

CHAPTER 1: INTRODUCTION

PROJECT OVERVIEW

The Ballard-Interbay Regional Transportation System (BIRT) study is a technical transportation study. Requested by the Washington State Legislature, its purpose is to evaluate and recommend future improvements to the Ballard and Magnolia bridges and the surrounding transportation networks to ensure a reliable transportation system. It addresses all types of travel – walking, biking, rolling, freight, transit, general purpose traffic – and builds on previous plans and studies, many of which had their own technical and community engagement processes.

This study:

- Reviews existing plans and previous studies
- Forecasts and assesses future travel volumes and capacity needs
- Prioritizes and recommends projects to support a multimodal and holistic transportation system
- Analyzes impacts and benefits of bridge and system scenarios
- Provides replacement timelines and funding strategies for the Ballard Bridge and Magnolia Bridge

A plan and report for the Ballard-Interbay Regional Transportation System project to improve mobility for people and freight.

STUDY PURPOSE

In 2019, the Washington State Legislature allocated funds for the City of Seattle’s Department of Transportation to study the Ballard and Magnolia bridges in partnership with 5 other agencies including King County Metro, Washington State Department of Transportation, Sound Transit, Port of Seattle, and the Washington Military Department (National Guard):

ESHB 1160 - Section 311 (18)(a):

“Funding in this subsection is provided solely for the city of Seattle to develop a plan and report for the Ballard-Interbay Regional Transportation System project to improve mobility for people and freight. The plan must be developed in coordination and partnership with entities including but not limited to the city of Seattle, King county, the Port of Seattle, Sound Transit, the Washington state military department for the Seattle armory, and the Washington state department of transportation.

The plan must examine replacement of the Ballard bridge and the Magnolia bridge, which was damaged in the 2001 Nisqually earthquake. The city must provide a report on the plan that includes recommendations to the Seattle city council, King county council, and the transportation committees of the legislature by November 1, 2020. The report must include recommendations on how to maintain the current and future capacities of the Magnolia and Ballard bridges, an overview and analysis of all plans between 2010 and 2020 that examine how to replace the Magnolia bridge, and recommendations on a timeline for constructing new Magnolia and Ballard bridges.”

PROJECT STUDY AREA AND CONTEXT

Ballard-Interbay is 1 of Seattle's 2 regionally-designated Manufacturing and Industrial Centers (MICs), with the Duwamish MIC being the other. Designated in 1994, the Ballard-Interbay Northend Manufacturing and Industrial Center (BINMIC) is approximately 971 acres and home to a diverse mix of businesses, working waterfront, wharfs, shipyards, and rail yards, including the Smith Cove Cruise Terminal at Pier 91. The BINMIC has experienced a decade of strong economic growth and development (2010 - 2020) and has been essential to the region's economy for much longer. Key trends and challenges within Ballard-Interbay include:

- **Growing numbers of residents and jobs.** The larger Ballard-Interbay area is home to a growing number of residents and jobs, and its industrial and maritime sectors are a critical source of low- and middle-wage jobs that support a thriving economy.¹

- **Increasing commercial and industrial rents.** BINMIC has very low industrial vacancies which supports growth in industrial rents. Commercial development, currently prohibited by MIC zoning, may provide higher rates of return that are more attractive.
- **Aging infrastructure and growing density.** The Ballard and Magnolia bridges are 2 of 77 vehicle bridges the City of Seattle owns and is responsible for maintaining. Their condition ratings are currently "fair" and "poor," respectively. As Ballard-Interbay and the surrounding areas grow, more people and businesses will use and rely on these facilities.



People biking and jogging on the Ballard Bridge

¹ U.S. Census Bureau, 2019; Community Attributes, Inc, 2020

FIGURE 1-1: MAP OF BALLARD-INTERBAY STUDY AREA



WHY STUDY THESE BRIDGES NOW

The Ballard and Magnolia bridges play critical roles in the mobility of people, businesses, goods, and services across the City and the region. The Ballard Bridge was built in 1917 and rebuilt in 1937. The Magnolia Bridge was built in 1930. Portions of the bridge were rebuilt following damage from 2 natural disasters—a landslide in 1997 and the Nisqually earthquake in 2001. The 2 bridges combined carry roughly 79,000 vehicles each day, and will eventually need to be rehabilitated or replaced. The City of Seattle and State of Washington need to prepare for the extensive process and appropriation of funds required to ensure the transportation system remains connected and functional for decades to come.

The 2020 closure of the West Seattle High Bridge for safety reasons reinforces the importance of major bridge infrastructure maintenance. There are many older bridges throughout the city with capital investment needs. The BIRT study equips the Washington State Legislature and Seattle Department of Transportation (SDOT) to prioritize limited transportation funds and positions the Ballard and Magnolia bridges for funding assistance through state, regional, and federal government sources.

Maintaining efficient movement of people and goods is a priority today and for the future.

Critical Links in a Local and Regional Economy

The importance of the Ballard and Magnolia bridges to the City and regional economies cannot be overstated. Residents need to be able to travel from homes in Magnolia and the north end to employment centers in Downtown Seattle and the greater eastside, and people who work at major employers in the BINMIC, such as Expedia, need access from many other parts of the city and the region.

Likewise, goods must be able to move efficiently between industrial facilities in Ballard and locations around the region, such as ports along the Duwamish Waterway and SeaTac airport. Without improvements to City facilities, including better accommodations and benefits for people walking, biking, and riding transit, automobile travel demand will grow and place further strain on regional facilities such as SR 99 and I-5. Both bridges sustain:

- Urban goods delivery
- Maritime and industrial commerce
- Supply chain activities
- Connections to the regional transportation system
- Access to jobs and employment centers from neighborhoods near and far
- Access to services and retail

Need for Multimodal Integration

The Ballard and Magnolia bridges are part of a dynamic transportation system. The Ballard Bridge is a key north-south connection for freight and for people driving, walking, rolling, and bicycling. The bridge opens to grant passage of ships along the waterway between Salmon Bay and the Lake Washington Ship Canal. The Magnolia Bridge spans across the BNSF Railway tracks as well as the Port of Seattle's Terminal 91. Between them are growing residential, commercial, industrial, and maritime uses, and plans for Sound Transit light rail. Multimodal integration is critical to address:

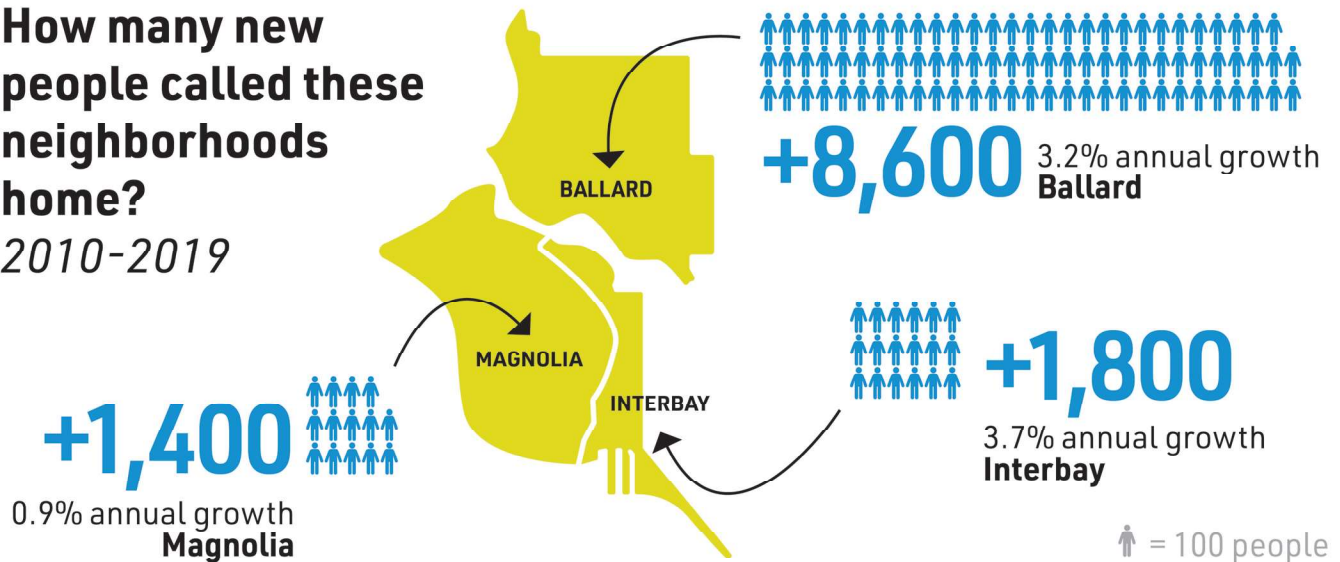
- Existing gaps and deficiencies in walking, bicycling, and rolling connections
- Future high-capacity transit expansion and light rail access
- Facilities that cater to each travel mode and limit modal conflict
- Freight and major truck route corridor connections

Growing Neighborhoods and Density

The BIMNIC's surrounding neighborhoods are growing—particularly in areas zoned for mixed use and multifamily housing. Ballard and Interbay experienced significant population growth since 2000. Dense housing is zoned adjacent to the BIRT study project area with many new residential buildings, particularly in Ballard and Interbay.²

- Ballard's population grew from 26,200 residents in 2010 to 34,800 in 2019 (3.2% annual growth)
- Interbay grew from 4,600 residents in 2010 to 6,400 in 2019 (3.7% annual growth)
- Magnolia grew from 16,400 to 17,800 residents in the same time period (0.9% annual growth)

How many new people called these neighborhoods home? 2010-2019



² City of Seattle Land Use Map. Available at: <https://data.seattle.gov/Permitting/Land-Use-Map/stev-f3r4>

Ballard Bridge

The Ballard Bridge spans 2,854 feet across the Lake Washington Ship Canal. It connects Ballard to Magnolia, Queen Anne, and Downtown Seattle via Interbay. The bridge is a bascule bridge with a 44-foot vertical clearance that opens to allow taller ships to use the Ship Canal. It is 1 of 7 movable bridges in the city, of which 4 are owned by SDOT. The bridge carries about 59,000 vehicles each day and roughly 9,000 bus riders each weekday.

The Ballard Bridge, as with other Ship Canal bridges, has restrictions in place during the AM and PM peak commute to help keep people and goods moving. It stays closed to marine traffic on weekdays from 7-9AM and 4-6PM. During peak boating season in 2018, there was an average of 15.4 openings on weekdays and 16.4 on weekends. Openings last about 4.5 minutes each.



The Ballard Bridge opens to allow a barge and towboat to pass through

Source: flickr user Avgeek.joe

What is a bascule bridge?

A bascule bridge is a movable bridge with a counterweight that continuously balances a span, or leaf, throughout its upward swing to provide a clearance for boat traffic. The Ballard Bridge is a double-leaf bascule bridge.

Magnolia Bridge

The Magnolia Bridge is a truss bridge that spans 3,600 feet across the BNSF Railway tracks and filled-in tidelands of Smith Cove. It connects to Magnolia and Interbay neighborhoods, to Smith Cove Park and Elliott Bay Marina, Terminal 91, and 15th Ave W. The bridge carries roughly 20,000 vehicles each day and about 3,000 bus riders each weekday.



Aerial view of the Magnolia Bridge in 2002

Source: Seattle Municipal Archives

What is a truss bridge?

A truss bridge has a load-bearing superstructure composed of connected elements, usually forming triangular units.

2020 CITY OF SEATTLE VEHICULAR BRIDGE AUDIT

The Seattle Office of City Auditor reviewed the document noting the physical condition of and maintenance investments in vehicle bridges in Seattle. The audit was published in September 2020, based on a bridge condition assessment from 2019.³

The audit includes 77 vehicle bridges that are owned and maintained by SDOT.

- 10 bridges are located in the Ballard, Magnolia, Interbay area
- The median bridge age is 70 years
- 50 bridges are in "fair" condition, 22 are "good," and 5 are "poor"
- The Magnolia Bridge is 1 of 5 city bridges rated as "poor"
- The Ballard Bridge is 1 of 50 bridges rated as "fair"
- The W Emerson St and W Dravus St bridges are also in the study area and rated as "fair"

The audit suggests SDOT is spending tens of millions of dollars less per year than is needed to maintain its bridges. Over the past 14 years, the average amount SDOT spent on bridge maintenance was \$6.6 million annually.

A "fair" rating does not ensure a bridge will remain in operable condition; rather, the decision to keep a bridge open depends on ongoing monitoring and regular assessments by SDOT bridge engineers. High traffic volumes and poor condition ratings mean a bridge has an elevated risk of an unexpected closure that could affect thousands of people.

FIGURE 1-2: BRIDGE CONDITION ASSESSMENT MAP

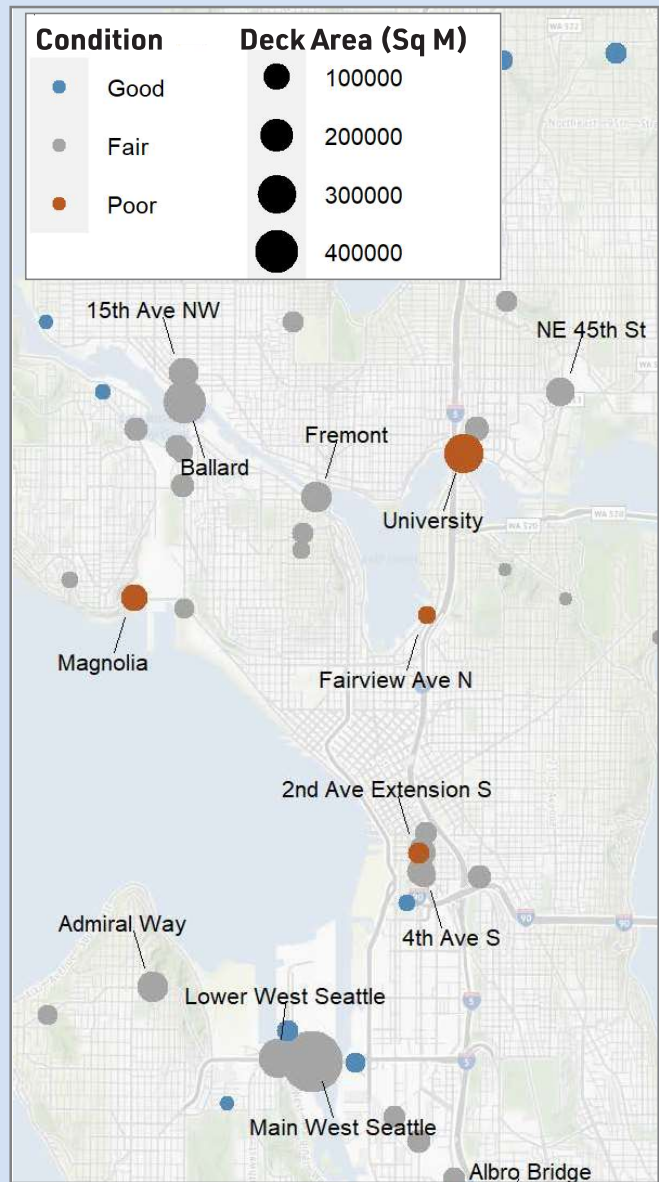


TABLE 1-1: FHWA'S BRIDGE CONDITION RATING SYSTEM

<p>The Federal Highway Administration rates bridges as poor, fair, or good using a nine-point scale that considers the bridge's deck, superstructure, substructure, or culvert. A bridge condition rating is one look at the overall condition of a bridge; however, given the many complex parts of a bridge, the condition rating alone does not necessarily mean a bridge is safe or unsafe.</p>		
Poor	Fair	Good
The lowest rating of any of the four bridge elements is four or less.	The lowest rating of any of the four bridge elements is a five or a six.	The rating of all four bridge elements is a seven or above.

Source: Federal Highway Administration.

3 Seattle Office of City Auditor. (September 2020). Seattle Department of Transportation: Strategic Approach to Vehicle Bridge Maintenance is Warranted. Available at: https://sdotblog.seattle.gov/wp-content/uploads/sites/10/2020/09/2020_03_SeattleBridges_FinalReport.pdf

COORDINATION WITH ONGOING INITIATIVES AND CITY PRIORITIES

The BIRT study began in January 2020 amid several related and ongoing projects that called for coordination among project partners.

Mayor’s Maritime & Industrial Strategy

The Mayor’s Maritime & Industrial Strategy (M&I) is led by the City of Seattle’s Office of Planning and Community Development.⁴ The project intends to make recommendations to ensure a strong economic future for Seattle’s Duwamish MIC and BINMIC, and takes into account forecasts for environment, land use, public safety, transportation, and workforce development. The BIRT study was informed by land use considerations proposed by the City’s M&I strategy, which was delayed in 2020 due to the COVID-19 pandemic and is scheduled to be completed in Spring 2021.

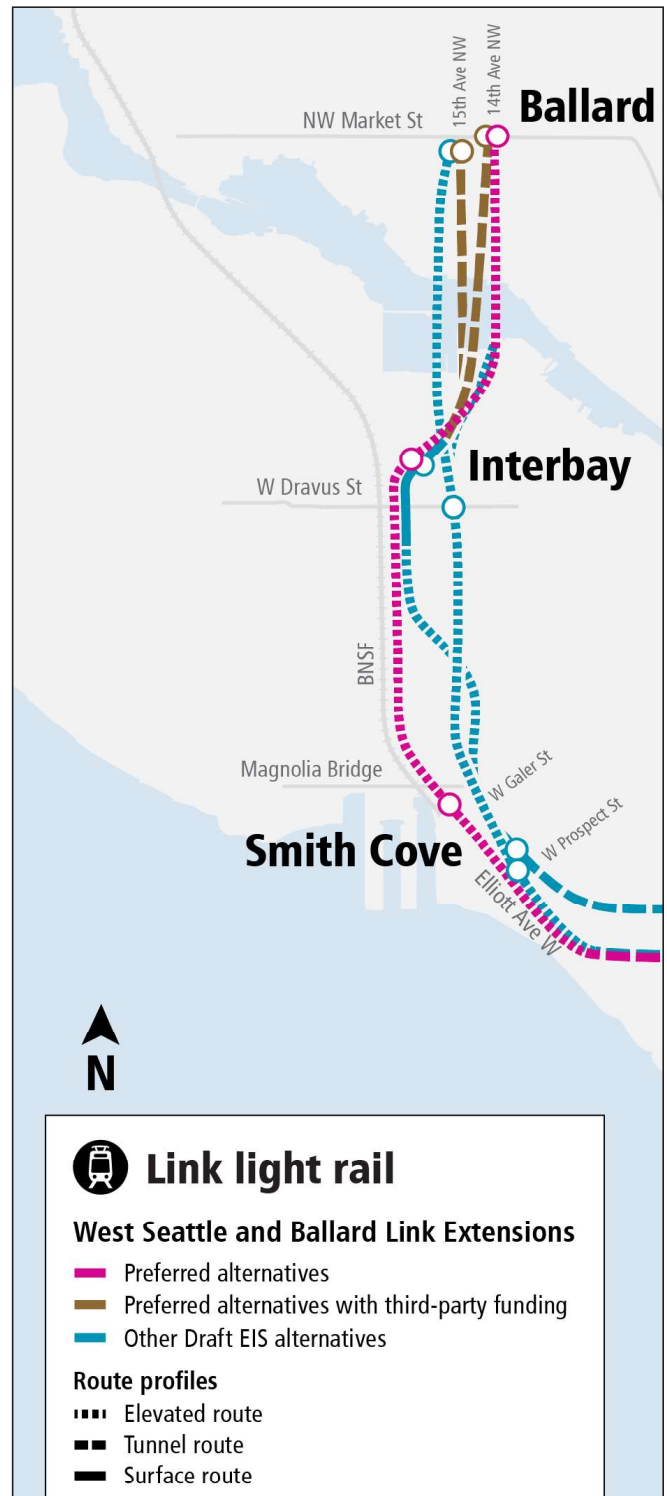
Sound Transit West Seattle and Ballard Link Light Rail Extensions

As part of the voter-approved Sound Transit 3 package, the West Seattle and Ballard Link Extensions (WSBLE) include planning, environmental clearances, design, and eventual construction of a light rail extension to Ballard. The alignment will travel through Interbay and Smith Cove within the BIRT study area (projected start of service in 2035).⁵ The WSBLE project is currently in environmental review, and Sound Transit is developing a Draft Environmental Impact Statement (DEIS). Station locations and rail alignments have not yet been finalized, but Sound Transit’s preferred station area location alternatives are considered as a part of the BIRT system planning effort.

⁴ Seattle Office of Planning and Community Development (September 2020). Industrial and Maritime Strategy. Available at: <https://www.seattle.gov/opcd/ongoing-initiatives/industrial-and-maritime-strategy>

⁵ Sound Transit (October 2020). West Seattle and Ballard Link Extensions: What’s happening now. Available at: <https://wsblink.participate.online/>

FIGURE 1-3: BALLARD LINK LIGHT RAIL EXTENSION ALTERNATIVES BEING STUDIED IN THE WSBLE DEIS



Source: Sound Transit

BINMIC Redevelopment

Several BINMIC sites are in the process of redevelopment planning or actual site redevelopment. The Port of Seattle Fishermen's Terminal Redevelopment is underway and expected to be completed in 2022.⁶ The Port's Terminal 91 Uplands is also being redeveloped in 2 phases. The first phase is expected to be completed by 2023 and will support fishing and maritime supply chain companies needing to expand within the BINMIC.⁷

The National Guard Armory site, also known as The Interbay Project, is undergoing a planning effort to consider redevelopment of the site. Future concepts for the Armory site vary between industrial, housing, and commercial uses. The BIRT study evaluated multiple potential land use futures for this site, including the highest intensity land uses associated with redevelopment, to ensure that the team reviewed the transportation needs associated with the most impactful land use alternative. Details about each of the scenarios considered are described in Chapter 4.

Army Corps of Engineers Ballard Locks and Ship Canal Master Plan Update

Just beyond the study area, the U.S. Army Corps of Engineers is updating the Lake Washington Ship Canal Master Plan. The project is a 2-year effort scheduled for completion in September 2021, and it aims to reflect the current conditions and future needs of the Ship Canal and Locks.⁸

OTHER CONSIDERATIONS FOR THE BIRT STUDY

COVID-19 Impacts and Response

On March 23, 2020, Governor Jay Inslee signed a Stay Home, Stay Healthy order in response to COVID-19. Some non-essential manufacturing businesses were temporarily curtailed to reduce the spread of COVID-19, and many commuters in non-essential industries shifted to working from home, reducing traffic volumes and requiring adjustments to traffic data assumptions for this study. These conditions made outreach and engagement to workers across all industries more challenging.

West Seattle High Bridge Closure

On March 23, 2020—the same day as the statewide Stay Home, Stay Healthy order—the West Seattle High Bridge was closed to all vehicle traffic in response to inspections that indicated accelerated growth of new and existing cracks. Though this bridge is not located within the BIRT study area, its significance in the local transportation system and the attention it received from the public and SDOT staff illuminated the importance of dedicating resources to bridge maintenance and repair.

6 Port of Seattle (October 2020). Fishermen's Terminal Redevelopment. Available at: <https://www.portseattle.org/projects/fishermens-terminal-redevelopment>

7 Port of Seattle (October 2020). Terminal 91 Uplands Development Project. Available at: <https://www.portseattle.org/projects/terminal-91-uplands-development-project>

8 US Army Corps of Engineers (October 2020). The Lake Washington Ship Canal Master Plan. Available at: <https://www.nws.usace.army.mil/Home/Master-Plans/LWSC-Master-Plan/igphoto/2002304318/>

PROJECT GOALS

The following project goals establish the framework for the evaluation criteria that were developed to screen and score potential projects and investments. Project goals were developed through the legislation directing the project, review of SDOT's core values, and input from the public and the BIRT Interagency Advisory Team (IAT).

The evaluation criteria related to each goal are described in greater detail in Chapter 4: Transportation and Land Use Scenarios.



Goal 1: Mobility

Improve mobility for people and freight: Increase people's ability to move efficiently in the study area and accommodate the movement of freight and goods.

Goal 2: Safety

Provide a system that safely accommodates all travelers: Protect the most vulnerable travelers who walk, bike, roll, and use transit, and safely accommodate freight travel and deliveries.



Goal 3: Equity

Advance projects that meet the needs of communities of color and those of all incomes, abilities, and ages: Build a more racially equitable and socially just transportation system.

Goal 4: Action

Support timely and coordinated implementation: Maintain the current and future capacities of the Ballard and Magnolia bridge replacement alternatives and improve other elements of a connected transportation system.

COMMUNITY OUTREACH AND STAKEHOLDER ENGAGEMENT

Community members, area employees, and key stakeholders were engaged at several points in the project process (Figure 1-4). Other stakeholders, including area maritime and industrial businesses and agencies with property or transportation facilities in the study area, were consulted through the Interagency Team or meetings with the project team. While BNSF is a key property owner and freight operator in the study area, neither railway freight nor maritime traffic are the focus of the BIRT study.

Targeted Outreach to Stakeholders

Stakeholder outreach during the BIRT study faced unique challenges due to the COVID-19 pandemic. Effective outreach to workers depends on face-to-face interaction such as intercept surveys at or near a business, or focus groups held during the lunch hour at a workplace. Due to social distancing to limit exposure, and priorities by workers and their employers, outreach and engagement to workers across all industries were challenging after March 2020. Larger Interbay employers seem to depend on a higher percentage of workers of color and the inability to reach workers meant that BIRT’s racial equity approach was highly compromised.

The following groups were engaged throughout this study for technical input and ground-truthing of study findings and project priorities.

FIGURE 1-4: KEY STAKEHOLDERS ENGAGED IN THE BIRT STUDY PROCESS



Elected officials
Briefings



SDOT staff and Seattle advisory boards
Bicycle Advisory Board
Freight Advisory Board
Planning Commission



Interagency team
Representatives attended 6 meetings, 3 of which were open to the public



Advocacy groups
Ballard/Fremont Neighborhood Greenways
Magnolia Community Council
North Seattle Industrial Association



Major employer/ small business interests
Meetings with SDOT staff
OPCD surveys
Flyering in business districts



Residents
Public meetings
Public comment at IAT meetings
Online survey



Visitors for work, personal trips, or recreation
Public meetings
Online survey

Note: All IAT and public meetings were hosted virtually starting in March 2020.

Interagency Team Coordination

The Interagency Team (IAT) for BIRT met 6 times throughout the course of the study. The IAT advised the project team at each stage of the technical work and served as liaisons to their agencies to communicate important information, provide data, or make introductions to businesses or stakeholders in the study area.

The IAT includes representatives from 6 agencies as required in the study legislation:

- Seattle Department of Transportation
- King County Metro
- Washington State Department of Transportation
- Sound Transit
- Port of Seattle
- Washington Military Department

Virtual Interagency Team Meeting Recording, May 2020



2020 Public and Stakeholder Outreach

The project team engaged the IAT and public at key milestones, including public meetings in the beginning, mid-point, and end of the project. Figure 1-5 describes each event.

- 56 people at kickoff meetings (Jan/Feb)
- 528 online survey responses; 69 live stream attendees (Jul/Aug)

The final report was presented in a final public meeting after submittal to the Washington State Legislature in November 2020. Chapter 3: Network Needs and Opportunities describes how public feedback shaped potential investments in the study area. A full description of public engagement activities is included in Appendix A.



Poster to encourage public survey responses and meeting participation, July 2020

FIGURE 1-5: SCHEDULE OF KEY PUBLIC AND STAKEHOLDER OUTREACH EVENTS

