CHAPTER 3: NETWORK NEEDS AND OPPORTUNITIES

APPROACH TO IDENTIFYING NEEDS

This chapter highlights key transportation system needs identified through this study and through other plans and studies completed between 2010 and 2020. Input from the community, key stakeholders, and partner agencies contributed to the issue identification. The study considers all modes of travel—walking, bicycling, rolling, taking transit, driving, and road freight. Highlights from a more detailed review included in Appendices B and D are presented in this chapter.

MULTIMODAL NEEDS AND GAPS

The study team conducted a thorough review of existing and anticipated future (2042) transportation system uses and needs for the Ballard-Interbay study area. The following sections highlight key findings and are organized first by corridor, then by mode. The BIRT study does not commit funding to address the needs and their corresponding opportunities.

Pedestrians, bicyclists, drivers, and road freight at 21st Ave/W Emerson Pl

CORRIDOR CHARACTERISTICS

Six key corridors were identified for evaluation in the BIRT study area. They represent the primary vehicular travel routes today and anticipated in 2042, assuming bridge replacement. The modal assessments that follow include projects specifically targeting improvements for pedestrians, bicyclists, general purpose traffic, freight, and transit. The primary purpose of identifying corridor-wide needs is to identify challenges for vehicular operations that impede person throughput including bus riders and the movement of goods.

Corridor characteristics in terms of extents, classifications, speeds, average daily traffic volumes (ADT) and peak traffic volumes are described in Table 3-1, along with the primary uses each corridor serves today. Full descriptions of corridors are included in Appendix F.

TABLE 3-1: TRAFFIC, FREIGHT, AND TRANSIT CHARACTERISTICS OF CORRIDORS

Corridor	Extents	Posted Speed	Vehicle Traffic	Transit Routes
Corridor 1: 15th Ave W *Principal Arterial* **Primary Need:** *The corridor experiences southbound congestion in AM and northbound congestion in PM*	NW Market St to W Mercer Pl	SPEED LIMIT 30	ADT: **59,000** AM Peak: 3,600 PM Peak: 3,700 Freight Class: **Major**	15, 17, 18, 19, 24, 29, 32, 33, D Line
Corridor 2: NW Leary Way *Principal Arterial* **Primary Need:** *Leary Way needs increased mobility of people and goods through closely spaced, signalized, high-access locations*	17th Ave NW to 14th Ave NW	SPEED LIMIT 30	ADT: **21,000** AM Peak: 1,200 PM Peak: 1,600 Freight Class: **Major**	17, 18, 40
Corridor 3: W Emerson St / W Nickerson St *Principal Arterial* **Primary Need:** *Maintain mobility of people and goods while balancing serving access points*	Gilman Ave W to 13th Ave W	SPEED LIMIT 25	ADT: **18,700** AM Peak: 1,200 PM Peak: 1,400 Freight Class: **Major and Minor**	29, 31, 32
Corridor 4: W Dravus St *Principal Arterial* **Primary Need:** *Trucks are unable to make in-lane turning maneuvers at intersections with 15th Ave W ramps*	20th Ave W to 14th Ave W	SPEED LIMIT 30	ADT: **16,200** AM Peak: 1,000 PM Peak: 1,300 Freight Class: **Minor**	994 (school route)
Corridor 5: New Armory / Thorndyke *Minor Arterial* **Primary Need:** *Maintain mobility of people and goods while balancing serving access points*	W Galer St / Thorndyke Ave W to 15th Ave W	SPEED LIMIT 30	ADT: **5,000** AM Peak: 300 PM Peak: 500 Freight Class: n/a	31, 33
Corridor 6: Magnolia Bridge *Minor Arterial* **Primary Need:** *Maintain mobility of people and goods*	W Galer St / Thorndyke Ave W to W Galer St Flyover / Elliott Ave W	SPEED LIMIT 35	ADT: **20,000** AM Peak: 1,100 PM Peak: 1,200 Freight Class: **First/Last Mile Connector**	19, 24, 33

FIGURE 3-1: CORRIDOR-WIDE OPPORTUNITIES

Public Engagement Themes

- Trucks on 15th Ave W are a necessity, but they should travel at slower, safer speeds
- W Dravus St is a critical east-west corridor and would benefit from improvements in every mode of travel

PEDESTRIAN NETWORK ASSESSMENT

This section highlights key pedestrian system needs and identifies specific locations where improvements are desired by the community or have been identified through this study. Identified needs focus on pedestrian safety and comfort such as sidewalk presence and condition, crosswalk presence and design, and distance between formal crossings along arterials. Opportunities mapped in Figure 3-2 consider where people walk today and how new projects and land uses will generate more demand for pedestrian trips in the future (e.g., light rail stations).

A runner on the Ballard Bridge

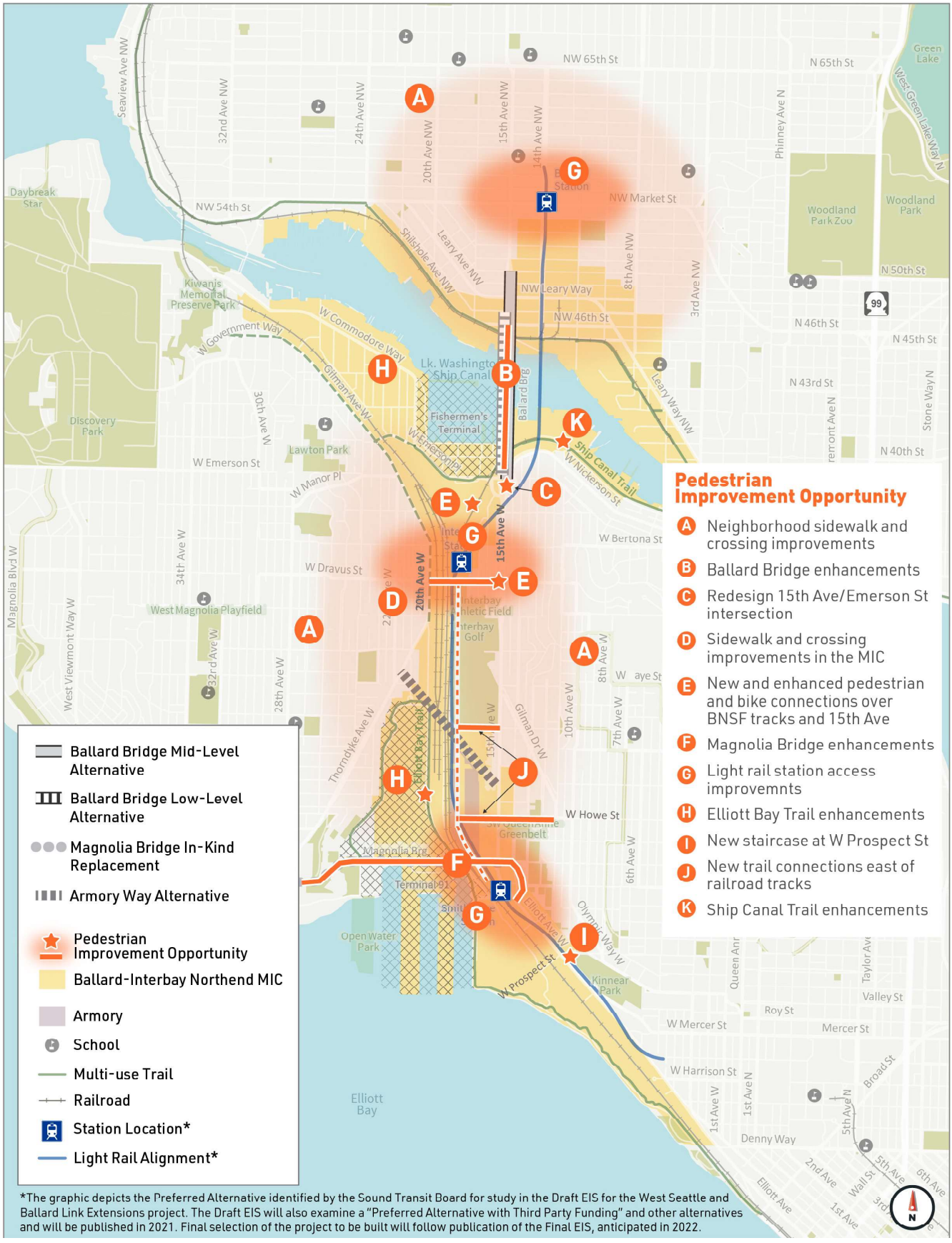
TABLE 3-2: PEDESTRIAN NETWORK NEEDS AND CHALLENGES

Needs and Challenges	Opportunities
Ballard's industrial areas have poor walking conditions. Sidewalks have gaps and are narrow, parking abuts property lines, and sidewalks are obstructed by objects such as utility poles.	A D
Ballard Bridge is very uncomfortable for people walking. Narrow sidewalks are close to vehicle traffic and are shared with people biking. The on/off ramp crossings limit pedestrian visibility, and there is a gap in the sidewalk on the east side.	B
The 15th Ave W/W Emerson St intersection is inconvenient for pedestrians. Lack of at-grade pedestrian crossings requires stair use, and it is difficult to access the RapidRide bus stop on the east side.	C
Poor sidewalk conditions on Emerson, 17th, and 20th, W Dravus St, and Gilman Ave. Narrow sidewalks exist on only one side of the street with no buffer from vehicles, and sometimes with adjacent industrial parking. There are goat trails to the 20th Ave W bus stop.	E J
Limited pedestrian crossings over railroad tracks and along 15th Ave W. The W Dravus St bridge is narrow with minimal buffer, and 15th Ave W is wide with high traffic volumes and few crossings. In addition, the industrial areas north of the Ship Canal Trail and east of the Ballard Bridge lack sidewalks and designated crossings for pedestrians over railroad tracks.	E K
Redevelopment sites have inconsistent sidewalks and crosswalks: The Armory, the area between the Armory and Interbay Golf Center, the Expedia campus, and Terminal 91 are challenging to navigate as a pedestrian.	D
Sidewalks are missing along W Mercer Pl east of Elliott Ave W, which is a key route into Lower Queen Anne.	I
Magnolia Bridge is a challenging environment for walking. It has a narrow sidewalk with limited buffer from vehicles. Some bicyclists use sidewalks due to the lack of on-street bicycle facilities.	F
Segments of the Elliott Bay Trail north of W Galer St are extremely narrow. Fencing on both sides of the trail makes the path feel narrow and unsafe for shared-use or two-way travel.	H
Future light rail stations need convenient pedestrian access. Analysis is needed to identify potential improvements within a 10-minute/half-mile walk from stations. Walkshed analysis should account for wait time at signalized intersections and steep grades (some are greater than 10%). The Smith Cove station area in particular has limited crosswalk visibility and crosswalks located far apart on arterials.	G

Public Engagement Themes

- The most desired improvements include new and improved connections to fill sidewalk gaps or connect over and across physical barriers such as railroad tracks
- Pedestrian facilities are critical in bridge studies and analyses since bridge sidewalks are often the only pedestrian option to access certain corridors
- Many sidewalks along corridors in the study area are narrow and located along bike routes without dedicated bicycling facilities, forcing people walking and biking to share limited space on sidewalks–especially on Ballard Bridge and W Dravus St Bridge
- Create safe walking connections between Ballard neighborhoods and areas south of the Ship Canal for commuting, shopping, and recreation

FIGURE 3-2: PEDESTRIAN NETWORK OPPORTUNITIES



*The graphic depicts the Preferred Alternative identified by the Sound Transit Board for study in the Draft EIS for the West Seattle and Ballard Link Extensions project. The Draft EIS will also examine a "Preferred Alternative with Third Party Funding" and other alternatives and will be published in 2021. Final selection of the project to be built will follow publication of the Final EIS, anticipated in 2022.


CAUTION
NARROW
PATHWAY

BICYCLE NETWORK ASSESSMENT

This section highlights key bicycle system needs and identifies specific areas where improvements can enhance safety and connectivity and address desires identified by the community. The review of current conditions identifies factors that influence bicyclist safety and comfort, such as bicycle facility presence and type, level of comfort for users of all ages and abilities (or Level of Traffic Stress, LTS), and distance to the nearest crosswalk along arterial streets. Opportunities mapped in Figure 3-3 consider current bicycling travel patterns and anticipated demand for bicycling trips based on future land use and growth.

People biking on the Ship Canal Trail

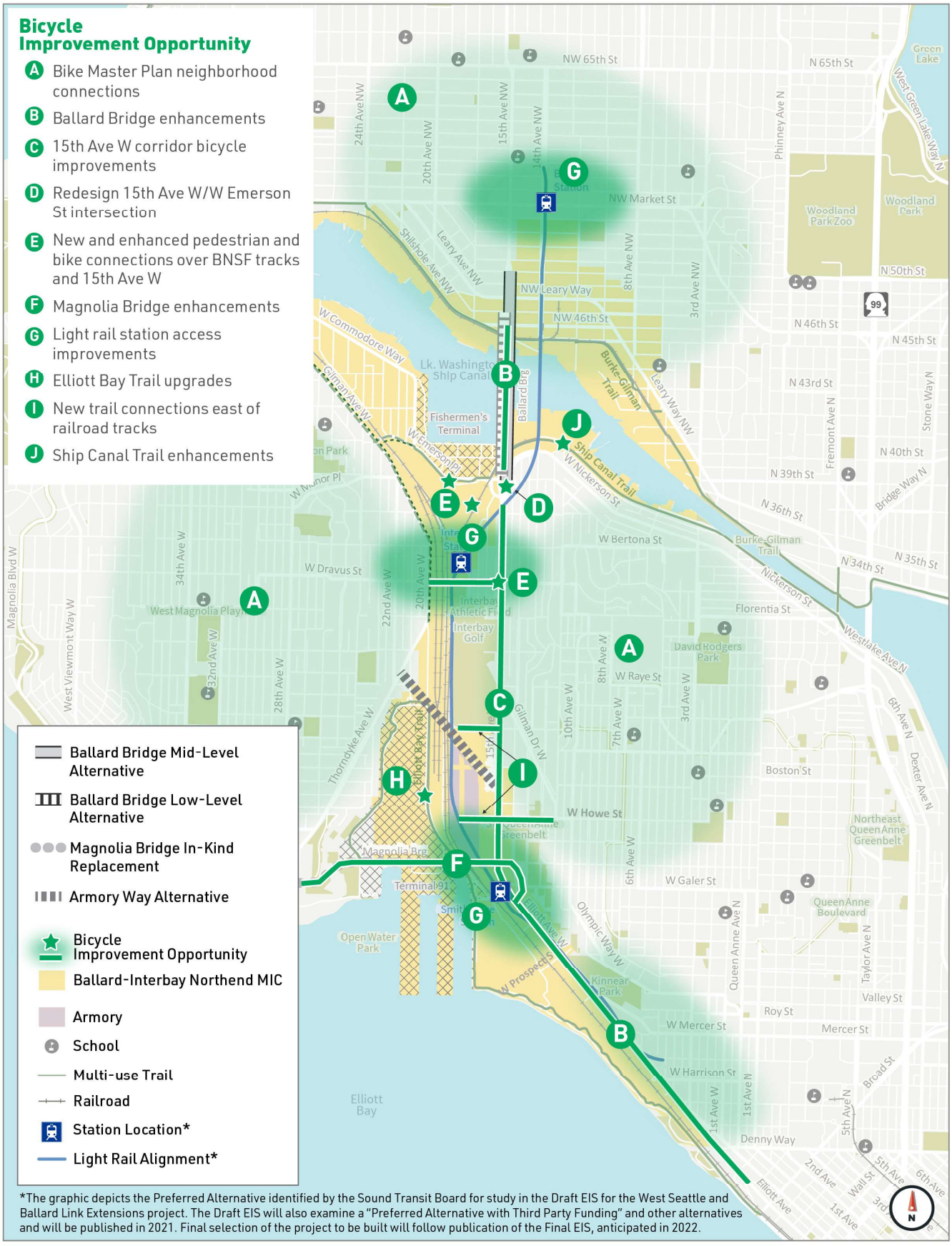
TABLE 3-3: BICYCLE NETWORK NEEDS AND CHALLENGES

Needs and Challenges	Opportunities
The bike network does not serve people of all ages and abilities. Most connections between existing bicycle facilities are difficult and do not support people of all ages and abilities.	A
Poor connections to regional trail network. Interbay has no neighborhood greenways or protected bicycle facilities, limiting safe bicycling access to the Ship Canal Trail, Elliott Bay Trail, and protected bicycle lanes on Gilman Ave W/20th Ave W.	A C D E I J
The Ballard Bridge sidewalks are too narrow for comfortable bicycling and there are few alternatives. Narrow sidewalks pose points of conflict and safety threats to people walking and biking. Alternative routes such as the Ballard Locks or Fremont Bridge add significant travel distance for southbound bicyclists, though the Bicycle Master Plan suggests exploring a new bicycle and pedestrian crossing between the Fremont and Ballard bridges.	B
Interbay lacks a north-south spine for bicyclists east of the railroad tracks. The Ballard Bridge lacks dedicated bicycle facilities, there are no designated north-south bicycle routes east of the tracks, and there are limited connections between the neighborhoods and destinations on 15th Ave W.	C
The intersection of 15th Ave W/W Emerson St lacks dedicated bicycle facilities. Bicyclists either take the lane on the high volume roadway, or divert to W Emerson St to cross the intersection.	D
The Magnolia Bridge has no marked bicycle facilities, and traffic speeds are too high for comfortable in-lane riding, particularly going uphill.	F
Topographic constraints to low-stress east-west bicycle travel highlight the importance of comfortable dedicated bicycle facilities to expand access sheds of future Sound Transit light rail station locations in Smith Cove and Interbay.	G
Narrow sections of the Elliott Bay Trail create pinch points, conflict areas, and safety hazards. The trail connection on 20th Ave W to Thorndyke Ave W has limited pavement markings for bicyclists.	H

Public Engagement Themes

- The Ballard Bridge is a choke point in the bicycle network. The bridge and its southern terminus are uncomfortable and stressful places to ride. Other north-south connections are out of the way (Ballard Locks or Fremont Bridge).
- The west end of the Magnolia Bridge is too steep of a grade for most people to ride comfortably, and the bridge has no dedicated space for bicyclists
- Several places along the Elliott Bay Trail are narrow and require people to dismount and walk their bikes
- Many destinations of interest are located along 15th Ave W, and bicyclists want safe, protected facilities to access businesses and services
- Many bicycle facilities in the study area do not meet design safety standards that encourage people of all ages and abilities to ride a bicycle

FIGURE 3-3: BICYCLE NETWORK OPPORTUNITIES



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TRANSIT ASSESSMENT

This section highlights transit needs, including access to stops and stations, capital investments to enhance transit speed and reliability, and passenger amenities. Transit in the project area is currently provided by King County Metro, but Sound Transit Link light rail is expected to open by 2035. Opportunities shown in Table 3-4 and Figure 3-4 consider current ridership, transit priority needs, and stop comfort and accessibility.

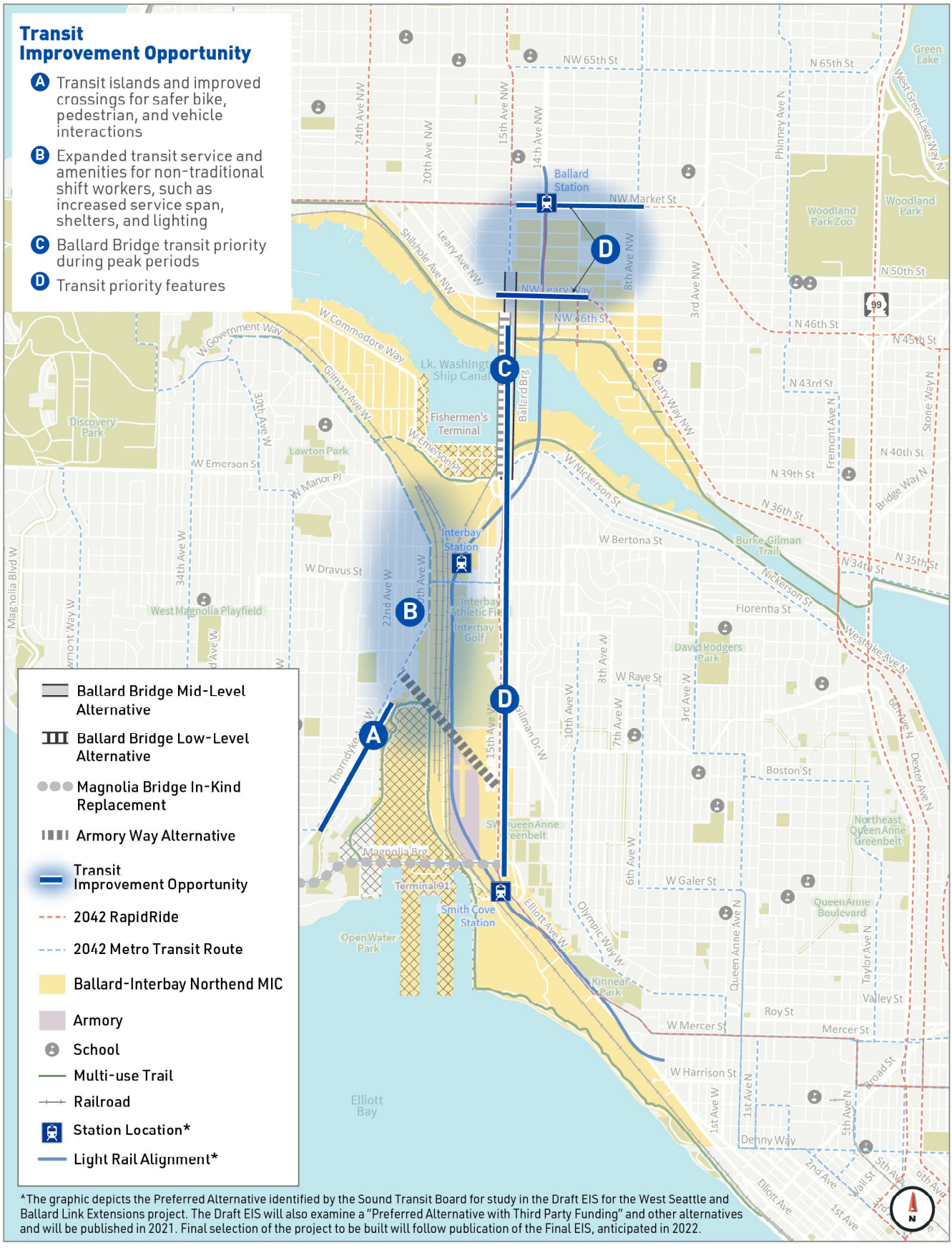
TABLE 3-4: TRANSIT NETWORK NEEDS AND CHALLENGES

Needs and Challenges	Opportunities
Some stops and stations lack safe and convenient connections to activity centers. Many high-frequency stops lack safe and comfortable pedestrian access. Obstacles include major arterials, narrow sidewalks, and steep grades.	A B
Pedestrian lighting is lacking near many transit stops. Walking and biking environment may be dark and feel unsafe at night, in the winter, and for workers with late or early shifts.	B
Transit travel time in the study area can vary significantly due to traffic congestion and bottlenecks. Despite dedicated transit lanes, high traffic volumes on 15th Ave W can lead to transit delay. W Nickerson St can be a bottleneck for east-west transit.	C D
Transit speed and reliability improvements are needed most on frequent transit routes and key corridors that service multiple routes, including: 15th Ave W/NW, NW Market St, and NW Leary Way.	D

Public Engagement Themes

- Safe, convenient access to future Link light rail stations is critical for people walking, biking, and transferring to/from other transit services; elevators are particularly important for people with strollers, mobility devices, or other mobility needs
- Travel through the study area should emphasize transit priority, speed, and reliability, beyond existing business access and transit (BAT) lanes on 15th Ave W/NW
- Many transit stops in the study area are located on arterials or busy streets without safe crossings nearby (e.g., W Emerson St and 15th Ave W)
- Evening and weekend transit service is limited such that shift workers in the study area have little choice but to drive to get to Ballard-Interbay
- Transit stops and stations in the study area lack many of the amenities that help to make transit trips comfortable and convenient

FIGURE 3-4: TRANSIT NETWORK OPPORTUNITIES



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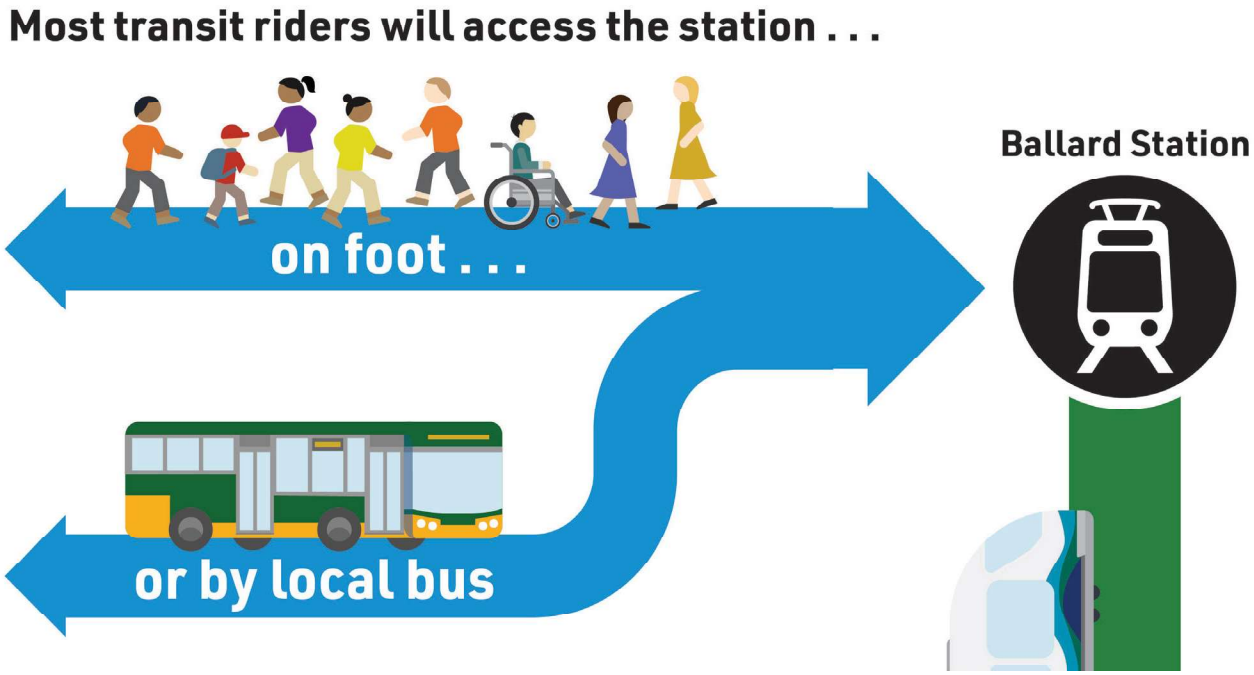
West Seattle and Ballard Link Extensions

The West Seattle and Ballard Link Extensions (WSBLE) project will build 3 new Sound Transit light rail stations in the study area: Ballard, Interbay, and Smith Cove. The Ballard Station is expected to have the highest number of transit transfers and pickups/dropoffs because it is a terminus station, and is located in a densely populated and growing neighborhood.

By 2042, riders are expected to access these stations predominantly through a mix of walking, biking, or transit transfer, with some riders being picked up or dropped off. This highlights the importance of pedestrian, bicycle, and transit access for riders.



Sound Transit's preliminary forecasts anticipate that the number of people boarding light rail at the Interbay station will be about one-third of the ridership at the Ballard station in 2042. Buses serve and provide access to the Magnolia and Queen Anne neighborhoods. At the Smith Cove Station, ridership would be slightly lower than at the Interbay station, and more than half of riders would arrive on foot.

FIGURE 3-5: KING COUNTY METRO ROUTES IN THE PROJECT AREA AS OF SEPTEMBER 2019

ROAD FREIGHT AND AUTO NETWORK ASSESSMENT

This section focuses on mobility for general-purpose autos, road freight, and goods movement, and identifies specific areas where improvements are needed. As the epicenter of Seattle's fishing and maritime industry, there are several critical freight corridors that pass through the BIRT study area. 15th Ave W/NW serves as the primary north-south spine, highlighting the importance of the Ballard Bridge and connectivity within the overall study area and to the broader region. Opportunities shown in Table 3-5 and Figure 3-6 consider improvements to safety and efficiency for freight and passenger vehicle traffic.

TABLE 3-5: ROAD FREIGHT AND AUTO NETWORK NEEDS AND CHALLENGES

Needs and Challenges	Opportunities
15th Ave W/NW is the only major north-south corridor that accommodates transit, truck, and general-purpose traffic. As a critical connector to the regional system, it is often congested.	A
Serious injury collisions were located primarily on 15th Ave W and in downtown Ballard. As walking and biking increase with light rail station openings,the need for safe crossings of major arterials such as 15th Ave W will increase.	B
Major freight routes are subject to traffic congestion. 15th Ave W/NW, NW Market St, NW Leary Way, and Shilshole Ave NW are identified as Major Truck Streets.	A
Freight access in industrial centers needs to be maintained for efficient goods delivery. Freight access to Manufacturing and Industrial Centers is critical to the economy (15th Ave W/NW, Smith Cove, Salmon Bay and the Lake Washington Ship Canal, Terminal 91, etc.)	C D
There is limited dedicated curb space for freight and delivery vehicles in Interbay, and narrow streets and tight turning radii present challenges for large trucks with cargo accessing industrial or maritime sites.	D
Many conflicts exist between freight and people walking and biking. An abundance of driveways around industrial land uses are challenging for bicyclists and pedestrians as drivers may not see them, and freight is challenged to make turns with narrow curb radii.	B

Public Engagement Themes

- Many businesses and industries in the study area rely on trucks to transfer goods to and from market
- Reliability of truck travel is essential for industrial and maritime businesses
- Maintaining and improving truck travel time on 15th Ave W/NW are priorities for industrial businesses and freight haulers, as it is the primary connection to the regional highway system
- The rise of online retail has contributed to an increase in small package delivery to homes and businesses; planning should consider increased use of small delivery vehicles in the study area

FIGURE 3-6: ROAD FREIGHT AND AUTO NETWORK OPPORTUNITIES

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