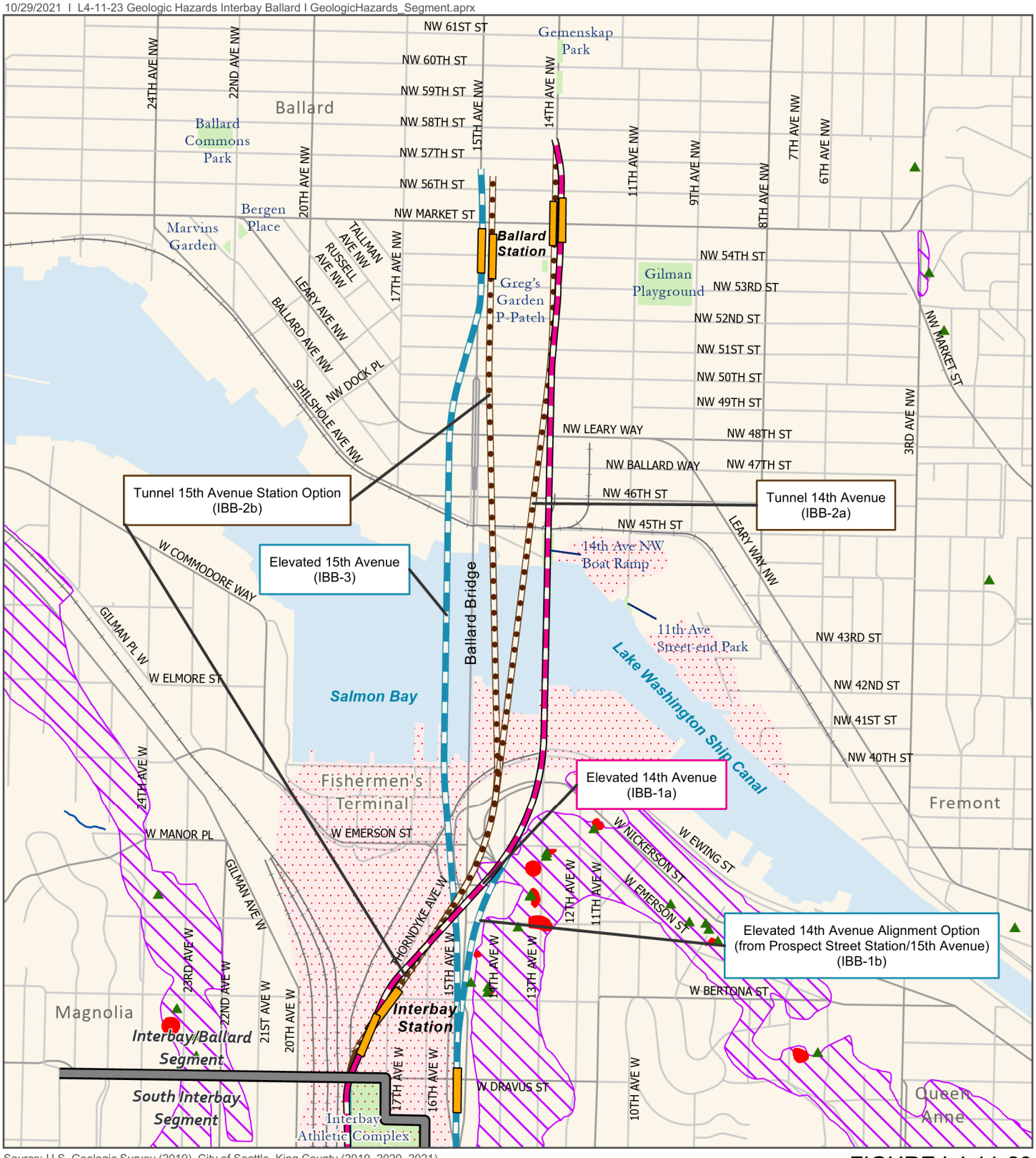
- Known Landslide
- Known Landslide Area
- Potential Landslide Area
- Liquefaction-Prone Area

FIGURE L4.11-22
Geologic Hazards
Ballard Link Extension - South Interbay Segment

West Seattle and Ballard Link Extensions

0 800 1,600 Feet

N



Source: U.S. Geologic Survey (2019), City of Seattle, King County (2019, 2020, 2021).

Alternatives
- Preferred Alternative
- Preferred Alternative with Third-party Funding
- Other Alternatives

Alternative Profile
- Elevated
- Tunnel
- At-Grade
- Retained Cut

Station
- New

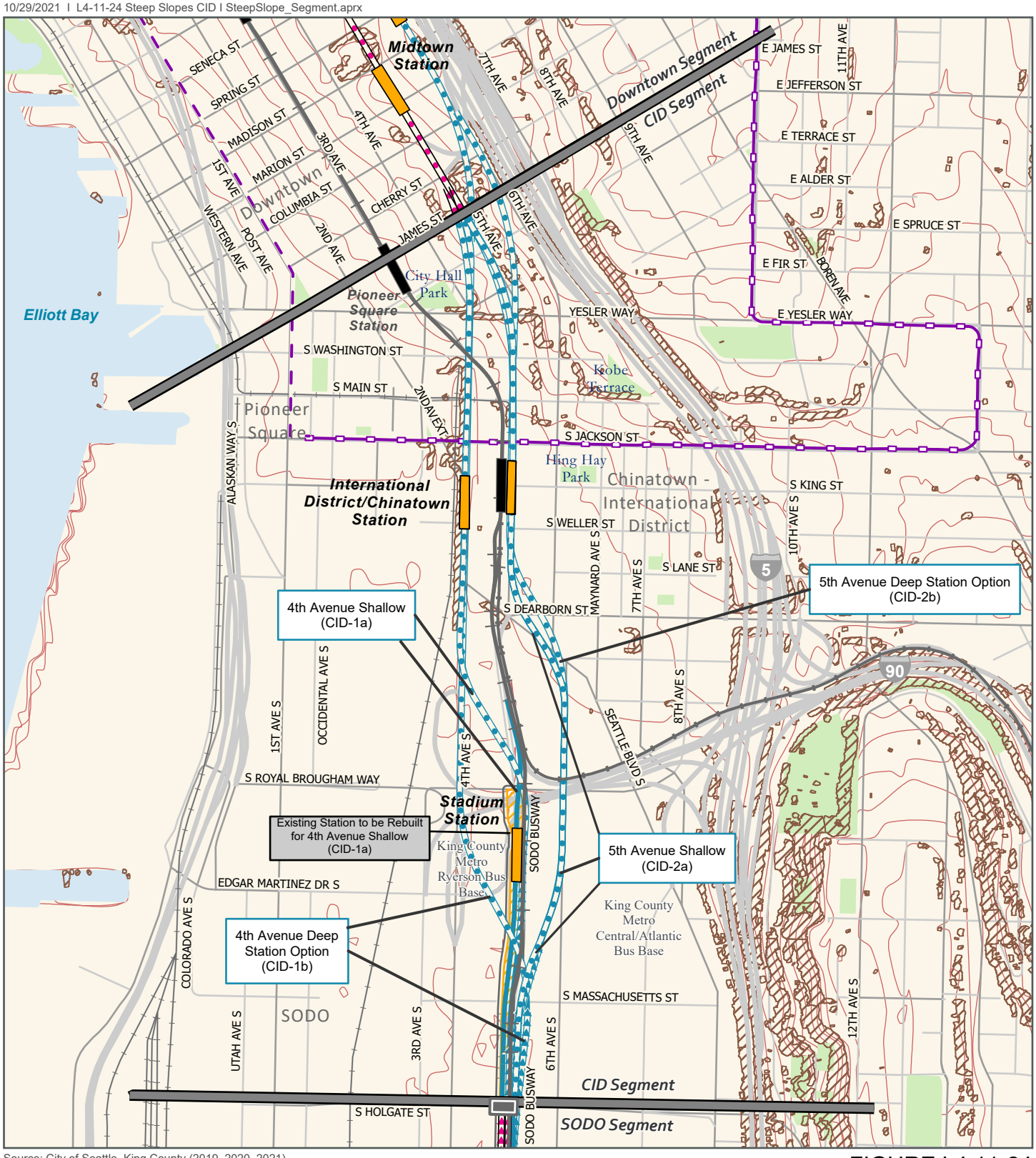
- Segment Line
- Railroad
- Stream
- Park
- Known Landslide
- Known Landslide Area
- Potential Landslide Area
- Liquefaction-Prone Area

FIGURE L4.11-23
Geologic Hazards
Ballard Link Extension - Interbay/Ballard Segment

West Seattle and Ballard Link Extensions

0 800 1,600 Feet

N



Source: City of Seattle, King County (2019, 2020, 2021).

Alternatives
- Preferred Alternative
- Preferred Alternative with Third-party Funding
- Other Alternatives

Alternative Profile
- Elevated
- Tunnel
- At-Grade
- Retained Cut

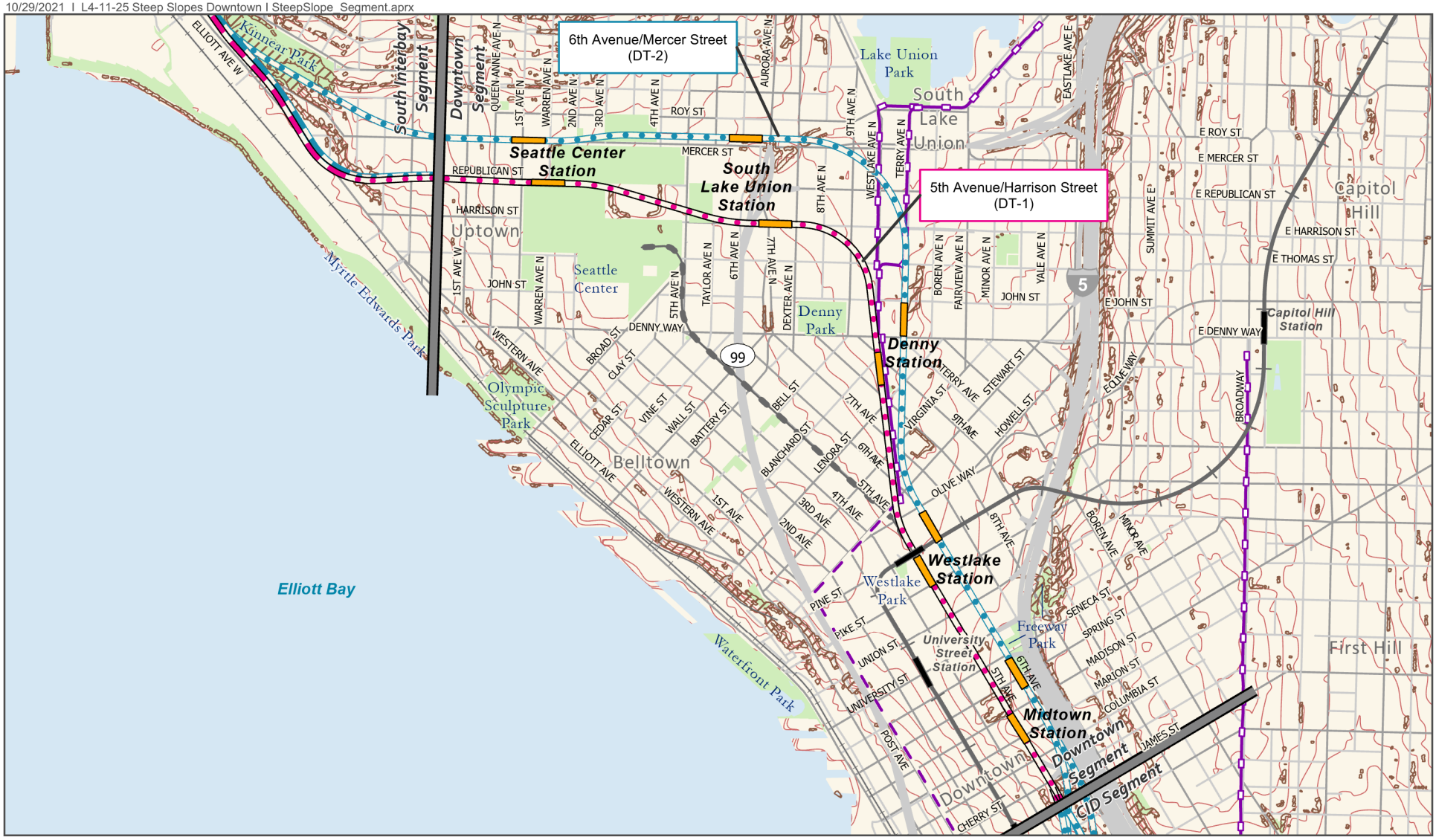
Station
- New
- Existing

- Segment Line
- Existing Link Light Rail
- East Link Light Rail (Under Construction)
- Existing Streetcar
- Center City Connector Streetcar (Construction Paused)
- Railroad
- SODO Busway
- Proposed Overpass
- Park
- 20-ft Contour
- Steep Slope Greater Than 40%

FIGURE L4.11-24
Steep Slopes > 40%
Ballard Link Extension - Chinatown-International District Segment
West Seattle and Ballard Link Extensions

0 700 1,400 Feet

N



Source: City of Seattle, King County (2019, 2020, 2021).

Alternatives
- Preferred Alternative
- Preferred Alternative with Third-party Funding
- Other Alternatives

Alternative Profile
- Elevated
- Tunnel
- At-Grade
- Retained Cut

Station
- New
- Existing

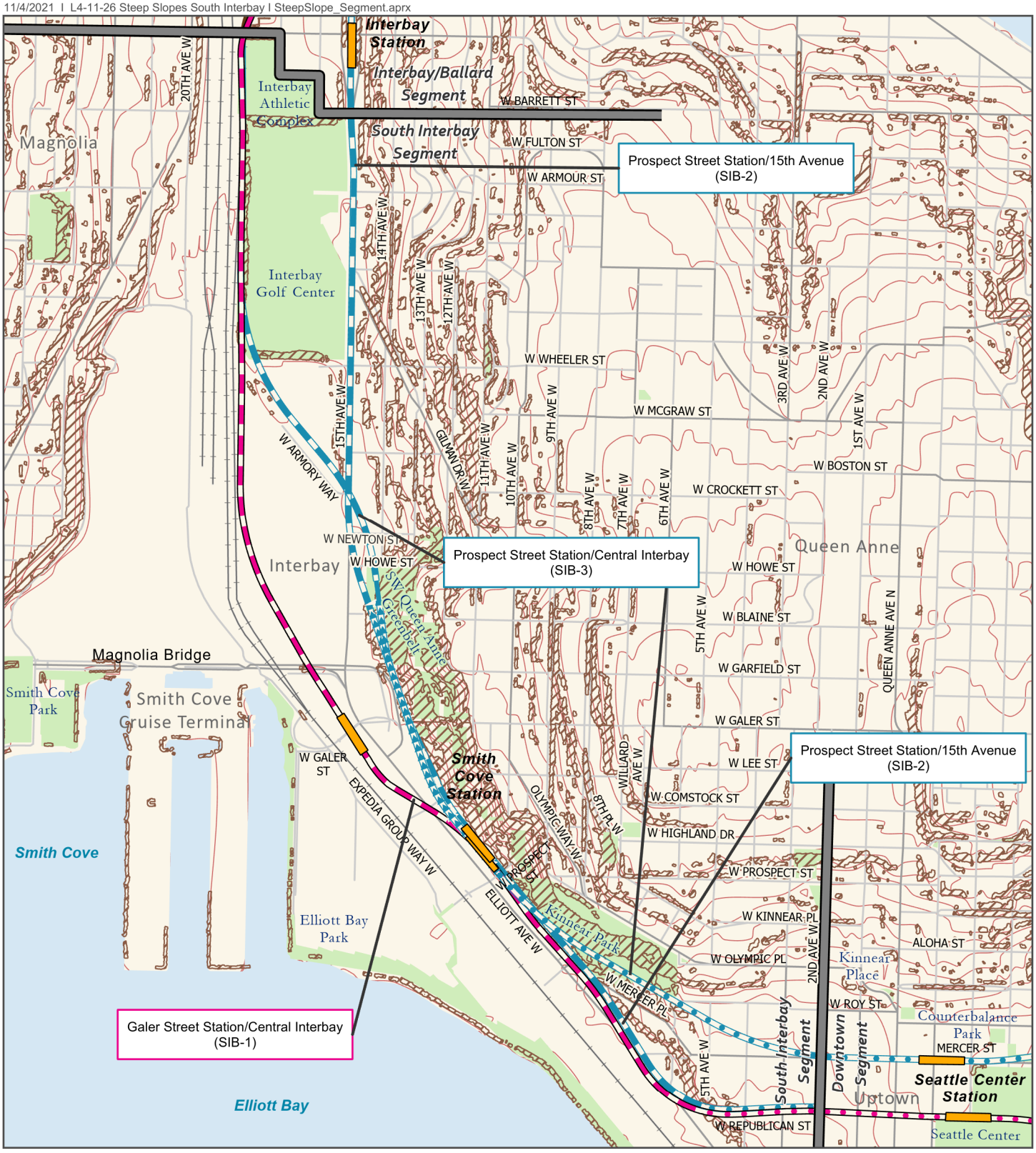
- Segment Line
- Existing Link Light Rail
- Monorail
- Existing Streetcar
- Center City Connector Streetcar (Construction Paused)
- Railroad
- Park
- 20-ft Contour
- Steep Slope Greater Than 40%

FIGURE L4.11-25
Steep Slopes > 40%
Ballard Link Extension - Downtown Segment

West Seattle and Ballard Link Extensions

0 1,000 2,000 Feet

N



Source: City of Seattle, King County (2019, 2020, 2021).

Alternatives
- Preferred Alternative
- Preferred Alternative with Third-party Funding
- Other Alternatives

Alternative Profile
- Elevated
- Tunnel
- At-Grade
- Retained Cut

Station
- New

- Segment Line
- Railroad
- Park
- 20-ft Contour
- Steep Slope Greater Than 40%

FIGURE L4.11-26
Steep Slopes > 40%
Ballard Link Extension - South Interbay Segment
West Seattle and Ballard Link Extensions

0 800 1,600 Feet

N

Source: City of Seattle, King County (2019, 2020, 2021).

Alternatives
- Preferred Alternative
- Preferred Alternative with Third-party Funding
- Other Alternatives

Alternative Profile
- Elevated
- Tunnel
- At-Grade
- Retained Cut

Station
- New

- Segment Line
- Railroad
- Stream
- Park
- 20-ft Contour
- Steep Slope Greater Than 40%

FIGURE L4.11-27
Steep Slopes > 40%
Ballard Link Extension - Interbay/Ballard Segment
West Seattle and Ballard Link Extensions

0 800 1,600 Feet

N

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