S HOLGATE ST CROSSING STUDY

EXISTING CONDITIONS

AUGUST 2025

PREPARED FOR:

SEATTLE DEPARTMENT OF TRANSPORTATION

Seattle Department of Transportation

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INTRODUCTION

The S Holgate St Crossing Study is a planning effort led by the Seattle Department of Transportation (SDOT) to evaluate transportation conditions along S Holgate St and the broader multimodal network in the South of Downtown (SODO) neighborhood. Supported by a $2 million Federal Railroad Administration (FRA) grant through the Railroad Crossing Elimination Program, the study aims to address safety, mobility, and access challenges in a dynamic freight and rail corridor. This report establishes the existing conditions baseline, drawing on multimodal data, operational and safety analyses, and input from agency and community stakeholders. It also reflects coordination with ongoing SDOT and regional efforts to ensure that future strategies—particularly those related to a potential closure of the at-grade rail crossings—are well integrated, practical, and supportive of a safer, more efficient transportation system.

PROJECT BACKGROUND

S Holgate St is a key east-west arterial located in the heart of Seattle's SODO neighborhood, within the Duwamish Manufacturing/Industrial Center, the largest freight hub in the Pacific Northwest and a critical link in Washington State's freight, commuter rail, and Amtrak systems. It plays an essential role in connecting freight traffic to I-5, providing event access to major stadiums, and facilitating daily operations for the Port of Seattle, BNSF, and Amtrak. S Holgate St also supports general-purpose travel, connecting the Beacon Hill neighborhood to SODO and downtown Seattle. The S Holgate St corridor currently features three separate gate-controlled at-grade rail crossings, used by BNSF Railway, Amtrak, and Sound Transit. The BNSF mainline crossing west of 3rd Ave S (DOT# 927461X) includes 7 tracks and is one of the highest-risk at-grade rail crossing in the state.

Amtrak is planning to expand its maintenance and layover facility in SODO, which could result in up to a total of 15 tracks across S Holgate St between Occidental Ave S and 3rd Ave S. BNSF and Amtrak have requested that the City explore the potential permanent closure of S Holgate St between Occidental Ave S and 3rd Ave S to support this expansion. Such a closure would facilitate rail yard operations and improve facility security but would also require evaluation of impacts to the transportation network and adjacent corridors. The analysis supports SDOT's goal of ensuring that future changes to the rail network do not compromise safety, freight mobility, or access for people walking, rolling, biking, or driving. The study supports SDOT's Vision Zero commitment to eliminate traffic fatalities and serious injuries by identifying existing safety issues and evaluating the impacts of potential changes, particularly for vulnerable road users. It will also assess what infrastructure or operational improvements may be needed to maintain east-west connectivity in SODO, especially for freight and goods movement.

PURPOSE AND NEED

The purpose of the S Holgate St Crossing Study is to:

- Improve safety for all users;
- Maintain multimodal access in the SODO neighborhood;
- Support existing railroad operations; and
- Accommodate planned rail yard expansions and other adjacent regional projects.

The project aligns with SDOT's mission to support a thriving equitable community powered by dependable transportation that provides safe and affordable access to places and opportunities. SDOT's core values - Equity, Safety, Mobility, Sustainability, Livability, and Excellence – provide the foundation for the project's objectives.

The need for this project arises from existing safety and operational deficiencies at the BNSF mainline at-grade rail crossing DOT# 927461X on S Holgate St, which:

- Serves an essential function within Seattle's Industrial Access Street network and the Heavy Haul Network;
- Experiences multimodal demand; and
- Ranks among the highest-risk crossings in Washington State

This planning study will integrate technical analysis, stakeholder input, and diagnostic rail safety evaluations to guide future investments that protect vulnerable travelers and preserve freight and multimodal mobility in the study area.

KEY STAKEHOLDERS

S Holgate St plays a vital role in connecting freight, industrial, and event-related activity in Seattle's SODO neighborhood. As a result, a diverse group of stakeholders is directly invested in decisions about the future of the corridor. These include transportation agencies, freight and rail operators, stadium and event representatives, tribal governments, and representatives of collective businesses and industrial property owners.

Stakeholders represent a range of interests:

- **Amtrak** is planning an expansion that would significantly increase train activity on the **BNSF Railway** corridor
- The **Port of Seattle** and **Northwest Seaport Alliance**, including nearby freight-dependent businesses, rely on S Holgate St for truck access and as a key part of the Heavy Haul Network
- The **SODO Business Improvement Area (BIA)** advocates for a safe, clean, connected and engaged SODO, for the benefit of property owners, businesses, tenants, employees and patrons of the SODO district
- **Sound Transit** runs commuter rail and light rail through different at-grade rail crossings along S Holgate St and has major capital improvements planned for its light rail system that directly impacts S Holgate St
- **Seattle Seahawks, Mariners, Sounders and Reign** teams and ballpark operators have a vested interest due to the corridor's role in facilitating multimodal ingress and egress during major events
- **Local tribal governments**, including the Suquamish, Muckleshoot, Snoqualmie, and Duwamish Tribal Organization, are also engaged to ensure the study reflects their perspectives and priorities.

As part of this planning effort, SDOT is convening a Technical Work Group (TWG) composed of these primary agency, freight, rail, business, and tribal stakeholders to participate in identifying

existing issues, reviewing potential concepts, and evaluating how changes to the corridor could impact safety, mobility, and operations.

Beyond this core group, SDOT is engaging a broader network of stakeholders through a coordinated outreach effort. This includes community advisory boards, utility and emergency service providers, labor organizations, and public agencies with a role in transportation and infrastructure. The study team will also engage specific business and property owners near the corridor, particularly those who rely on S Holgate St for access and deliveries. Finally, outreach is designed to include people who travel through the area on foot, by bike, by vehicle, or by transit—as well as those attending events at nearby stadiums.

This inclusive approach ensures that technical insights are balanced with community perspectives and that a wide range of voices help shape the future of the S Holgate St corridor.

STUDY AREA CONTEXT

The full study area for this project covers most of the SODO neighborhood of Seattle, roughly bounded by S Royal Brougham Way and S Spokane St from north to south and between East Marginal Way S and I-5 from west to east. The study area and the location of the at-grade crossings on S Holgate St that are the focus of this study are shown in Figure 1.

PROJECT AREA

S Holgate St and the project study area are located in Seattle's SODO neighborhood and is in the Duwamish Manufacturing/Industrial Center. Directly to the north of the project study area are two large stadiums and event venues, Lumen Field and T-Mobile Park, that host the Seattle Seahawks, Seattle Sounders, Seattle Reign, and Seattle Mariners. Lumen Field hosts about 300 events annually including sports, concerts, and other large events and has capacity for approximately 68,000 people during Seattle Seahawks games and 37,000 people during Seattle Sounders and Seattle Reign games. T-Mobile Park hosts approximately 80 Mariners games along with concerts and has capacity for approximately 48,000 people.

To the west, the Port of Seattle operates Terminals 25, 30, and 46. The main entrance for Terminal 30, the Port's main terminal, is along E Marginal Way S with no direct access from S Holgate St. BNSF's Seattle International Gateway (SIG) intermodal facility, its entrance on S Hanford St, enables the movement of goods between maritime and rail transportation.

The Amtrak Maintenance Facility spans both sides of S Holgate St between Occidental Ave S and 3rd Ave S. The facility is not enclosed and has active tracks crossing the street, requiring staff to move between buildings on either side of S Holgate St as part of regular operations.

The project study area is located in an industrial and maritime zone, which generally allows only industrial and certain commercial uses with some zones in this class providing limited opportunities for workforce housing that supports industrial uses. Study area zones are named Maritime, Manufacturing, and Logistics, Urban Industrial, and Industry and Innovation (see Figure 2). In March 2025, the Seattle City Council passed the "Stadium Makers" bill, an ordinance that will allow residential uses in the Stadium Transition Area Overlay, a two-block stretch in a portion of the SODO neighborhood south of T-Mobile Park.

FIGURE 1: SODO STUDY AREA

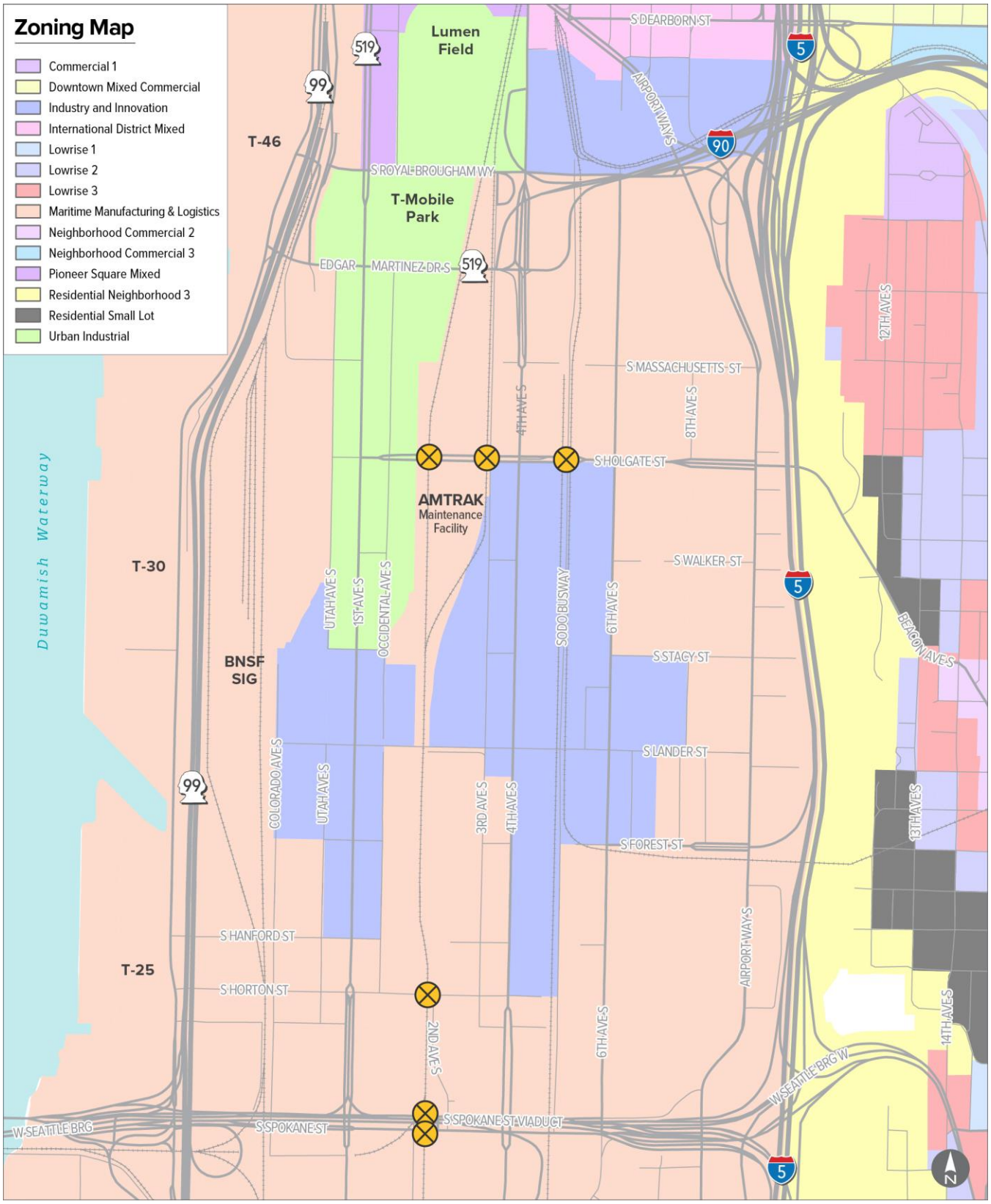


FIGURE 2: SODO AREA ZONING

MULTIMODAL FUNCTIONS

S Holgate St is designated an Industrial Access Street and Minor Arterial with a 25 mph speed limit. According to Seattle Streets Illustrated, Industrial Access Streets serve as connections to regional transportation facilities and are designed for large vehicle turning maneuvers into and out of industrial properties[1]. This street type may provide opportunities for temporary parking of trucks or staging of equipment or other materials associated with industrial uses. S Holgate St is also part of Seattle's Heavy Haul Network, which supports the movement of overweight container trucks between port terminals and nearby rail or industrial facilities.

DEMOGRAPHICS

Replica was used to analyze travel patterns and demographics for people currently using S Holgate St at the subject rail crossings between Occidental Ave S and 3rd Ave S. Replica is a high-fidelity, disaggregate activity-based travel model, with data outputs at the network-link level.[2] This analysis includes who is using the S Holgate St corridor, trip origins and destinations, and their travel mode.

To make these evaluations, data was gathered for vehicles traveling along S Holgate St at this location and for Seattle residents over an average Thursday in Fall 2024 (which is Replica's latest dataset). Table 1 and Table 2 show the demographics of S Holgate St travelers compared to the demographics of travelers in the City of Seattle and Figure 3 shows trip summaries of users traveling through S Holgate St.

[1] https://streetsillustrated.seattle.gov/street-type-standards/industrial-access/

[2] Replica: https://studio.replicahq.com/

TABLE 1: TRANSPORTATION SYSTEM USER DEMOGRAPHICS

DEMOGRAPHIC	PERCENT DISTRIBUTION	
	Using S Holgate St	City of Seattle
Race and Ethnicity		
White	53.8%	59.7%
Asian	19.1%	17.0%
Hispanic or Latino	11.8%	8.1%
Black	7.5%	6.4%
Two Races	5.8%	7.3%
Other	0.9%	0.7%
Native Hawaiian	0.9%	0.3%
American Indian	0.2%	0.4%
Language		
English	60.8%	67.7%
Asian Pacific	15.9%	12.7%
Spanish	9.5%	6.1%
Indo European	7.6%	6.7%
Other	3.4%	3.2%
Group Quarters Language	2.8%	3.5%

Users of S Holgate St are racially and ethnically diverse compared to Seattle's residents. A smaller percentage of corridor users identify as White (53.8% compared to 59.7%), with higher Asian (19.1%), Hispanic or Latino (11.8%) and Black (7.5%) users. User languages follow a similar pattern with fewer English-only speakers (60.8% compared to 67.7%), with higher Asian Pacific language speakers (15.9%), Spanish speakers (9.5%), and Indo-European language speakers (7.6%).

TABLE 2: EDUCATION, EMPLOYMENT, AND INCOME DEMOGRAPHICS

DEMOGRAPHIC	PERCENT DISTRIBUTION	
	Using S Holgate St	City of Seattle
Education		
Bachelor's Degree	29%	31.2%
Some College	26.2%	22.5%
High School Diploma	19.2%	18.6%
Advanced Degree	16.2%	13.2%
K-12 Education	6.6%	9.6%
No School	2.8%	2.5%
Employment Status		
Employed	79.3%	62%
Not in the Labor Force	18.5%	22.6%
Under 16	2.0%	12.6%
Unemployed	0.1%	2.73%
Household Income		
$0-15k	5.1%	8.4%
$15-25k	2.2%	2.7%
$25-50k	8.7%	7.9%
$50-75k	9.8%	8.3%
$75-100k	10.2%	7.9%
$100-150k	19.8%	15.1%
$150-200k	13.3%	12.3%
Over $200k	30.8%	37.3%

Education levels for S Holgate St users are generally similar to the Seattle average, with slightly higher rates of advanced degrees and some college education. About 9.4% of corridor users have less than a high school education. Corridor users have a much higher employment rate than Seattle residents (79.3% compared to 62%), although this may be that corridor users 18 and younger are not captured along S Holgate St. Income distribution among users spans a wide range, over 30% have household incomes above $200,000 and nearly 16% earn less than $50,000 annually. This indicates that all income levels travel through S Holgate St. However, average income ($184k compared to $201k) and median income ($134k compared to $149k) for corridor users are less than Seattle residents.

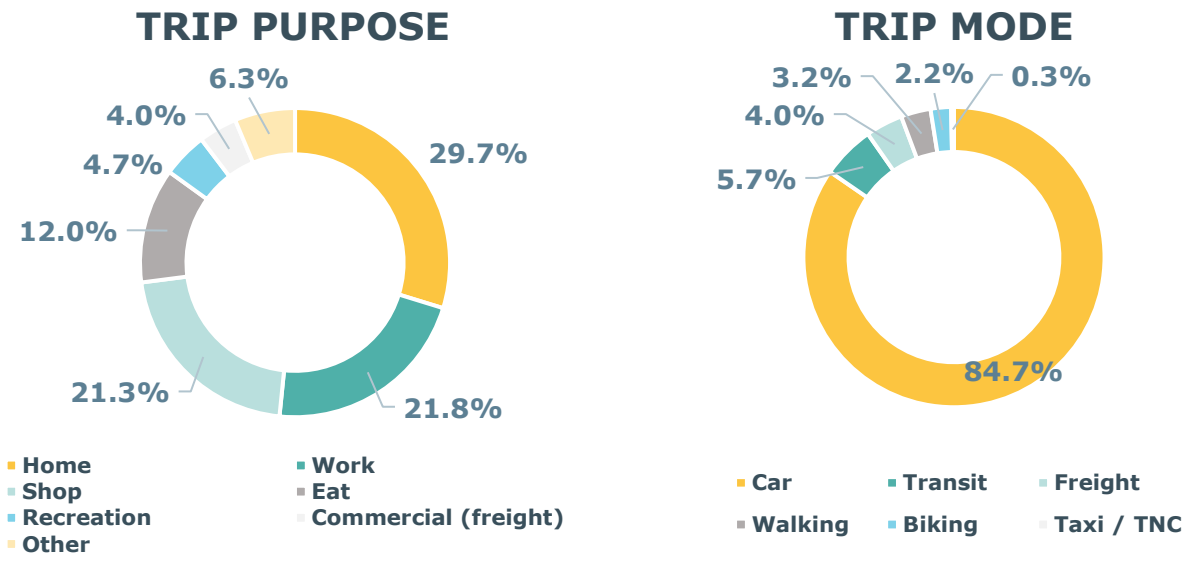


FIGURE 3: TRIP SUMMARIES ALONG S HOLGATE ST

The majority of trips along S Holgate St between the rail crossings are for home, work, and shopping, and a majority of the trips are with a car, suggesting most trips are for commuting and commercial activity.

PAST STUDIES

Over the past two decades, several studies have evaluated options for the future of the S Holgate St rail crossings, particularly in relation to safety, freight mobility, and major infrastructure projects in the area:

- **2000 – Access Duwamish Report:** This regional freight mobility plan identified S Holgate St as a less desirable location for a grade-separated overcrossing due to site constraints.
- **2003 – WSDOT S Holgate St Rail Crossing Study:** This WSDOT study recommended that the City of Seattle permanently close S Holgate St at the rail crossings to improve safety and rail operations.
- **2005 – WSDOT Addendum to S Holgate St Rail Crossing Study:** WSDOT reaffirmed their recommendation to close the street as part of the Amtrak Pacific Northwest Maintenance Facility project. However, SDOT stated that the street should remain open during the construction of the Alaskan Way Viaduct (AWV) Replacement Project and postponed a final decision.
- **2006 – SDOT Phase 1 S Holgate St & S Royal Brougham Way Study:** SDOT recommended keeping S Holgate St open through the duration of the AWV project.
- **2010 – SDOT Phase 2 S Holgate St Railroad Crossing Study:** SDOT concluded that S Holgate St should remain open, with safety improvements. It also advised that the closure recommendation be revisited if there were significant future changes to the transportation system in the area.

Since the 2010 study, the SODO transportation network has seen major changes, including the completion of the AWV Replacement Project and the opening of the new SR 99 tunnel in 2019 as well as the opening of the S Lander St grade separation over the BNSF mainline track in 2020. This new planning study by SDOT re-evaluates the multimodal needs of the transportation network based on current conditions and latest future plans.

CORRIDOR INFRASTRUCTURE AND CONDITION

This section describes the physical condition along S Holgate St. It covers the layout of the roadway, sidewalks, and bike and transit access, as well as pavement quality and underground soil conditions. Together, these elements provide a baseline understanding of how the corridor functions today and help identify needs for future design, maintenance, and safety improvements.

ROADWAY GEOMETRY

The project area on S Holgate St features a four-lane cross section from Occidental Ave S to 3rd Ave S with two eastbound travel lanes and two westbound travel lanes, each approximately 11 feet wide. A median approximately 22 feet wide, with paved and unpaved segments, separates the eastbound and westbound traffic and is used for equipment staging. The south side of the roadway has an unpaved shoulder, and the north side has an inconsistently paved buffer adjacent to a paved sidewalk varying between 4 to 6 feet wide. The total right-of-way for S Holgate St is 130 ft. The S Holgate St cross section is shown in Figure 4.

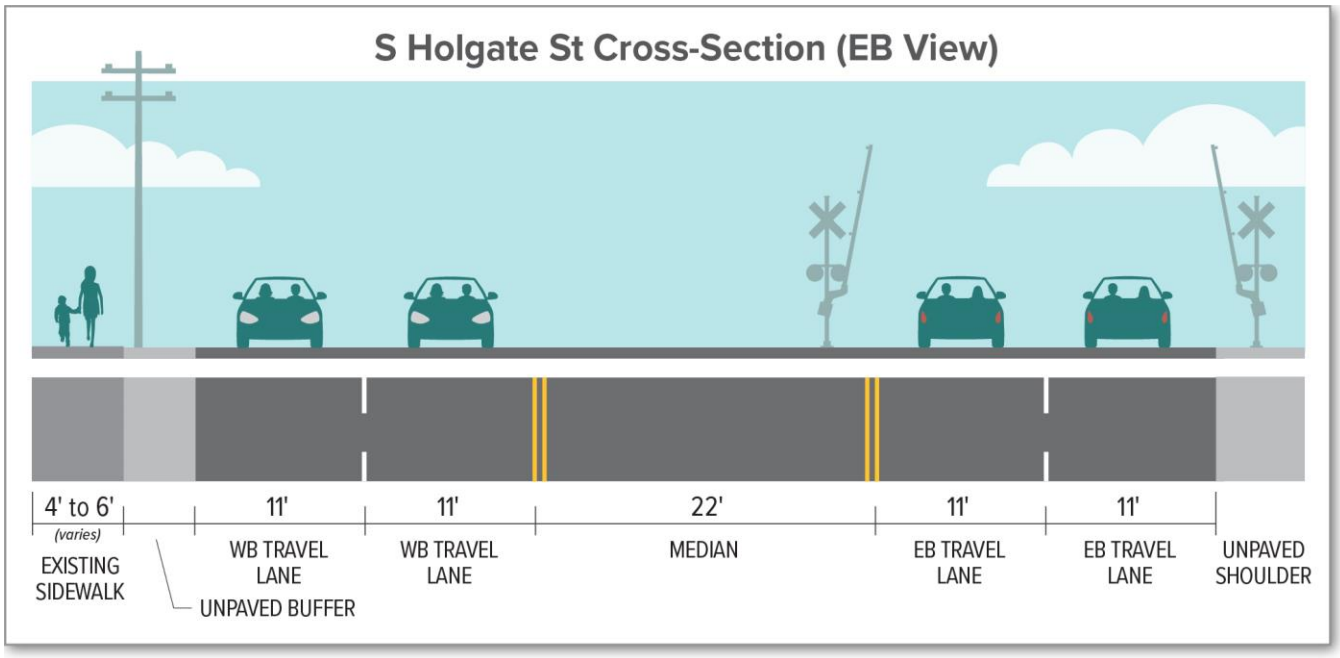


FIGURE 4: S HOLGATE ST CROSS-SECTION

NON-MOTORIZED FACILITIES

People walking and biking along S Holgate St do not have full facilities present. No bicycle facilities are in place at this location, and a sidewalk is only provided on the north side of the roadway. While the sidewalk meets the minimum width standard, its accessibility varies due to inconsistent surface materials, deteriorated condition and frequent driveways. Additional information on levels of traffic stress for people walking and biking is provided in the Non-Motorized Conditions section on page 36.

TRANSIT FACILITIES

S Holgate St does not have any transit service running directly along it, but the surrounding study area includes many transit routes and stops, as well as light rail service. King County Metro and Sound Transit operate multiple bus routes on nearby streets with stops located along 1st Ave S, Edgar Martinez Dr S, 4th Ave S, the SODO Busway, 6th Ave S, and Airport Way S. Most routes have peak-period headways between 10 and 30 minutes.

The Link Light Rail 1 Line runs adjacent to the SODO Busway with stations located south of S Royal Brougham Way (Stadium Station) and north of S Lander St (SODO Station). Both stations are served by light rail with 8-minute headways during peak periods as of Summer 2025.

PAVEMENT CONDITIONS

A detailed evaluation of existing pavement conditions along S Holgate St, from Occidental Ave S to 3rd Ave S, was conducted in June 2025 and is summarized in Appendix A. The assessment combined field observations with a review of historical pavement data provided by SDOT. The evaluation found widespread pavement distress, including fatigue (alligator) cracking within wheel paths, rutting near stop bars and rail crossings, and edge failures along both travel directions. Some patched areas were also failing, and panels within rail crossings showed signs of structural damage. These conditions are consistent with the corridor's role as a major freight route and its long history of repeated use and maintenance. More detailed findings, photos, and supporting data are available in the appendix.

SUBSURFACE CONDITIONS

A review of historical soil and groundwater conditions along the S Holgate St corridor shows that the area is likely not suitable for shallow foundations. To support a potential new grade-separated structure, deep foundations would likely be needed. The ground beneath the roadway includes a mix of loose and soft soils, including man-made fill with wood waste and clay, which can settle over time. Soils deeper underground consist of saturated sand and silt that could lose strength during an earthquake, leading to ground movement or settlement. More stable soils suitable for supporting structures are located 70 to 90 feet below the surface. These findings are detailed in the geotechnical memo provided as Appendix B and will help guide design and construction decisions.

RAIL INFRASTRUCTURE AND OPERATIONS

EXISTING RAIL CROSSINGS

Freight and passenger rail lines bisect S Holgate St at three main locations in the study area and consist of a total of 11 tracks (Figure 5):

- East of Occidental Ave S (085583Y): two tracks used mainly by Amtrak as layover and maintenance for passenger rail
- West of 3rd Ave S (927461X): a seven-track section used in operations for Sound Transit's Sounder rail line, Amtrak, and BNSF freight carriers
- East of 4th Ave S, along the SODO Busway: two tracks used by Sound Transit's Link Light Rail

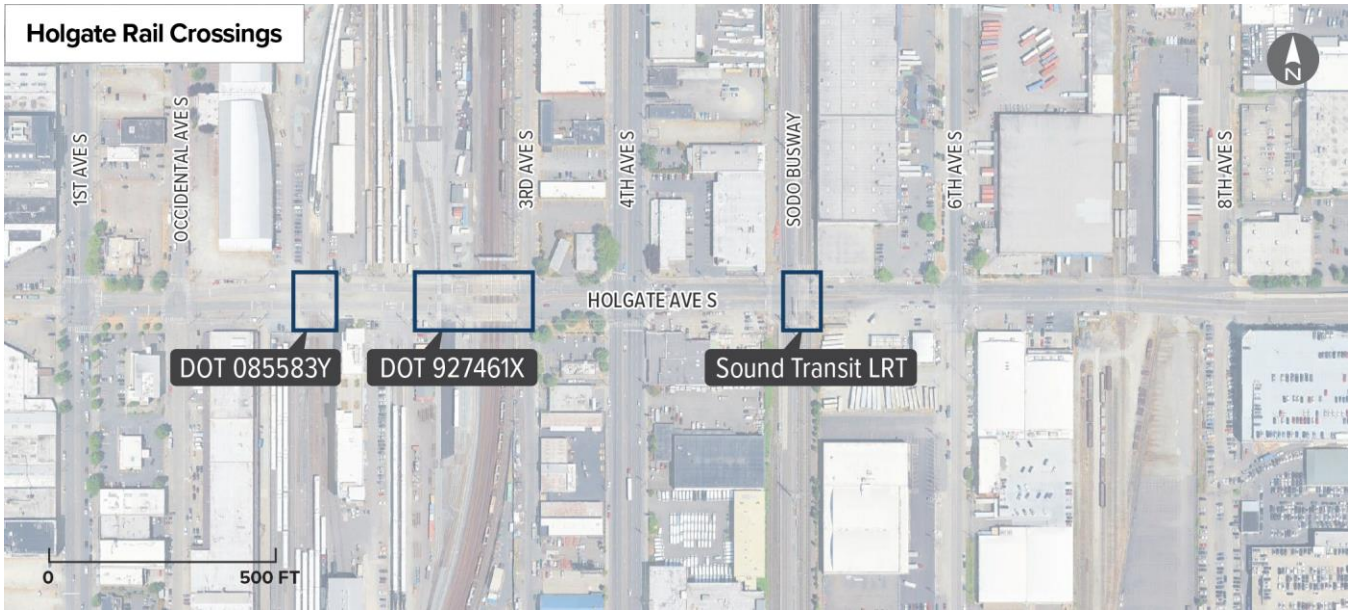


FIGURE 5: EXISTING AT-GRADE RAIL CROSSING ON S HOLGATE ST

The at-grade rail crossing located east of Occidental Ave S (085583Y) is a two-track crossing equipped with train-activated warning devices including flashing light pairs and vehicular gate arms for both approaches to the crossing. The total length of roadway within the crossing area is approximately 60-feet.

The at-grade rail crossing located west of 3rd Ave S (0927461X) is a seven-track crossing also equipped with train-activated warning devices that include flashing light pairs and vehicular gate arms for both approaches to the crossing. The total length of roadway within the crossing area is approximately 210-feet, and the distance from the crossing to the intersection of 3rd Ave S and S Holgate St, which is stop-controlled for 3rd Ave S only, is less than 10-ft.

The distance between the two at-grade rail crossings (085583Y and 0927461X) is approximately 250-feet. Both crossings have four travel lanes (two in each direction) and utilize both regulatory and warning signage, as well as pavement markings for the railroad crossings. Signage includes advance warning signage and regulatory signage to instruct roadway users where to stop during a

train event. Pavement markings includes edgeline and lane line striping, RXR pavement markings, as well as dynamic envelope markings. The project team conducted a Rail Crossing Diagnostic with project partners Amtrak and BNSF to document existing conditions and provide initial near-term and long-term recommendations. A summary of the Rail Crossing Diagnostic outcomes is provided in Appendix C.

TRAIN VOLUMES

Video was collected at each of the three at-grade crossings along S Holgate St to obtain detailed data on number, frequency and duration of train crossings. For the Sound Transit Link Light Rail crossing east of 4th Ave S, along SODO Busway, a single day of data was collected on Tuesday, April 22, 2025. For the more unpredictable at-grade rail crossings used by the Amtrak maintenance facility and freight carriers, seven days of train crossing data was collected from Sunday, April 20, 2025 – Saturday, April 26, 2025.

EAST OF 4TH AVE S

The at-grade crossing along the SODO Busway used by Sound Transit's Link light rail service is typically active 4am-1am including non-revenue train movement. The light rail runs a predictable schedule with headways ranging from 8 minutes during morning and evening peak periods to 10 minutes midday and afternoons and 12-15 minutes in the early morning and late night. On April 22, 2025, 218 gate down events were recorded. The gates were down on average 47 seconds with a minimum duration of 6 seconds and maximum observed duration of approximately 2 minutes.

BETWEEN OCCIDENTAL AVE S AND 3RD AVE S

The number of crossing events and their duration varies greatly at the two crossings between Occidental Ave S and 3rd Ave S due in main part to the unpredictability of freight activity. Figure 6 charts each of the events recorded over an entire week for both crossings. Table 3 summarizes gate down events for both crossings.

During the AM commuting peak between 6:00 AM and 10:00 AM, Figure 6 shows train activity remains high and is likely to cause frequent disruption to drivers, who may divert to Edgar Martinez Dr S or S Lander St to continue over the tracks. Longer train blockages (10 minutes or more at a time) seem to take place more during midday or in the early evening after the afternoon commuting peak. **On average, S Holgate St is blocked for over three hours a day due to rail crossings between Occidental Ave S and 3rd Ave S.** A previous study done for the S Holgate St rail crossing showed that in 2009 S Holgate St was blocked around 20% of the time throughout the day[3]; in comparison, the data collected for this study had a lower blockage rate, between 13% during the PM peak and 16% during the AM peak.

[3] See South Holgate Street Railroad Crossing Study, Phase II (2010), Table 3: Hourly and Average Train Gate Closure Times on pg. 14.

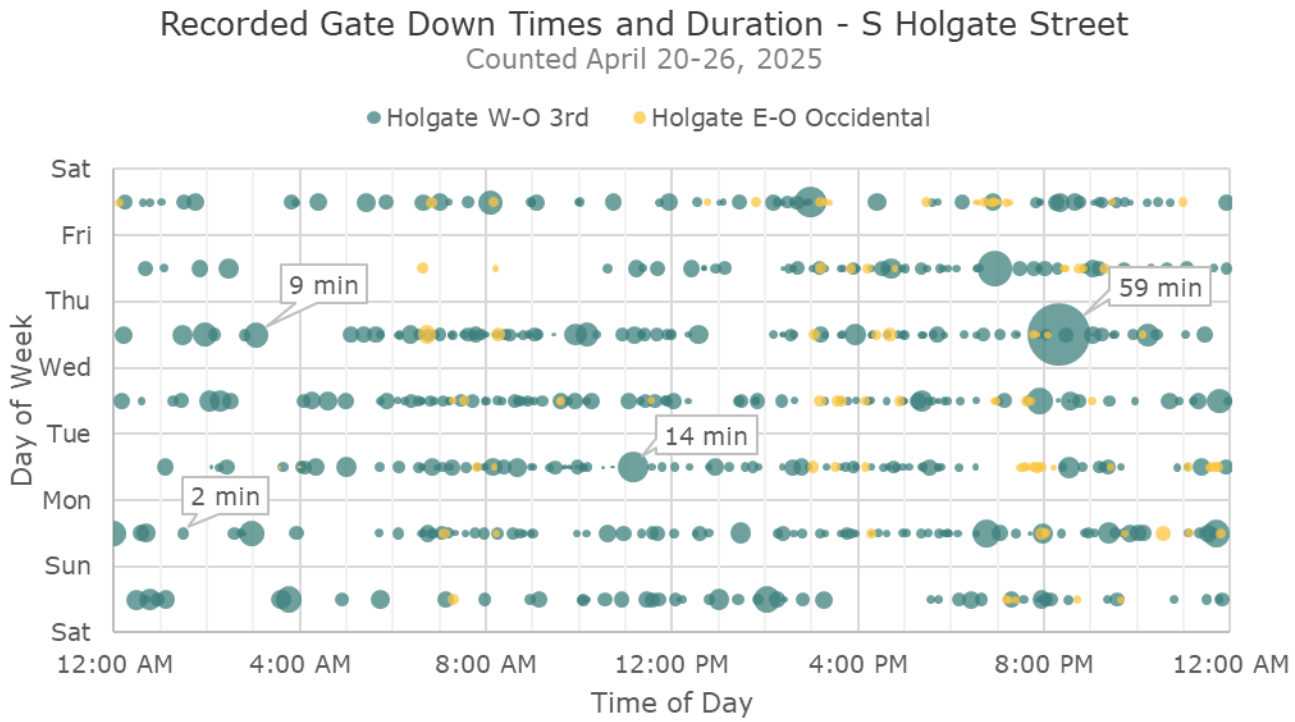


FIGURE 6: RAIL CROSSING "GATE DOWN" EVENTS ON S HOLGATE ST (927461X & 085583Y)

TABLE 3: RAIL CROSSING "GATE DOWN" SUMMARY ON S HOLGATE ST (927461X & 085583Y)

SUMMARY	W-O 3RD, MAINLINE DOT# 927461X	E-O OCCIDENTAL, DOT# 085583Y
AVE GATE DOWN TIME	0:02:32	0:01:21
# OF TIMES	77	13
MAX GATE DOWN TIME	0:59:01[a]	0:05:07
MIN GATE DOWN TIME	0:00:10	0:00:10
AVE TIME BETWEEN GATE DOWNS	0:16:20	1:43:57
AVE DAILY TOTAL GATE DOWN TIME	3:13:45	0:17:41

[a] Typical day max gate down time between 10 and 19 minutes

TRAFFIC OPERATIONS

Traffic operations for the SODO study area were analyzed using two methods to assess intersection capacity, delay and queues. A high-level assessment of traffic patterns across the SODO network used Synchro, a deterministic model, and a detailed simulation of S Holgate St, using the microsimulation model Vissim, considered the impacts of train blockages at the multiple rail crossings. This section includes a discussion of traffic volumes along S Holgate St, an overview of the main trip types and origins-destinations of those trips, and the results of the Synchro and Vissim analyses.

TRAFFIC ANALYSIS STUDY AREA

The traffic operations analysis and modeling tasks focus on a subset of the full study area and include intersections and roadway segments selected based on expected travel patterns and diversion routes anticipated with a S Holgate St closure. The study area to be used in the Synchro traffic analysis and Vissim traffic micro-simulation is shown in Figure 7 and listed in Table 4. Additional information on assumptions, data sources, and modeling methods is provided in Appendix D.

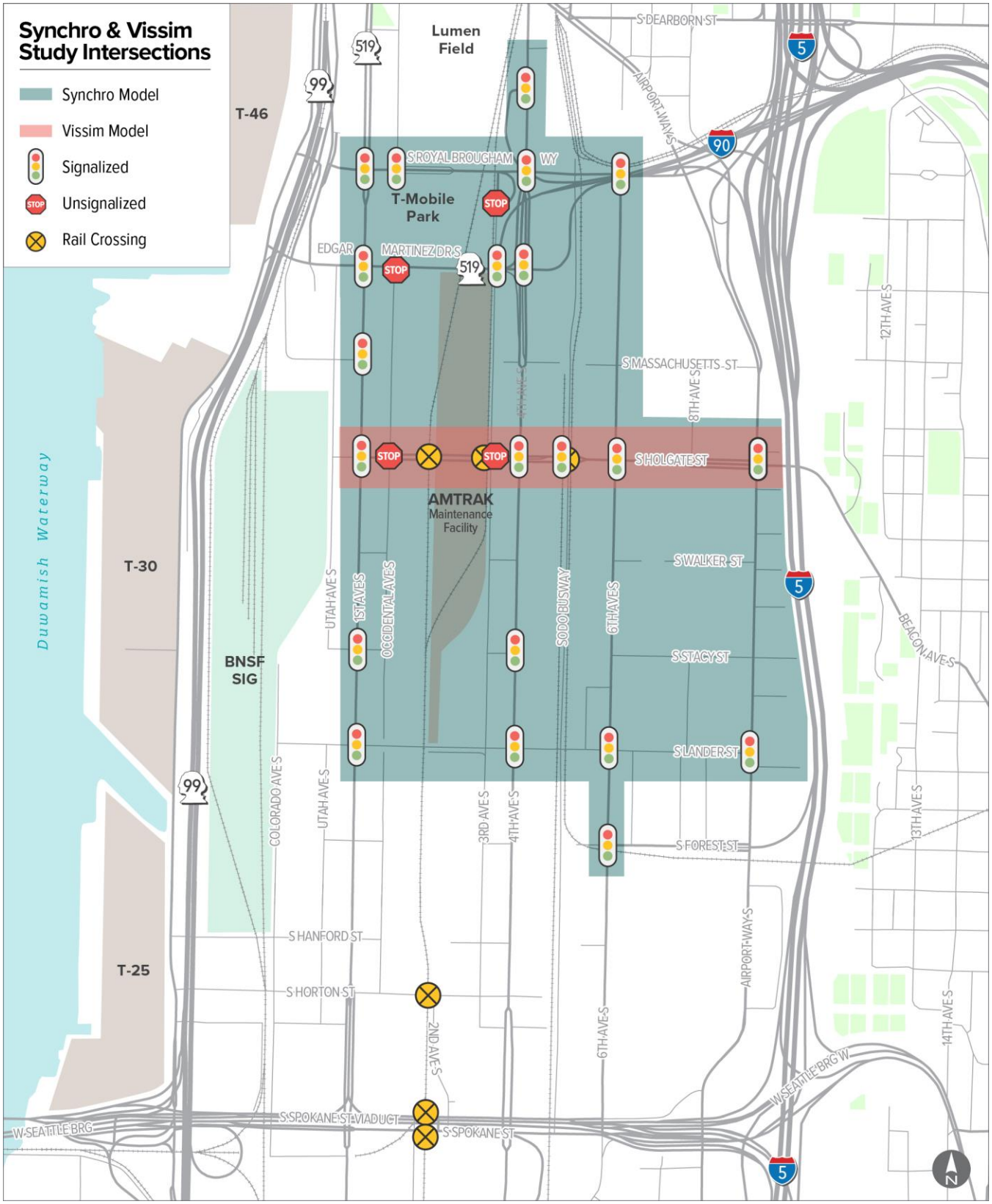


FIGURE 7: INTERSECTIONS FOR TRAFFIC OPERATIONS ANALYSIS (MAP)

TABLE 4: INTERSECTIONS FOR TRAFFIC OPERATIONS ANALYSIS (LIST)

INTERSECTION	TRAFFIC CONTROL	SYNCHRO STUDY AREA	VISSIM STUDY AREA
1st Ave S & S Royal Brougham Way	Signal	X	
1st Ave S & S Atlantic St / Edgar Martinez Dr S	Signal	X	
1st Ave S & S Massachusetts St	Signal	X	
1st Ave S & S Holgate St	Signal	X	X
1st Ave S & S Stacy St	Signal	X	
1st Ave S & S Lander St	Signal	X	
Occidental Ave S & S Royal Brougham Way	Signal	X	
Occidental Ave S & Edgar Martinez Dr S	Side-Street Stop	X	
Occidental Ave S & S Holgate St	Side-Street Stop	X	X
S Holgate St Rail Crossing e/o Occidental Ave S (DOT 085583Y)	Rail Crossing		X
S Holgate St Rail Crossing w/o 3rd Ave S (DOT 927461X)	Rail Crossing		X
3rd Ave S & S Royal Brougham Way	All-Way Stop	X	
I-5/I-90 Off-Ramp & Edgar Martinez Dr S	Signal	X	
3rd Ave S & S Holgate St	Side-Street Stop	X	X
4th Ave S & I-5/I-90 Off-Ramp	Signal	X	
4th Ave S & S Royal Brougham Way	Signal	X	
4th Ave S & Edgar Martinez Dr S / I-5/I-90 On-Ramp	Signal	X	
4th Ave S & S Holgate St	Signal	X	X
4th Ave S & S Stacy St	Signal	X	
4th Ave S & S Lander St	Signal	X	
SODO Busway / Link Light Rail Crossing & S Holgate St	Rail Crossing + Signal	X	X
6th Ave S & S Royal Brougham Way	Signal	X	
6th Ave S & S Holgate St	Signal	X	X
6th Ave S & S Lander St	Signal	X	
6th Ave S & S Forest St	Signal	X	
Airport Way S & S Holgate St	Signal	X	X
Airport Way S & S Lander St	Signal	X	
Total Intersections in Traffic Analysis Study Area		**25**	**9**

TRAFFIC VOLUMES ON S HOLGATE ST

Existing traffic volumes on the S Holgate St rail crossing are shown in Figure 8. They were developed through all-day counts taken in November 2023 and factored up by 10% to match a recent May 2025 turning movement count that was done for the AM and PM peak periods. These counts showed an Average Daily Traffic (ADT) volume of **5,120 vehicles/day**, a decline from historical volumes on the corridor and reflective of completed large projects such as the Alaskan Way Viaduct Replacement and the S Lander St Bridge that have changed travel patterns in SODO. Travel patterns vary by direction: westbound volumes peaks in the morning and gradually decreases through the afternoon peak, while eastbound volumes build towards the afternoon peak with no pronounced drop in volume during midday. Heavy vehicles are up to 10% of the total volume during the AM peak and 5-10% in the late morning, but this share drops off through the afternoon. Overnight truck percentages are higher but reflect low overall traffic volumes during that period.

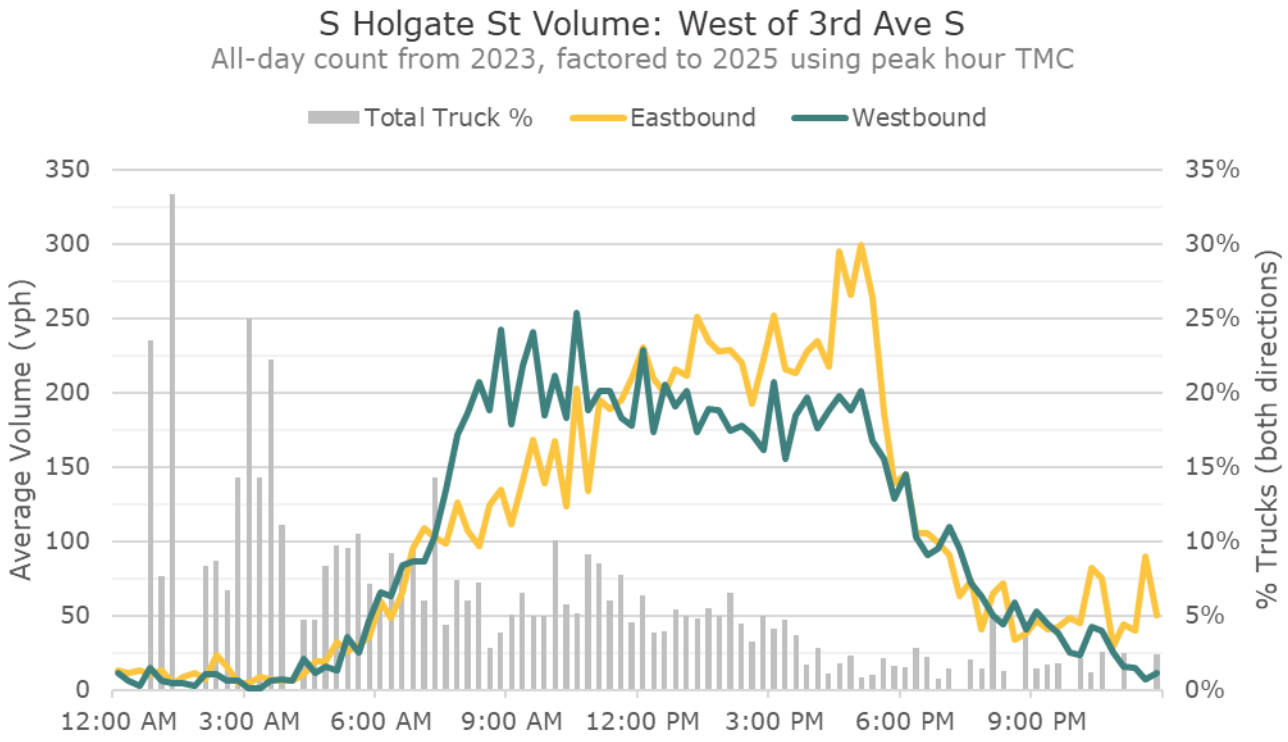


FIGURE 8: S HOLGATE ST TRAFFIC VOLUMES WEST OF 3RD AVE S

TRAFFIC PATTERNS AT S HOLGATE ST RAIL CROSSING

Understanding how people travel along S Holgate St, specifically where their trips begin and end, how they travel through SODO, and whether alternate routes exist, is central to evaluating the role of S Holgate St in the SODO network. For answering these questions, StreetLight Data was used to

assess these travel patterns for all vehicular modes[4]. This report covers a discussion specifically about freight truck traffic in a later section.

Figure 9 shows the most common origins and destinations of trips using S Holgate St between Occidental Ave S and 3rd Ave S, as well as the main origin-destination pairs using this stretch of S Holgate St. Figure 10 (page 23) shows the main origin/destination pair routes which cross the S Holgate St railway lines. Key origin-destination areas include parts of SODO and nearby regional corridors:

- NW Area: Between S Royal Brougham Way and S Holgate St, west of the railway line along 3rd Ave S
- W Area: South of S Holgate St and north of S Lander St, between the railway line and the BNSF railyard
- Regional roadways: I-5, I-90, SR 99, Beacon Ave S, 1st Ave S and 4th Ave S

The businesses immediately west of the S Holgate St rail line generate the most trips using that portion of S Holgate St, with much of those trips connecting to I-5 (both northbound and southbound) or to Beacon Ave S toward the Beacon Hill, Columbia City, and Seward Park neighborhoods. Besides trips internal to SODO, a relatively high share of this traffic connects Beacon Ave S to either SR 99 northbound or 1st Ave S leading to Pioneer Square and downtown Seattle.

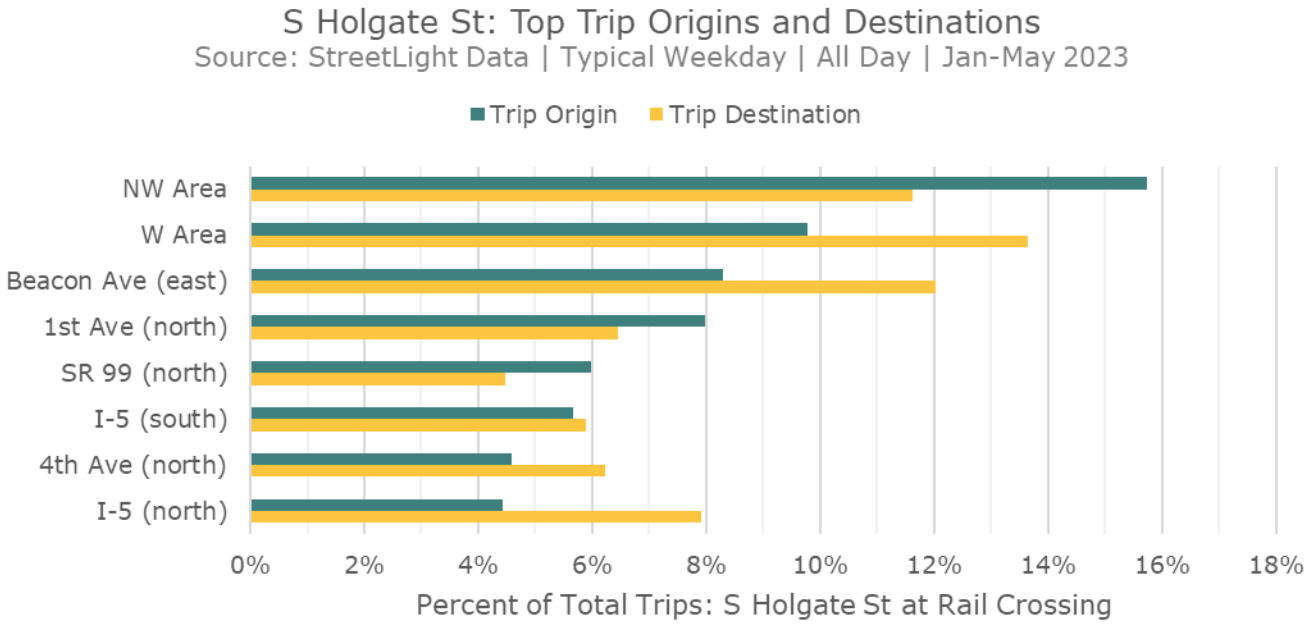
The StreetLight Data analysis showed that many origin-destination trip pairs through SODO have alternatives to using S Holgate St between Occidental Ave S and 3rd Ave S. For example, trips from the south using I-5 to northwest SODO mainly use S Spokane St to 1st Ave S or cross the railway line using grade separated S Lander St or Edgar Martinez Dr S. Trips between Beacon Ave S and destinations west of the rail line often use S Holgate St, though some also divert to Edgar Martinez Dr S likely in response to rail crossing blockages.

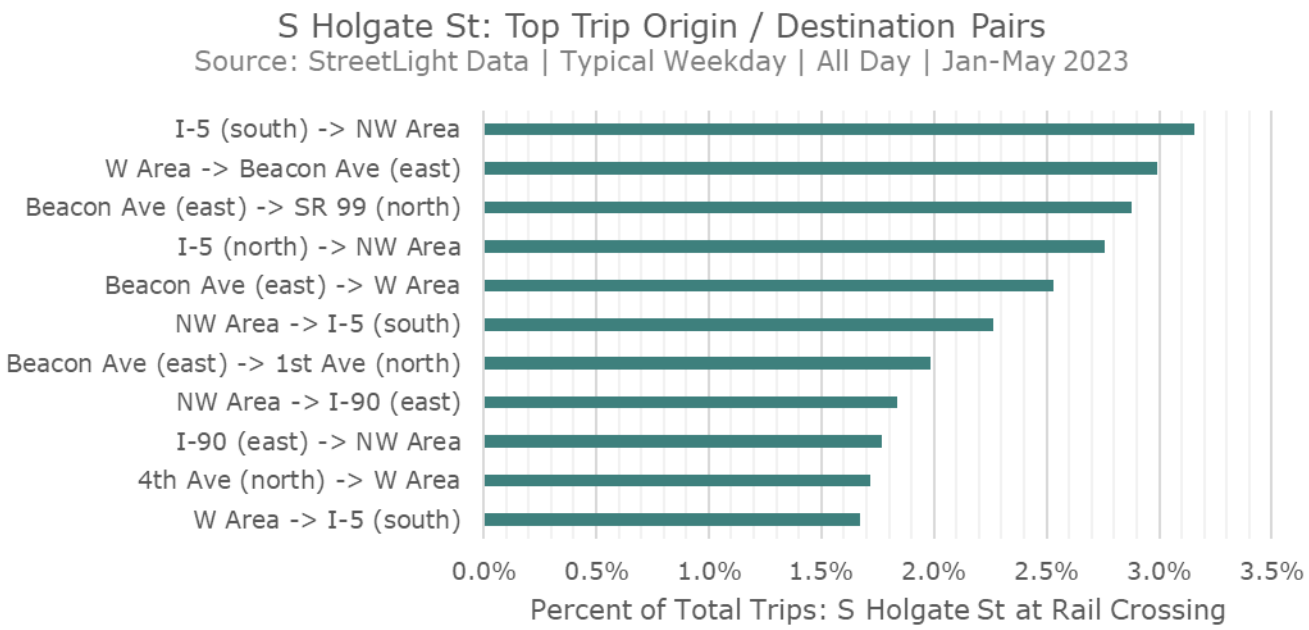
Overall, routes using the S Holgate St between Occidental Ave S and 3rd Ave S could be classified into two main groups:

- Trips where S Holgate St has more direct alternate routes: such as those connecting to or from I-5 or I-90.
- Trips where S Holgate St is the direct route**:** primarily between Beacon Ave S and areas west of the rail line in SODO, or those accessing SR 99 or downtown via 1st Ave S.

A parallel analysis using Replica data found similar travel patterns and confirmed that trip distributions did not vary significantly across demographic groups. Filters applied by race, ethnicity, language, education level, employment status, and household income showed consistent origin and destination trends for corridor users.

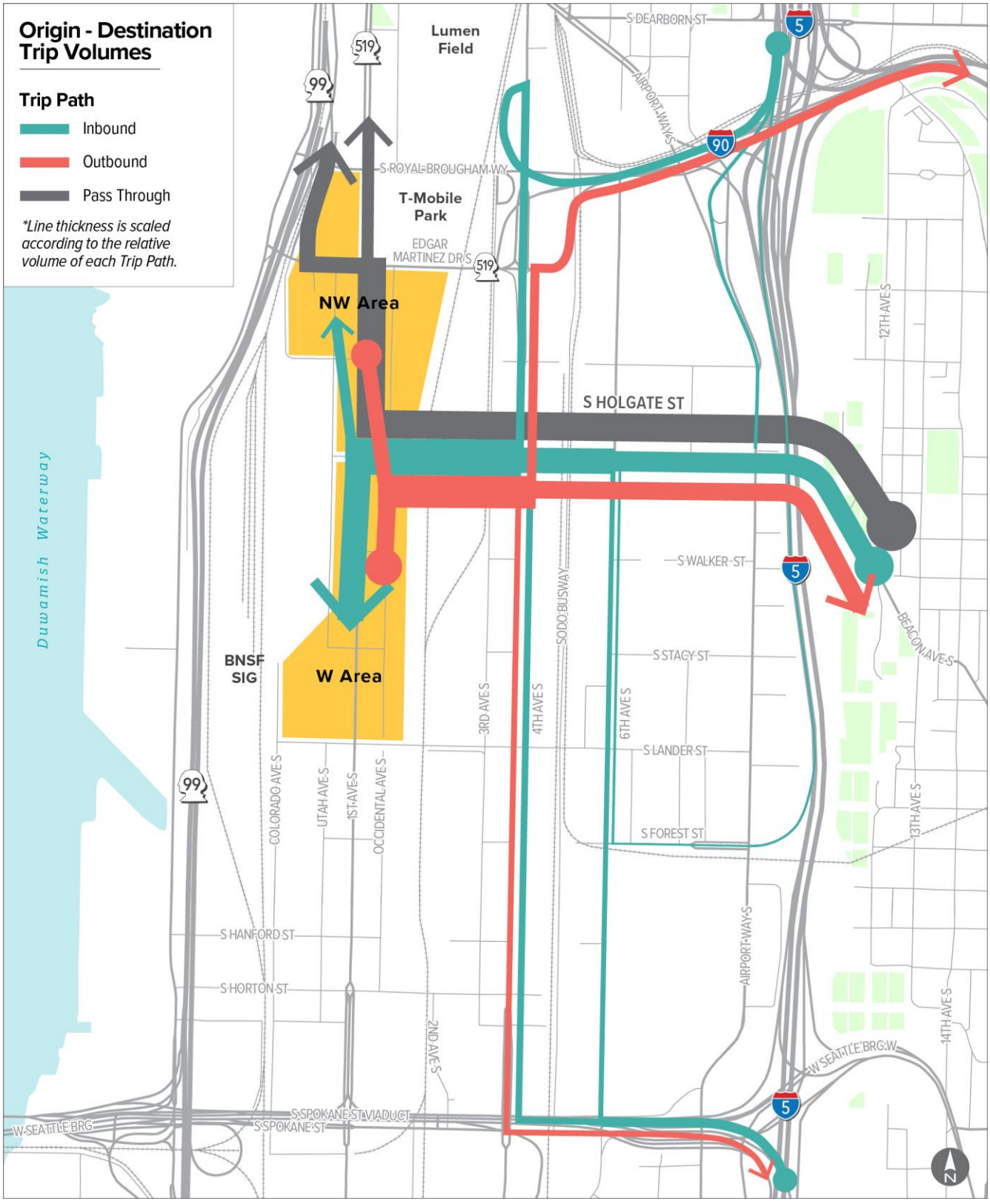
[4] StreetLight Data is a transportation analytics platform that derives mobility insights from GPS and location-based services data





NW Area = between Royal Brougham and Holgate, west of the rail lines
E Area = between Lander and Holgate, west of the rail lines

FIGURE 9: MAIN TRIP ORIGINS AND DESTINATIONS USING S HOLGATE ST RAIL CROSSING



Source: StreetLight Data, Top Routes between Origins and Destinations | All Vehicles | Mon-Thu, all-day | Jan-May 2023

FIGURE 10: MAIN ORIGIN/DESTINATION VEHICLE PATHS FOR S HOLGATE ST RAIL CROSSING

SYNCHRO ANALYSIS RESULTS

This section summarizes the technical results of the Synchro analysis for a network of 25 intersections, including S Holgate St and surrounding intersections. The goal of this analysis was to assess intersection operations during the AM and PM peak periods using Synchro 12. The model was developed to reflect observed conditions, including signal timing, roadway geometry, and traffic volumes. Measures of effectiveness focused on intersection delay and volume-to-capacity (v/c) ratios. All analyses followed WSDOT's Synchro and SimTraffic Protocol. Figure 11 displays intersection level of service (LOS) and Table 5 includes intersection delay, LOS and v/c ratios for the AM and PM peak periods.

Most intersections in the Synchro study area operate at acceptable levels of service in the AM and PM peak hours. Only one intersection in each peak period operated at a LOS E: 4th Ave S and S Lander St during the AM peak and 1st Ave S and S Lander St during the PM peak.

The v/c ratio ranges from 0.18 to 0.78 in the AM peak hour and from 0.20 to 0.77 in the PM peak hour. All the intersections in the study area are operating well below capacity, indicating no widespread congestion during typical peak hours.

A travel time analysis was also conducted using the Synchro model for three routes using S Holgate St, S Lander St, and Edgar Martinez Dr S, as shown in Figure 12 (page 27). Because Synchro does not simulate individual vehicles, travel times were estimated by adding the delay at intersections to the time it takes to drive each segment at free-flow speed. Travel times for east-west routes reflect the variation in route length with S Holgate St being the most direct. Travel times using S Lander St also reveal generally higher congestion levels near 1st Ave S and 4th Ave S. A summary of the findings of this travel time analysis is presented in Table 6 (page 28).

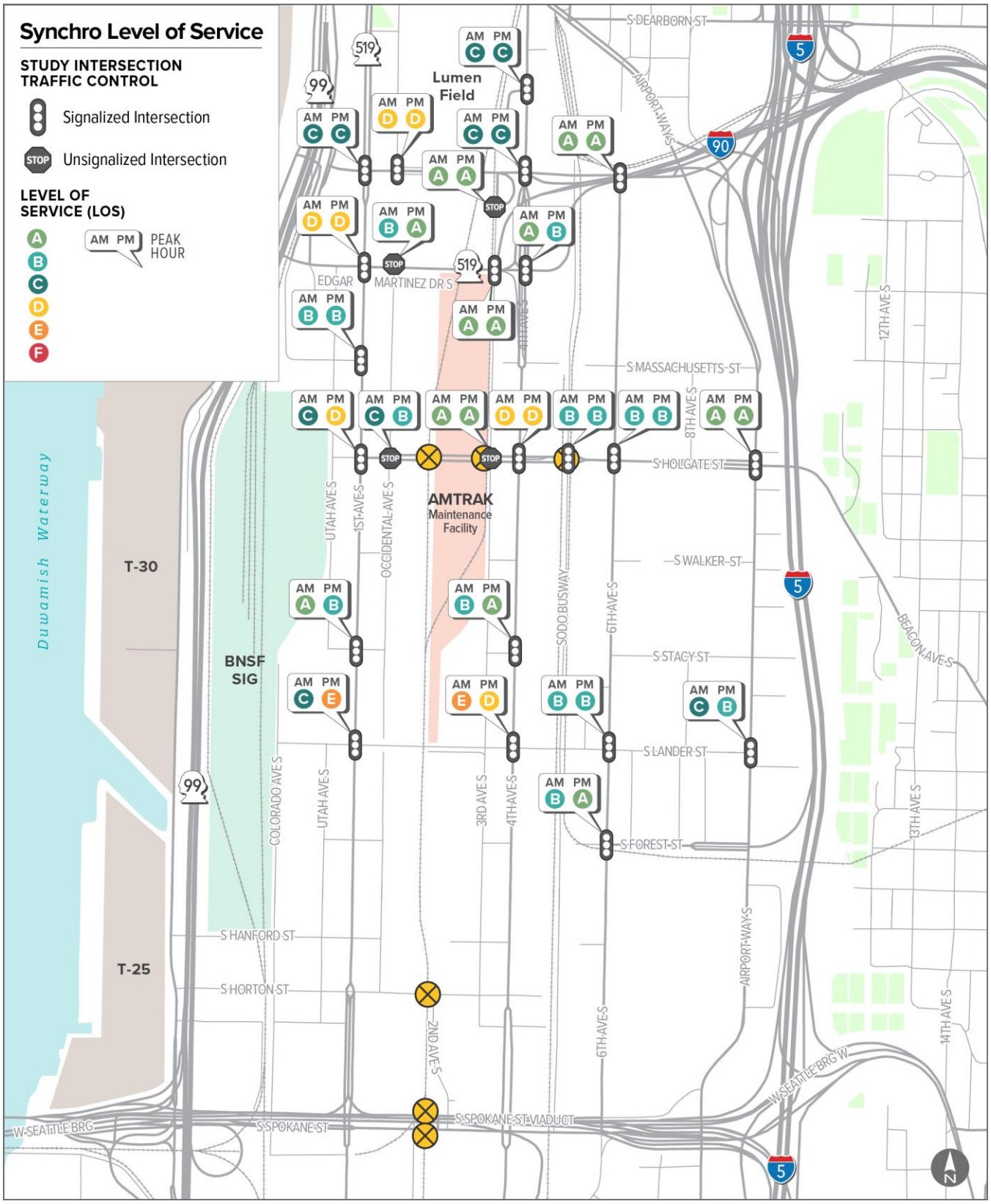


FIGURE 11: AM AND PM PEAK HOUR LOS RESULTS - SYNCHRO

TABLE 5: INTERSECTION OPERATION RESULTS - SYNCHRO

INTERSECTION	CONTROL TYPE	AM PEAK HOUR			PM PEAK HOUR		
		DELAY (S/VEH)	LOS	V/C	DELAY (S/VEH)	LOS	V/C
1st & Royal Brougham	Signal	28.5	C	0.40	30.4	C	0.39
1st & Atlantic / Edgar Martinez	Signal	45.0	D	0.78	52.0	D	0.68
1st & Massachusetts	Signal	15.9	B	0.35	16.7	B	0.31
1st & Holgate	Signal	30.6	C	0.43	36.4	D	0.46
1st & Stacy	Signal	4.1	A	0.40	13.8	B	0.43
1st & Lander	Signal	32.8	C	0.54	58.0	E	0.77
Occidental & Royal Brougham	Signal	43.7	D	0.18	39.4	D	0.22
Occidental & Edgar Martinez	Two-Way Stop	11.7	B	0.64	9.6	A	0.58
Occidental & Holgate	Two-Way Stop	15.3	C	0.41	13.0	B	0.44
3rd & Royal Brougham	All-Way Stop	7.7	A	0.22	7.8	A	0.27
I-5/I-90 & Edgar Martinez	Signal	5.6	A	0.53	5.6	A	0.52
3rd & Holgate	Two-Way Stop	9.5	A	0.21	9.3	A	0.20
4th & I-5/I-90	Signal	29.4	C	0.61	31.5	C	0.59
4th & Royal Brougham	Signal	23.0	C	0.36	21.7	C	0.51
4th & Edgar Martinez	Signal	6.6	A	0.51	10.6	B	0.62
4th & Holgate	Signal	52.8	D	0.62	45.4	D	0.61
4th & Stacy	Signal	10.2	B	0.44	3.3	A	0.41
4th & Lander	Signal	58.9	E	0.67	50.5	D	0.72
SODO Busway & Holgate	Signal	13.0	B	0.22	13.6	B	0.21
6th & Royal Brougham	Signal	7.7	A	0.19	6.5	A	0.20
6th & Holgate	Signal	17.7	B	0.35	18.9	B	0.34
6th & Lander	Signal	14.2	B	0.37	15.4	B	0.40
6th & Forest	Signal	12.1	B	0.50	8.3	A	0.37
Airport & Holgate	Signal	6.1	A	0.36	9.8	A	0.57
Airport & Lander	Signal	20.7	C	0.63	18.0	B	0.62

FIGURE 12: SYNCHRO TRAVEL TIME ROUTES

TABLE 6: ROUTE TRAVEL TIME RESULTS FROM SYNCHRO

DIRECTION	ROUTE	AM PEAK HOUR TRAVEL TIME (MIN)	INCREASE FROM ROUTE 1 (MIN)	PM PEAK HOUR TRAVEL TIME (MIN)	INCREASE FROM ROUTE 1 (MIN)
Eastbound (toward Beacon Ave S)	Route 1 – via S Holgate St	2.8	-	3.2	-
	Route 2 – via S Lander St	5.2	+2.4	4.9	+1.7
	Route 3 – via Edgar Martinez Dr S	3.8	+1.0	3.9	+0.7
Westbound (toward 1st Ave S)	Route 1 – via S Holgate St	3.6	-	3.5	-
	Route 2 – via S Lander St	5.3	+1.7	6.2	+2.7
	Route 3 – via Edgar Martinez Dr S	5.2	+1.6	5.4	+1.9

VISSIM ANALYSIS RESULTS

This section provides the technical results of the Vissim analysis on S Holgate St. The goal of the modeling process was to develop a model that could be used to analyze the interactions between the active rail crossings and closely spaced intersections between 1st Ave S and Airport Way S on S Holgate St. The priorities considered in the model development were to accurately simulate the effects of active rail crossing events and queue spillback during peak AM and PM periods while ensuring vehicle throughput and travel time reflected observed conditions. See Appendix E for details on Vissim model calibration.

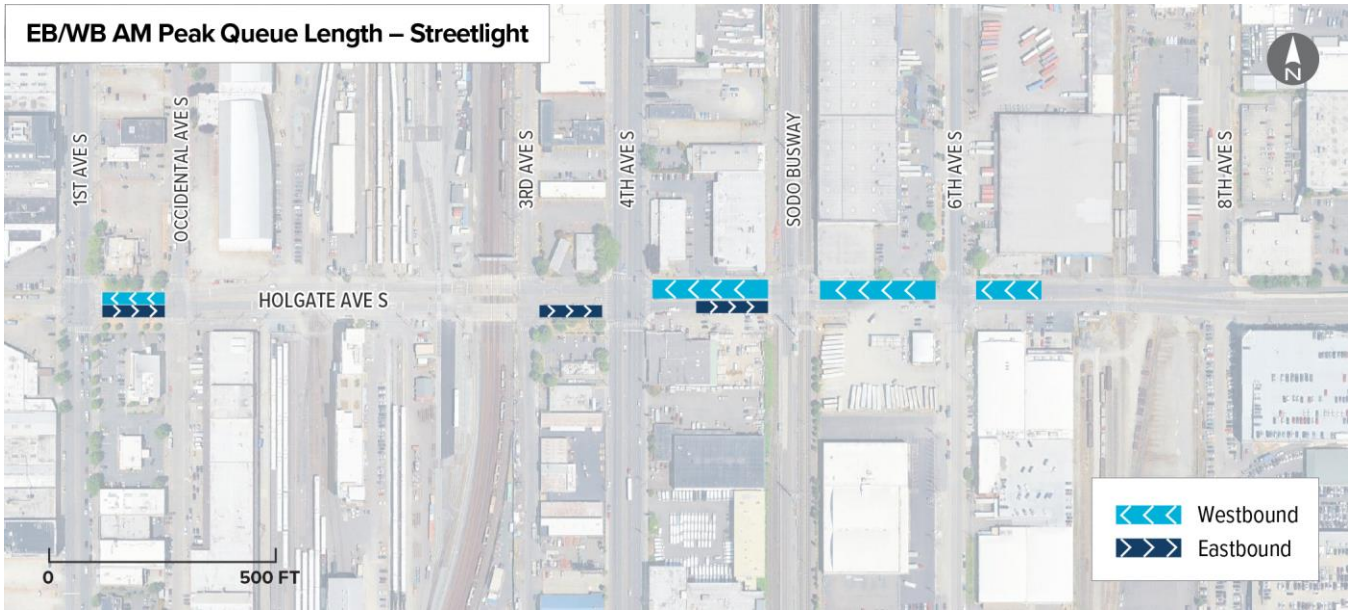
STUDY AREA

All Vissim study intersections (shown in Figure 7) are signalized except for S Holgate St and Occidental Ave S and S Holgate St and 3rd Ave S which are stop-controlled. Additionally, three active at-grade railway crossings were modeled which include the Sound Transit LRT tracks east of 4th Ave S (adjacent to the SODO Busway), BNSF mainline tracks west of 3rd Ave S (DOT#927461X), and Amtrak maintenance facility tracks east of Occidental Ave S (DOT#085583Y).

QUEUE LENGTHS

Queue lengths were compared to typical traffic data streamed from Google Maps API and a StreetLight Data Congested Segments analysis. The StreetLight Data analysis showed congestion associated with rail crossings in eastbound and westbound directions as shown Figure 13.

AM Peak



PM Peak

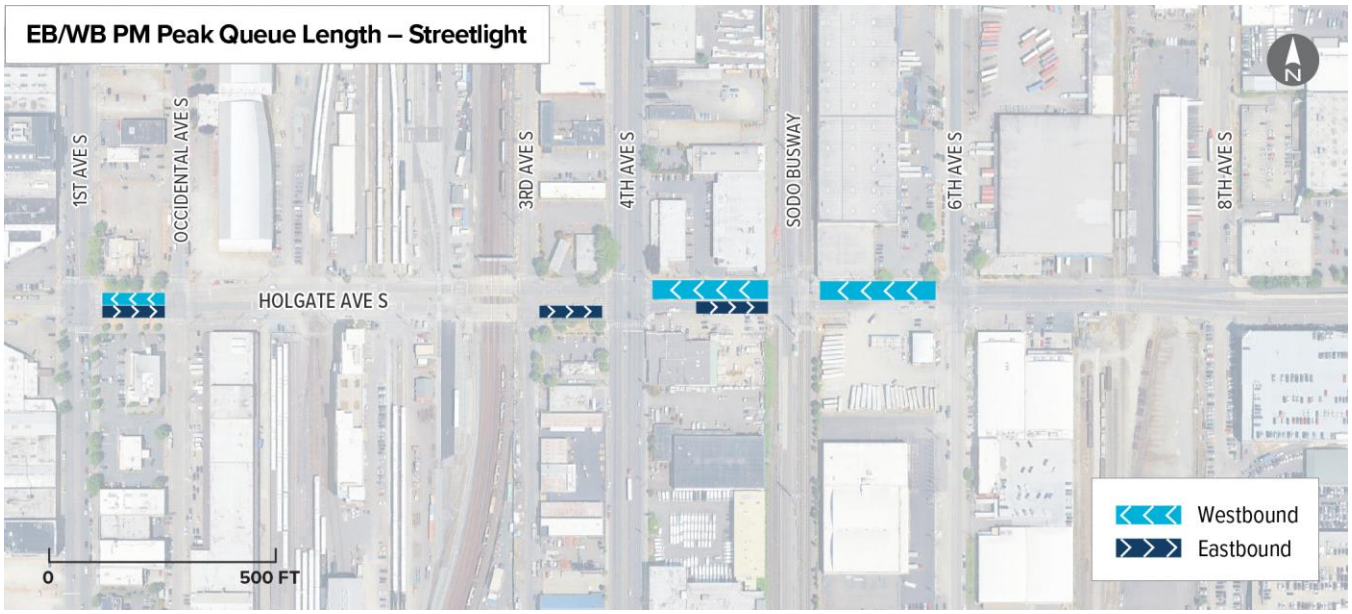
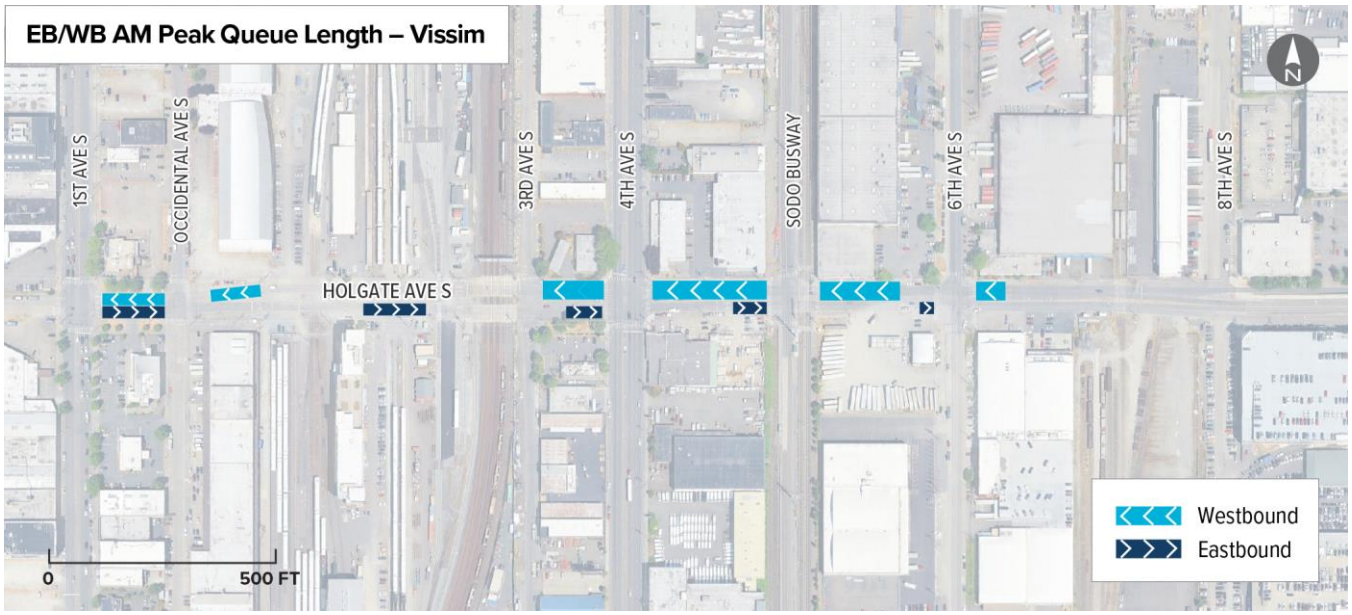


FIGURE 13: STREETLIGHT DATA PEAK PERIOD QUEUE LENGTHS

95th percentile and maximum queue lengths are reported for the AM and PM periods. In both periods, significant queuing occurred in the westbound direction caused by rail crossing events and matched the StreetLight Data analysis. Starting from the Sound Transit LRT rail crossing east of S Holgate St and 4th Ave S and ending at 6th Ave S, 95th percentile queue lengths exceeded storage capacity in the westbound direction, extending through and influencing queueing at the closely spaced upstream intersections. The Vissim queueing results showed longer westbound queues in the AM due to the distribution of gate down time and frequency. Eastbound queue lengths in the AM and PM periods are also closely related to rail crossing events and show patterns of queuing at

rail crossing gates that were found in StreetLight. Figure 14 shows the average maximum queue lengths at each intersection across the simulation.

AM Peak



PM Peak

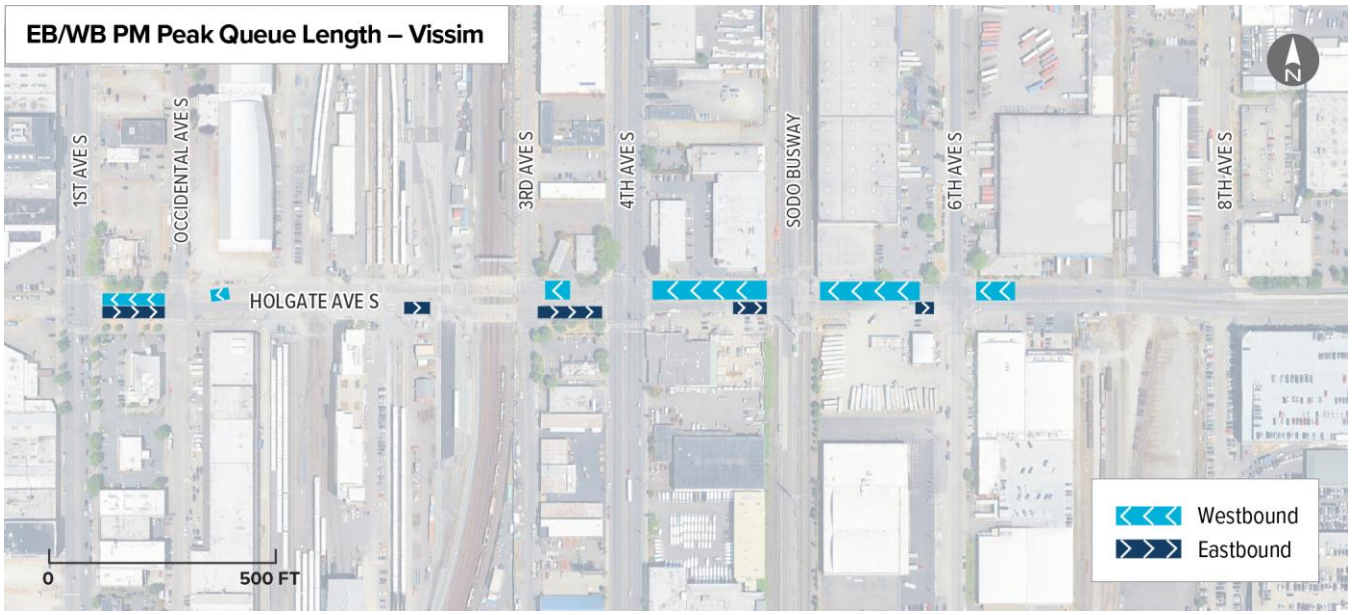


FIGURE 14: SIMULATED PEAK PERIOD MAXIMUM QUEUE LENGTHS

95th percentile queues are reported in Table 7 and Table 8 for the AM and PM periods, respectively.

TABLE 7: 95TH PERCENTILE QUEUE LENGTHS AM PEAK PERIOD

APPROACH	MOVEMENT	HOLGATE & 1ST	HOLGATE & OCCID-ENTAL	HOLGATE & 3RD	HOLGATE & 4TH	HOLGATE & SODO BUSWAY	HOLGATE & 6TH	HOLGATE & AIRPORT
NORTH-BOUND	Left	25	-	-	85	-	-	70
	Thru	265	85	80	775	130	245	160
	Right	-	-	-	-	-	-	-
SOUTH-BOUND	Left	50	-	-	135	-	-	-
	Thru	135	215	60	260	80	155	120
	Right	-	-	-	-	-	-	-
EAST-BOUND	Left	-	-	-	**150**	-	35	80
	Thru	70	0	180	105	110	85	-
	Right	-	-	-	-	-	-	60
WEST-BOUND	Left	-	-	-	**285**	-	60	-
	Thru	**255**	130	**270**	**315**	250	150	-
	Right	-	-	-	-	-	-	-

Bold = Exceeds Storage Capacity

TABLE 8: 95TH PERCENTILE QUEUE LENGTHS PM PEAK PERIOD

APPROACH	MOVEMENT	HOLGATE & 1ST	HOLGATE & OCCID-ENTAL	HOLGATE & 3RD	HOLGATE & 4TH	HOLGATE & SODO BUSWAY	HOLGATE & 6TH	HOLGATE & AIRPORT
NORTH-BOUND	Left	60	-	-	50	-	-	125
	Thru	265	65	45	390	120	260	50
	Right	-	-	-	-	-	-	-
SOUTH-BOUND	Left	85	-	-	**280**	-	-	-
	Thru	305	135	35	470	120	220	255
	Right	-	-	-	-	-	-	-
EAST-BOUND	Left	-	-	-	**240**	-	25	80
	Thru	**205**	0	105	**190**	160	140	-
	Right	-	-	-	-	-	-	65
WEST-BOUND	Left	-	-	-	**365**	-	90	-
	Thru	**235**	35	90	**365**	**330**	180	-
	Right	-	-	-	-	-	-	-

Bold = Exceeds Storage Capacity

DELAY AND LOS

Congestion along S Holgate St is highly dependent on the length and frequency of unpredictable train crossing events (see Figure 6 and Table 3). This causes a wide distribution of delay experienced at each intersection and excessive delay resulting in LOS E-F when crossing events last greater than 1 minute (LOS E begins at 55 seconds of incurred delay). Intersection LOS on the corridor ranges from A-F. The intersections closest to the rail crossings gates (Sound Transit LRT tracks east of 4th Ave S (adjacent to the SODO Busway), BNSF mainline tracks west of 3rd Ave S (DOT#927461X), and Amtrak maintenance facility tracks east of Occidental Ave S (DOT#085583Y) experience the greatest delay and worst LOS (F) rating in the study area. Through movements going eastbound and westbound are prioritized on the corridor resulting in LOS F for many side street and turning movements. For example, the left turning movements at S Holgate St and 4th Ave S exceeds 5 minutes of delay going northbound, southbound, and westbound due to the congestion on S Holgate St, signal operations during preemption, and minimal green time allocated to the movements. Figure 15 displays intersection LOS; Table 9 and Table 10 include intersection delay and LOS for the AM and PM peak periods, respectively.

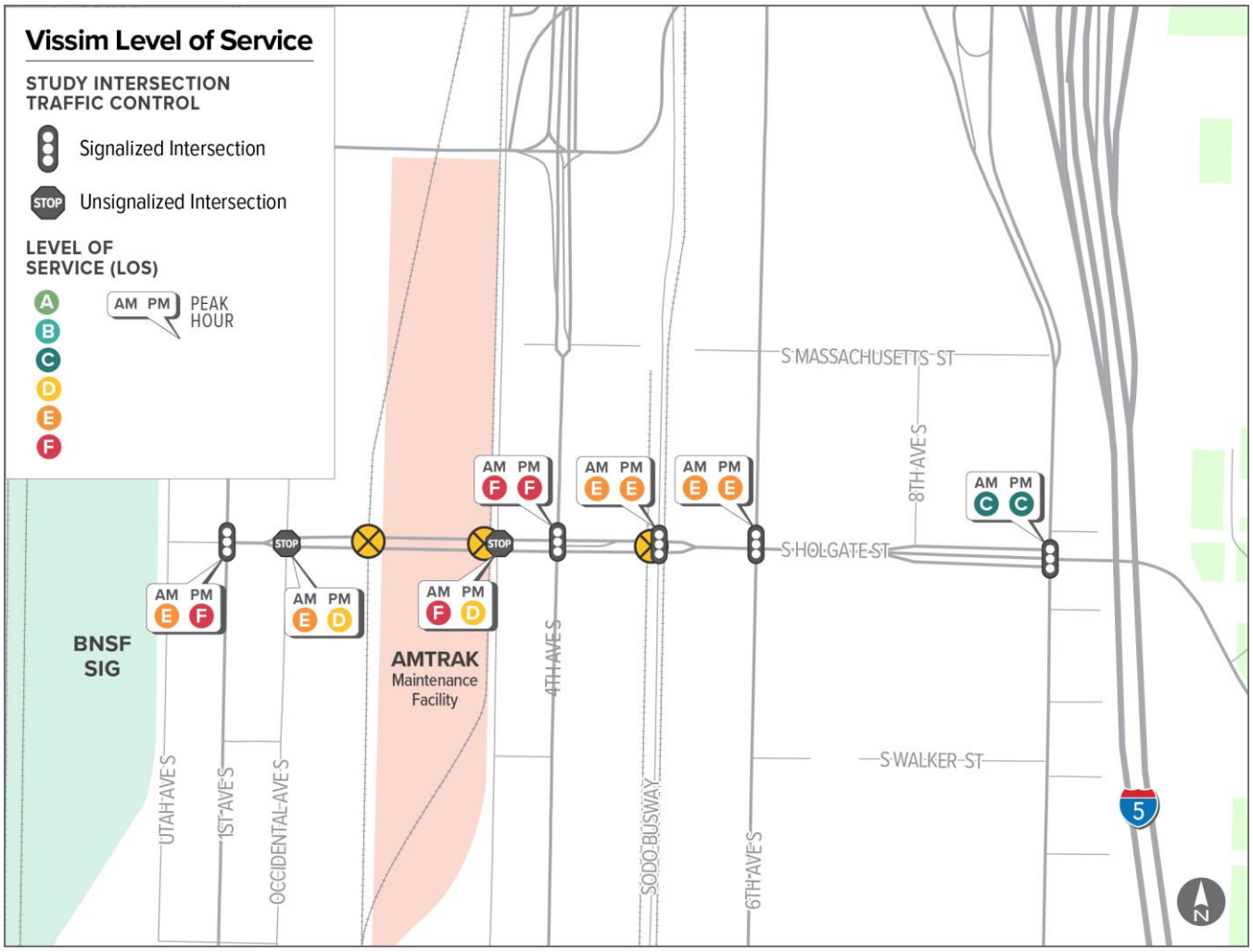


FIGURE 15: EXISTING CONDITIONS AM AND PM PEAK HOUR LOS RESULTS – VISSIM

TABLE 9: AM PEAK DELAY (SECONDS) AND LOS RESULTS

APPROACH	MOVEMENT	HOLGATE & 1ST	HOLGATE & OCCID-ENTAL	HOLGATE & 3RD	HOLGATE & 4TH	HOLGATE & SODO BUSWAY	HOLGATE & 6TH	HOLGATE & AIRPORT
NORTH-BOUND	Left	33 (C)	48 (E)	148 (F)	345 (F)	-	127 (F)	45 (D)
	Thru	46 (D)	39 (E)	46 (E)	145 (F)	85 (F)	126 (F)	17 (B)
	Right	48 (D)	28 (D)	35 (E)	147 (F)	49 (D)	122 (F)	-
SOUTH-BOUND	Left	29 (C)	77 (F)	11 (B)	304 (F)	-	115 (F)	-
	Thru	31 (C)	71 (F)	26 (D)	98 (F)	65 (E)	105 (F)	15 (B)
	Right	36 (D)	69 (F)	47 (E)	167 (F)	25 (C)	121 (F)	37 (D)
EAST-BOUND	Left	228 (F)	11 (B)	101 (F)	185 (F)	40 (D)	42 (D)	167 (F)
	Thru	56 (E)	1 (A)	157 (F)	125 (F)	36 (D)	27 (C)	-
	Right	240 (F)	3 (A)	151 (F)	129 (F)	-	27 (C)	8 (A)
WEST-BOUND	Left	178 (F)	70 (F)	101 (F)	344 (F)	-	42 (D)	-
	Thru	186 (F)	68 (F)	174 (F)	282 (F)	86 (F)	41 (D)	-
	Right	198 (F)	25 (C)	68 (F)	220 (F)	53 (D)	48 (D)	-
INTERSECTION TOTAL		**73 (E)**	**48 (E)**	**130 (F)**	**165 (F)**	**70 (E)**	**63 (E)**	**22 (C)**

TABLE 10: PM PEAK DELAY (SECONDS) AND LOS RESULTS

APPROACH	MOVEMENT	HOLGATE & 1ST	HOLGATE & OCCID-ENTAL	HOLGATE & 3RD	HOLGATE & 4TH	HOLGATE & SODO BUSWAY	HOLGATE & 6TH	HOLGATE & AIRPORT
NORTH-BOUND	Left	66 (E)	45 (E)	39 (E)	346 (F)	83 (F)	147 (F)	148 (F)
	Thru	79 (E)	30 (D)	29 (D)	120 (F)	161 (F)	141 (F)	8 (A)
	Right	84 (F)	26 (D)	33 (D)	133 (F)	75 (E)	138 (F)	-
SOUTH-BOUND	Left	68 (E)	44 (E)	41 (E)	357 (F)	-	155 (F)	-
	Thru	68 (E)	45 (E)	32 (D)	90 (F)	115 (F)	140 (F)	14 (B)
	Right	50 (D)	41 (E)	42 (E)	90 (F)	33 (C)	144 (F)	13 (B)
EAST-BOUND	Left	218 (F)	6 (A)	9 (A)	224 (F)	-	56 (E)	204 (F)
	Thru	224 (F)	1 (A)	49 (E)	129 (F)	42 (D)	38 (D)	-
	Right	209 (F)	3 (A)	57 (F)	128 (F)	25 (C)	43 (D)	14 (B)
WEST-BOUND	Left	185 (F)	36 (E)	5 (A)	501 (F)	-	65 (E)	-
	Thru	187 (F)	37 (E)	23 (C)	208 (F)	101 (F)	54 (D)	-
	Right	201 (F)	12 (B)	3 (A)	299 (F)	67 (E)	46 (D)	-
INTERSECTION TOTAL		**104 (F)**	**26 (D)**	**35 (D)**	**157 (F)**	**74 (E)**	**76 (E)**	**21 (C)**

NETWORK PERFORMANCE

AM and PM network performance are shown in Table 11 and Table 12, respectively. Network performance was measured through system network delay (reported as vehicle hours of delay), system unserved demand (latent demand and latent delay), vehicle miles traveled, and travel time. Overall, there is more demand in the PM model resulting in higher total delay, latent demand (unrealized demand that is unable to enter the network), and latent delay (unrealized delay related to latent demand). On average, the AM and PM periods experience similar levels of average delay (35.1 and 34.5 seconds, respectively). Although corridor congestion results in overcapacity intersection approaches and long delays, particularly in the westbound direction, the network performance results show that >99% of the demand is processed within each period.

TABLE 11: AM NETWORK PERFORMANCE RESULTS

	AVERAGE DELAY / VEH (SEC)	VEHICLE HOURS OF DELAY (HRS)	LATENT DEMAND (VEH)	LATENT DELAY (VEH-HRS)	VEHICLE MILES TRAVELED (MI)	TRAVEL TIME (HRS)	THROUGH-PUT
AVG	35.1	56.3	0.4	0.8	2784.5	151.4	5620
STDDEV	3.5	5.6	0.5	0.3	10.5	5.8	17
MIN	30.9	49.4	0.0	0.5	2767.1	144.4	5588
MAX	41.1	65.8	1.0	1.4	2798.8	161.5	5645

TABLE 12: PM NETWORK PERFORMANCE RESULTS

	AVERAGE DELAY / VEH (SEC)	VEHICLE HOURS OF DELAY (HRS)	LATENT DEMAND (VEH)	LATENT DELAY (VEH-HRS)	VEHICLE MILES TRAVELED (MI)	TRAVEL TIME (HRS)	THROUGH-PUT
AVG	34.5	66.0	3.2	2.0	3187.6	173.8	6721
STDDEV	1.2	2.3	5.8	3.2	7.2	2.4	20
MIN	32.9	62.8	0.0	0.5	3174.5	170.4	6687
MAX	36.8	70.5	18.0	11.2	3198.3	178.9	6752

RESULTS SUMMARY

Traffic operations on S Holgate St are strongly affected by unpredictable train activity along the corridor. The length and frequency of crossing events contribute to delay and queueing, particularly during peak travel periods. Consistent with existing conditions in the field, westbound travel experiences higher delay and longer queues than eastbound traffic, resulting in spillback through upstream intersections from 4th Ave S to 6th Ave S. The eastbound direction also experiences delay and queuing associated with the rail crossing gates, though the queues do not spill back to upstream intersections. Side street operations were found to be affected by congestion on S

Holgate St and rail crossing events with movements crossing and turning onto S Holgate St experiencing high delay and long queues.

NON-MOTORIZED CONDITIONS

The existing conditions for people walking and biking were evaluated using Level of Traffic Stress (LTS), a method that rates the comfort of using the facility on a scale of 1 to 4. A lower score indicates lower stress and a more comfortable experience, while a higher score reflects greater stress due to traffic, speed and roadway design. For this study, WSDOT definitions for pedestrian and bicycle LTS were used, as provided in the WSDOT Design Manual[5]. WSDOT targets LTS 1 or LTS 2 for complete streets projects.

LTS is influenced by factors including the width of the pedestrian and bicycle facilities, separation from motor vehicles, the number of vehicular travel lanes, traffic volumes, and posted speeds. The WSDOT definitions of LTS do not consider factors such as presence of driveways, pavement condition, ADA accessibility (including curb ramps), or the nature/quality of the barrier between walking/rolling facilities and vehicle lanes. While LTS scores provide a good starting point and a high-level overview of a corridor's suitability for walking and rolling, caution should be used when applying an LTS score to assess a corridor's multi-modal accessibility and overall comfort level.

PEDESTRIAN LEVEL OF TRAFFIC STRESS (LTS)

Pedestrian LTS for the SODO study area was determined using the *WSDOT Design Manual* Section 1510.02(5)(a). Data for the analysis was primarily sourced from the City of Seattle GeoData portal, and additional data was collected using Google Street View and volume counts from IDAX. The resulting LTS for the segments in this analysis are shown in Figure 16.

The pedestrian LTS analysis shows a mixture of low- and high-stress facilities throughout SODO. These higher stress locations often occur where pedestrian infrastructure is present on roads with higher vehicle speeds and volumes. This can result in conflicting influences: quality facilities can reduce stress, while heavy traffic can increase it. In some areas, low stress ratings may reflect low traffic activity rather than high-quality pedestrian design, especially in the industrial parts of SODO.

The main north-south roadways through SODO (1st Ave S, 4th Ave S, 6th Ave S, and Airport Way S) were mainly low-stress (LTS 1 or 2) due to the presence of parking or a concrete or landscape barrier between vehicle lanes and the sidewalk, despite being along relatively high-traffic roads that include 2-3 lanes in each direction. While the experienced comfort of these roads may not match the analysis results, this points to opportunities to improve walking comfort along SODO's main roadways by using the existing cross section (for example, by improving or better-defining some of the barriers between vehicle and pedestrian travel lanes).

East-west facilities showed more distinct gaps in low-stress walking facilities, especially over the rail tracks between Occidental Ave S and 3rd Ave S. While Edgar Martinez Dr S and S Royal Brougham Way had low-stress (LTS 2) walking facilities, both roads require traversing a staircase between the stadiums and 4th Ave S.

[5] See WSDOT Design Manual, Sections 1510.02 and 1520.02 for Level of Traffic Stress guidance for pedestrians and bicycles, respectively.

BICYCLE LEVEL OF TRAFFIC STRESS (LTS)

Bicycle LTS for the SODO study area was determined using the *WSDOT Design Manual* Section 1510.03(3)(a). Data for the analysis was primarily sourced from the City of Seattle GeoData portal, and additional data was collected using Google Street View and volume counts from IDAX. The resulting bicycle LTS for the segments in this analysis are shown in Figure 17.

The analysis found that major roadways, including 1st Ave S, 4th Ave S, 6th Ave S, Airport Way S, and S Holgate St, typically provide high or very high stress environments for people biking. However, low and very low stress segments were identified elsewhere, such as along E Marginal Way S where the new protected bike lane facility was assumed to be completed. As with pedestrian LTS, some low-stress ratings may reflect low traffic volumes and speeds rather than dedicated or protected bicycle infrastructure.

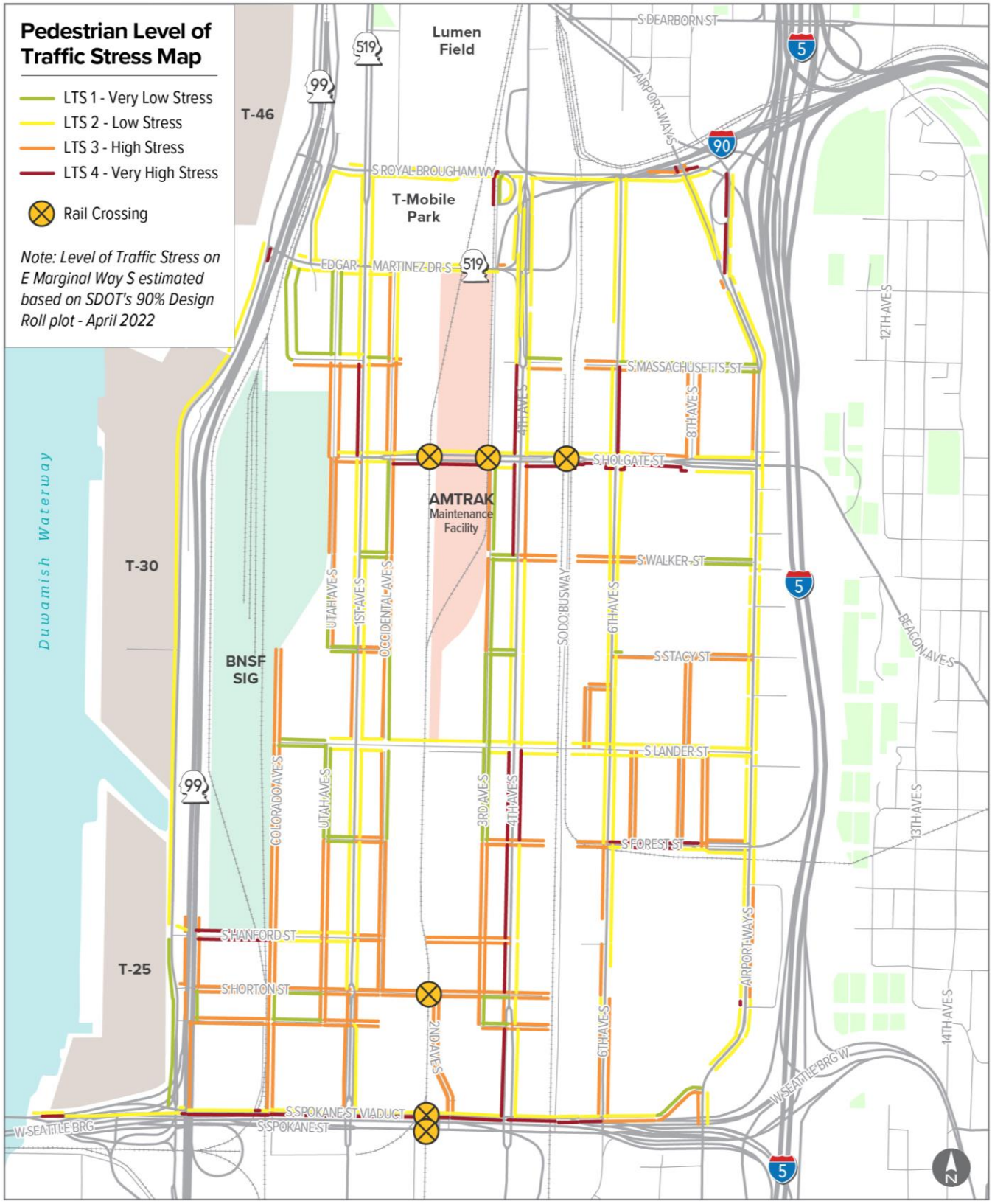


FIGURE 16: PEDESTRIAN LEVEL OF TRAFFIC STRESS (LTS)

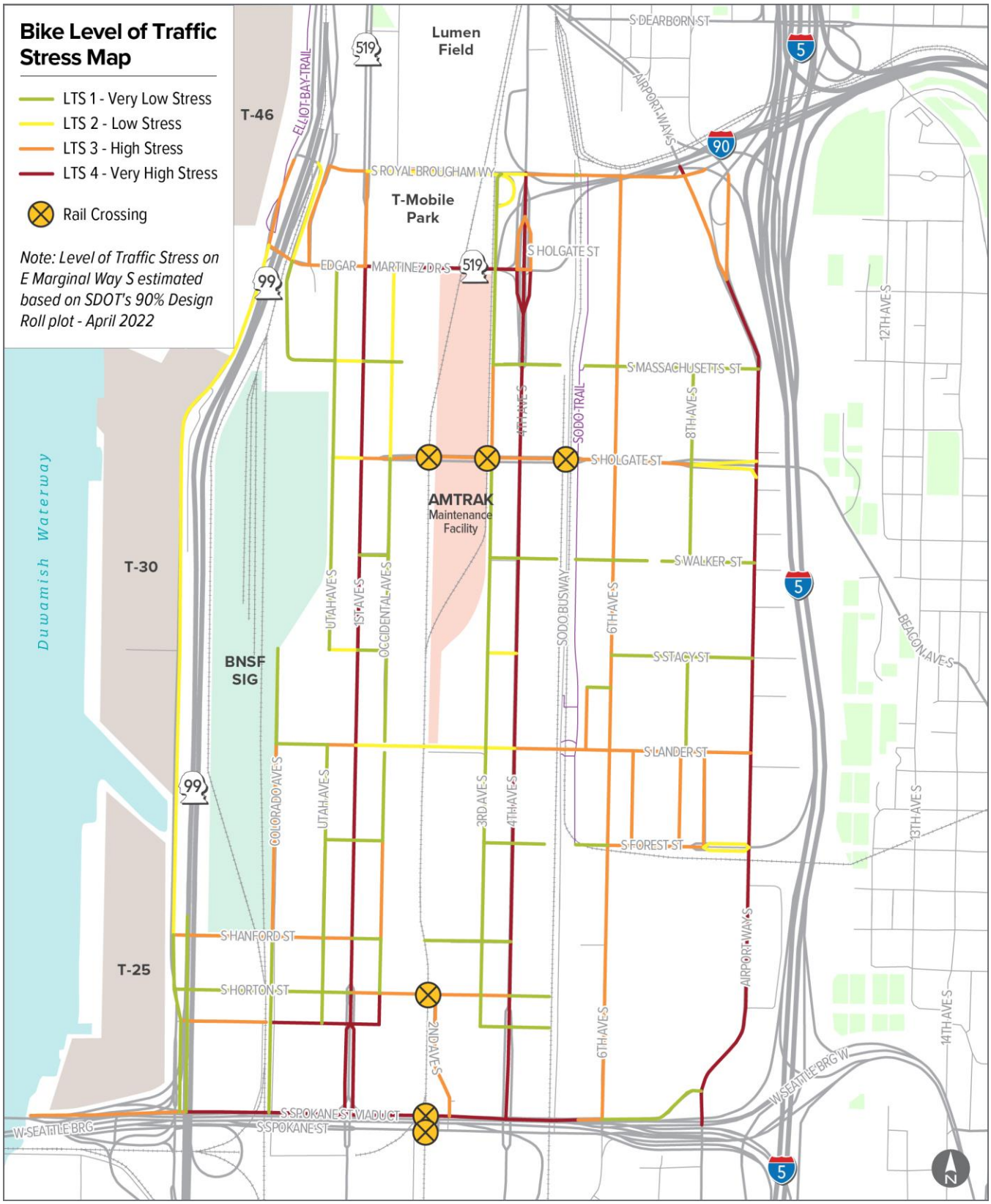


FIGURE 17: BICYLE LEVEL OF TRAFFIC STRESS (LTS)

FREIGHT TRUCK OPERATIONS

The SODO district in Seattle is part of the Duwamish Manufacturing and Industrial Center (MIC) and is also a Business Improvement Area (BIA). The district is home to a portion of the Port of Seattle and a large intermodal freight facility. Freight traffic in the area therefore is a combination of trips accessing local businesses and those carrying goods from the Port facilities to the wider region and across the country, either by truck directly or by transferring to freight rail.

This section first discusses the main freight truck trip generators in SODO and the main times of day and day of week for freight activity. Next, the origin-destination travel patterns for freight trips into and out of SODO – along with trips passing through the area – are analyzed. Lastly, the main routes taken by these trips are discussed, with a focus on the freight truck trips using the S Holgate St rail crossing.

NOTES ON METHODOLOGY

Much of the overall freight truck activity in SODO was analyzed through StreetLight Data, which uses a variety of data sources, including in-vehicle and personal navigation apps, to source their input data and produce aggregate truck volume and route estimates. For most freight truck trips in SODO and general truck routes into and out of the district, StreetLight Data produced analysis results that drew from a representative sample size. For some trip sets – in particular, trips related to Terminal 30 and trips to the BNSF Intermodal Facility – there were significant gaps in data, and it was determined that other sources/assumptions would be needed to represent these trips.

To supplement the analysis from Streetlight Data, trip distribution figures for Terminal 30 came from the October 2024 report *Cargo Terminal Access Strategy for Seattle Harbor*[6], which provided forecasts of all Port of Seattle terminal operations. Streetlight Data is still used to assess freight traffic around SODO as a whole, as a much larger sample size of general freight traffic data was obtained for general freight vehicles in SODO.

FREIGHT TRUCK ACTIVITY

Truck activity in SODO can be divided into three main generators: the Port of Seattle Terminal 30, the BNSF SIG Intermodal Facility, and the individual industries/business in the SODO study area. The first two parts of this section go into detail about the individual Terminal 30 and BNSF SIG Intermodal Facility, while the last section compares freight activity over SODO as a whole.

PORT OF SEATTLE TERMINAL 30

RFID scan data of freight trucks entering and exiting Terminal 30 was provided by the Northwest Seaport Alliance for April through December 2024. The average daily profile of trucks entering and exiting Terminal 30 is shown in Figure 18.

[6] See Cargo Terminal Access Strategy for Seattle Harbor. Produced for the Northwest Seaport Alliance by Heffron Transportation, Inc. October 2024.

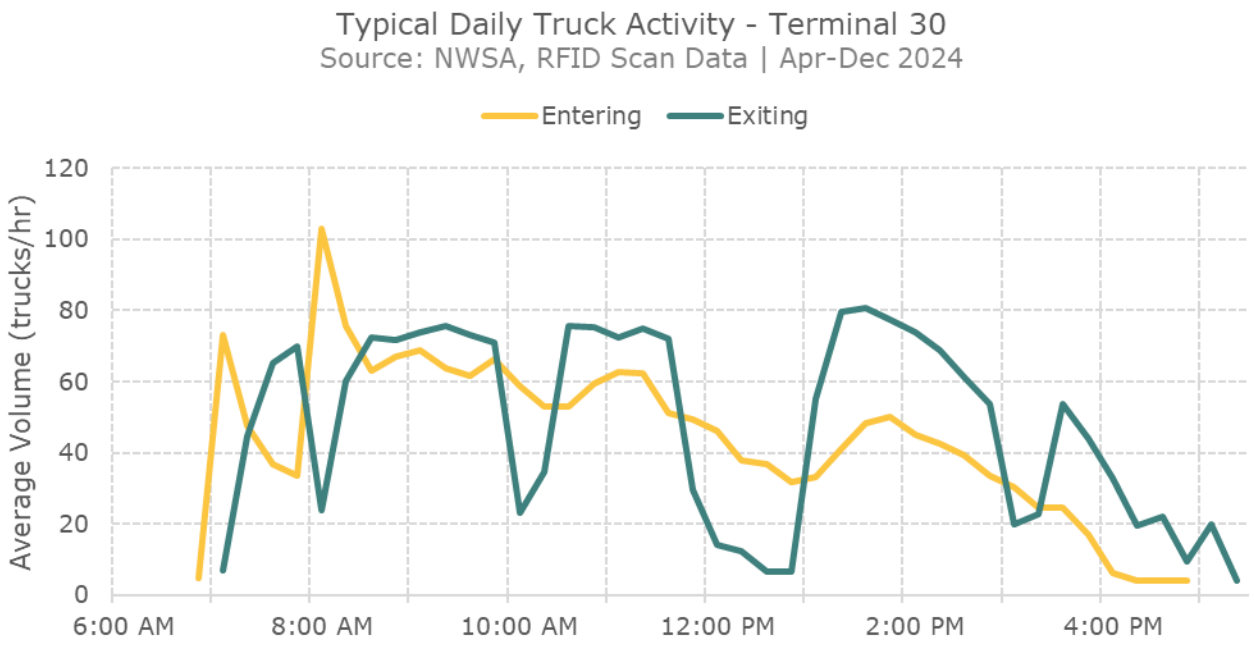


FIGURE 18: TYPICAL DAILY TRUCK ACTIVITY – TERMINAL 30

Terminal 30 generally has the highest amount of overall activity in the morning, roughly between 8:00-10:00 am, and overlapping with a typical commuting peak. Truck volumes during this period peak at a total of around 140 trucks per hour. This activity – with the exception of pauses as shown in the exiting truck volumes – remains fairly steady throughout the morning and drops off through the afternoon.

BNSF SIG INTERMODAL FACILITY

Freight truck data for the BNSF rail yard facilities was meant to center around its two main access points: the south entrance along S Hanford Street (referred to as South SIG), and the north entrance on S Massachusetts Street to the west of Utah Avenue S (referred to as North SIG). However, at the time of this report, data on freight truck access is not available, either through BNSF or through StreetLight Data. Figures for trips related to this facility are covered as part of the section *Access To Terminal 30* starting on page 45.

OVERALL FREIGHT TRUCK ACTIVITY GENERATED IN SODO

As an industrial and commercial center, SODO generates freight truck activity throughout the district. Figure 19 shows that freight movement is highest during the morning and midday periods on weekdays, with minimal activity on weekends. To analyze where freight activity was concentrated, SODO was divided into several zones based on major roadways and rail corridors, including Terminal 30 (Port of Seattle) and the BNSF rail yard facilities. Based on StreetLight Data, as shown in Figure 21, weekday freight activity is primarily centered around local businesses and industrial operations. Terminal 30 contributes less than 10 percent of total truck traffic in the area. Note that activity at the BNSF rail yard is not included in the data. Freight traffic is particularly

concentrated toward the southeast parts of the district, south of S Holgate St and east of the SODO Busway.

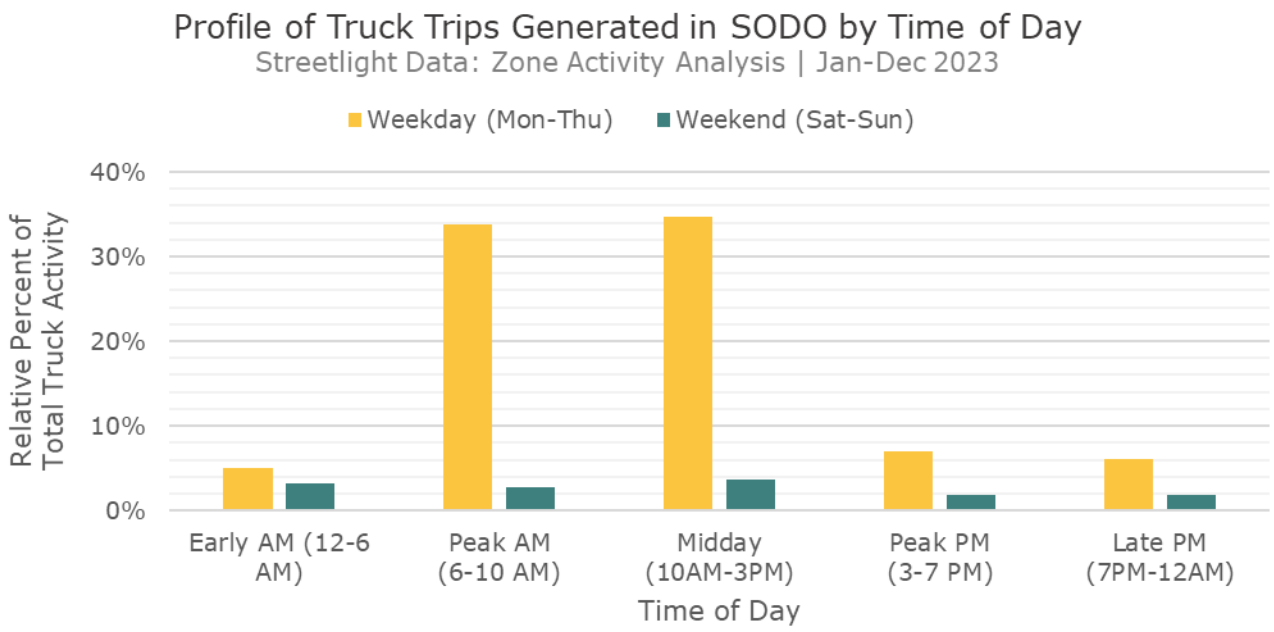
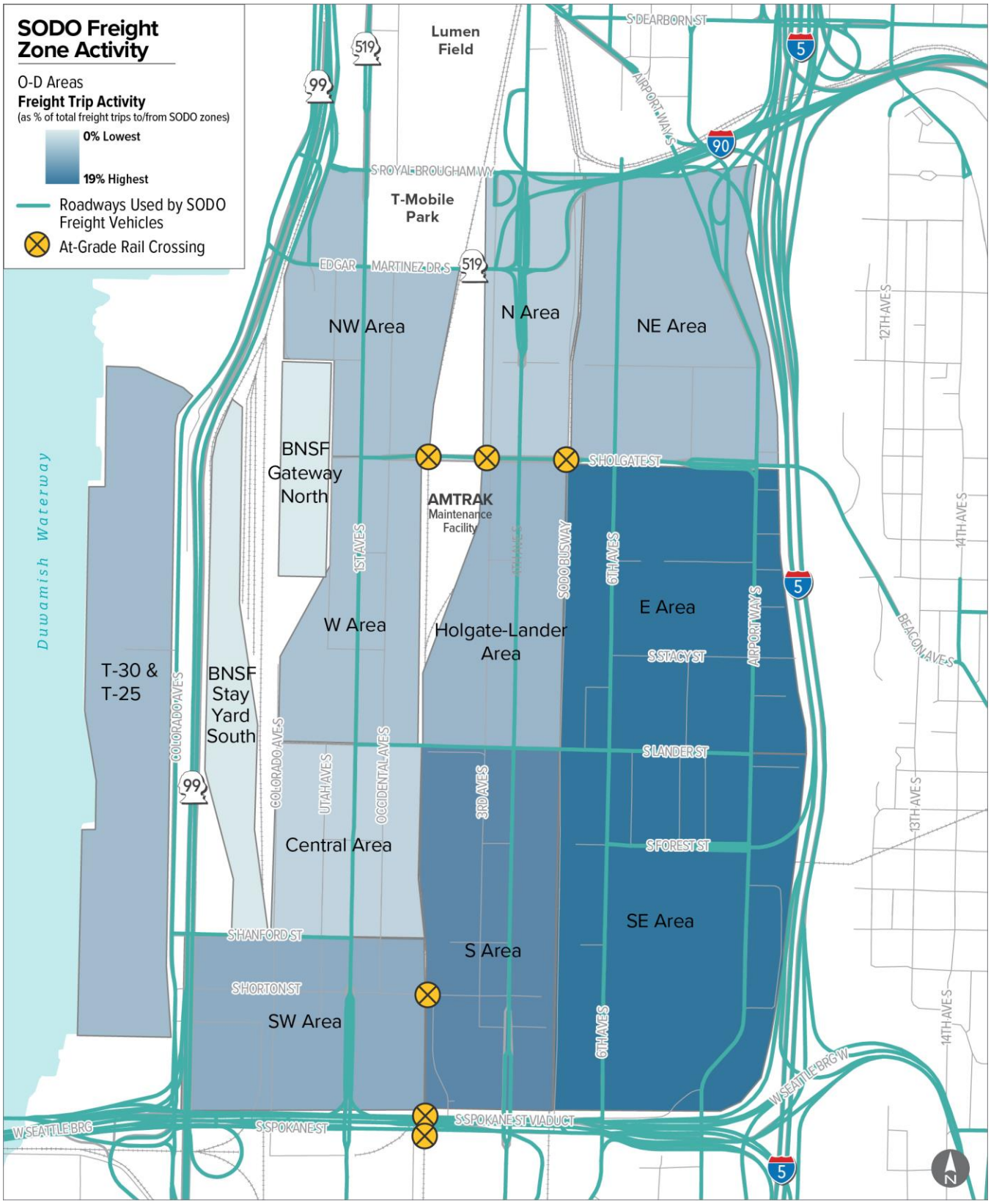
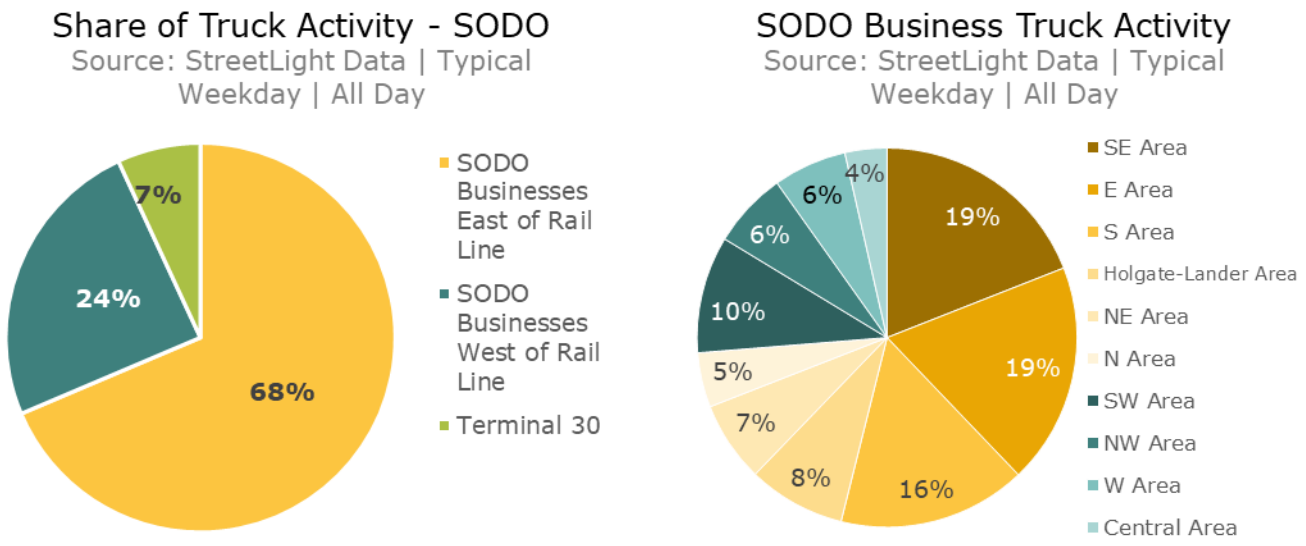


FIGURE 19: TIME OF DAY FREIGHT TRUCK ACTIVITY IN SODO FOR WEEKDAYS AND WEEKENDS



Source: StreetLight Data, Zone Activity | Heavy Duty Trucks | Mon-Thu, all-day | Jan-Dec 2023

FIGURE 20: FREIGHT TRUCK ACTIVITY BY ZONE IN SODO



BNSF SIG Intermodal Facility not included due to lack of data

FIGURE 21: FREIGHT TRUCK RELATIVE ACTIVITY IN SODO

KEY FREIGHT MOVEMENTS/DESTINATIONS

This section discusses the nature of trips both generated by sites in SODO (including Terminal 30) and trips passing through the area. It includes a brief overview of the main origins/destinations of freight truck trips accessing Terminal 30.

TRUCK TRIP PATTERNS THROUGH SODO

While the previous section focused on freight activity generated within SODO, a large portion of freight traffic in the area is not generated by these sites. Instead, many trucks use the arterial roadways in SODO to travel through the district (noted here as pass-through trips) between regional highways and freight corridors.

Figure 22 shows truck trips by time of day and trip type. A majority of freight traffic is passing through SODO rather than generated by businesses or port/rail facilities. While the morning peak and midday see similar levels of traffic generated inside SODO, freight traffic passing through the area is significantly higher in the late morning and early afternoon.

Most pass-through trips are concentrated along Edgar Martinez Drive S, which serves as a key connection between I-90 to the east and SR 99 or 1st Ave S to the west. Not counting this sub-set of cut-through trips, traffic elsewhere in SODO is roughly evenly distributed between activity generated in the area versus passing through.

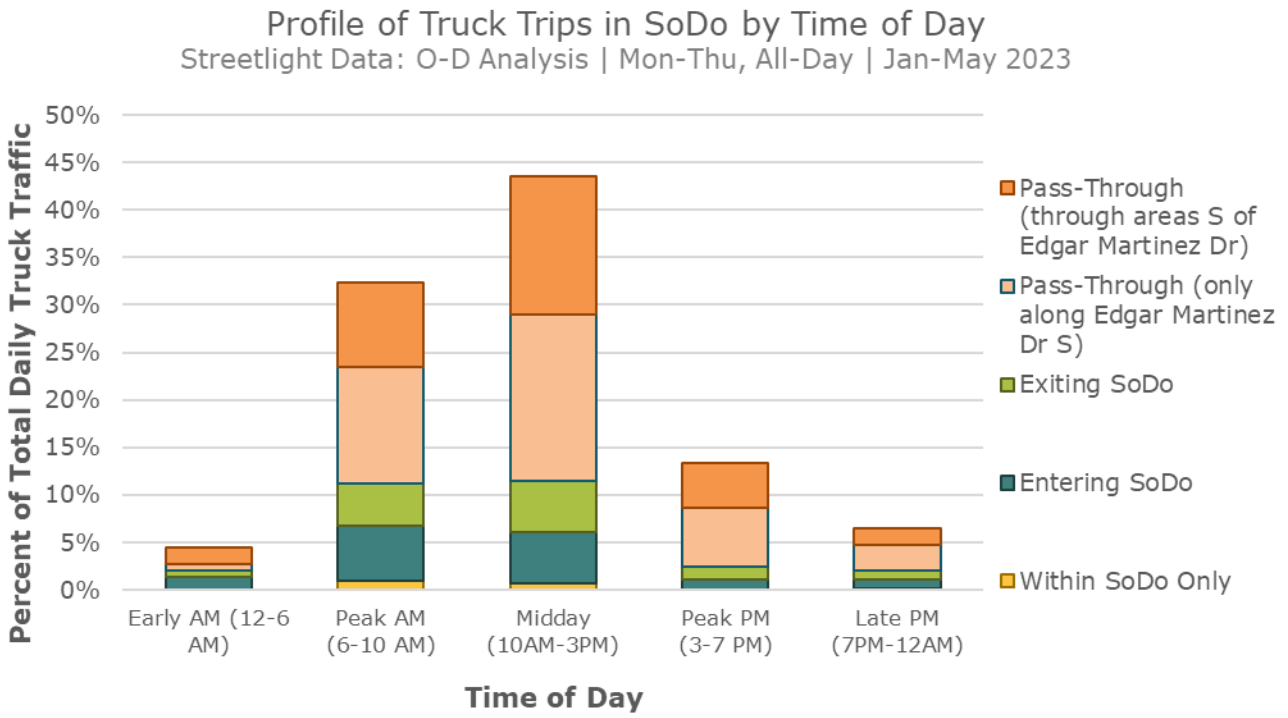


FIGURE 22: PROFILE OF TRUCK TRIPS IN SODO BY TIME OF DAY

ACCESS TO TERMINAL 30

As Streetlight Data was found to not reflect trips to/from Terminal 30 and the BNSF SIG Intermodal Facility, trip distribution figures around this terminal came from data and forecasts provided by the Northwest Seaport Alliance.

Figure 23 summarizes the primary travel routes for freight trips to and from Terminal 30. Over two-thirds of Terminal 30 trips travel to/from the wider region, with the majority of these trips to the south along I-5 and SR 99 or SR 509. Truck trips that stay local to the area mainly travel between Terminal 30 and the BNSF SIG Intermodal Facility (all of these trips use the south entrance off of S Hanford St rather than the north entrance off of S Massachusetts Ave). A smaller portion of Terminal 30 trips stay locally in SODO, with 8% traveling to and from individual businesses in the area.

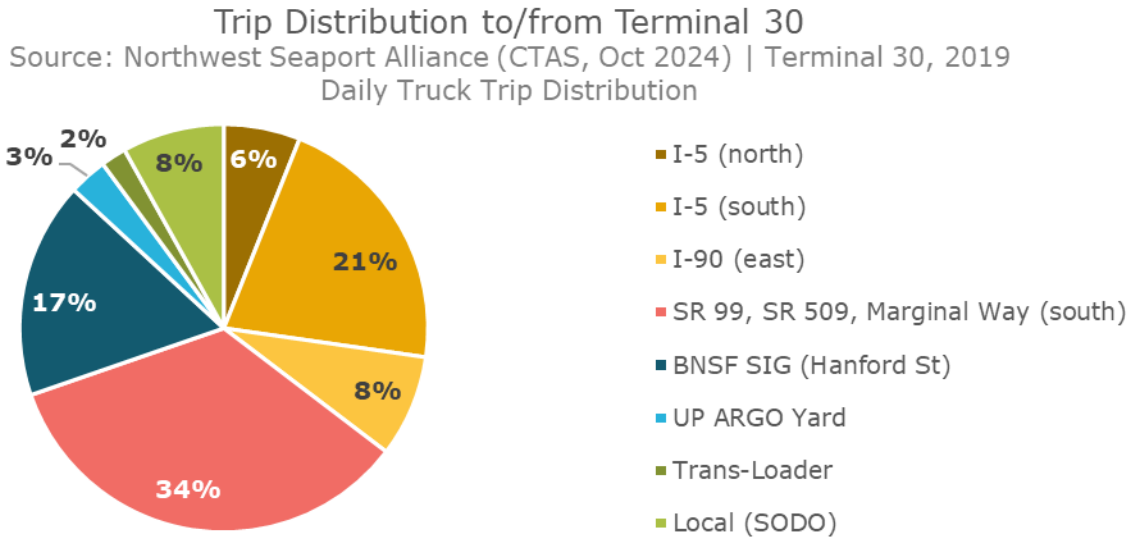
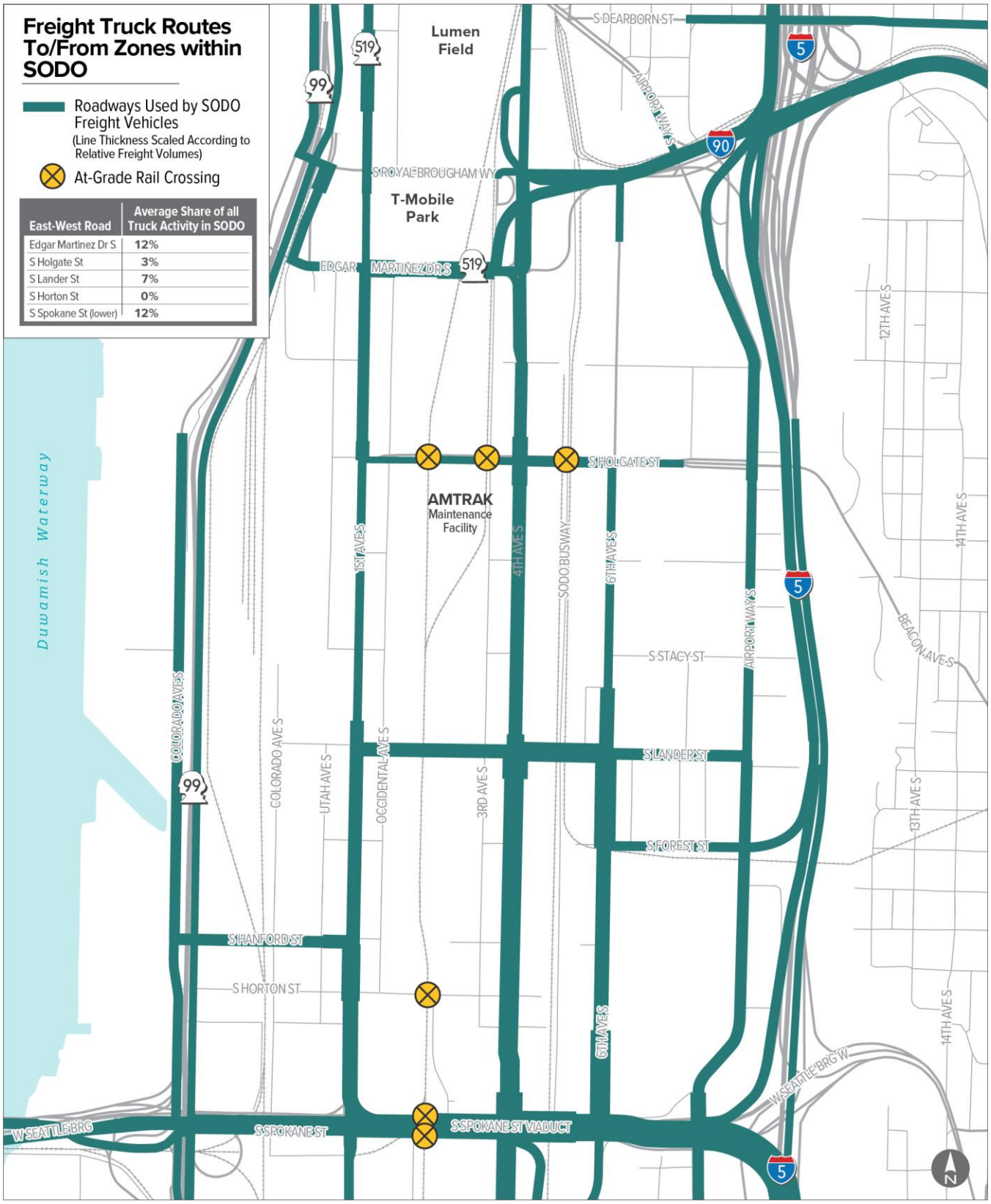


FIGURE 23: TRIP ORIGINS/DESTINATIONS FOR PORT OF SEATTLE TERMINAL 30

ROUTES THROUGH SODO

StreetLight Data was used to identify the main routes used by freight trucks traveling to or from businesses, port terminals, and rail facilities within SODO. Figure 24 shows the freight truck trips either starting or ending within SODO (including Terminal 30); the figure does not include pass-through freight trips in SODO. The share of truck activity (as a percent of all freight trips starting or ending in SODO) is also given for each east-west roadway over the main freight rail line.

The most frequently used crossings by freight trucks are Edgar Martinez Drive S and the lower level of S Spokane St, each accounting for 12 percent of all SODO-based truck trips. These routes provide the most direct access to I-5 and I-90 and are key freight corridors for regional travel. In contrast, S Holgate St is used by 3 percent of all SODO-based truck trips and S Lander St accounts for 7 percent of all SODO freight traffic; these roadways primarily serve local freight activity that stays within SODO. The Spokane St Viaduct does not carry much freight traffic going into or out of SODO (this analysis did not consider freight trips traveling on the Viaduct toward Terminal 5 or Harbor Island) – it accounts for around 3 percent of all freight traffic, almost entirely using the ramps to/from 1st Ave S.



Source: StreetLight Data, Top Routes for Zones | Heavy Duty Trucks | Mon-Thu, all-day | Jan-Dec 2023

FIGURE 24: TRUCK TRIP ROUTES TO/FROM PORT, RAIL & SODO ZONES

EVENT OPERATIONS

The following sections describe typical stadium events and their effects on the surrounding transportation network. Topics include the types and frequency of events at Lumen Field and T-Mobile Park, how traffic is managed during large events, and the role of S Holgate St in accommodating event-related travel.

TYPICAL EVENTS AT LUMEN FIELD AND T-MOBILE PARK

Sporting events constitute the majority of events that occur at both Lumen Field and T-Mobile Park. However, there are several other events that occur at these stadiums, such as concerts and other public gathering events, including large flat shows such as the Seattle Boat Show and graduation ceremonies. There are several days throughout the year in which both Lumen Field and T-Mobile Park host separate major events—such as a Seahawks, Sounders FC, or Reign FC game at the former and a Mariners game at the latter—which further affects traffic operations in the area. Table 13 and Table 14 detail typical events that occur at Lumen Field and T-Mobile Park throughout a typical year.

TABLE 13: TYPICAL LUMEN FIELD EVENTS

EVENT TYPE	FREQUENCY	TYPICAL ATTENDANCE	TYPICAL DAY OF WEEK	TYPICAL START/END TIME	TYPICAL SEASON
SEATTLE SEAHAWKS	1-3 games per month	65,000 - 70,000	Sunday	1:25 – 4:00 PM	August-January
SEATTLE SOUNDERS	2-4 games per month	28,000 – 35,000	Saturday	2:00 – 4:00 PM 5:30 – 7:30 PM 7:30 – 9:30 PM	February-October
REIGN FC	2-3 games per month	8,000 - 15,000	Sunday	4:30 – 6:30 PM 7:00 – 9:00 PM	March-November
LUMEN FIELD CONCERTS	1-2 events per month	65,000 – 72,000	Saturday	4:00 PM – midnight	Spring-Summer
WAMU THEATER	1-6 events per month	4,000 – 7,000	Friday Saturday	6:00 – 11:00 PM	Year round
LARGE FLAT SHOWS	2-5 events per year	30,000 – 60,000*	Any	10:00 AM – 6:00 PM	Year round

* Typically multi-day events

TABLE 14: TYPICAL T-MOBILE PARK EVENTS

EVENT TYPE	FREQUENCY	TYPICAL ATTENDANCE	TYPICAL DAY OF WEEK	TYPICAL START/END TIME	TYPICAL SEASON
SEATTLE MARINERS	10-15 games per month	25,000 – 35,000	All	1:10 – 3:45 PM 6:40 – 9:15 PM	April-September
CONCERTS	1-2 events per month	35,000 – 45,000	Thursday, Friday, Saturday	6:00 – 11:00 PM	Summer
GRADUATION CEREMONIES	4-6 events per year	2,500 – 20,000	All	Afternoon	June
ENCHANT CHRISTMAS (WINTER ICE RINK)	Every day	8,000 – 15,000 per day	All	4:00 – 11:00 PM	November 22 – December 29 (in 2024)

STADIUM EVENT TRAFFIC CONTROL

In 2024, 44% of attendees drove to events at Lumen Field. Of the 56% of attendees who did not drive to the event in their personal vehicle, the most common modes of travel were the Link light rail, Sounder commuter rail, walking, and Transportation Network Companies (TNCs), like Uber or Lyft.

Events at T-Mobile Park have a similar mode split to Lumen Field, with 49% of eventgoers driving to the ballpark in 2024. Other popular travel modes are the Link light rail, TNCs, and walking.

Figure 25 and Figure 26 detail typical ingress and egress routes for stadium events. Major ingress/egress routes include I-5 and I-90, which are the regional corridors that provide access to and from the city center. Minor ingress/egress routes include SR-99, the West Seattle Bridge, various north-south surface streets such as 1st Ave S and 4th Ave S, and smaller east-west surface streets such as S Holgate St. In the hours preceding and immediately following events at Lumen Field and T-Mobile Park, traffic control measures are implemented to manage crowd flows and prioritize traffic efficiency. Traffic controls are typically in place two hours before and after the event starts/ends. It can be extended to around three hours for major events at Lumen Field or T-Mobile Park. As a result, some surface streets near the stadium area, such as Occidental Ave S, are closed to through traffic before and after stadium events.

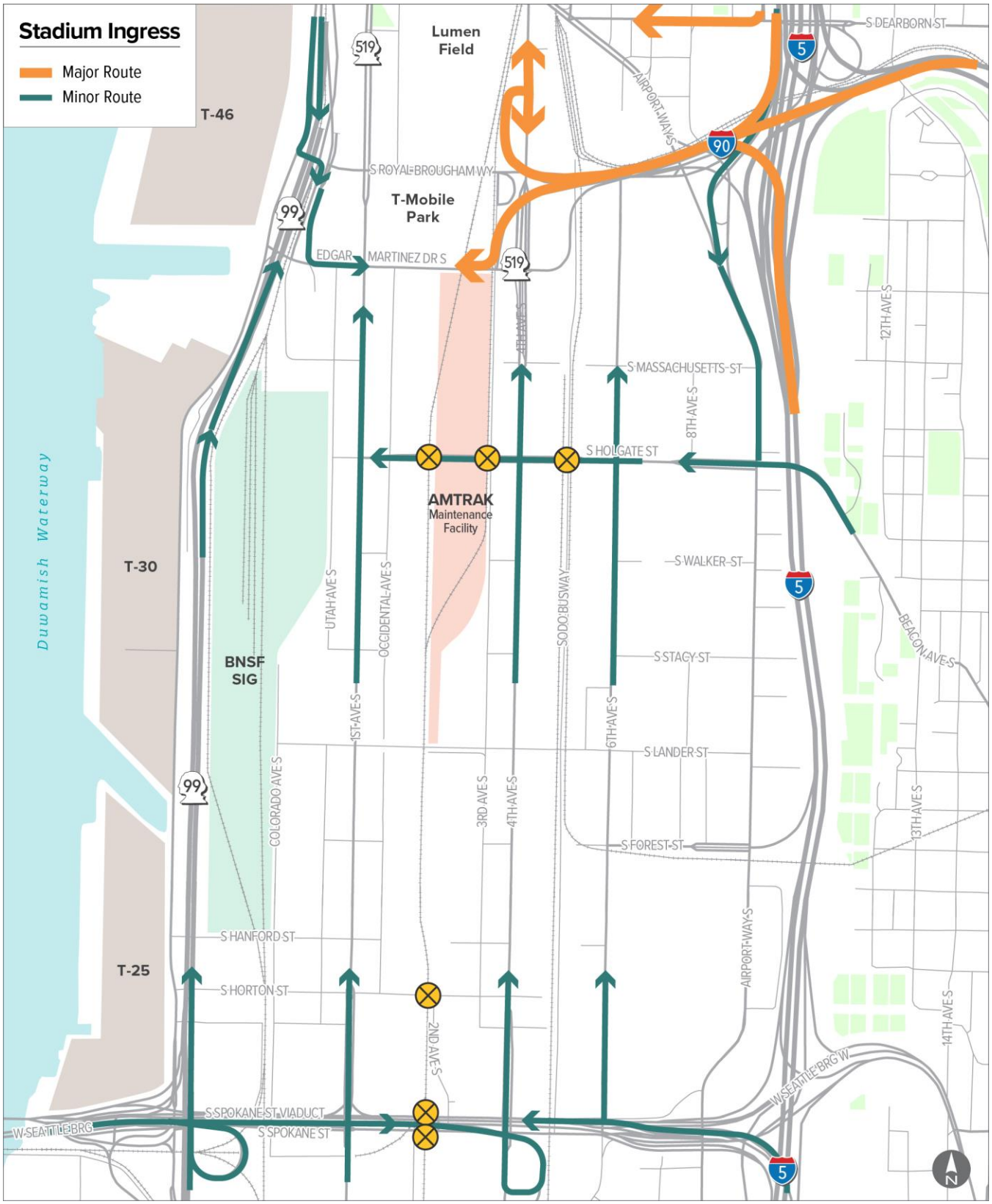


FIGURE 25: TYPICAL INGRESS ROUTES FOR STADIUM EVENTS

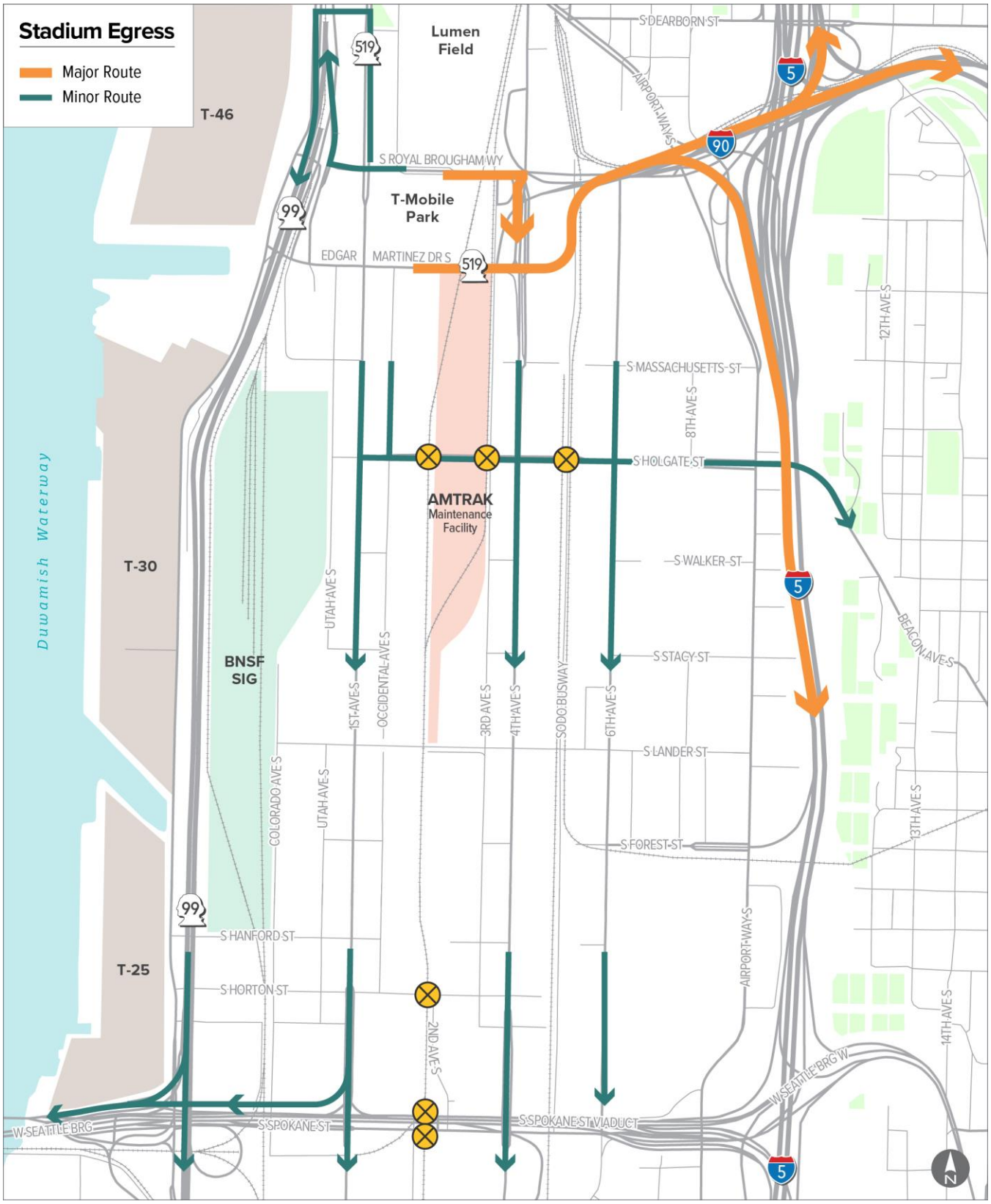


FIGURE 26: TYPICAL EGRESS ROUTES FOR STADIUM EVENTS

ROLE OF S HOLGATE ST FOR LARGE SCALE STADIUM EVENTS

To better understand the role of S Holgate St on days with large-scale events, traffic activity was analyzed over a 24-hour period on a Mariners game day. The selected event was a Seattle Mariners home game against the New York Yankees with a start time of 6:40 PM on Tuesday, May 13, 2025. Intersection turning movement counts were collected primarily along 1st Ave S and S Holgate St. They were broken into 15-minute increments including counts of light and heavy-duty vehicles, as well as pedestrians and bicyclists crossing each leg of the intersection.

Figure 27 shows the 24-hour vehicle counts in 15-minute intervals along S Holgate St east of 1st Ave S on the game day. This figure illustrates a traffic pattern similar to that of a typical urban roadway with AM and PM rush hour peaks. However, while the AM peak occurs around the typical 8-9 AM timeframe, the PM peak extends from the typical 3 PM to as late as 6 PM. The prolonged PM peak correlates with Mariners game's start time of 6:40 PM, indicating that a portion of the PM peak traffic were event related. However, the event-related traffic along S Holgate St did not appear to significantly increase the PM peak hour volume. The data also reveals that heavy vehicles make up about 6.7% of all vehicular traffic on the game day.

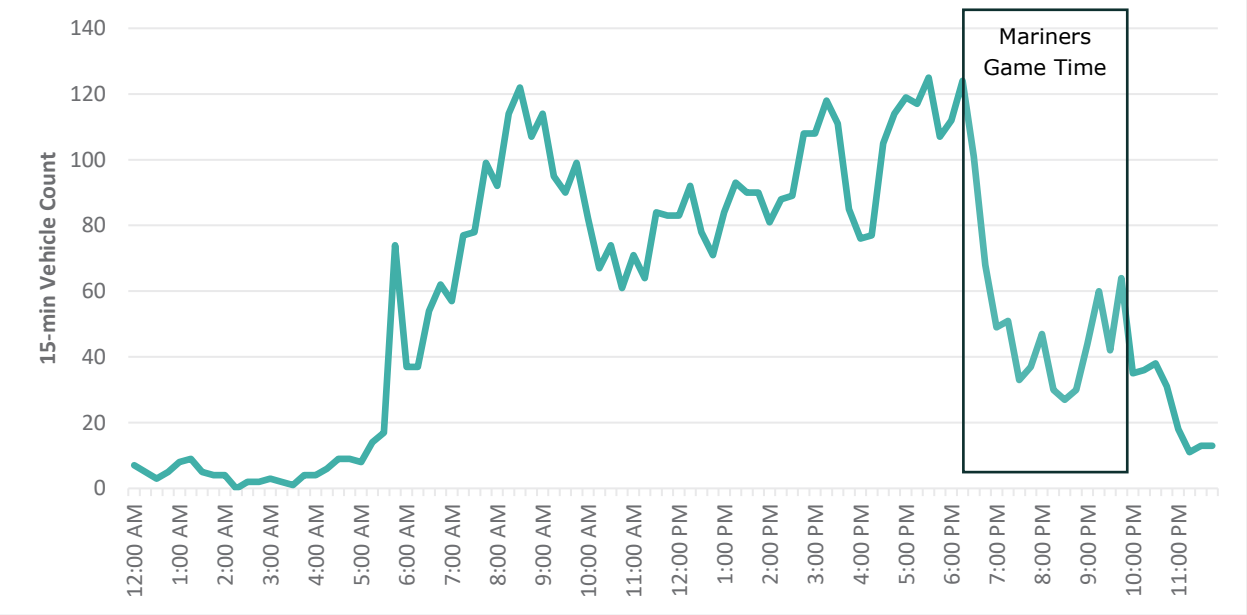


FIGURE 27: HOLGATE ST (EAST OF 1ST AVE S) TRAFFIC COUNT - 5/13/25

When compared to other adjacent streets, S Holgate St carries a relatively small amount of overall vehicular traffic on game days. The segment of S Holgate St immediately east of 1st Ave S saw a total of 5,548 vehicles over the 24-hour period of the game day on May 13th, 2025. This is much lower than other adjacent roadways also used as event ingress/egress routes, such as Edgar Martinez Dr S, S Lander St, 1st Ave S, and 4th Ave S, as shown in Table 15. However, the presence of multiple at-grade railroad crossings on S Holgate St poses challenges to event traffic management. In 2024, a new traffic control post was added by the Seattle Police Department

(SPD) at the BNSF railroad crossing, following concerns about egress traffic from Mariners games blocking railroad tracks.

TABLE 15: GAME DAY VEHICULAR TRAFFIC ON S HOLGATE ST AND NEARBY STREETS

STREET SEGMENT	24-HOUR GAME DAY VEHICULAR TRAFFIC*
S HOLGATE ST (EAST OF 1ST AVE S)	5,500
EDGAR MARTINEZ DR S (EAST OF 1ST AVE S)	25,300
EDGAR MARTINEZ DR S (WEST OF I-90 OFF RAMP)	30,300
S LANDER ST (EAST OF 1ST AVE S)	11,700
1ST AVE S (NORTH OF S HOLGATE ST)	17,800
1ST AVE S (SOUTH OF S HOLGATE ST)	18,400
4TH AVE S (SOUTH OF ROYAL BROUGHAM WAY S)	25,800
4TH AVE S (NORTH OF S FOREST ST)	26,200

*Rounded to the nearest hundred

Pedestrian counts were also collected on the game day and are visualized in Figure 28. There is a substantial increase in pedestrian activity at the intersection of S Holgate St and 1st Ave S before and after the game. The increase in pedestrian traffic prior to the game is more broadly distributed starting two to three hours prior to the game and lasts until the game start, while the post-game traffic increase is more immediate and quicker to return to normal levels.

A comparison of pedestrian volume of S Holgate St with other nearby streets shows that S Holgate St likely carries a small proportion of overall pedestrian travel within the stadium area on game days. Table 16 compares overall pedestrian crossings at various intersections near the stadiums. The only intersection that experiences less pedestrian crossing activity is the S Lander St / 1st Ave S intersection, likely due to its further distance away from the stadium.

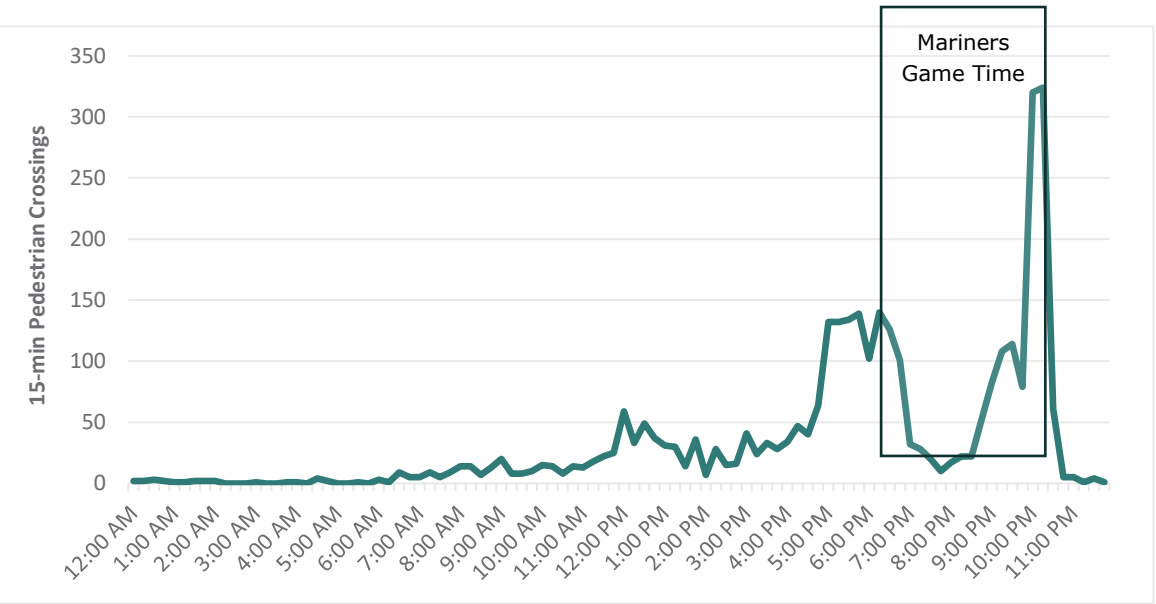


FIGURE 28: PEDESTRIAN CROSSINGS AT S HOLGATE ST AND 1ST AVE S INTERSECTION - MARINERS GAME DAY (05/13/2025)

TABLE 16: TOTAL PEDESTRIAN CROSSINGS AT INTERSECTIONS NEAR THE STADIUMS ON MARINERS GAME DAY (05/13/2025)

INTERSECTION	TOTAL PEDESTRIAN CROSSINGS*
S HOLGATE ST / 1ST AVE S	3,300
EDGAR MARTINEZ DR S / 1ST AVE S	14,700
S LANDER ST / 1ST AVE S	1,700
4TH AVE S / ROYAL BROUGHAM WAY S	12,400

*Rounded to the nearest hundred

Bicycle usage along this segment of S Holgate St is limited, with the traffic count never exceeding four bicyclists within any 15-minute period. In summary, S Holgate St carries a relatively small share of event-related vehicular and pedestrian traffic when compared to its adjacent streets, while it serves as an important east-west connection within the local street network. While its use is lower, the presence of multiple at-grade railroad crossings on S Holgate St, with instances of reported vehicles track-blocking and railroad trespassing by pedestrians, create operational and safety issues along the street during events.

SAFETY ANALYSIS

This section presents key findings from crash history reports and the near-miss analysis conducted using video analytics. The safety analysis is organized into the four sections based on the data set used:

- **SODO Study Area:** This area encompasses the larger SODO study area from S Royal Brougham Way to the north, Airport Way S to the east, S Spokane St to the south and E Marginal Way S to the west. This study area includes all the crashes retrieved from WSDOT Public Disclosure Request Center between January 2020 to December 2024 within the boundary; however, crashes on the West Seattle Bridge, SR-99 and I-5 were excluded from this study area.
- **S Holgate St Corridor Study Area:** This study area involves crashes retrieved from the WSDOT Public Disclosure Request Center between January 2020 to December 2024 that occurred within the S Holgate St corridor from Utah Ave S to Airport Way S. All crashes that occurred along the segment and intersection related crashes at crossing streets were included in this analysis.
- **Rail-related Crashes:** This section summarizes the crash reports provided by the Federal Railroad Administration and Sound Transit.
- **Near-Miss Analysis:** This section summarizes key findings from the near-miss video analytics conducted by Street Simplified. The data used for this analysis involved collecting continuous video from April 21, 2025, to April 30, 2025.

Figure 29 provides a map of the study area boundaries.

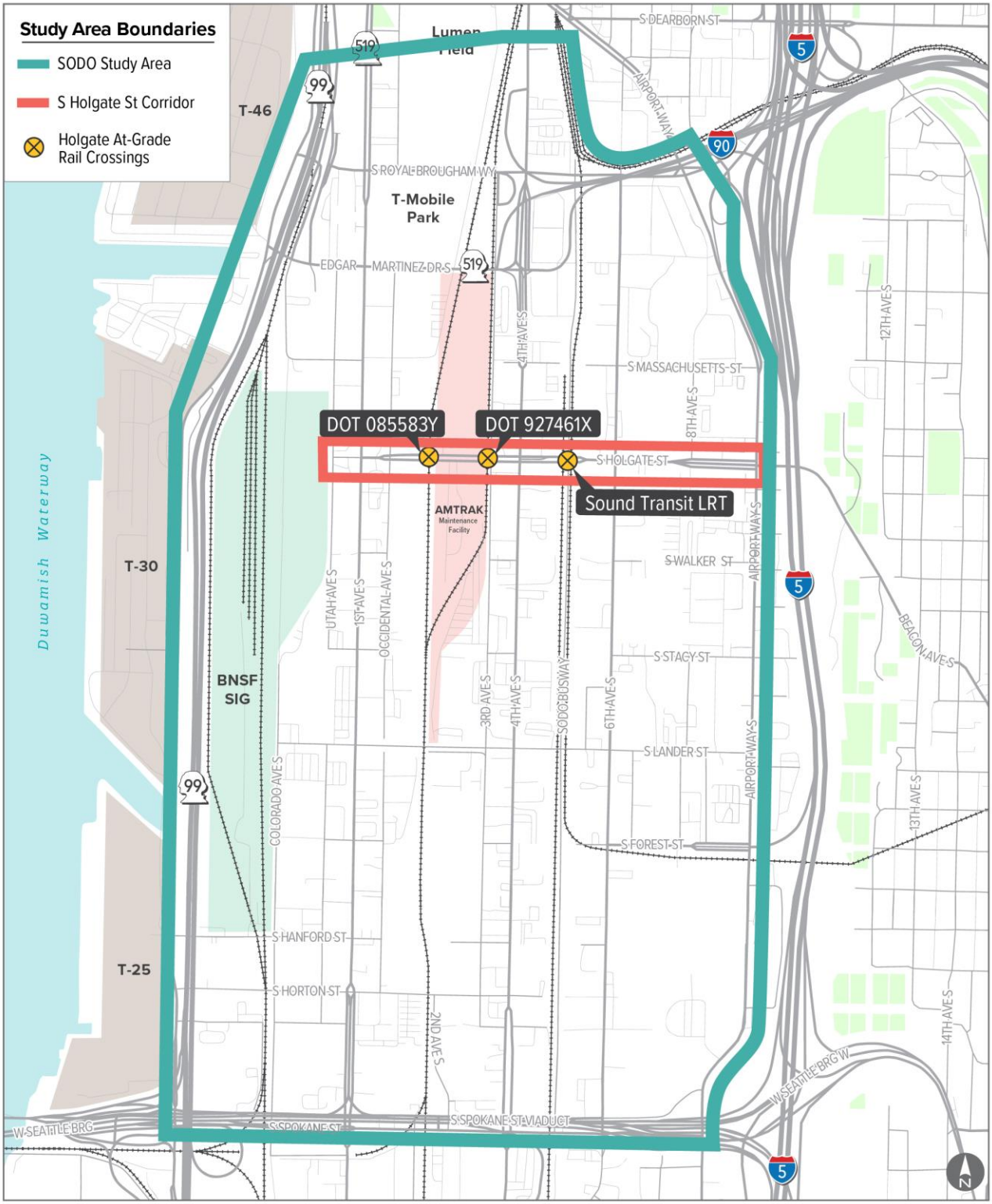


FIGURE 29: SAFETY STUDY AREA BOUNDARIES

CRASH HISTORY AND TRENDS

The crash data for the SODO Study Area and S Holgate St Corridor Study Area was retrieved from the Washington State Department of Transportation (WSDOT) Public Disclosure Request Center database between January 1, 2020, to December 31, 2024. Crash records include all data collected by the reporting officer, including crash identification (jurisdiction, location, date, time), demographics (age, sobriety, safety equipment usage), environmental (weather, road surface), and crash details (type of collision, contributing circumstance, vehicle type, severity).[7]

The collision severity is defined in the WSDOT Safety Analysis Guide as follows:

- **Fatal injury:** A collision that results in the death of a person within 30 days of the collision.
- **Suspected serious injury (serious injury):** A collision that results in broken bones, dislocation, severe lacerations, or unconsciousness, but not death.
- **Suspected minor injury (minor injury):** A collision that results in other visible injuries, including minor lacerations, bruising, and rashes.
- **Possible injury:** A collision that results in the complaint of non-visible pain/injury, such as confusion, limping, and soreness. No wounds or injuries are readily evident.
- **Property damage only (PDO) or No Apparent Injury:** A collision without injury or complaint of pain but resulting in property damage to a vehicle or other object. There is no physical evidence of injury.

The most severe crashes are commonly classified as FSI (Fatal or Severely Injured).

SODO STUDY AREA

The following section will provide a summary of crash data for the larger SODO Study Area from S Royal Brougham Way to the north, Airport Way S to the east, S Spokane St to the south and E Marginal Way S to the west. For the purposes of this report, crashes on the West Seattle Bridge, State Route 99 and I-5 were excluded from this analysis.

CRASHES OVER TIME

Between 2020 and 2024, a total of 849 crashes were reported within the SODO study area. Of these, 14 crashes resulted in a fatality and 40 resulted in serious injuries. While the overall number of crashes increased steadily over the five-year period, peaking in 2023, there was a slight decline in total crashes in 2024. However, the annual number of fatal and serious injury crashes remained relatively consistent, fluctuating between 9 and 12 per year. Table 17 and Figure 30 present an annual breakdown of crash severity, including fatal, serious injury, minor injury, possible injury, no apparent injury, and unknown severity categories.

[7] Under 23 U.S. Code § 148 and 23 U.S. Code § 407, safety data, reports, surveys, schedules, lists, compiled or collected for the purpose of identifying, evaluating, or planning the safety enhancement of potential crash sites, hazardous roadway conditions, or railway-highway crossings are not subject to discovery or admitted into evidence in a Federal or State court proceeding or considered for other purposes in any action for damages arising from any occurrence at a location mentioned or addressed in such reports, surveys, schedules, lists, or data.

TABLE 17: NUMBER OF CRASHES BY SEVERITY BETWEEN 2020 AND 2024 FOR SODO STUDY AREA

YEAR	FATAL	SERIOUS INJURY	MINOR INJURY	POSSIBLE INJURY	NO APPARENT INJURY	UNKNOWN	TOTAL
2020	3	8	16	27	73	2	129
2021	4	9	37	37	78	4	169
2022	3	6	31	42	93	2	177
2023	3	6	37	38	105	8	197
2024	1	11	36	31	92	6	177
TOTAL	**14**	**40**	**157**	**175**	**441**	**22**	**849**

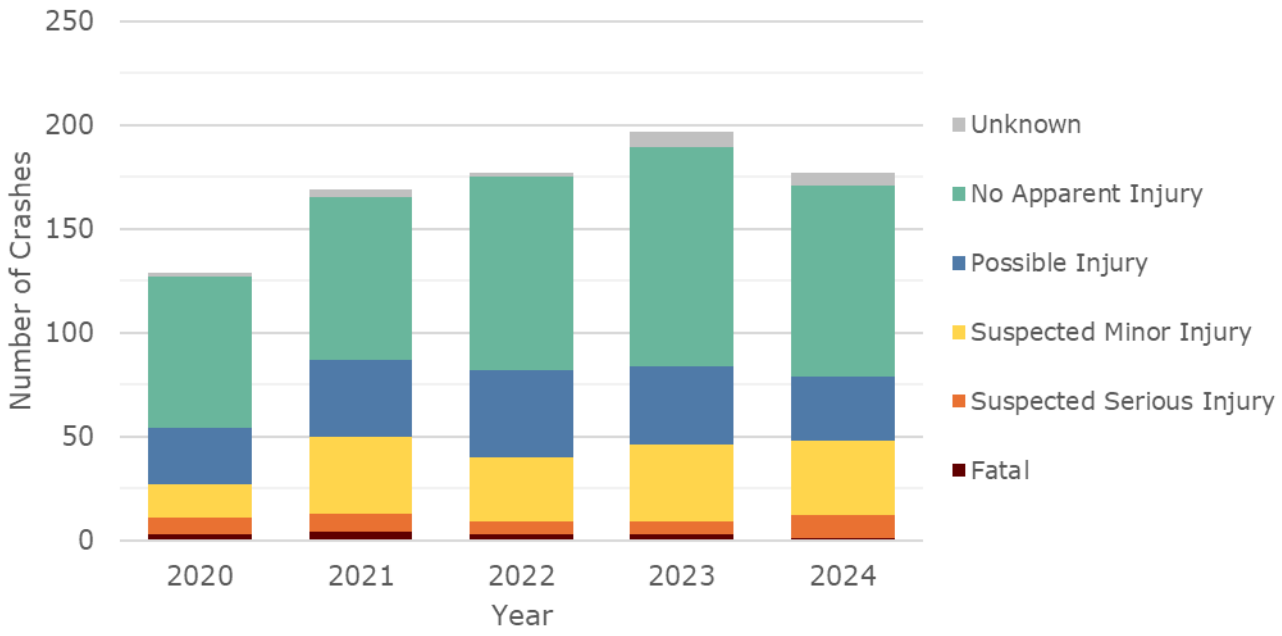


FIGURE 30: TOTAL NUMBER OF CRASHES BETWEEN 2020 AND 2024 FOR SODO STUDY AREA

The low number of collisions in 2020 could be explained by the impact of COVID-19, where there were significant declines in traffic exposure. On March 24, 2020, Governor Inslee enacted the "Stay Home, Stay Healthy" order that required every Washingtonian to stay home (excluding essential activities) and closed all non-essential businesses. Based on the 2020 Washington Annual Traffic Safety Report, the highway traffic volumes reduced to 60% of the volume from 2019. Increased

crash frequency and crash severity in 2020 and 2021 are consistent with state and national trends.[8]

2020-2024 CRASH SUMMARY

This section provides a high-level summary of crash statistics for the five most recent years of data between 2020 and 2024. Figure 31 displays the proportion of crash types, revealing that entering at angle (24%) and rear-end (16%) are the top two crash types for all severities. Figure 32 displays the top twelve reported contributing circumstance, revealing "unknown distraction" and "did not grant right-of-way to vehicle" as the highest proportion of crashes.

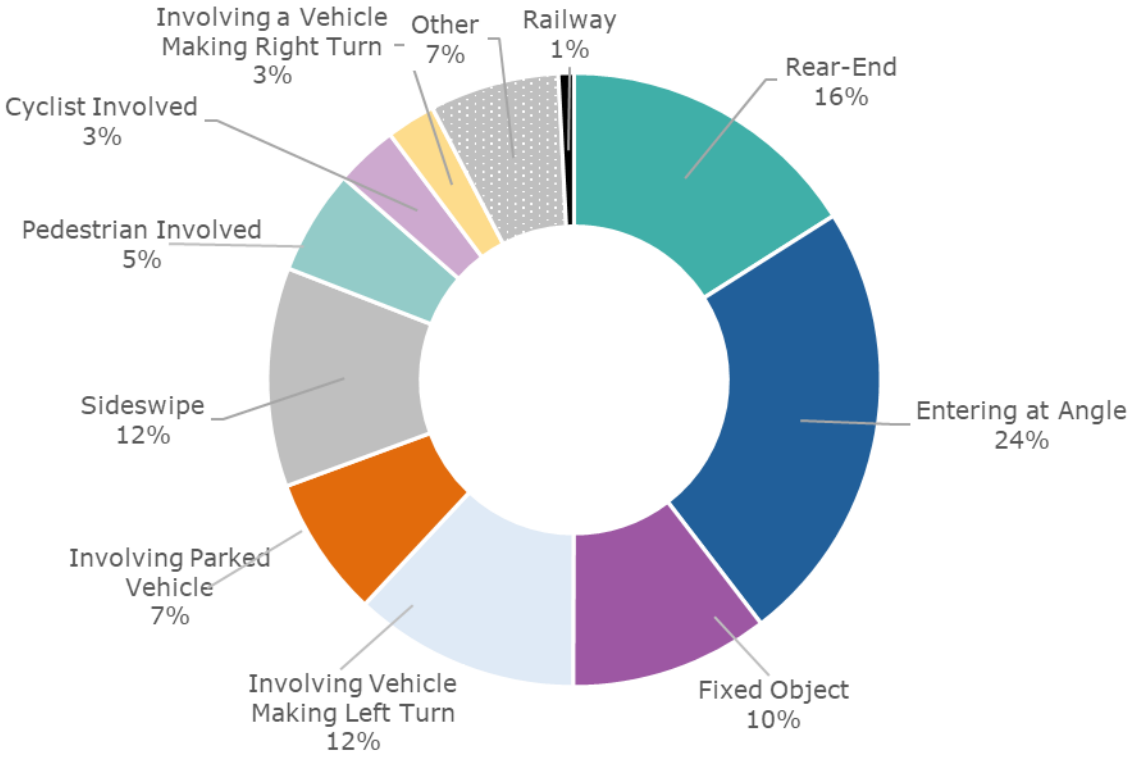


FIGURE 31: PROPORTION OF CRASH TYPES FOR SODO STUDY AREA (2020-2024)

[8] NHTSA's National Center for Statistics and Analysis: https://crashstats.nhtsa.dot.gov/Api/Public/ViewPublication/813561

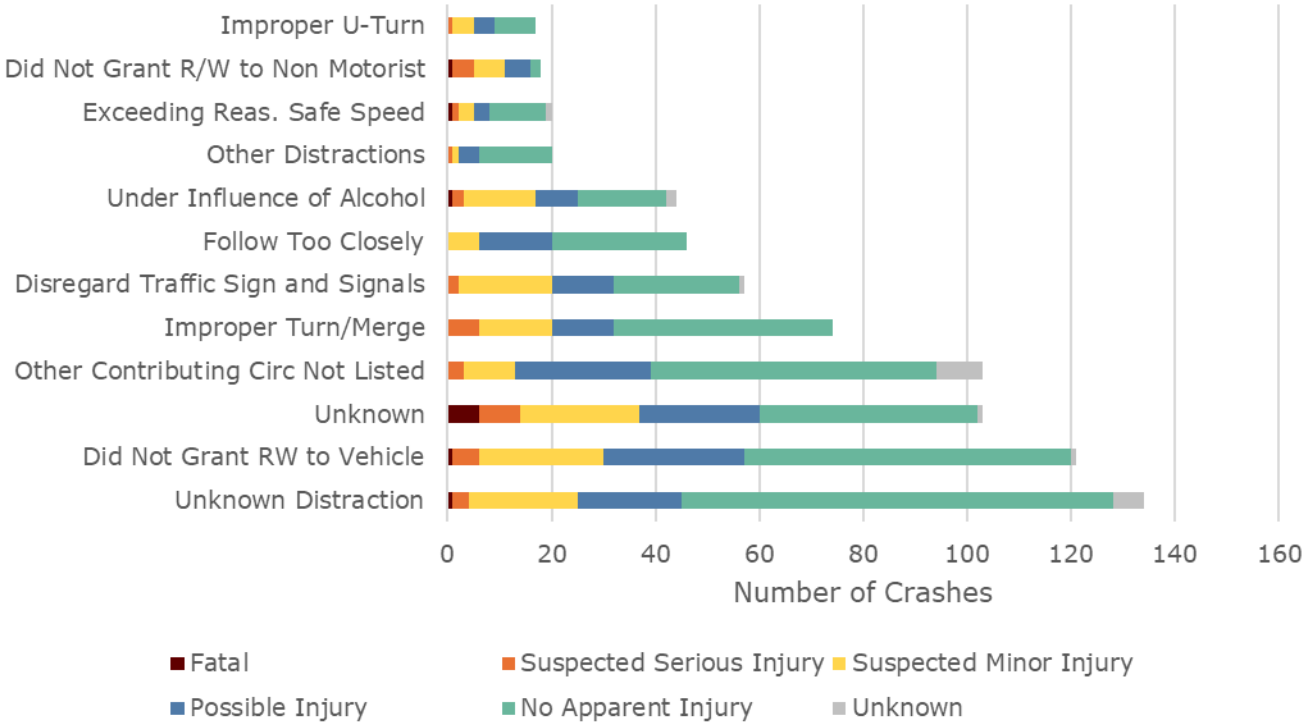


FIGURE 32: TOP 12 CONTRIBUTING CIRCUMSTANCES FOR CRASHES BY SEVERITY FOR SODO STUDY AREA (2020-2024)

Table 18 highlights the total number of crashes, fatal and serious injury crashes (FSI) by various attributes.

TABLE 18: SUMMARY OF COLLISION ATTRIBUTES FOR HOLGATE STUDY AREA (2020-2024)

ATTRIBUTE	TOTAL NUMBER OF CRASHES (849 TOTAL)	% OF TOTAL CRASHES	FSI CRASHES (FATAL AND SERIOUS INJURY) (54 TOTAL)	% OF TOTAL FSI CRASHES
Intersection Related	470	55%	28	52%
Distracted Driver Involved	206	24%	10	19%
Lane Departure	135	16%	10	19%
Speeding	42	5%	5	9%
Older Driver (65+) Involved	90	11%	4	7%

ATTRIBUTE	TOTAL NUMBER OF CRASHES (849 TOTAL)	% OF TOTAL CRASHES	FSI CRASHES (FATAL AND SERIOUS INJURY) (54 TOTAL)	% OF TOTAL FSI CRASHES
Alcohol Impaired	56	7%	6	11%
Heavy Vehicle Involved	113	13%	8	15%
Pedestrian Involved	52	6%	21	39%
Cyclist Involved	30	4%	6	11%
Unrestrained Occupant	17	2%	4	7%
Motorcyclist Involved	24	3%	7	13%

Over half the crashes in the SODO Study Area were reported intersection related and a quarter of crashes involved a distracted driver.

Vulnerable road users, such as pedestrians and bicyclists, accounted for only 9% of total crashes, but they were involved in half (50%) of all FSI crashes. These figures indicate that when a crash involves a vulnerable road user, the likelihood of serious injury or death is high. Figure 33 shows the total number of pedestrian and bicycle crashes over the five-year study period, showing that the year 2024 reported the highest number of pedestrian crashes and the year 2022 reported the highest number of bicyclist crashes.

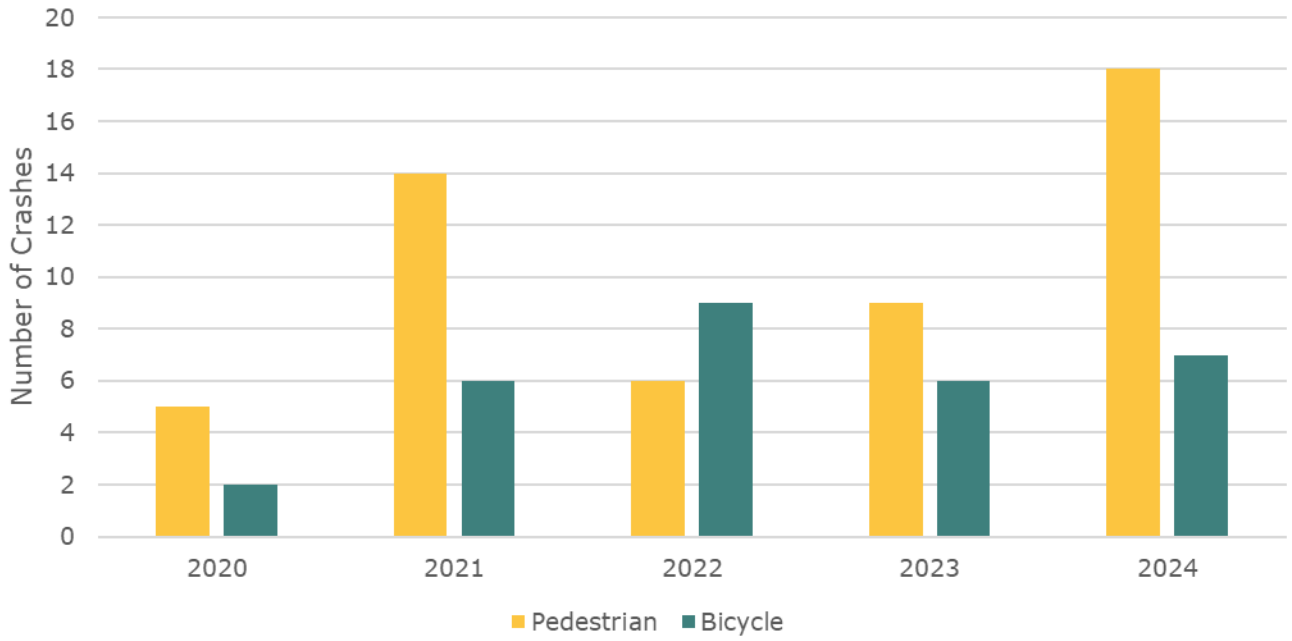


FIGURE 33: NUMBER OF PEDESTRIAN- AND BICYCLIST-INVOLVED CRASHES FOR SODO STUDY AREA (2020-2024)

Figure 34 provides a map of all crashes by severity in the SODO Study area. Between 2020 and 2024, a total of fourteen fatal and 40 serious injury (FSI) crashes were reported within the SODO Study Area. Of the 14 fatal crashes, 50% involved a vehicle traveling straight and striking a pedestrian. Additionally, half of these fatal incidents occurred under dark lighting conditions despite the presence of street lighting, suggesting potential deficiencies in illumination at certain locations within the study area.

As shown on Figure 34, 4th Ave S experienced the highest concentration of FSI crashes, accounting for eight fatalities and twelve serious injuries, representing approximately 37% of all FSI crashes in the area. Notably, all four pedestrian fatalities along this corridor occurred under dark lighting conditions, highlighting a recurring safety concern.

In contrast, the S Holgate St Corridor recorded three fatal and three serious injury crashes during the same period. Each of the fatal crashes involved a vulnerable road user, underscoring the heightened risk for pedestrians and bicyclists along this corridor.

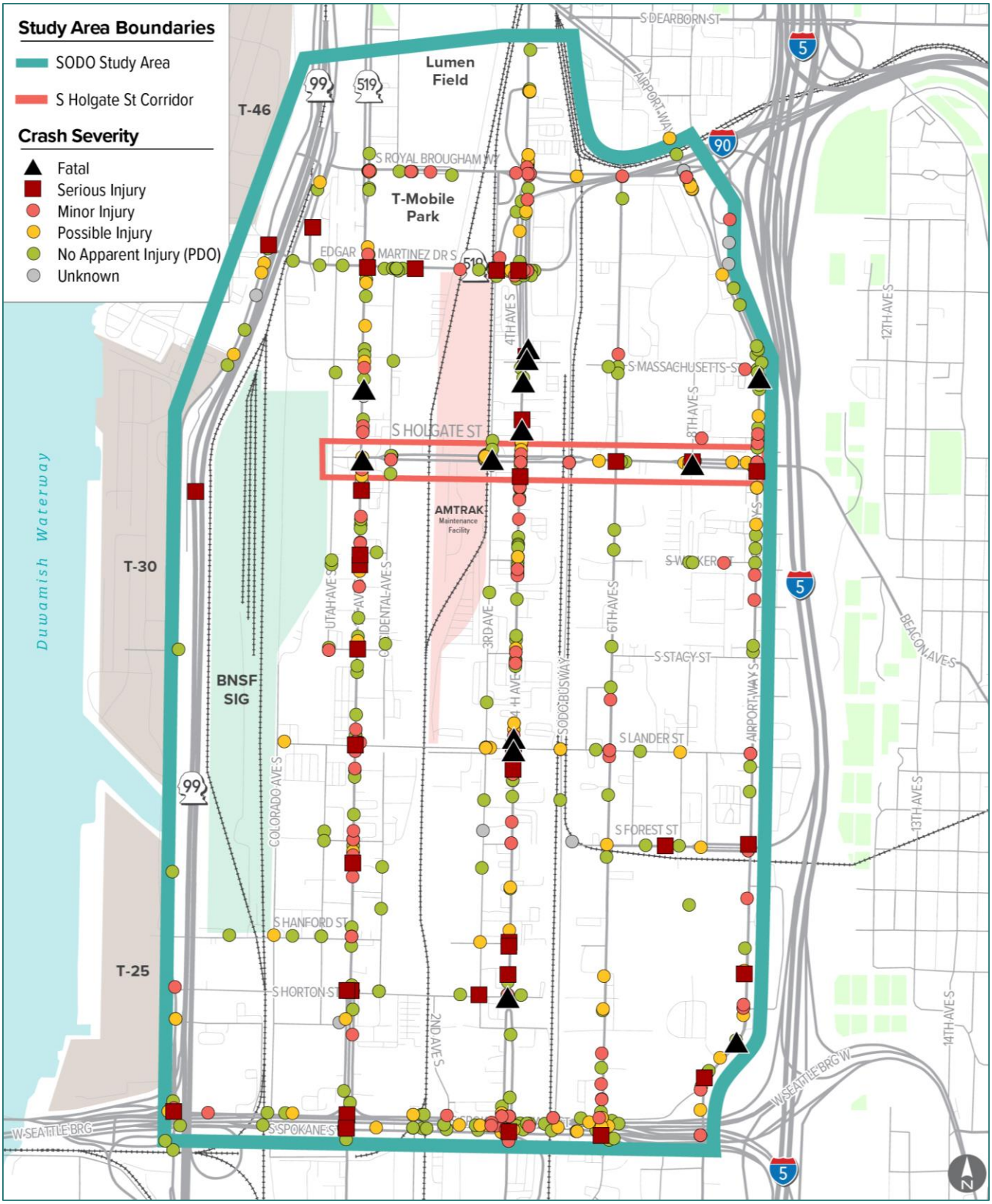


FIGURE 34: CRASHES WITHIN SODO STUDY AREA BOUNDARY (2020 TO 2024) (SOURCE: WSDOT)

S HOLGATE ST CORRIDOR STUDY

The following section provides a summary of crash data for S Holgate St from Utah Ave S to Airport Way S.

CRASHES OVER TIME

Between 2020 and 2024, S Holgate St Corridor reported over 93 crashes, including three fatal crashes and three serious injury crashes. Overall, the reported crash trends over time have increased each year with a small drop in 2024. Table 19 and Figure 35 display the number of crashes by severity per year.

TABLE 19: NUMBER OF CRASHES BY SEVERITY BETWEEN 2020 AND 2024 FOR S HOLGATE ST CORRIDOR

YEAR	FATAL	SERIOUS INJURY	MINOR INJURY	POSSIBLE INJURY	NO APPARENT INJURY	UNKNOWN	TOTAL
2020	2	1	2	2	6	1	14
2021	0	0	8	2	8	1	19
2022	1	1	6	4	7	1	20
2023	0	0	5	4	12	0	21
2024	0	1	4	7	6	1	19
TOTAL	**3**	**3**	**25**	**19**	**39**	**4**	**93**

The low number of collisions in 2020 could be explained by the impact of COVID-19, where there were significant declines in traffic exposure, similar to the SODO Study Area trend.

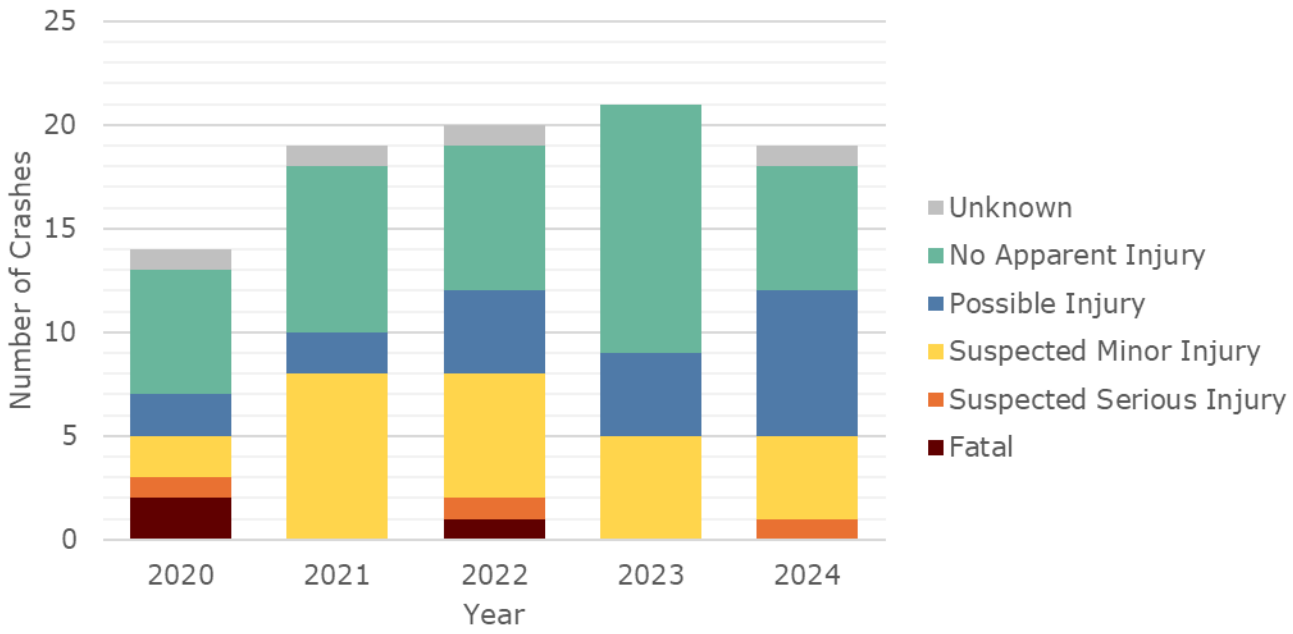


FIGURE 35: TOTAL NUMBER OF CRASHES BETWEEN 2020 AND 2024 FOR S HOLGATE ST CORRIDOR

2020-2024 DATA ANALYSIS

This section provides a high-level summary of crash statistics for the five most recent years of data between 2020 and 2024 along S Holgate St Corridor. Figure 36 displays the proportion of crash types, revealing that entering at angle (27%) and rear-end (20%) are the top two crash types for all severities. Figure 37 displays the top twelve reported contributing circumstance, revealing "did not grant right-of-way to vehicle" and "unknown" as the highest proportion of crashes.

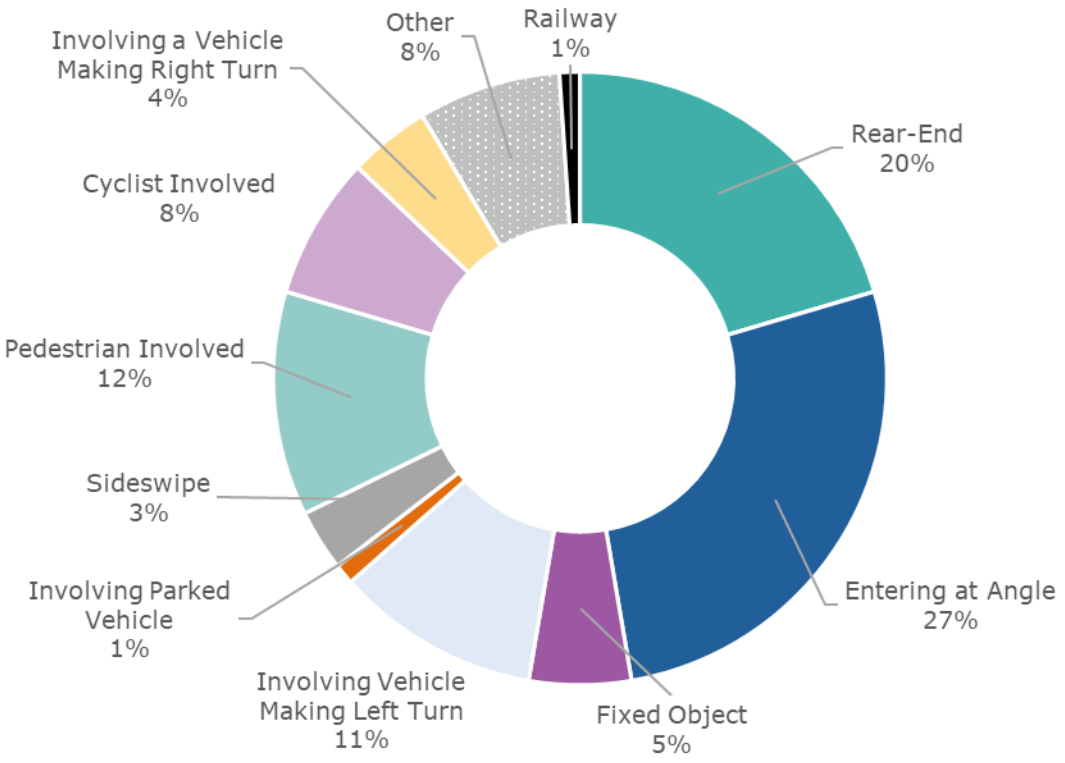


FIGURE 36: PROPORTION OF CRASH TYPES FOR HOLGATE ST (2020-2024)

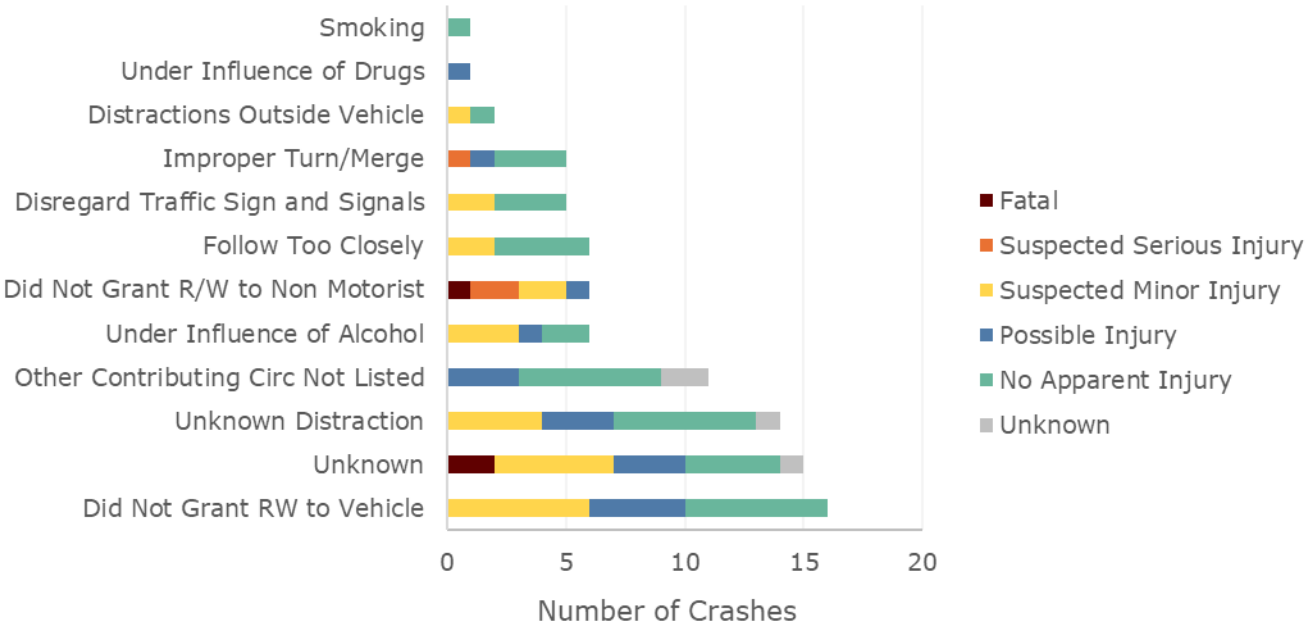


FIGURE 37: TOP 12 CONTRIBUTING CIRCUMSTANCES FOR CRASHES BY SEVERITY FOR S HOLGATE ST (2020-2024)

Table 20 highlights the total number of crashes and fatal and serious injury (FSI) crashes by various attributes.

TABLE 20: SUMMARY OF COLLISION ATTRIBUTES FOR S HOLGATE ST (2020-2024)

ATTRIBUTE	TOTAL NUMBER OF CRASHES (849 TOTAL)	% OF TOTAL CRASHES	FSI CRASHES (FATAL AND SERIOUS INJURY) (54 TOTAL)	% OF TOTAL FSI CRASHES
Intersection Related	78	84%	6	100%
Distracted Driver Involved	23	25%	1	17%
Lane Departure	4	4%	0	0%
Speeding	1	1%	0	0%
Older Driver (65+) Involved	10	11%	0	0%
Alcohol Impaired	6	6%	0	0%
Heavy Vehicle Involved	9	10%	0	0%
Pedestrian Involved	11	12%	2	33%
Cyclist Involved	8	9%	3	50%
Unrestrained Occupant	3	3%	0	0%
Motorcyclist Involved	2	2%	0	0%

Over three quarters of the crashes on S Holgate St were reported intersection related and a quarter of crashes involved a distracted driver.

Vulnerable road users, such as pedestrians and bicyclists, accounted for only 21% of total crashes, but they were involved in a majority (83%) of all FSI crashes. These figures indicate that when a crash involves a vulnerable road user, the likelihood of serious injury or death is high. Figure 38 shows the total number of pedestrian and bicycle crashes over the five-year study period, showing that the year 2024 reported the highest number of pedestrian crashes and the year 2022 reported the highest number of bicyclist crashes.

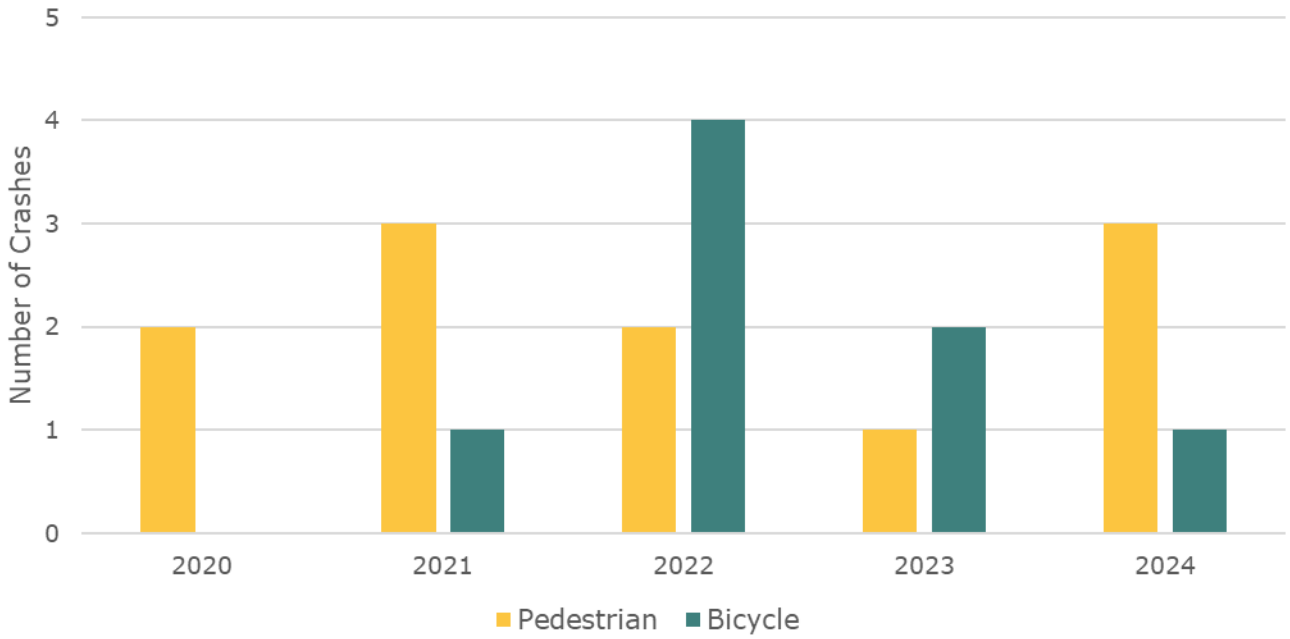


FIGURE 38: NUMBER OF PEDESTRIAN- AND BICYCLIST- INVOLVED CRASHES FOR S HOLGATE ST (2020-2024)

RAIL-RELATED CRASHES

The following section summarizes the crash reports provided by the Federal Railroad Administration and Sound Transit.

FRA-REPORTED RAIL CROSSING CRASHES

Between 1975 and 2024, there were a total of 51 reported crashes from the FRA that was shared with the project team. The crashes were then filtered to the area along the S Holgate St Corridor. Of that total, 8 collisions were reported on the west at-grade rail crossing (085583Y) east of Occidental Ave S and 7 collisions were reported on the east at-grade rail crossing (927461X) west of 3rd Ave S. The collisions are summarized by location and date in Table 21.

TABLE 21: FRA RAIL-RELATED CRASHES ALONG HOLGATE CORRIDOR (1975-2024)

RECORD ID #	DATE & TIME	EVENT	SEVERITY
RAIL CROSSING ID: 085583Y (EAST OF OCCIDENTAL AVE S)			
NW1214201	12/05/2014 6:10 PM	31-year-old female driving 10 mph westbound went around the gate and was struck by a freight train travelling north at 20 mph.	Fatality (driver)
NW0111202	01/30/2011 2:10 PM	57-year-old male was walking over the rail crossing while warning flashers were on both sides of crossing. He was struck and killed by a freight train travelling at 30 mph.	Fatality (pedestrian)

RECORD ID #	DATE & TIME	EVENT	SEVERITY
20128WSD01	01/28/1992 7:25 AM	An auto driver, with a passenger, was travelling 5 mph westbound went around the gate and stopped on the train crossing. The train was travelling south at 3 mph and was reported ”yard/switching” when it struck the vehicle.	2 Injures (driver and passenger)
PA0167	01/30/1991 1:45 AM	An auto driver travelling 20 mph eastbound did not stop when flashers were on. The train was travelling northbound at 2 mph and was reported “yard/switching” when it hit the vehicle.	Non-injury
PA 254	03/12/1988 9:00 PM	A truck driver travelling 10 mph westbound went around the gate and was reported moving over the crossing when it was struck by a southbound train travelling at 10 mph.	Non-injury
121687A	12/16/1987 5:30 PM	A truck driver travelling 10 mph eastbound stopped then proceeded to move over the crossing while both sides provided flashing warning. A passenger train was travelling 5 mph southbound when it struck the truck.	Non-injury
PA189	02/15/1981 8:55 PM	An auto driver travelling 5 mph stopped then proceeded to move over the crossing (while flashers were on) when it was struck by a train travelling at 2 mph.	Non-Injury
PA550	04/13/1979 9:40 PM	An auto driver was travelling westbound at 20 mph and did not stop and was hit by a train travelling 3 mph.	Injury (driver)
RAIL CROSSING ID: 927461X (WEST OF 3RD AVE S)			
NW0624203	06/28/2024 9:23 AM	An auto driver was travelling westbound at 30 mph that went around the gates and was reported moving over the crossing. A freight train travelling 25 mph southbound struck the driver and caused the driver an injury.	Injury (driver)
NW0624204	06/28/2024 9:30 AM	A male auto driver, with two passengers, travelling westbound went around the gates and was reported stalled or stuck on the train crossing. A northbound train travelling 25 mph struck the automobile.	Non-Injury
NW0423201	04/14/2023 10:20 PM	A 50-year-old male pedestrian walking eastbound, went around the gates, and was reported walking over the crossing when he was struck by a work train travelling southbound at 25 mph.	Injury (Pedestrian)
NW0819202	08/11/2019 10:00 AM	A 65-year-old male was reported walking eastbound and trespassing when he was struck and killed by a freight train travelling northbound at 19 mph.	Fatality (Pedestrian)

RECORD ID #	DATE & TIME	EVENT	SEVERITY
NW0418203	04/27/2018 11:45 PM	A male pedestrian, who was reported trespassing, was sitting on the crossing and was struck by eastbound freight train travelling at 21 mph.	Fatality (Pedestrian)
NW0617200	06/04/2017 9:08 AM	60-year-old male pedestrian walking eastbound was reported ”preceded gates” and was struck by a northbound freight train travelling 15 mph.	Fatality (Pedestrian)
20160920	09/20/2016 4:14 PM	A 76-year-old male driver was driving an automobile travelling westbound and was reported “stalled or stuck on crossing”. A commuter train travelling 39 mph southbound struck the driver.	Injured (Driver)

Source: Federal Railroad Administration

SOUND TRANSIT-REPORTED CRASHES

Between 2013 and 2025, there were a total of 7 collisions and 42 near-misses recorded by Sound Transit for the rail crossing east of 4th Ave S and used by the Link light rail trains. The collisions are summarized in Table 22.

TABLE 22: SOUND TRANSIT LINK RAIL-RELATED CRASHES ALONG S HOLGATE ST (2013-2025)

RECORD ID #	DATE & TIME	EVENT	ROADWAY USER	SEVERITY
27248	11/3/2024 10:00 PM	A northbound train approached the crossing and reported all of the appropriate audibles and procedures. A female pedestrian was reported running across the crossing and was struck by the train and walked away.	Pedestrian	Uninjured
69	4/17/2017 8:42 AM	A southbound train approached the crossing and the train sounded horn and applied max break when it observed an eastbound pedestrian crossing. The pedestrian travelled approximately 24 feet from point of impact and was transported to hospital.	Pedestrian	Minor injuries
68	2/21/2017 8:23 PM	A northbound train struck a vehicle that bypassed the automatic crossing gates and flashers.	Vehicle	Unknown
2	8/10/2016 3:20 PM	A southbound train sounded its horn when a pedestrian entered the crossing from the west side gate. Train operator used max break, but struck pedestrian.	Pedestrian	Minor Injuries (lacerations)

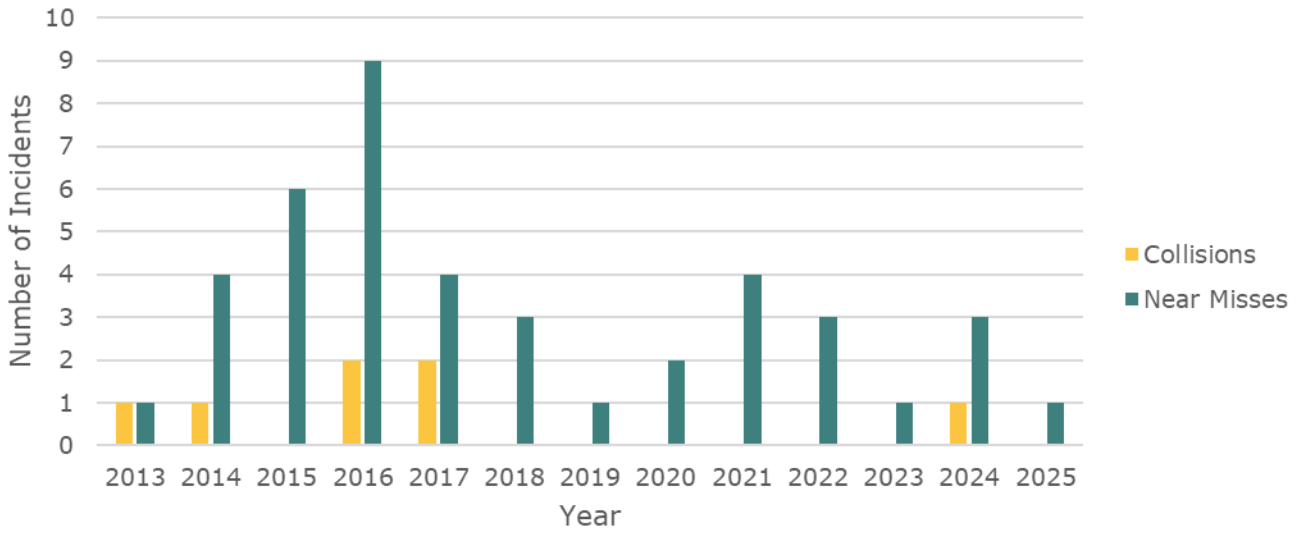
RECORD ID #	DATE & TIME	EVENT	ROADWAY USER	SEVERITY
54	2/18/2016 8:50 AM	A female pedestrian opened the pedestrian gate and walked in front of a northbound light rail vehicle and was struck.	Pedestrian	Serious Injury (life-threatening)
36	1/8/2014 3:49 PM	A pedestrian walking eastbound ignored traffic signals and warnings, and was struck by a light rail vehicle.	Pedestrian	Serious Injury (non-life threatening)
31	5/21/2013 7:07 AM	A pedestrian walking westbound was reported to have jumped in the in pathway of the light rail vehicle and was struck. The operator applied max break and horn prior to impact.	Pedestrian	Serious Injury (hospitalized)

Source: Sound Transit

Based on the report findings, these collisions are typically caused by roadway users ignoring or defying the protective measures in place at the crossing and on the trains themselves. For instance, the collision on May 21, 2013, involved a pedestrian jumping into the path of the train. The collision on January 8, 2014, involved a pedestrian crossing in the crosswalk against the signals. The collision on February 8, 2016, was caused by a pedestrian opening the pedestrian gate and walking in front of the train. The collision on August 10, 2016, involved a pedestrian entering the crossing despite the train operator sounding the horn. The vehicle collision on February 21, 2017, was due to the vehicle bypassing the automatic crossing gates. The collision on April 17, 2017, was caused by a pedestrian watching a northbound train while crossing but failing to notice a southbound train approaching despite that train sounding its horn. The most recent crash on November 3, 2024, was caused by a pedestrian running across the tracks while horns and audible signals were activated.

While none of the collisions reported during this timeframe were explicitly listed as fatal at the time of the collision occurring, it is unclear if those pedestrians who were hospitalized ultimately survived their injuries.

Figure 39 provides a breakdown of the number of collisions and near misses by year at the S Holgate St crossing adjacent to the SODO busway. Near misses are incidents in which a collision appeared to be imminent but was avoided through successful evasive actions by the train operator, the highway user, or both. Such incidents were deemed significant enough by the operator to be documented.



Source: Sound Transit

FIGURE 39: NUMBER OF COLLISIONS AND NEAR MISSES BY YEAR (HOLGATE CROSSING)

NEAR-MISS ANALYSIS SUMMARY

A near-miss analysis was conducted on S Holgate St at the main BNSF rail crossing (927461X) west of 3rd Ave S to identify problem areas and highlight instances where a crash almost occurred. Continuous video monitoring data was collected by Street Simplified using temporary cameras installed on either side of the rail crossing from Monday, April 21, 2025 at 6:30 PM to Wednesday, April 30, 2025 at 6:00 PM. During the study time period, there were a total of 748 total train crossings events.

Based on this continuous video collection and video analytics, the findings were summarized into two categories:

1. Intersection Related Issues
2. Instances where Gates were Down

The following subsections highlight the key findings from the near-miss analysis.

1. INTERSECTION-RELATED ISSUES

Figure 40 shows the existing lighting conditions for each corner of the intersection. In particular, the northeast and southeast corners could have better visibility with improved lighting.

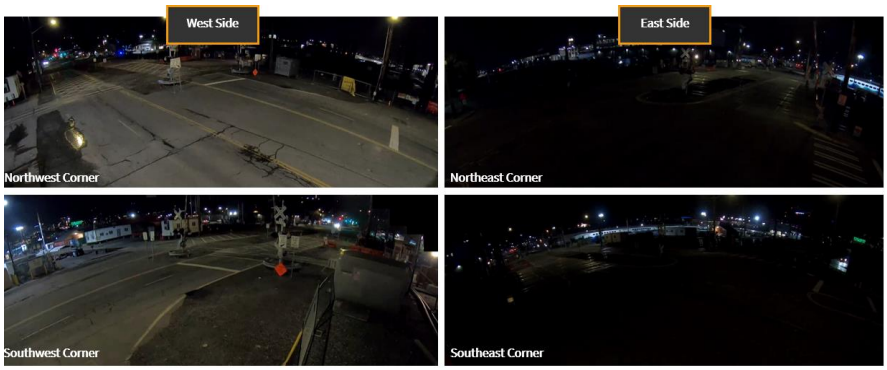


FIGURE 40: NIGHTTIME CONDITIONS AT S HOLGATE ST AND E RAILROAD CROSSING

Figure 41 shows there are trains regularly parked almost 200 feet from the crossing, which may obstruct the view of oncoming southbound trains around the corner.

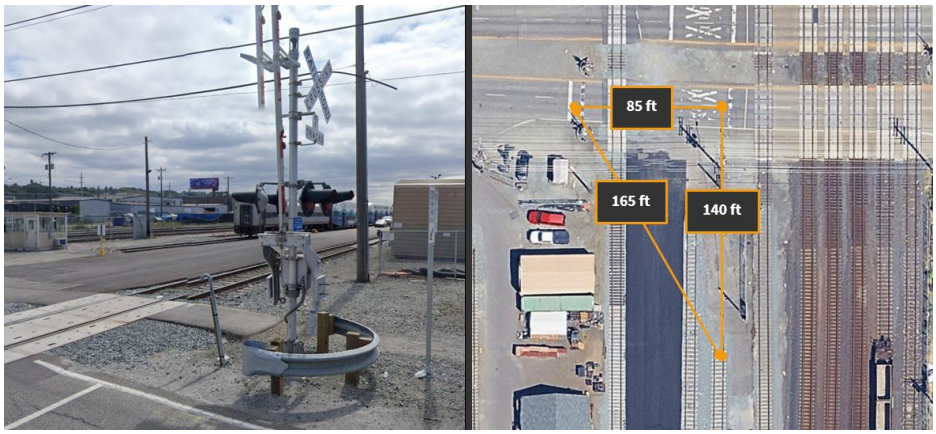


FIGURE 41: SIGHT DISTANCE LIMITATIONS ON THE NORTHBOUND TRAIN TRACK

The near miss analysis observed numerous Amtrak construction workers that were crossing the railroad tracks while gates were down. Figure 42 provides a screen capture of one of the incidents.

FIGURE 42: VIDEO CAPTURE OF AMTRAK WORKERS WALKING ACROSS THE TRACKS WHILE GATES ARE DOWN (APRIL 22, 2025)

2. INSTANCES WHERE RAIL CROSSING GATES WERE DOWN

Based on the video data collected, the gates at the railway crossing go down as a series of events:

1. Flashers turn on to alert traffic that a train is coming
2. 2 to 3 seconds later, the gates begin to lower to block traffic from crossing the railroad
3. 11 to 12 seconds after the flashers are activated, the gates are fully lowered to block traffic
4. Train crosses
5. After the train crosses, the flashers turn off, gates rise, and traffic is able to cross

During the near-miss study time period, the video analytics observed 44,534 vehicles crossing and 25,220 vulnerable road users (VRU) crossing the intersection. Vulnerable road users include those who walk and roll (bicycle or scooter).

Vehicle Crossings

For drivers, 98% of the observed vehicles complied with the gates flashing and stopped before entering the crossing. However, as shown in Figure 43, 230 vehicle drivers were observed to be crossing the intersection while the flashers were activated and 21 vehicles stopped on the tracks. Figure 44 provides a screenshot of the video capture where a truck driver ignored the activated flashers and was stuck under the gates. Furthermore, there were instances observed where vehicles would conduct U-turns at the intersection to avoid waiting for the train to cross.

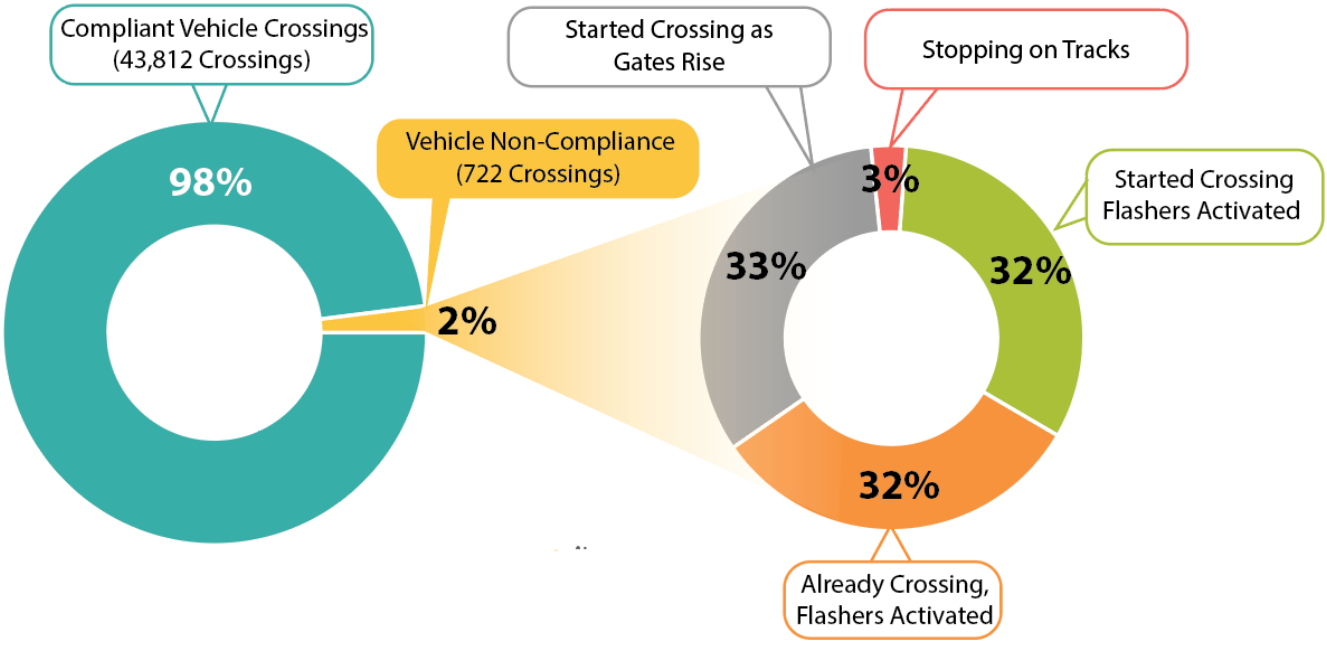


FIGURE 43: PROPORTION OF VEHICLE NON-COMPLIANCE WITH TRAIN CROSSING

FIGURE 44: VIDEO CAPTURE OF A VEHICLE CROSSING UNDER THE GATES THAT ARE LOWERING (APRIL 30, 2025)

Vulnerable Road User Crossings

Vulnerable road users (VRU) are individuals who walk or roll (scooter or bike). The S Holgate St crossing experiences higher pedestrian and VRU volumes during event days due to the proximity to major event stadiums located east of the corridor and transit connections to the west of the corridor. Analysis of near-miss incidents revealed that out of 25,220 observed VRU crossings, approximately 95% of users adhered to safety protocols—stopping in response to flashing signals and waiting for passing trains, as shown in Figure 45. However, 323 individuals were documented crossing the railroad tracks while the gates were fully lowered, disregarding both the visual and audible safety warnings, as shown in Figure 46.

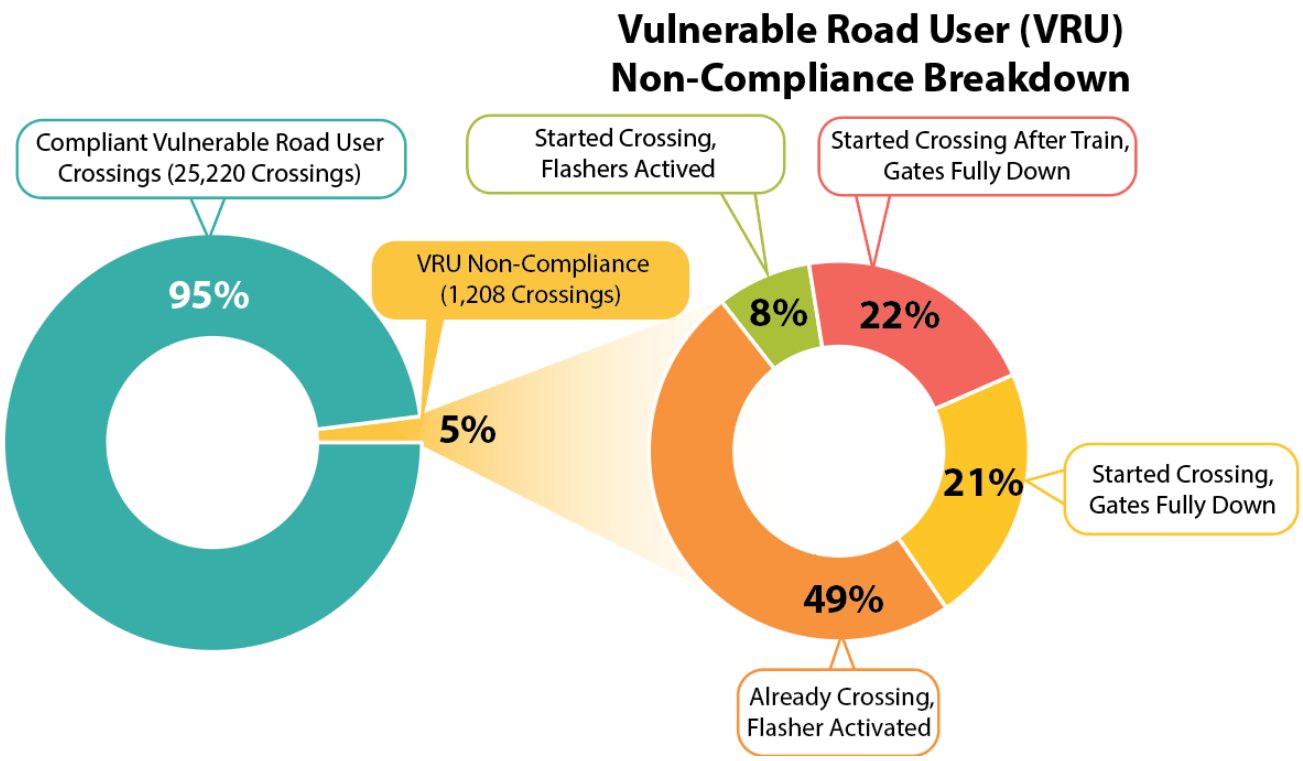


FIGURE 45: PROPORTION OF VRU NON-COMPLIANCE WITH TRAIN CROSSING

FIGURE 46: VIDEO CAPTURE OF PEDESTRIANS CROSSING OVER THE TRAIN WHILE GATES ARE FULLY LOWERED

CONCLUSIONS AND CONSIDERATIONS

The existing conditions analysis of S Holgate St reveals several critical challenges and considerations that should inform future decisions about the corridor's function, especially in light of potential closure scenarios. These findings reflect a combination of safety risks, infrastructure limitations, operational vulnerabilities, and multimodal needs.

SAFETY RISKS AND VULNERABLE USERS

- The corridor presents elevated safety risks for people walking and biking. From 2020 to 2024, 83% of fatal or serious injury crashes involved pedestrians or bicyclists.
- Despite the presence of warning systems, video analytics show ongoing non-compliance by both drivers and vulnerable road users during rail crossing events.

RAIL OPERATIONS AND NETWORK PERFORMANCE

- The segment between Occidental Ave S and 3rd Ave S is among the most operationally constrained in the corridor, with long and frequent train gate closures that contribute to network-wide queuing and delay.
- Vissim modeling confirmed severe queuing during peak periods, especially westbound where storage capacity is regularly exceeded.
- On average, S Holgate St is blocked for over three hours a day due to rail crossings between Occidental Ave S and 3rd Ave S. During the morning commute, S Holgate St is blocked 16% of the time, or 9-10 minutes of every hour.

MULTIMODAL ACCESS GAPS

- S Holgate St lacks dedicated bicycle facilities and has sidewalks that are discontinuous, vary in surface material, and are frequently interrupted by driveways
- Access to nearby light rail and bus services is impeded by gaps in pedestrian infrastructure and limited east-west connectivity during train events. Both Edgar Martinez Dr S and S Royal Brougham Way only allow east-west connectivity via a staircase and are thus inaccessible to pedestrians with mobility devices.

FREIGHT AND EVENT DEMANDS

- On a typical Mariners game day, S Holgate St carried approximately 5,500 vehicles, compared to 25,300 on Edgar Martinez Drive S and 11,700 on S Lander St.
- While S Holgate St plays a role in local freight circulation within the SODO area, particularly between sites along 1st Ave S and along S Holgate St to the east of 4th Ave S and the SODO Busway, it accounts for only 3% of total truck activity in the SODO area.
- Port and intermodal access remains essential, especially given the corridor's location within the City's Heavy Haul Network and proximity to Terminal 30; though it is not a primary route to the BNSF yard.

CONSIDERATIONS FOR FUTURE MODIFICATIONS

- Any closure or modification of the corridor should balance multimodal safety, freight mobility, multimodal traffic and event operations, rail operational needs and plans for maintenance site expansion, and community impacts.
- Future infrastructure improvements should focus on addressing known safety issues while aligning with project goals and implementation feasibility.
- Subsurface conditions along S Holgate St are not suitable for shallow foundations. Consideration of future structural improvements (such as grade separations) need to assess the need for deep foundations due to soft and loose soils and seismic risks.
- Additional outreach and coordination with corridor users, particularly those most affected by train delays or access changes, will be essential to inform future phases of the study.

APPENDICES

APPENDIX A. PAVEMENT CONDITIONS MEMORANDUM

APPENDIX B. GEOTECHNICAL CONSIDERATIONS MEMORANDUM

APPENDIX C. RAIL CROSSING DIAGNOSTICS MEMO

APPENDIX D. METHODS AND ASSUMPTIONS REPORT

APPENDIX E. VISSIM CALIBRATION MEMORANDUM

APPENDIX A. PAVEMENT CONDITIONS MEMORANDUM

719 SECOND AVENUE, SUITE 1250, SEATTLE, WA 98104 • 206.382.9800 • DKSASSOCIATES.COM

S HOLGATE ST CROSSING STUDY

DATE: August 7, 2025

TO: Sara Zora | Seattle Department of Transportation
Wintana Miller | DKS Associates

FROM: Rory Cameron | Perteet

SUBJECT: Existing Conditions – Pavement Conditions Project # 24798-000

EXECUTIVE SUMMARY

This memorandum summarizes the existing conditions of pavement of S Hogate Street, from Occidental Avenue S to 3rd Avenue NE. The existing conditions of the pavement are based on a field investigation and research for the S Holgate Street corridor. Project limits of the corridor begin at Occidental Avenue S and extend east along S Holgate Street to 3rd Avenue NE. The project corridor is illustrated in Figure 1, Vicinity Map.

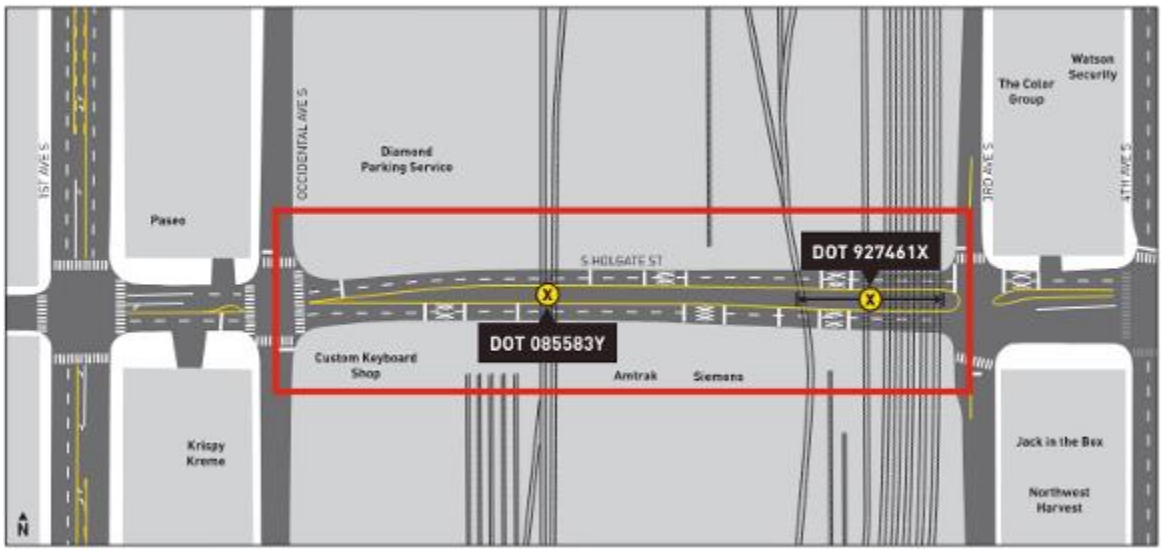


FIGURE 1: VICINITY MAP, S HOLGATE STREET CORRIDOR

The corridor is approximately 875 feet long and 0.66 lane-miles (with an average four-lane section, excluding the median area which is partially paved). S Holgate Street is classified as a minor arterial within the project limits. The corridor is also classified as a Heavy Haul Route in the Seattle Transportation Plan within the project limits. Traffic counts show approximately 74-76% of the

vehicles are cars and trailers, 16% two-axle long trucks, 1% buses, 5.5% two-axle six-tire trucks, and the rest larger vehicles.

PURPOSE

EXISTING PAVEMENT PURPOSE

The pavement investigation and evaluation were conducted in June 2025. The scope of work for this memorandum includes:

- Research of various sources of recorded historical data (provided by SDOT) to identify existing pavement age, materials, and depth.
- Performing a field investigation of the current pavement conditions.

EXISTING PAVEMENT MATERIAL

EXISTING PAVEMENT MATERIAL

S Holgate Street has been an important freight and rail corridor in the Seattle Street network serving Sound Transit, Amtrak, BNSF, numerous freight companies, and the travelling public since its initial construction in the early twentieth century. As the surrounding neighborhood has increased truck and train traffic on or across S Holgate Street, S Holgate Street has been repaired numerous times, as shown by maintenance records. As the City of Seattle has grown, the demand along this corridor has increased, resulting in accelerated wear of the HMA and PCC roadways.

Record documents that were accessed and analyzed for this report are shown in Table 1.

TABLE 1: HISTORIC RECORD DOCUMENTS IDENTIFIED FOR PAVEMENT EVALUATION

SOURCE	TITLE	VAULT/REF NO.	DATE
SPU RECORDS VAULT	South Holgate Street Et Al Private Contract	777-533	2002

TABLE 2: EXISTING PAVEMENT TYPES ON S HOLGATE STREET

LOCATION	EASTBOUND	MEDIAN	WESTBOUND
S HOLGATE STREET: 131 FT WEST OF RAIL CROSSING 927461X TO 3RD AVENUE S	Unknown	Unpaved	2” AC (Class A)/7” AC (Class E)/6” CR (54.5’ wide) [2003]
S HOLGATE STREET: 156 FT WEST OF RAIL CROSSING 927461X	2” AC (Class A)/7” AC (Class E)/6” CR (33’ wide) [2003]	Unpaved	Unknown

FIELD EXPLORATION

PAVEMENT CONDITION FIELD EVALUATION

A visual condition survey and an evaluation of pavement conditions was conducted on June 16, 2025. During this field investigation, areas of pavement distress were observed to determine if there was a significant source of the damage beyond normal wear due to traffic.

PAVEMENT SUMMARY

PAVEMENT CONDITION OBSERVATIONS

Based on the field exploration and a records search, we have reached several conclusions regarding the existing conditions.

Much of S Holgate Street is experiencing medium to high severity fatigue (alligator) cracking within the wheel path. A significant portion of corridor also exhibits low severity rutting which turns to medium severity near the stop bars and railroad crossings. There are patches ranging from low severity to high severity throughout the corridor. Some patches have high severity fatigue cracking within them, potentially indicating a base failure. The edge of the roadway has severe cracks and portions of asphalt have broken off. Some locations have attempted to patch the edge, which are experiencing failure. It was noted during the field exploration that some panels within the railroad crossing were severely cracked, indicating failure.

Based on a records search, the original plank road was replaced in the early twentieth century. Presumably, several roadway overlay or replacement projects have occurred since its initial construction. Records show several instances of utility work throughout the project area, resulting in narrow patches along the length of S Holgate Street.

Some drainage structures were observed in the gravel median, and one drainage structure was observed just east of railroad crossing 085583Y on the north side of the roadway.

ATTACHMENTS

ATTACHMENT 1. FIELD EXPLORATION NOTES

ATTACHMENT 2. TRAFFIC DATA

ATTACHMENT 3. PAVEMENT FIELD INVESTIGATION PHOTOS

ATTACHMENT 1. FIELD EXPLORATION NOTES

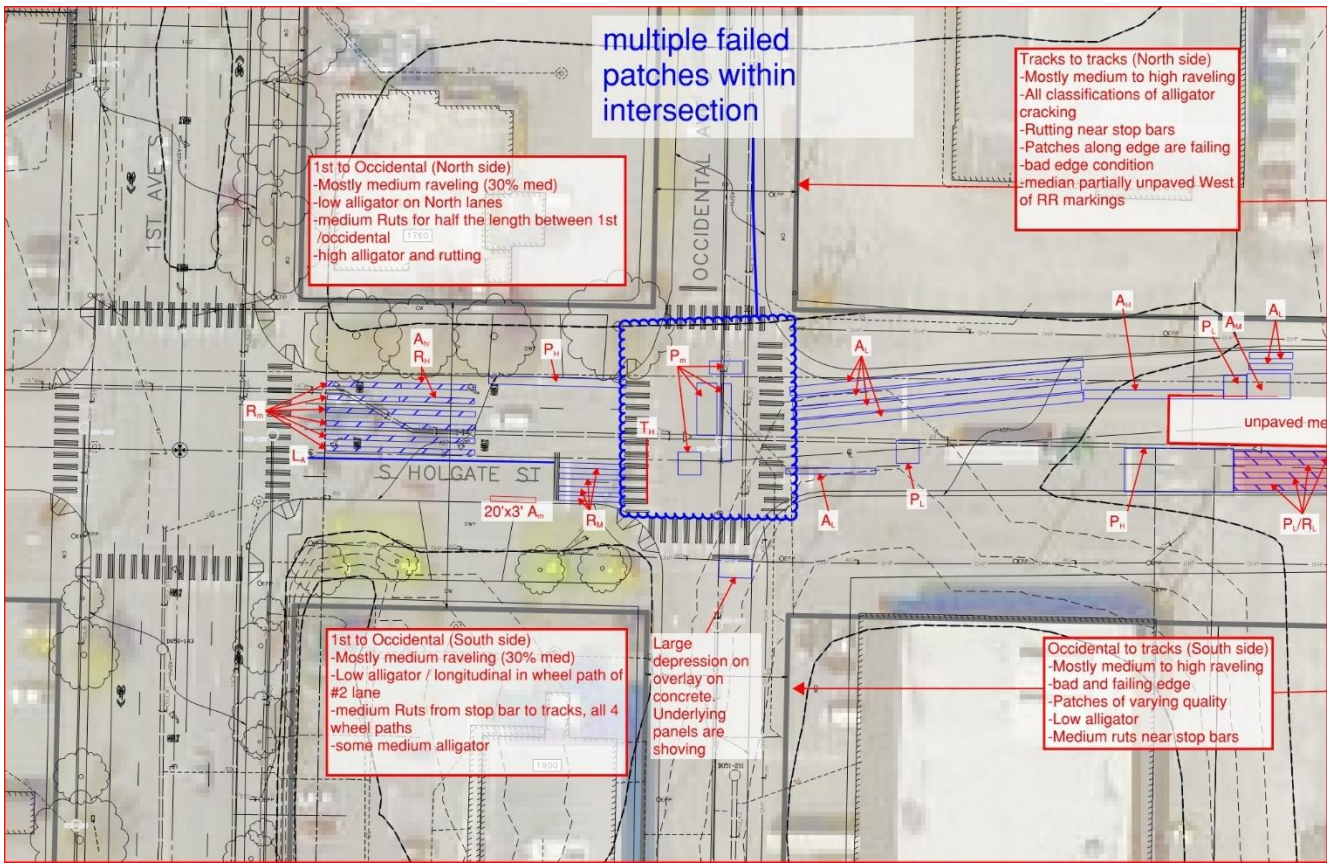


FIGURE 2 - PAVEMENT FIELD NOTES FOR S HOLGATE ST, BETWEEN 1ST HAVE AND OCCIDENTAL AVE

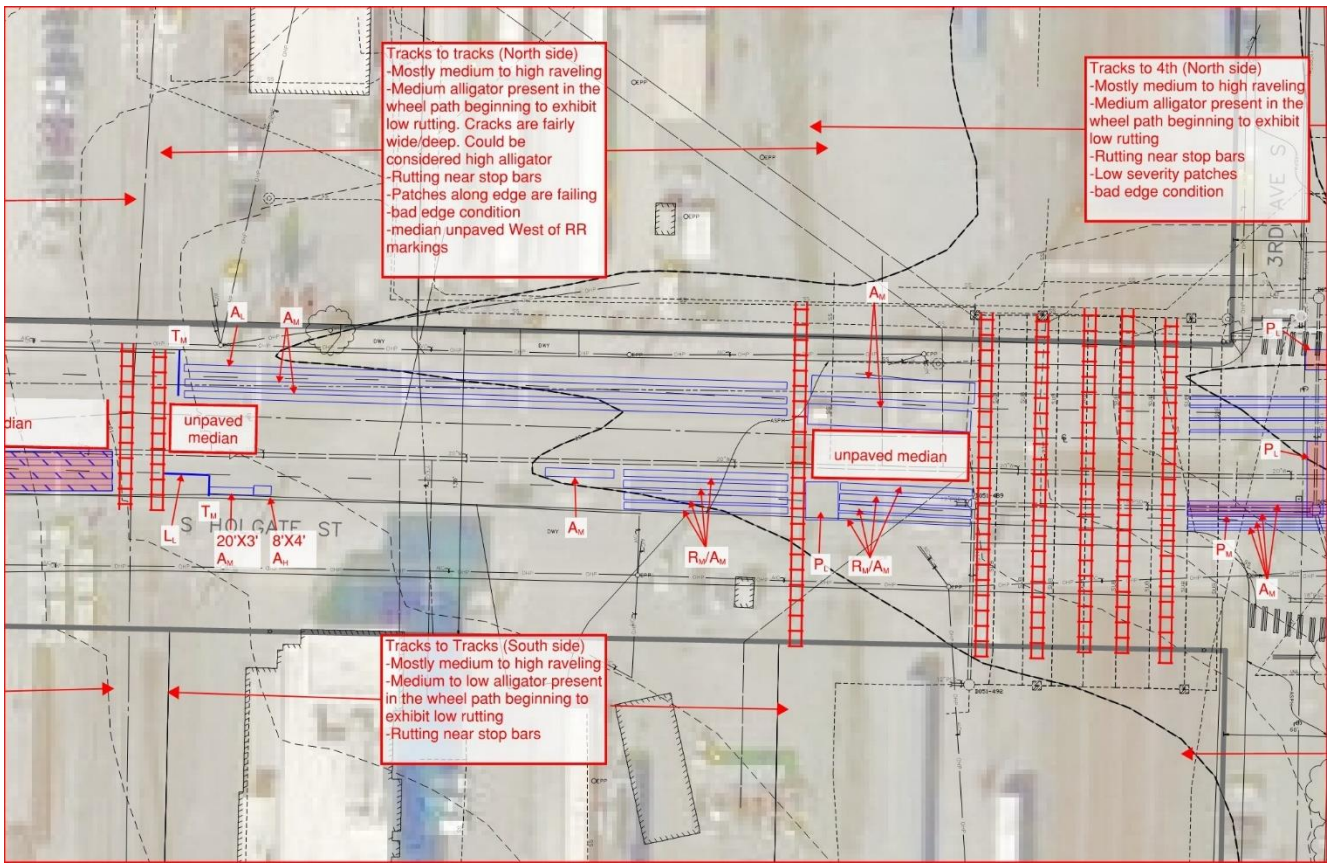


FIGURE 3 - PAVEMENT FIELD NOTES FOR S HOLGATE ST, BETWEEN OCCIDENTAL AVE AND 3RD AVE S

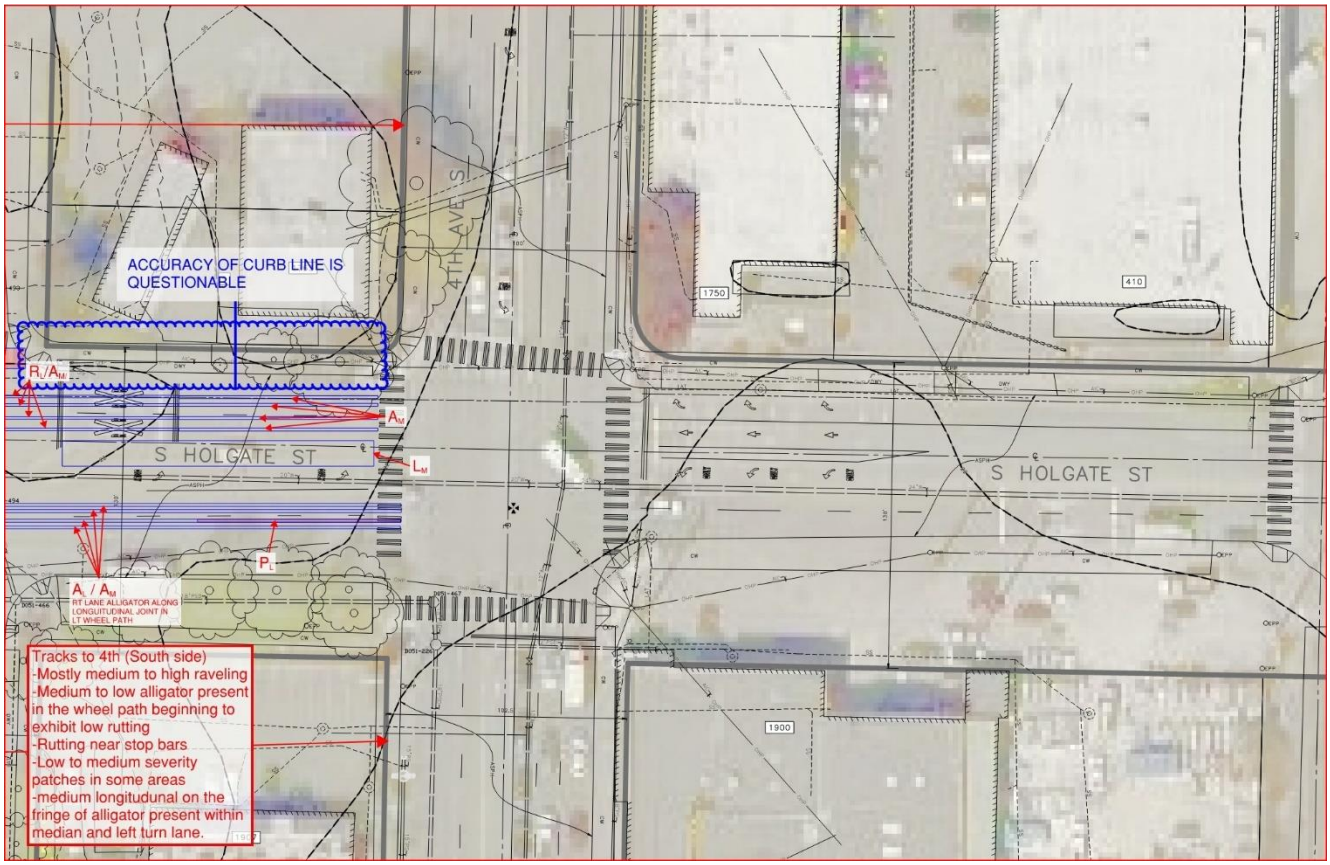


FIGURE 4 - PAVEMENT FIELD NOTES FOR S HOLGATE ST, BETWEEN 3RD AVE S AND 4TH AVE S

ATTACHMENT 2. TRAFFIC DATA

Location: S Holgate St_E-O Occidental Ave S
Dates: 11/28/23-11/30/23
Site: 10

	Class 1		Class 2		Class 3		Class 4		Class 5		Class 6		Class 7	
	Eastbound	Westbound	Eastbound	Westbound	Eastbound	Westbound	Eastbound	Westbound	Eastbound	Westbound	Eastbound	Westbound	Eastbound	Westbound
AM 1 Total (0000-0600)	0	0	283	132	28	12	0	0	7	4	8	11	2	0
AM 2 Total (0600-1200)	4	5	1743	2383	250	215	4	5	109	94	8	29	3	0
PM 1 Total (1200-1800)	8	3	2998	2555	280	268	4	3	87	67	23	9	0	0
PM 2 Total (1800-2400)	0	0	1038	810	72	69	1	1	7	8	4	6	0	0
TOTAL	**11**	**10**	**6062**	**5894**	**665**	**568**	**10**	**9**	**210**	**166**	**42**	**59**	**5**	**0**

	Class 8		Class 9		Class 10		Class 11		Class 12		Class 13	
	Eastbound	Westbound	Eastbound	Westbound	Eastbound	Westbound	Eastbound	Westbound	Eastbound	Westbound	Eastbound	Westbound
AM 1 Total (0000-0600)	0	1	2	0	2	0	0	0	0	0	0	1
AM 2 Total (0600-1200)	4	7	14	27	2	2	0	0	0	0	0	1
PM 1 Total (1200-1800)	6	9	10	9	1	0	0	0	0	0	0	0
PM 2 Total (1800-2400)	0	0	1	0	2	0	0	0	0	0	0	0
TOTAL	**13**	**16**	**24**	**40**	**10**	**3**	**0**	**0**	**0**	**0**	**0**	**2**

FIGURE 5-VEHICLE CLASSIFICATION VOLUMES-NOVEMBER 2023

City of Seattle
Department of Transportation

ON STREET:: : S HOLGATE ST
LOCATED:: : E/O
CROSS STREET:: : OCCIDENTAL AVE S

Site: 3186
Monday, 5/8/2023 1:00 PM -
Monday, 5/15/2023 12:00 PM

Classification Grand Totals

Hourly Averages

WB

Interval Start	Total	Motor Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi
12:00 AM	16.6	0.1	12.3	3.6	0.1	0.1	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0
1:00 AM	7.0	0.0	5.9	0.6	0.0	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2:00 AM	7.6	0.0	6.7	0.4	0.1	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3:00 AM	10.4	0.0	8.9	1.1	0.0	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0
4:00 AM	9.3	0.0	5.6	1.4	0.6	1.1	0.3	0.0	0.3	0.0	0.0	0.0	0.0	0.0
5:00 AM	25.3	0.4	18.1	4.4	0.3	1.3	0.3	0.0	0.3	0.1	0.0	0.0	0.0	0.0
6:00 AM	70.7	0.4	46.0	14.1	1.0	5.1	1.4	0.0	1.4	0.9	0.0	0.3	0.0	0.0
7:00 AM	101.9	0.3	68.4	18.3	1.0	9.6	0.3	0.0	2.6	0.4	0.3	0.6	0.0	0.1
8:00 AM	151.0	0.6	106.3	23.0	3.7	10.0	1.3	0.3	4.0	0.6	0.3	0.7	0.0	0.3
9:00 AM	174.1	0.7	121.7	29.6	2.7	13.9	0.1	0.0	4.3	0.7	0.3	0.1	0.0	0.0
10:00 AM	178.1	0.3	120.9	34.6	2.0	15.0	0.9	0.1	3.6	0.7	0.1	0.0	0.0	0.0
11:00 AM	176.3	1.3	120.3	31.3	3.6	11.6	1.0	0.0	4.7	0.9	0.1	1.1	0.0	0.4
12:00 PM	206.0	0.8	146.3	33.8	3.3	14.7	0.8	0.0	5.0	0.3	0.0	0.7	0.0	0.2
1:00 PM	168.4	0.4	118.9	26.7	1.9	13.3	1.1	0.1	4.4	0.7	0.1	0.7	0.0	0.0
2:00 PM	156.3	0.7	106.1	33.4	1.1	11.0	0.3	0.0	2.9	0.1	0.3	0.3	0.0	0.0
3:00 PM	152.7	0.7	114.1	24.3	1.4	7.9	0.1	0.0	3.3	0.1	0.1	0.4	0.0	0.1
4:00 PM	189.1	0.7	148.6	27.3	1.4	6.6	0.4	0.0	3.3	0.1	0.0	0.7	0.0	0.0
5:00 PM	180.1	0.9	143.4	25.4	0.3	7.4	0.0	0.0	2.3	0.0	0.1	0.3	0.0	0.0
6:00 PM	136.9	0.3	113.4	16.6	1.0	3.6	0.1	0.0	1.4	0.1	0.0	0.3	0.0	0.0
7:00 PM	83.6	0.4	69.7	10.7	0.3	1.4	0.1	0.0	0.9	0.0	0.0	0.0	0.0	0.0
8:00 PM	89.1	1.3	77.1	8.1	0.0	2.0	0.0	0.0	0.6	0.0	0.0	0.0	0.0	0.0
9:00 PM	68.9	0.4	55.9	7.9	0.3	3.6	0.0	0.0	0.7	0.0	0.0	0.1	0.0	0.0
10:00 PM	47.0	0.1	40.0	5.1	0.0	1.1	0.3	0.0	0.3	0.0	0.0	0.0	0.0	0.0
11:00 PM	29.7	0.1	23.9	4.1	0.1	1.1	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Daily Average	2436.1	11.1	1798.5	386.0	26.3	142.1	9.7	0.6	46.6	5.9	1.9	6.4	0.0	1.2

Study Grand Totals

	Total	Motor Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi
WB	16847	77	12443	2668	181	980	67	4	321	41	13	44	0	8
		0.5%	73.9%	15.8%	1.1%	5.8%	0.4%	0.0%	1.9%	0.2%	0.1%	0.3%	0.0%	0.0%

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FIGURE 6-HOURLY VEHICLE CLASSIFICATION VOLUMES, MAY, 2023

City of Seattle
Department of Transportation

ON STREET:: : S HOLGATE ST
LOCATED:: : E/O
CROSS STREET:: : OCCIDENTAL AVE S

Site: 3176
Monday, 5/8/2023 1:00 PM -
Monday, 5/15/2023 12:00 PM

Classification Grand Totals

Hourly Averages

EB

Interval Start	Total	Motor Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi
12:00 AM	23.0	0.1	19.6	2.4	0.0	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1:00 AM	10.7	0.0	9.3	1.0	0.1	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2:00 AM	11.0	0.0	8.9	1.6	0.0	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3:00 AM	9.7	0.0	8.0	1.3	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4:00 AM	21.7	0.1	17.0	3.0	0.1	0.9	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5:00 AM	44.6	0.6	29.9	8.9	0.7	4.1	0.1	0.0	0.1	0.0	0.1	0.0	0.0	0.0
6:00 AM	69.3	0.3	47.9	13.6	1.6	5.3	0.3	0.0	0.1	0.1	0.0	0.1	0.0	0.0
7:00 AM	97.0	0.6	64.1	19.4	1.9	9.0	1.1	0.0	0.7	0.1	0.0	0.0	0.0	0.0
8:00 AM	107.6	0.7	73.6	20.0	1.3	9.9	0.4	0.0	1.4	0.1	0.1	0.0	0.0	0.0
9:00 AM	128.6	0.6	94.3	20.6	1.3	9.7	0.0	0.0	1.3	0.4	0.0	0.4	0.0	0.0
10:00 AM	142.0	0.1	95.0	29.0	1.4	13.0	0.4	0.0	2.3	0.3	0.0	0.4	0.0	0.0
11:00 AM	137.3	1.1	93.4	28.3	1.9	9.1	0.4	0.0	2.3	0.1	0.0	0.6	0.0	0.0
12:00 PM	196.2	0.7	142.2	34.2	2.0	12.3	0.0	0.0	3.2	0.7	0.5	0.5	0.0	0.0
1:00 PM	173.1	0.6	121.0	33.9	2.0	12.3	0.3	0.1	2.3	0.0	0.1	0.4	0.0	0.1
2:00 PM	186.1	1.0	130.1	34.9	2.4	12.4	0.6	0.0	3.6	0.7	0.0	0.4	0.0	0.0
3:00 PM	185.9	0.7	143.3	24.3	4.6	8.0	0.6	0.0	2.6	0.3	0.0	1.3	0.0	0.3
4:00 PM	186.6	0.7	142.7	30.1	2.6	6.6	0.3	0.1	2.1	0.4	0.0	0.7	0.0	0.1
5:00 PM	183.7	0.6	156.1	20.0	0.9	4.3	0.1	0.0	1.3	0.3	0.0	0.1	0.0	0.0
6:00 PM	131.7	1.0	108.9	15.3	0.9	3.9	0.0	0.0	1.1	0.4	0.0	0.3	0.0	0.0
7:00 PM	82.0	0.3	69.9	9.7	0.4	1.0	0.3	0.0	0.3	0.0	0.0	0.1	0.0	0.0
8:00 PM	95.3	0.1	77.7	13.3	0.7	2.6	0.0	0.0	0.3	0.1	0.0	0.4	0.0	0.0
9:00 PM	119.4	0.3	97.6	11.7	3.1	3.7	0.1	0.0	1.9	0.0	0.0	0.9	0.0	0.1
10:00 PM	86.3	0.3	73.4	10.0	0.4	1.0	0.0	0.0	1.0	0.0	0.0	0.1	0.0	0.0
11:00 PM	59.4	0.1	51.1	6.4	1.0	0.3	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0
Daily Average	2488.2	10.7	1874.9	392.7	31.3	131.2	6.0	0.3	28.3	4.2	0.9	6.9	0.0	0.7

Study Grand Totals

	Total	Motor Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi
EB	17221	74	12982	2715	217	906	42	2	195	29	6	48	0	5
		0.4%	75.4%	15.8%	1.3%	5.3%	0.2%	0.0%	1.1%	0.2%	0.0%	0.3%	0.0%	0.0%

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FIGURE 7-HOURLY VEHICLE CLASSIFICATION VOLUMES, MAY, 2023

Study Name 12_3rd_Holgate
Start Date 11/23/2023
Time 12:00 AM
Site Code 12

Type Road
Classification Grand Total of ALL Vehicles

	3rd Ave S Southbound				S Holgate St Westbound				3rd Ave S Northbound				S Holgate St Eastbound			
Start Time	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn
12:00 AM	1	0	0	0	0	1	1	0	0	1	4	0	0	5	1	0
12:15 AM	0	2	0	0	0	2	0	0	1	0	1	0	0	0	0	0
12:30 AM	0	0	0	0	2	0	0	0	0	0	1	0	0	7	1	0
12:45 AM	2	0	1	0	1	3	0	0	0	0	1	0	0	3	0	0
1:00 AM	0	0	0	0	1	3	0	0	0	0	3	0	0	3	1	0
1:15 AM	0	1	0	0	1	0	1	0	0	0	0	0	0	0	1	0
1:30 AM	0	0	0	0	0	0	0	0	0	0	5	0	0	3	0	0
1:45 AM	0	0	0	0	1	1	0	0	3	0	0	0	0	2	3	0
2:00 AM	0	0	1	0	0	3	0	0	0	0	3	0	0	1	1	0
2:15 AM	0	1	0	0	0	3	0	0	0	0	3	0	1	3	1	0
2:30 AM	0	1	0	0	1	1	0	0	0	0	1	0	0	1	1	0
2:45 AM	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0
3:00 AM	0	1	0	0	0	0	0	0	0	0	1	0	0	0	1	0
3:15 AM	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0
3:30 AM	0	0	0	0	1	0	0	0	0	0	1	0	0	1	0	0
3:45 AM	0	0	0	0	0	2	0	0	0	0	0	0	0	2	1	0
4:00 AM	0	0	0	0	0	0	0	0	0	2	1	0	0	2	0	0
4:15 AM	0	0	0	0	0	0	0	0	0	1	2	0	0	3	1	0
4:30 AM	0	1	1	0	1	1	0	0	0	0	0	0	0	0	0	0
4:45 AM	0	0	0	0	0	4	0	0	0	0	1	0	0	2	2	0
5:00 AM	0	0	1	0	0	0	0	0	1	0	0	0	0	3	0	0
5:15 AM	0	0	0	0	0	0	1	0	1	0	0	0	0	1	0	0
5:30 AM	0	0	0	0	0	5	1	0	0	0	2	0	0	1	1	0
5:45 AM	0	2	0	0	1	8	1	0	2	0	1	0	0	3	0	0
6:00 AM	0	0	0	0	0	4	0	0	0	0	1	0	0	5	0	0
6:15 AM	1	0	0	0	1	5	0	1	0	0	2	0	0	7	0	0
6:30 AM	0	1	1	0	0	7	0	0	0	1	1	0	0	15	2	0
6:45 AM	0	0	0	0	1	3	2	0	1	0	1	0	0	8	1	0
7:00 AM	0	0	1	0	1	8	0	0	0	1	0	0	1	21	1	0
7:15 AM	0	0	0	0	2	11	1	1	0	0	2	0	0	6	2	0
7:30 AM	0	0	0	0	0	6	3	0	0	1	1	0	0	2	0	0
7:45 AM	0	0	1	0	0	10	1	0	0	0	1	0	0	6	0	0
8:00 AM	0	0	0	0	1	12	5	0	0	0	1	0	0	8	1	0
8:15 AM	0	0	1	0	0	4	0	0	0	2	0	0	0	5	0	0
8:30 AM	1	0	1	0	0	17	3	1	1	0	2	0	0	8	0	0
8:45 AM	0	0	1	0	0	9	2	0	2	1	1	0	0	9	1	0
9:00 AM	0	0	1	0	0	10	0	0	0	0	1	0	0	13	0	0
9:15 AM	0	0	1	0	0	14	2	0	0	0	2	0	0	6	3	0
9:30 AM	1	1	2	0	1	10	1	1	0	3	3	0	0	18	2	0
9:45 AM	0	0	2	0	2	10	2	0	2	1	2	0	0	0	0	1
10:00 AM	1	0	0	1	1	10	4	0	0	1	1	0	2	7	0	0
10:15 AM	0	1	1	0	0	12	4	0	1	0	3	0	1	25	0	0
10:30 AM	1	1	2	0	2	22	4	0	1	0	2	0	0	9	0	0
10:45 AM	0	2	2	0	2	21	3	0	1	1	5	0	1	14	3	0
11:00 AM	1	1	0	0	6	18	3	0	4	0	3	0	0	21	0	0
11:15 AM	1	0	2	0	2	17	3	0	0	1	7	0	2	16	3	0
11:30 AM	0	0	0	0	1	29	6	0	0	2	7	0	2	16	4	0
11:45 AM	0	0	2	0	1	19	3	0	0	1	4	0	1	19	0	0
12:00 PM	0	0	1	0	2	15	4	0	2	1	4	0	2	14	2	0
12:15 PM	0	0	4	0	1	26	9	0	0	0	6	0	0	15	2	0
12:30 PM	1	1	4	0	1	27	3	0	1	1	3	0	0	18	5	0
12:45 PM	1	2	3	0	3	30	3	1	2	1	1	0	4	20	1	0
1:00 PM	0	4	2	0	3	33	16	1	2	4	2	0	1	21	3	0
1:15 PM	2	3	4	0	5	28	3	0	2	3	8	0	1	13	0	1
1:30 PM	0	3	1	0	1	31	8	1	2	2	8	0	1	21	1	0
1:45 PM	1	5	5	0	7	42	5	0	0	5	4	0	2	23	2	0
2:00 PM	4	5	3	0	4	39	11	0	0	1	4	0	4	21	2	1
2:15 PM	3	3	8	1	3	27	9	1	1	5	6	0	3	14	2	0
2:30 PM	1	1	5	0	5	38	8	0	0	1	7	0	3	18	4	0
2:45 PM	2	3	4	0	2	51	2	0	2	1	9	0	0	33	7	0
3:00 PM	2	2	2	0	2	40	5	0	0	3	4	0	0	24	5	0
3:15 PM	4	5	6	0	3	21	6	0	0	4	8	1	0	16	5	0
3:30 PM	1	1	4	0	3	40	6	0	1	0	5	0	2	35	1	0
3:45 PM	2	0	3	1	8	54	5	0	4	3	3	0	0	21	6	0
4:00 PM	1	1	2	0	6	72	12	0	0	4	2	0	1	35	2	0
4:15 PM	2	2	1	0	2	54	6	0	0	0	7	0	0	37	6	2
4:30 PM	0	2	4	0	1	60	5	0	2	2	3	0	2	33	4	0
4:45 PM	3	5	5	0	2	24	4	0	2	4	3	0	4	26	7	0
5:00 PM	4	2	4	0	2	18	2	0	0	1	2	1	0	19	2	0
5:15 PM	2	2	3	0	1	7	2	0	1	1	6	0	0	23	4	0

FIGURE 8-TURNING VOLUMES NOVEMBER 2023

5:30 PM	0	1	0	0	2	12	0	0	0	1	1	0	0	12	2	0
5:45 PM	0	1	1	0	2	9	0	0	1	3	4	0	0	5	4	0
6:00 PM	0	0	2	0	0	7	2	0	3	0	1	0	0	4	0	0
6:15 PM	1	0	0	0	0	11	1	1	0	2	2	0	3	12	1	0
6:30 PM	2	0	1	0	0	6	0	0	0	0	0	0	0	7	0	0
6:45 PM	0	0	2	0	0	9	0	2	0	0	4	0	0	7	0	0
7:00 PM	0	0	0	0	1	6	1	0	1	0	1	0	0	9	0	0
7:15 PM	1	1	2	0	2	10	0	0	0	0	2	0	1	12	0	0
7:30 PM	0	0	3	0	2	19	1	0	1	1	6	0	1	15	0	0
7:45 PM	2	0	2	0	1	17	2	0	0	1	1	0	0	9	1	0
8:00 PM	1	0	1	0	2	17	3	0	0	0	3	0	0	24	2	0
8:15 PM	2	2	0	0	2	16	1	0	0	1	3	0	2	102	2	1
8:30 PM	6	0	4	0	0	19	5	1	0	0	9	0	1	110	1	0
8:45 PM	9	1	4	0	0	23	4	0	0	0	12	0	0	116	2	0
9:00 PM	7	0	4	0	0	32	9	0	0	2	7	0	0	130	1	0
9:15 PM	0	1	3	0	2	20	9	0	0	1	3	0	0	82	2	0
9:30 PM	1	4	4	0	1	17	2	0	0	0	11	0	2	60	3	0
9:45 PM	3	1	2	0	2	8	1	1	0	2	11	0	2	10	1	0
10:00 PM	3	2	1	0	2	7	0	0	2	0	8	0	0	14	2	0
10:15 PM	4	1	2	0	1	4	0	0	0	1	7	0	0	13	2	0
10:30 PM	4	1	1	0	1	5	0	0	0	0	8	0	0	11	2	0
10:45 PM	1	2	1	0	4	3	0	0	0	0	5	0	0	3	1	0
11:00 PM	0	1	0	0	0	2	0	0	0	1	6	0	1	5	2	0
11:15 PM	2	0	0	0	0	4	0	0	0	0	3	0	0	4	1	1
11:30 PM	3	1	1	0	0	3	2	0	0	0	1	0	0	4	1	0
11:45 PM	1	0	0	0	0	4	0	0	0	0	2	0	0	3	1	0

FIGURE 9-TURNING VOLUMES, MAY, 2023 (CONTINUED)

ATTACHMENT 3. PAVEMENT FIELD INVESTIGATION PHOTOS

FIGURE 10-S HOLGATE ST AND OCCIDENTAL AVE S, PAVEMENT CONDITION SHOWING ALIGATORING AND CRACKING, SW CORNER LOOKING NE

FIGURE 11-S HOLGATE ST AND DOT# 085583Y CROSSING, PAVEMENT CONDITION SHOWING ALIGATORING AND CRACKING, SW CORNER LOOKING NW

FIGURE 12-S HOLGATE ST BETWEEN DOT# 085583Y AND 927461X CROSSING, PAVEMENT CONDITION SHOWING ALIGATORING AND TRENCH REPAIR, SW CORNER LOOKING NW

FIGURE 13-S HOLGATE ST AND DOT# 927461X CROSSING, PAVEMENT CONDITION SHOWING FAILURE OF PAVEMENT BETWEEN RAIL CROSSING, SE CORNER LOOKING NW

FIGURE 14-S HOLGATE ST AND DOT# 085583Y CROSSING, PAVEMENT CONDITION SHOWING ALLIGATORING OF PAVEMENT AND LATERAL CRACKING, SE CORNER LOOKING NE

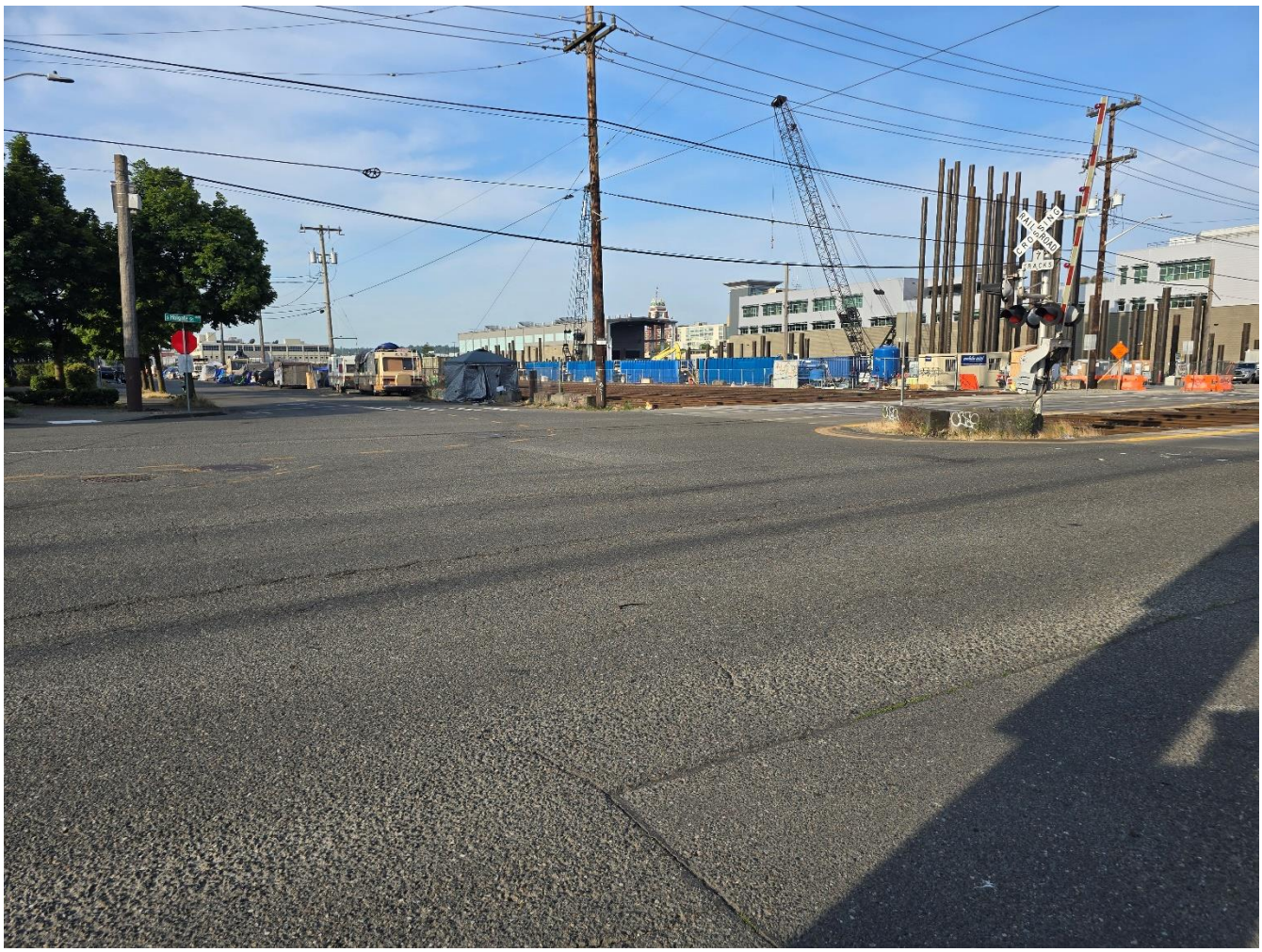


FIGURE 15-S HOLGATE ST AND 3RD AVE S, NEAR DOT# 927461X, PAVEMENT CONDITION SHOWING LONGITUDINAL CRACKING AND PATCHING, NE CORNER LOOKING SW

FIGURE 16-S HOLGATE ST AND 3RD AVE S, PAVEMENT CONDITION SHOWING ALLIGATOR CRACKING AND PATCHING, SW CORNER LOOKING NE

FIGURE 17-S HOLGATE ST AND DOT# 927461X, PAVEMENT CONDITION SHOWING ALLIGATORING, LONGITUDINAL AND LATERAL CRACKING, NW CORNER LOOKING SE

FIGURE 18-S HOLGATE ST AND DOT# 085583Y, ALLIGATORING, LONGITUDINAL AND LATERAL CRACKING, NE CORNER LOOKING SW

FIGURE 19- S HOLGATE ST AND DOT# 085583Y, ALLIGATORING, NW CORNER LOOKING SE

APPENDIX B. GEOTECHNICAL CONSIDERATIONS MEMORANDUM

719 SECOND AVENUE, SUITE 1250, SEATTLE, WA 98104 • 206.382.9800 • DKSASSOCIATES.COM

CIANI & HATCH ENGINEERING

S HOLGATE ST CROSSING STUDY

DATE: August 7, 2025

TO: Sara Zora | SDOT
Wintana Miller | DKS

FROM: Whitney Ciani | Ciani & Hatch Engineering

SUBJECT: Existing Conditions – Geotechnical Considerations Project # 24798-000

PROJECT UNDERSTANDING

In anticipation of this project, BNSF and Amtrak have requested that the City explore the potential permanent closure of S Holgate St between Occidental Ave S and 3rd Ave S. However, in lieu of a permanent closure of this road, the City is also exploring the option of constructing a grade separation structure to maintain access to S Holgate Street while facilitating the needs of BNSF and Amtrak. In support of this effort, the project team has utilized existing historical geotechnical data to determine anticipated soil and groundwater conditions and evaluated geologic hazards at the site to inform geotechnical design considerations.

REGIONAL GEOLOGY

Geologic information for the project area was obtained from the Geologic Map of Seattle, Washington (Troost et al. 2005). Surficial deposits mapped within the project area consist of tideflat deposits, with an overlay noting modified land.

The site is located within a north-south trending valley that was cut by historical glacial activity. This channel was carved into the glacially overridden soils that previously existed between Beacon Hill and West Seattle. After the glaciers retreated, the newly carved channel and the Puget Sound filled with seawater and provided an environment subjected to estuarine, alluvial, and deltaic deposition.

Before significant land alteration, the Duwamish River flowed into a larger embayment of Puget Sound. This embayment was later filled in by sediment, pushing the shoreline north to where it is today near Seattle. These tideflat soil deposits were continually reworked by marine and fluvial processes, which created significant amounts of interbedding and soil layer discontinuities.

Starting in the 1890s, controlled and uncontrolled fill deposits of varying composition (granular and cohesive) were placed over the alluvial and estuarine deposits. The fill was placed to raise the

grade of the entire area to transform it from tideflats to upland area that could be used and developed.

SOIL CONDITIONS

Subsurface conditions at the site were evaluated using historical geotechnical exploration data obtained from the Washington Department of Natural Resources (DNR) subsurface information portal and historical records provided by SDOT. Our interpretation of the subsurface soil conditions along the roadway corridor alignment based on the historical geotechnical data is shown in the Preliminary Cross Section, Figure 1. Based on historical logs, the site soils present below existing surface conditions (i.e., asphalt pavement section) were characterized into four general units:

Fill: Encountered in all historical borings along the project alignment, to depths up to 16 feet below ground surface. The fill generally consisted of fine- to medium-grained sand with variable silt and gravel content and sandy silt and clay. These soils were brown to gray and typically ranged in density from very loose to medium dense. Brick and concrete debris were observed in these soils, as well as thin layers of peat and wood fragments. Portions of the fill in Borings B-2 and B-3 (S&W 1997) were identified as hydraulic fill, extending from 6.5 to 11.5 and 4.0 to 12.5 feet below ground surface, respectively. Hydraulic fill soils ranged from silty clay to sandy silt and were soft to medium stiff.

Alluvium: Alluvial soils are deposited by flowing water, such as rivers or streams. Interbedded layers of coarse-grained and fine-grained alluvial deposits were encountered in all borings below the fill soils. These soils were generally wet, gray, and contained scattered shell fragments. Course-grained and fine-grained alluvium observed in the borings are described further below:

> **Fine-Grained Alluvium:** Fine-grained layers were comprised of silt and clay ranging in consistency from very soft to stiff with occasional pockets of very stiff to hard deposits. The thickness of the fine-grained zones varied, ranging from only a few feet thick to approximately 60 feet thick.
>
> **Coarse-Grained Alluvium:** The predominantly coarse-grained layers, comprised of sand with varying silt content, ranged from loose to dense. East of 4th Ave S, an up-to 25-foot-thick zone of medium-dense to dense coarse-grained soil was encountered between approximate elevations of -10 to -35 feet.

Estuarine Deposits: Estuarine soils form in partially enclosed bodies of water where freshwater rivers meet saltwater. Estuarine deposits were noted in historical borings B-1 (S&W 1997) and SD-115 (S&W 2004) and generally consisted of very soft to medium stiff silt interbedded within the alluvium. These soils typically exhibit some cohesion but are generally non-plastic to low plasticity silts. Discontinuous layers of estuarine silt were observed between depths of 7 and 106 feet.

Glaciolacustrine Deposits: Glacially overridden lacustrine deposits were encountered underlying the Alluvial/Estuarine Deposits in Borings B-3 (S&W 1997) and SD-115 (S&W 2004) at depths of 106 feet (approximate elevation -88 feet) and 89 feet (approximate elevation -69 feet), respectively. These soils generally consisted of dense to very dense silty, clayey sand interbedded with very stiff to hard sandy clay and silt.

GROUNDWATER CONDITIONS

The historical logs reviewed indicate that groundwater is generally shallow along the proposed alignment, varying between 2 and 11 feet below ground surface. Monitoring wells were not installed in the historical borings, and all groundwater information is based on conditions observed during drilling.

Groundwater levels observed at the time of drilling may not be representative of actual groundwater conditions at the site. Groundwater requires time to equilibrate due the use of slurry or water to advance the auger, drilling action, and the presence of fine-grained soil. Drilling action can result in smearing of fine-grained soils along the borehole sidewalls, decreasing the hydraulic conductivity of the soil. Groundwater can take up to hours or days to fully equilibrate.

GEOLOGIC HAZARDS

Based on the historical geotechnical data and site location, the following geologic hazards were identified along the project corridor.

Liquefaction Hazard: Liquefaction refers to a condition where vibration or shaking of the ground, usually from earthquake forces, results in the development of excess pore pressures in saturated soils and subsequent loss of strength in the deposits of soil so affected. Ground settlement, lateral spreading, and/or sand boils may result from soil liquefaction. Structures supported on liquefied soils could suffer foundation settlement or lateral movement that could be severely damaging to structures. Conditions favorable to liquefaction occur in loose to medium dense, clean to moderately silty sand that is below the groundwater level; certain silts and low-plasticity clays are also susceptible when saturated.

Based on the anticipated site conditions, the site is anticipated to pose a high risk of liquefaction hazard. Where identified, the effects of liquefaction should be considered and accounted for in the design of proposed improvements.

Lateral Spread Hazard: Lateral spreading involves lateral displacement of large, surficial blocks of soil due to underlying soil layers liquefying. Lateral spreading occurs as blocks of surface soils are displaced toward a nearby slope or free face by movement of underlying liquefied soil. Due to the relatively flat site conditions, our opinion is that lateral spreading does not present a significant risk to the project.

Near Fault Ground Motion Considerations: Near fault effects must be considered for structures and improvements that are within 6 miles of a known fault. Based on the U.S. Geological Survey (USGS) Interactive Fault Mapping Tool (USGS Faults Database), the nearest identified fault to the site is the Seattle Fault zone located approximately 0.75 mile (approximately 4,000 feet) south of the site. The effects considered for this project corridor include: (1) the large amplitude of the ground motions, given the proximity to the fault; (2) potential for ground rupture; (3) forward directivity; and (4) basin effects.

The impact of large amplitude ground motions that could occur due to rupture of the Seattle Fault are accounted for in the seismic design coefficients, which are based on the national hazard maps where the influence of the Seattle Fault Zone is already included. Forward directivity or basin

effects have the greatest effects on long-period structures; given the anticipated bridge spans, we anticipate that forward directivity and basin effects will be applicable for this project. Additionally, given the proximity to the fault zone, the impacts of ground rupture should be considered in design.

GEOTECHNICAL CONSIDERATIONS

Based on review of historical reports and data, near-surface soils along the project corridor are likely not suitable for shallow foundation support; deep foundations consisting of large diameter drilled shafts would likely be required for support of a grade separated structure. Undocumented fill, present to depths of 4 to 16 feet, contain zones of soft clay and wood waste, which may be susceptible to long-term consolidation settlement. Saturated loose to medium-dense sand and silt is present to depths of 90 to 110 feet and are susceptible to strength loss and settlement due to liquefaction following a design seismic event. Bearing soils at the site were observed between elevation -70 and -90 feet.

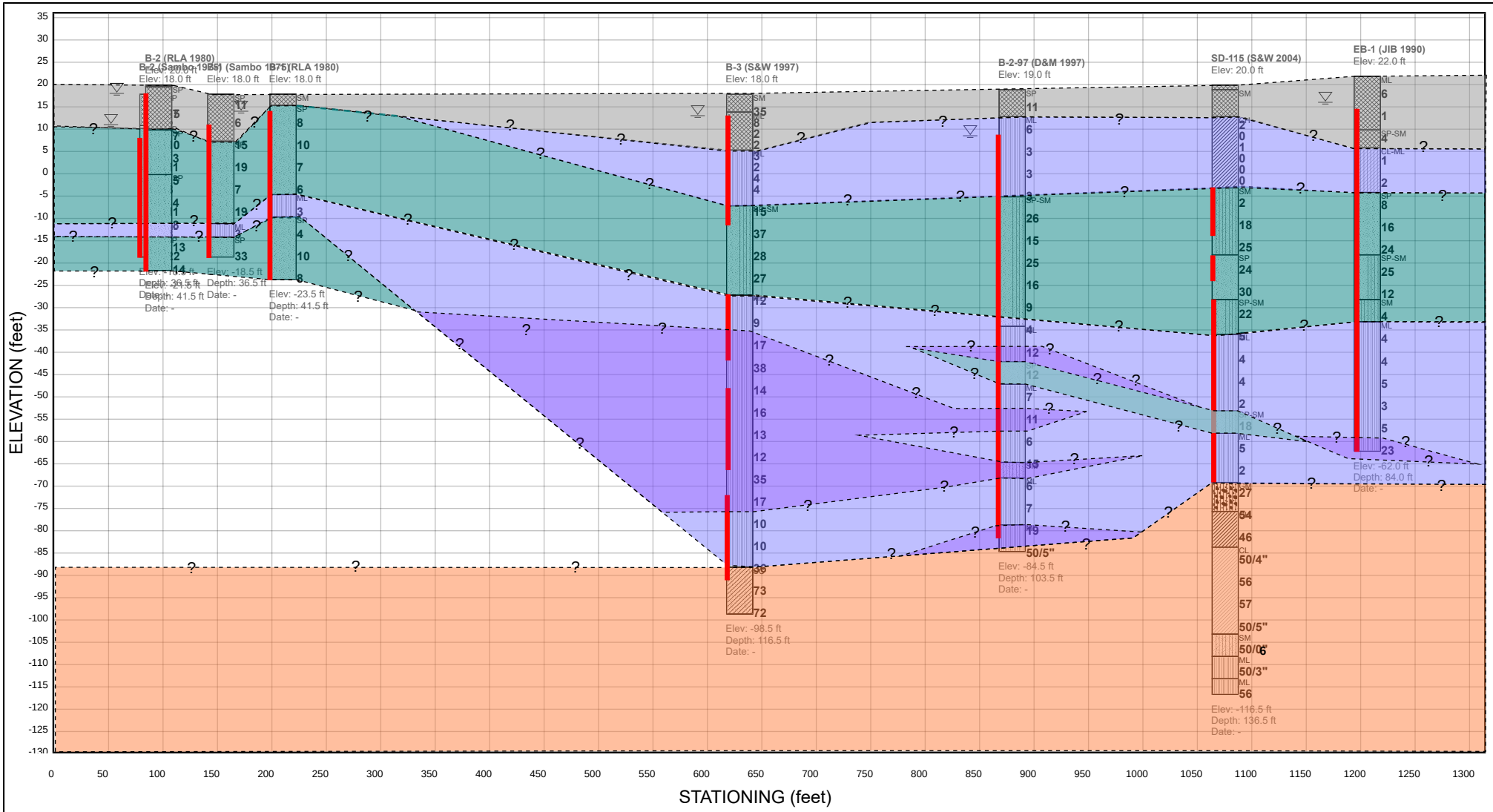
Consolidation settlement hazard is predominantly addressed by reducing the transmitted loading onto the susceptible soils; this can be accomplished by utilizing deep foundation elements that transfer the load to underlying, dense, glacially consolidated soils or using lightweight backfill materials (e.g., cellular concrete, geofoam, volcanic borrow) to reduce the total load that the soils undergo. Liquefaction-induced settlements can similarly be addressed by using deep foundation elements or by mitigating the risk of liquefaction through ground improvement. Ground improvement is a technique used to strengthen soil through densification and/or soil stabilization (i.e., mixing or injection of cement grout into the soil).

Due to the anticipated static consolidation settlement and liquefaction settlement at the site, the connection points between any proposed improvements founded on deep foundation elements or improved ground and the existing infrastructure will need to be considered. This can include any connecting pavement sections, utility alignments, or spanning structures. Design of these features can either be completed by similarly supporting the improvements on deep foundation elements or by designing with anticipated differential settlements in mind.

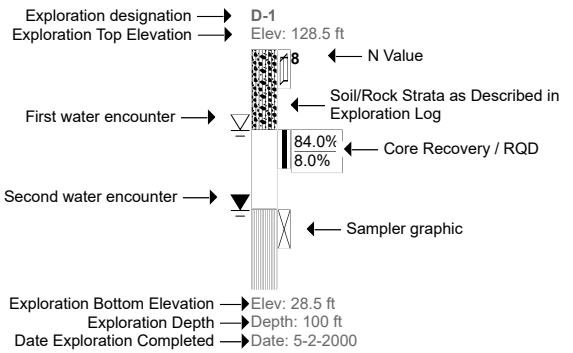
Attachments

Figure 1: Preliminary Cross Section

Attachment A. Historical Boring Logs



EXPLORATION LOG LEGEND



LEGEND KEY

ML | CL-ML | SP | SP | Asphalt | SP-SM | SC | SM | CL | CH | GM

Unit Key

- Fill
- Estuarian Deposits
- Fine Grained Alluvium Deposits
- Coarse Grained Alluvium Deposits
- Glaciolacustrine Deposits
- Potentially Liquefiable Layer
- Unknown contact

Scale: NTS

Holgate Corridor Study
South Holgate Street

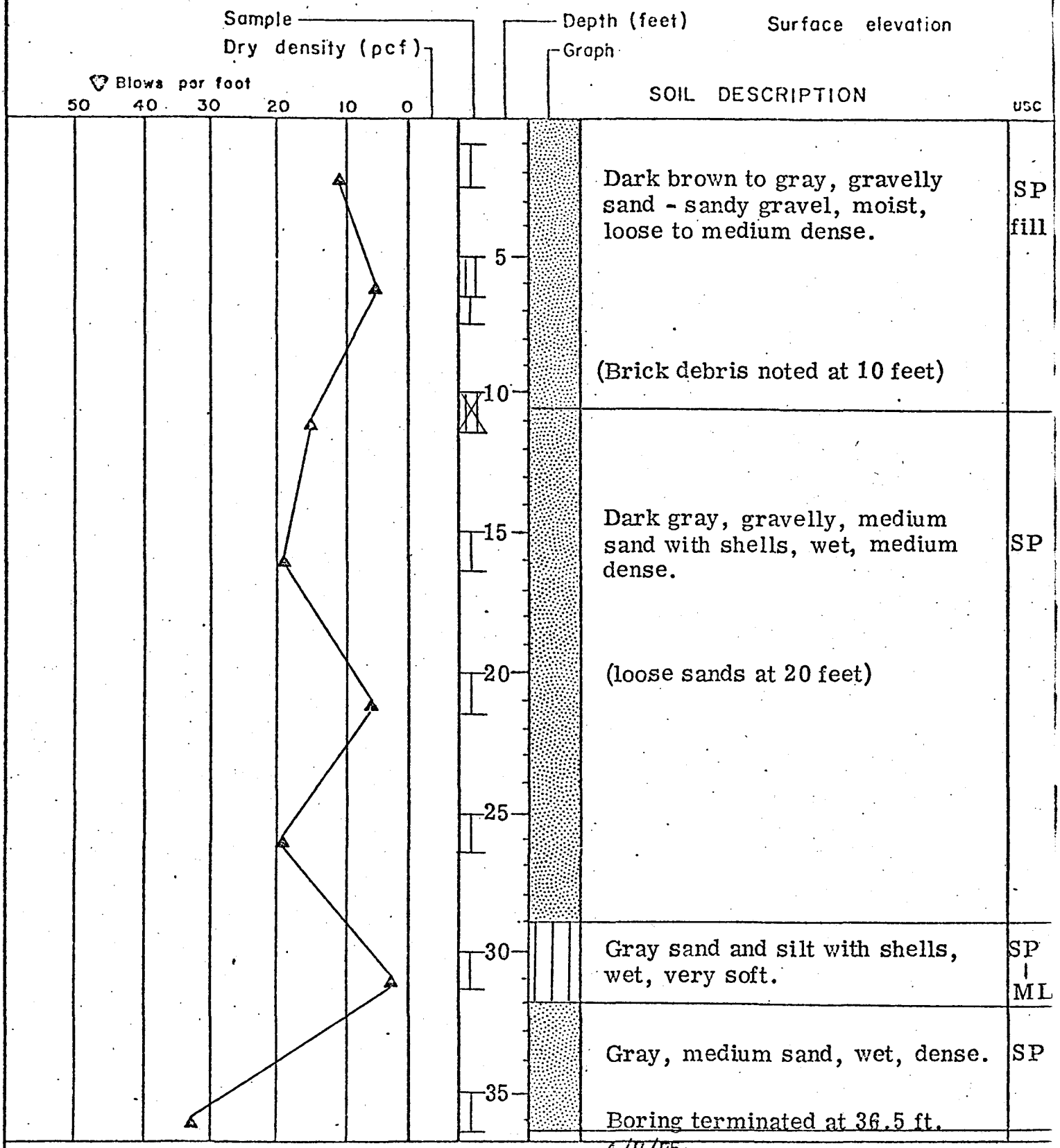
PRELIMINARY CROSS SECTION

CIANI & HATCH ENGINEERING

ATTACHMENT A. HISTORICAL BORING LOGS

Sambo 1975

BORING NO. 1



LEGEND

- Moisture content
- I 2.0" O.D. split-spoon sample
- II Undisturbed ring sample
- III Disturbed ring sample
- IV Core sample
- P Sampler pushed

Plastic limit
Liquid limit
Natural water content

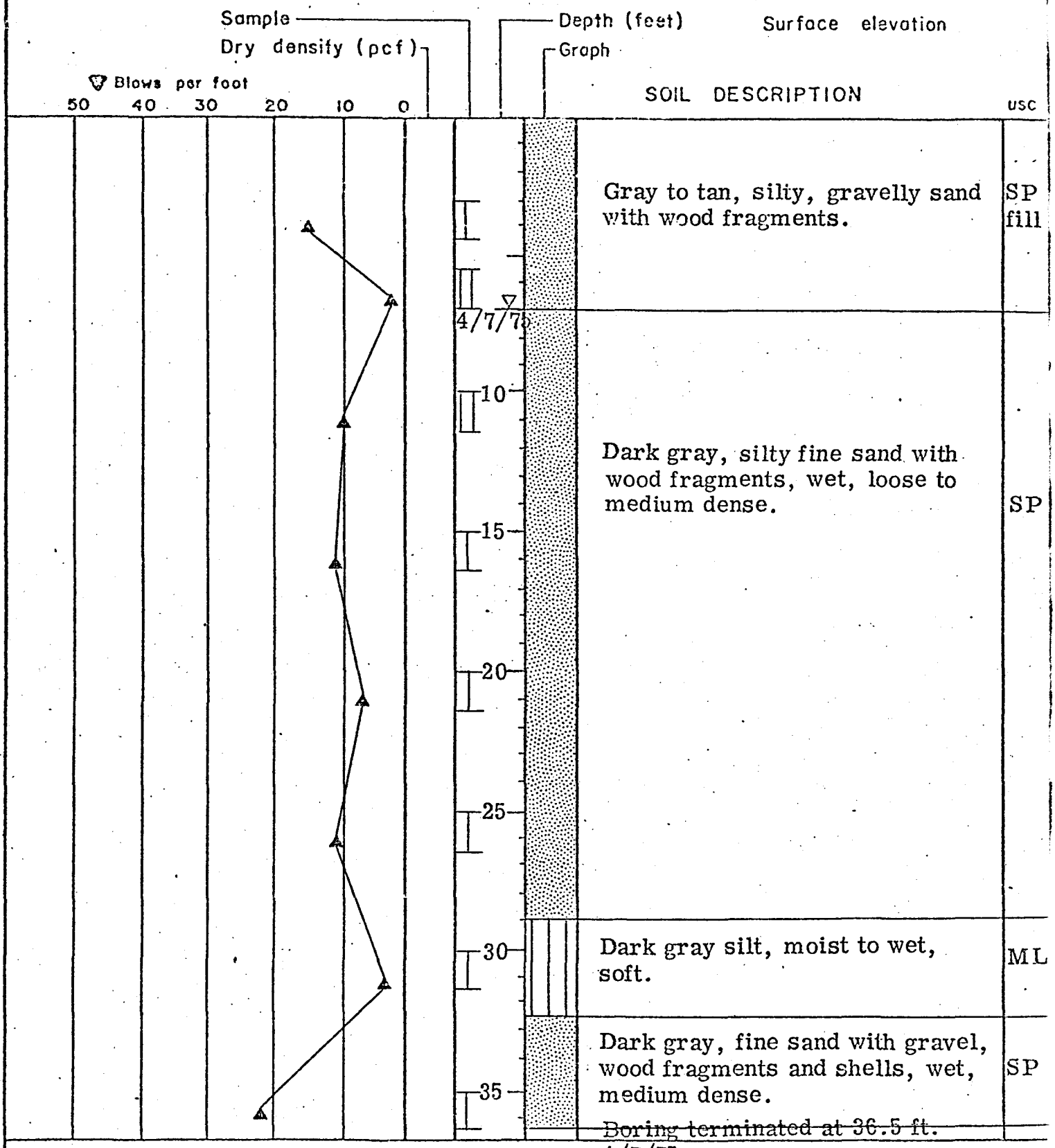
Driving energy: 140 lb. wt., 30" drop

LOG OF BORING

Sambo's Restaurant
First Avenue South and Holgate
W-1285-0

Sambo 1975

BORING NO. 2



LEGEND

- Moisture content
- I 2.0" O.D. split-spoon sample
- II Undisturbed ring sample
- III Disturbed ring sample
- IV Core sample
- P Sampler pushed

Plastic limit
Liquid limit
Natural water content

Driving energy 140 lb. wt., 30" drop

LOG OF BORING

Sambo's Restaurant
First Avenue South and Holgate

W-1285-0

BORING 1

APPROXIMATE ELEVATION 4.1 FEET

DEPTH IN FEET			GRAPHIC LOG	DESCRIPTION
0			SM	BROWN SILTY SAND WITH SOME GRAVEL, CONCRETE AND WOOD FRAGMENTS (MEDIUM DENSE, WET) (FILL)
			SP	DARK GRAY TO BLACK, FINE TO MEDIUM SAND WITH A TRACE OF SILT AND FINE RED PARTICLES (LOOSE TO MEDIUM DENSE, WET)
5	22.2	99.5	8	
10	27.9	94.7	10	
15	23.9	96.9	7	
20	22.0	100.4	6	
25	24.3	93.6	3	ML SP GRAY SILT WITH A TRACE OF SAND INTERLAYERED WITH CLEAN FINE TO MEDIUM SAND WITH OCCASIONAL SHELL FRAGMENTS (SOFT / LOOSE, WET)
30	23.5	96.1	4	SP DARK GRAY FINE TO MEDIUM SAND WITH A TRACE OF SILT AND SHELL FRAGMENTS AND FINE RED PARTICLES (LOOSE TO MEDIUM DENSE, WET)
35			10	NOTE: WATER OBSERVED AT 4 FEET
40			8	BORING COMPLETED AT 41 1/2 FEET ON 6-18-80

*SEE KEY FOR EXPLANATION OF SYMBOLS

ROGER LOWE ASSOCIATES INC. | LOG OF EXPLORATION

BORING 2

APPROXIMATE ELEVATION 3.5 FEET

DEPTH IN FEET			GRAPHIC LOG	DESCRIPTION
0				AC 3 INCHES ASPHALT PAVING
			SP	DARK GRAY FINE TO MEDIUM SAND WITH FINE RED PARTICLES (LOOSE, WET)
5	25.0	96.5	7	
10	49.4	71.9	7	OCCASIONAL 1/8 INCH LAYERS OF PEAT AND WOOD FRAGMENTS
15	28.3	83.1	3	OCCASIONAL 3 TO 6 -INCH LAYERS OF SOFT GRAY SILT WITH A TRACE OF SAND AND OCCASIONAL ORGANICS
20	27.2	93.1	5 SP	OCCASIONAL SHELL FRAGMENTS AND NO SILT
25	24.2	97.1	4	3 -INCH SILT LENSE
30	24.2	100.0	8	GRADES TO LOOSE TO MEDIUM DENSE WITH OCCASIONAL 1 INCH SILT LENSES
35			13	NOTE: WATER OBSERVED AT 2 FEET
40	24.1	101.0	14	BORING COMPLETED AT 41 1/2 FEET ON 6-19-80

*SEE KEY FOR EXPLANATION OF SYMBOLS

ROGER LOWE ASSOCIATES INC. | LOG OF EXPLORATION

S&W 1997

DESCRIPTION Surface Elev.: Approx. Feet	Depth, Ft.
Dense, dark brown to gray, silty, gravelly, fine to medium SAND; moist; scattered organics (FILL); SM.	4.0
Soft to medium stiff, gray, slightly clayey to clayey, sandy SILT; moist to wet; trace of fine gravel; scattered organics and clay chunks (HYDRAULIC FILL); ML-SM.	12.5
Soft, gray, sandy, clayey SILT; moist to wet; trace of fine gravel; scattered clay chunks (ESTUARINE DEPOSITS); ML.	25.0
Medium dense to dense, dark gray, clean to slightly silty, fine to medium SAND; moist to wet; scattered shell fragments (ALLUVIUM); SM-SP.	45.0
Stiff to very stiff, dark gray, clayey, sandy SILT interbedded with medium dense to dense, silty fine SAND; moist to wet; scattered shell fragments (ESTUARINE DEPOSITS); ML-SM.	

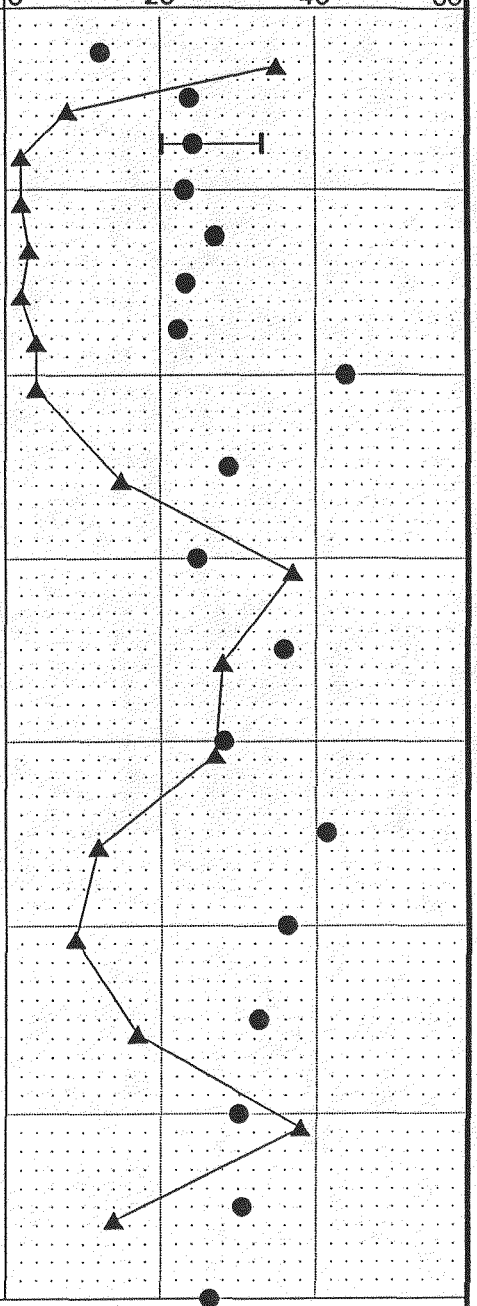
CONTINUED NEXT PAGE

Symbol

Samples: 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17

Ground Water: During Drilling

Depth, Ft.: 10 20 30 40 50 60



LEGEND

- • Sample Not Recovered
- 2" O.D. Split Spoon Sample
- 3" O.D. Shelby Tube Sample
- Surface Seal
- Annular Sealant
- Piezometer Screen
- Grout
- Water Level
- Low Water Level

NOTES

1. The stratification lines represent the approximate boundaries between soil types, and the transition may be gradual.
2. The discussion in the text of this report is necessary for a proper understanding of the nature of subsurface materials.
3. Water level, if indicated above, is for the date specified and may vary.
4. Refer to KEY for explanation of "Symbols" and definitions.
5. USC letter symbol based on visual classification.

Amtrak Commissary Relocation
Seattle, Washington

LOG OF BORING B-3

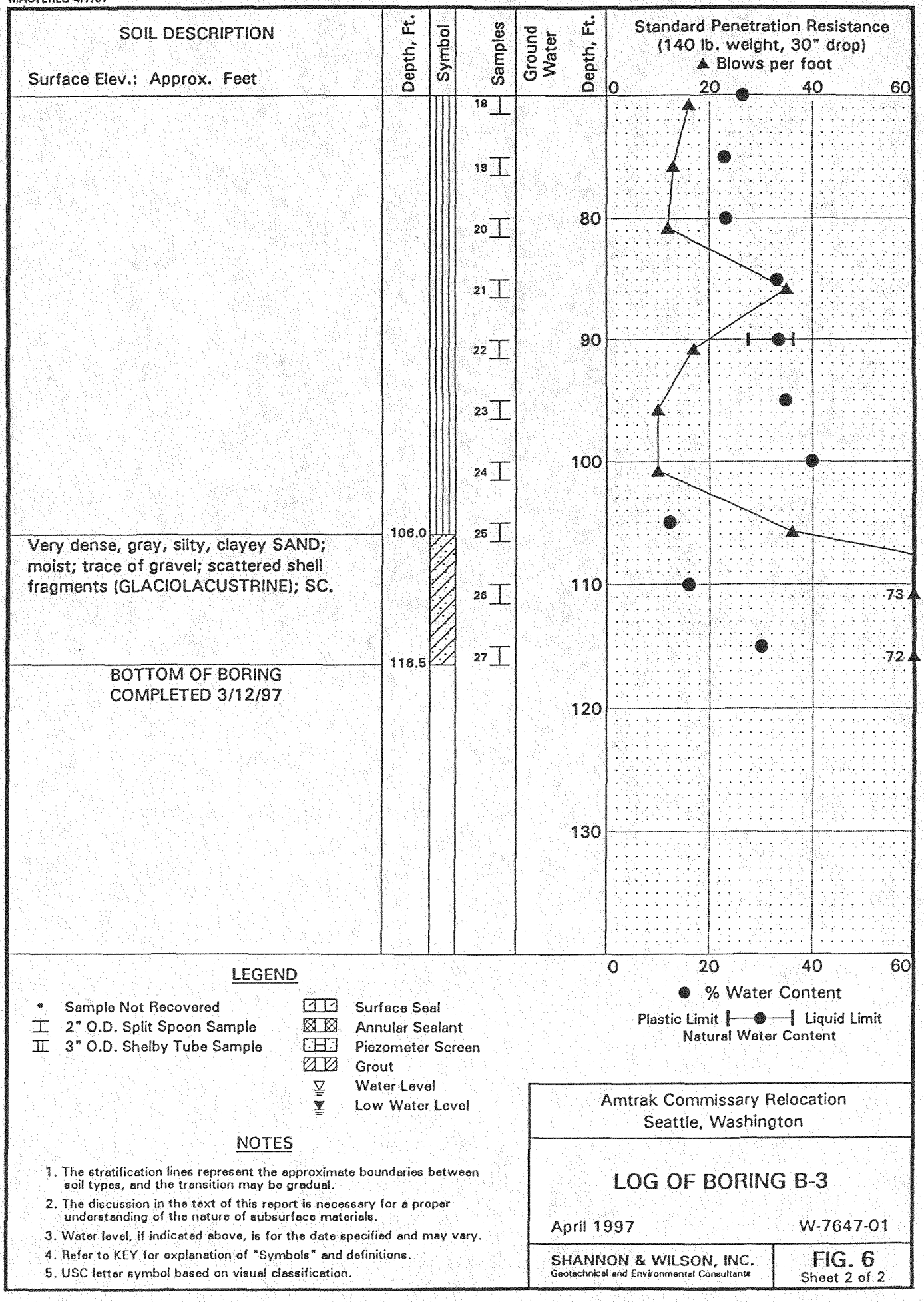
April 1997 W-7647-01

SHANNON & WILSON, INC.
Geotechnical and Environmental Consultants

FIG. 6
Sheet 1 of 2

S&W 1997

MASTERLG 4/7/97



LEGEND

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1. The stratification lines represent the approximate boundaries between soil types, and the transition may be gradual.
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Amtrak Commissary Relocation
Seattle, Washington

LOG OF BORING B-3

April 1997 W-7647-01

SHANNON & WILSON, INC.
Geotechnical and Environmental Consultants

FIG. 6
Sheet 2 of 2

D&M 1997

LOG OF BORING NO. B-2-97

T: Amtrak Maintenance Relocation
PROJECT NO: 24859-016-016
PROJECT LOCATION: Seattle, WA

WATER LEVEL: ▽10.50

DATE STARTED: January 31, 1997
DATE COMPLETED: January 31, 1997
DRILLING CONTRACTOR: Geoboring & Development, Inc.
DRILLER: Pat Ternes
DRILLING METHOD: Hollow stem auger
SAMPLING METHOD: D&M, 300# hammer, 30" drop

GROUND SURFACE ELEVATION: 19.0
DATUM:
WEATHER
FIELD ENGINEER: T. S. Parkington
PREPARED BY: T. S. Parkington

SAMPLE TYPE KEY:
- Relatively undisturbed sample
- Disturbed sample
- Sample attempt with no recovery
- Bag or grab sample

PERCENT FINES	DRY DENSITY (pcf)	MOISTURE CONTENT (%)	BLOWS PER FOOT	SAMPLE TYPE	ELEVATION(ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
					19.0	0				
			11				SP		Brown gravelly medium to coarse sand. (medium dense) (wet) (fill)	
					14.0	5				
65	99	25.6	6				ML		Gray gravelly sandy silt. (medium stiff) (wet)	
					9.0	10 ▽				
53	104	21.3	3						Grades to soft and saturated.	
					4.0	15				
			3							
					1.0	20				
			3							
					6.0	25	SP SM		Black fine to medium sand with trace to some silt and shells. (medium dense) (wet)	
3	96	26.3	26							
					11.0	30				

NOTES:

DAMES & MOORE

LOG OF BORING B-2-97

Plate A-4

LOB 24859 3/21/97

D&M 1997

Amtrak Maintenance Relocation
24859-016-016
Seattle, WA

FIELD ENGINEER: T. S. Parkington
PREPARED BY: T. S. Parkington

SAMPLE TYPE KEY:
- Relatively undisturbed sample
- Disturbed sample
- Sample attempt with no recovery
- Bag or grab sample

PERCENT FINES	DRY DENSITY (pcf)	MOISTURE CONTENT (%)	BLOWS PER FOOT	SAMPLE TYPE	ELEVATION(ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
					~11.0	30				
8	99	25.1	15	■						7 feet of heave.
					~16.0	35				
			25	■						
					~21.0	40				
			16	■						
					~26.0	45				
21	79	37.8	9	■					Grades to loose.	
					~31.0	50				
			4	■			ML		Gray fine sandy silt. (soft) (saturated)	
					~36.0	55			Grades to stiff.	
83	84	35.7	12	■						
					~41.0	60	SP		Gray fine to medium sand. (medium dense) (saturated)	
			12	■						
					~46.0	65	SM ML		Gray fine sandy silt / silty fine sand. (medium stiff to stiff / loose to medium dense) (saturated)	

NOTES:

LOB 24859 3/21/97

DAMES & MOORE

LOG OF BORING B-2-97

Plate A-5

D&M 1997

Amtrak Maintenance Relocation
24859-016-016
Seattle, WA

FIELD ENGINEER: T. S. Parkington
PREPARED BY: T. S. Parkington

SAMPLE TYPE KEY:
- Relatively undisturbed sample
- Disturbed sample
- Sample attempt with no recovery
- Bag or grab sample

PERCENT FINES	DRY DENSITY (pcf)	MOISTURE CONTENT (%)	BLOWS PER FOOT	SAMPLE TYPE	ELEVATION(ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
64	83	37.4	7							
					51.0	70				
			11							
					56.0	75				
39	86	32.3	6							
					61.0	80				
			16							
							SM		Dark gray silty fine sand. (medium dense) (saturated)	
					66.0	85				
							ML		Gray fine sandy silt. (medium stiff) (saturated)	
51	81	32.9	6							
					71.0	90				
			7							
					76.0	95				
			19							
							ML		Gray gravelly sandy silt with shells. (very stiff) (saturated)	
					81.0	100				
			40						Grades to hard.	
			50/6						Boring completed at a depth of 103.5 feet below the	

NOTES:

LOB 24859 3/21/97

DAMES & MOORE

LOG OF BORING B-2-97

Plate A-6

D&M 1997

Amtrak Maintenance Relocation
24859-016-016
Seattle, WA

FIELD ENGINEER: T. S. Parkington
PREPARED BY: T. S. Parkington

PERCENT FINES	DRY DENSITY (pcf)	MOISTURE CONTENT (%)	BLOWS PER FOOT	SAMPLE TYPE	ELEVATION(ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
									ground surface. Groundwater encountered at a depth of 10.5 feet below the ground surface.	

SAMPLE TYPE KEY:

- Relatively undisturbed sample
- Disturbed sample
- Sample attempt with no recovery
- Bag or grab sample

NOTES:

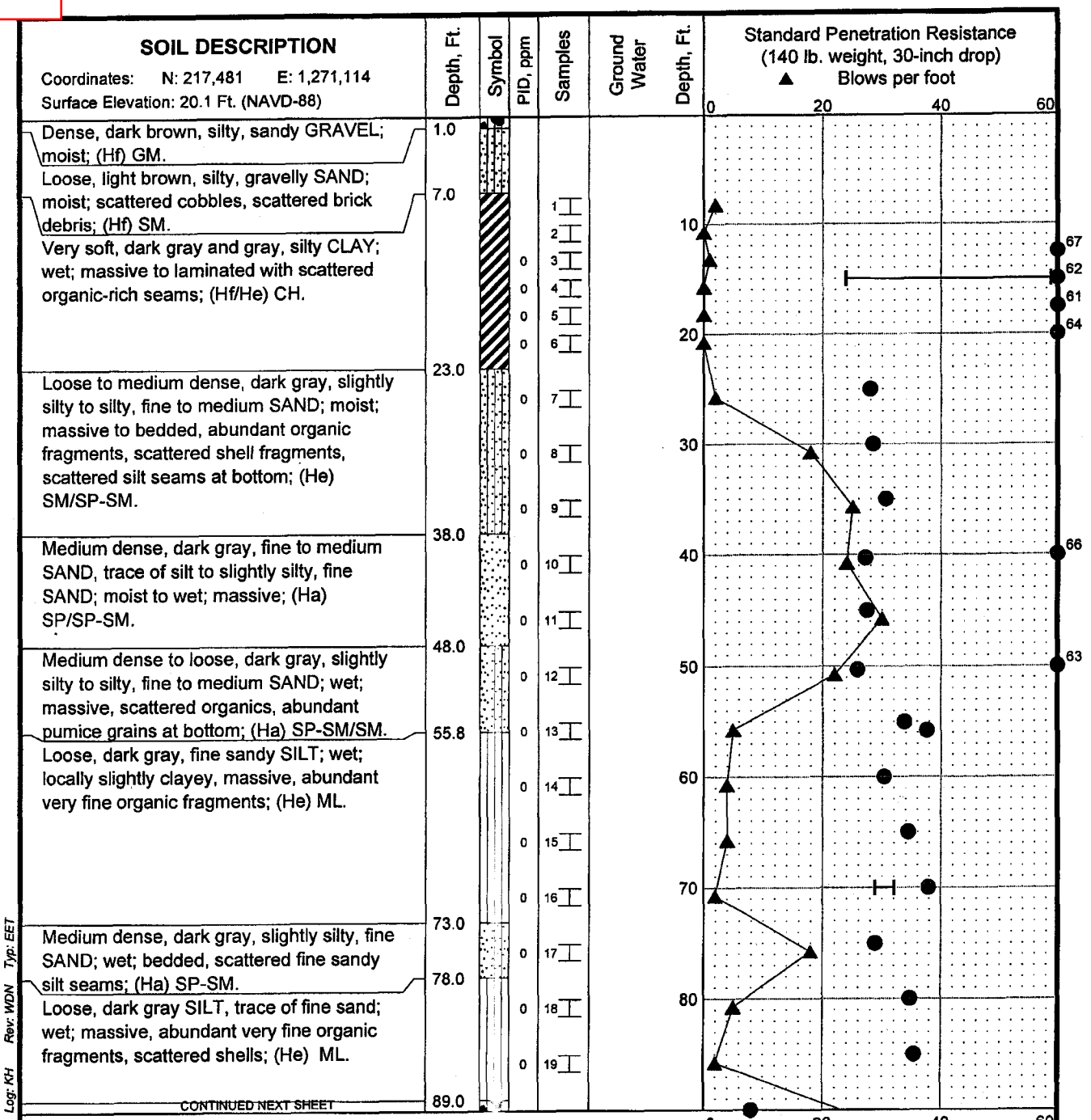
DAMES & MOORE

LOG OF BORING B-2-97

Plate A-7

LOB 24859 3/21/97

S&W 2004



NOTES

1. The boring was performed using Mud Rotary drilling methods.
2. The stratification lines represent the approximate boundaries between soil types, and the transition may be gradual.
3. The discussion in the text of this report is necessary for a proper understanding of the nature of the subsurface materials.
4. Groundwater level, if indicated above, is for the date specified and may vary.
5. Refer to KEY for explanation of symbols, codes and definitions.
6. USCS designation is based on visual-manual classification and selected lab testing.

Seattle Monorail Project
Seattle, Washington

LOG OF BORING SD-115

December 2003 21-1-09910-091

SHANNON & WILSON, INC.
Geotechnical and Environmental Consultants

FIG. A.2-17
Sheet 1 of 2

REV 3

MASTER LOG2 21-09910.GPJ SHAN WIL.GDT 12/19/03 Log: KH Rev: WDN Typ: EET

S&W 2004

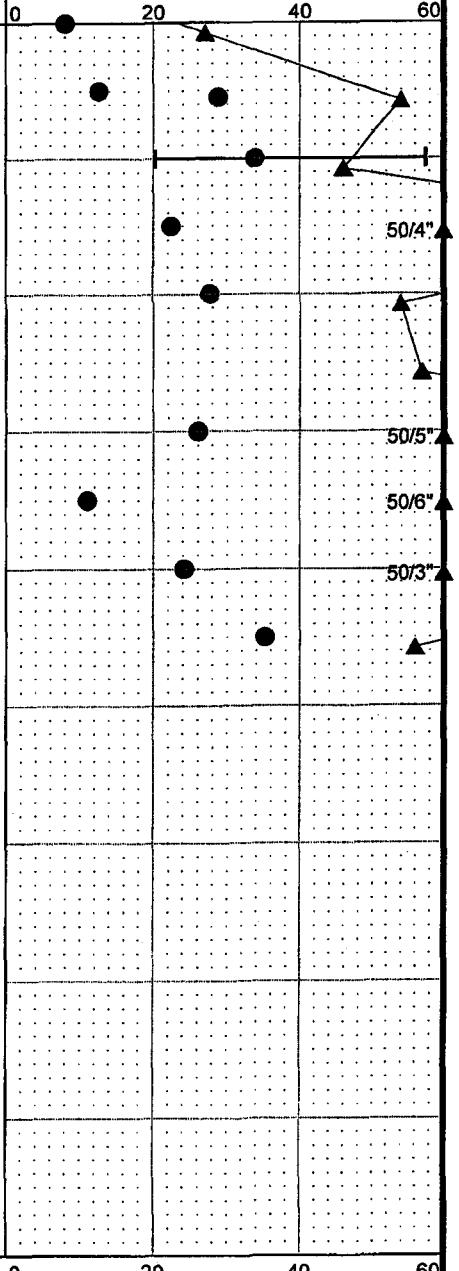
SOIL DESCRIPTION

Coordinates: N: 217,481 E: 1,271,114
Surface Elevation: 20.1 Ft. (NAVD-88)

Depth, Ft.	Soil Description
95.5	Medium dense to very dense, gray, silty, sandy GRAVEL, trace of clay; wet; massive, scattered iron-oxide stains at top; (Hrw/Qvat) GM.
103.5	Hard, gray, silty CLAY, trace of sand; wet; massive to bedded, scattered dropstones; (Qpgl) CL/CH.
	Very dense, slightly sandy SILT, trace of clay to hard, clayey, gravelly, sandy SILT; moist; massive, scattered shell fragments at top; (Qpgm) ML/CL.
123.0	Very dense, gray, gravelly, silty SAND, trace of clay; moist; massive; (Qpgt) SM.
128.0	Hard, gray, slightly sandy, clayey SILT; moist; massive; (Qpgm) ML.
133.0	Hard, gray, slightly clayey SILT; moist; massive; (Qpgl) ML.
136.5	BOTTOM OF BORING COMPLETED 8/15/2003

Notes:
1. Soil descriptions above 7 feet are based on observations made during vacuum excavation.
2. PID readings during vacuum excavation were 0 ppm.

Sample	PID, ppm	Ground Water Depth, Ft.
20	0	
21	0	
22	0	
23	0	
24	0	
25	0	
26	0	
27		
28	0	
29	0	



LEGEND
* Sample Not Recovered
I Standard Penetration Test

● % Water Content
Plastic Limit ⊢●⊣ Liquid Limit
Natural Water Content

NOTES
1. The boring was performed using Mud Rotary drilling methods.
2. The stratification lines represent the approximate boundaries between soil types, and the transition may be gradual.
3. The discussion in the text of this report is necessary for a proper understanding of the nature of the subsurface materials.
4. Groundwater level, if indicated above, is for the date specified and may vary.
5. Refer to KEY for explanation of symbols, codes and definitions.
6. USCS designation is based on visual-manual classification and selected lab testing.

Seattle Monorail Project
Seattle, Washington

LOG OF BORING SD-115

December 2003 21-1-09910-091

SHANNON & WILSON, INC.
Geotechnical and Environmental Consultants

FIG. A.2-17
Sheet 2 of 2

REV 3

MASTER LOG2 21-09910.GPJ SHAN WIL.GDT 12/19/03 Log: KH Rev: WDN Typ: EET

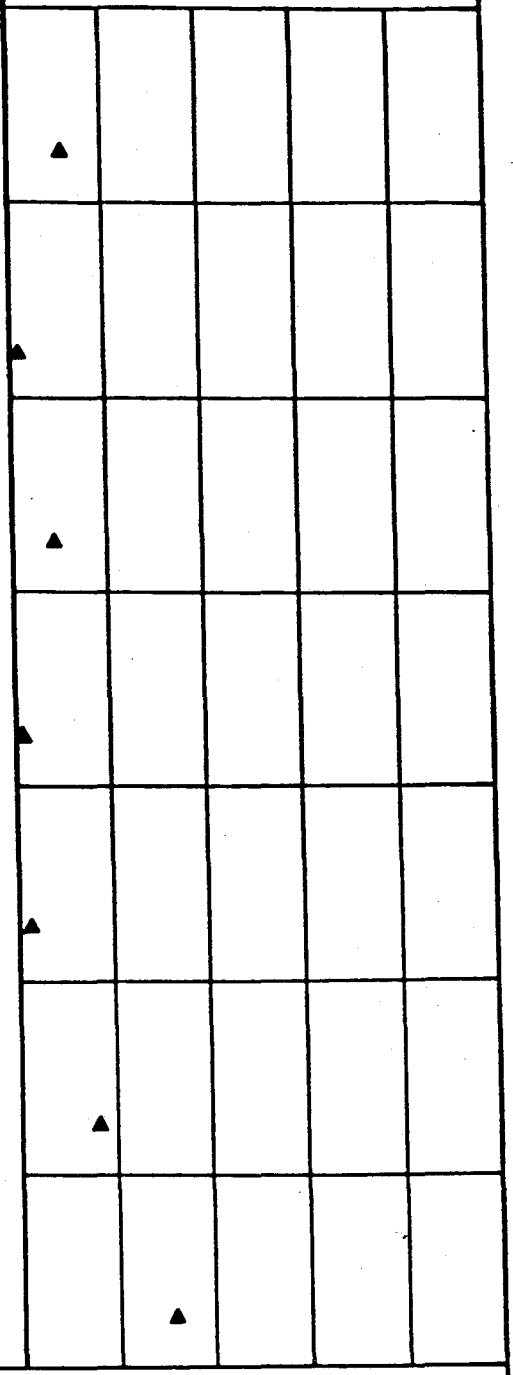
JIB 1990

EXPLORATION BORING LOG

EB-1 Page 1 of 3

GRAPH	USCS	SEDIMENT DESCRIPTION	DEPTH	SAMPLE	GROUND WATER
		Moist, grey and brown, woody silt and sand. (Fill)			
		Water @ 6½' (1' on rod)	5		W.D.
		Saturated, grey silt and sand with occasional gravel. (Fill)	10		
		Saturated, dark grey, fine to medium sand with trace of silt. Small grass organic. (Fill)	15		
		Saturated, grey, finely laminated, silty clay with a trace of organics.	20		
		Wet, grey silt and clay with occasional black organics and vague laminations.	25		
		Saturated, dark grey to black, fine to medium sand.	30		
		Saturated, black, fine to medium sand with occasional shell fragments.	35		
		W.D. = While Drilling			

STANDARD PENERATION RESISTANCE
Blows/Foot
10 20 30 40



Subsurface conditions depicted represent our observations at the time and location of this exploratory hole, modified by geologic interpretation, engineering analysis, and judgment. They are not necessarily representative of other times and locations. We will not accept responsibility for the use or interpretation by others of information presented on this log.

Jack In The Box #8467
Seattle, Washington

9010-16G | November 1990 | SRS

ASSOCIATED EARTH SCIENCES, INC

JIB 1990

EXPLORATION BORING LOG

GRAPH	USCS	SEDIMENT DESCRIPTION	DEPTH	SAMPLE	GROUND WATER	STANDARD PENERATION RESISTANCE Blows/Foot 10 20 30 40
		Saturated, black, fine to medium sand.				
		Approximately 5' of heaving sands.	40			
		Saturated, black, organic, fine to medium sand with some peaty silt.				
		Saturated, black, fine to medium sand with some silt, organics and shell fragments. 1" silt inter-bedded at tip of sample.	45			
		Approximately 1' of heaving sands.	50			
		Wet to saturated, black/grey, inter-bedded, fine to medium sand and silt with occasional organics.	55			
		Saturated, black, sandy silt grading to a fine sand.	60			
		Saturated, black, fine to medium sand overlying black silt with some sand.	65			
		Saturated, grey/black silt with occasional small pocket of fine to medium sand.	70			

Subsurface conditions depicted represent our observations at the time and location of this exploratory hole, modified by geologic interpretation, engineering analysis, and judgment. They are not necessarily representative of other times and locations. We will not accept responsibility for the use or interpretation by others of information presented on this log.

Jack In The Box #8467 Seattle, Washington	9010-16G	November 1990

SK4

ASSOCIATED EARTH SCIENCES, INC

JIB 1990

EXPLORATION BORING LOG

GRAPH	USCS	SEDIMENT DESCRIPTION	DEPTH	SAMPLE	GROUND WATER	STANDARD PENERATION RESISTANCE Blows/Foot 10 20 30 40
		Saturated, black, sandy silt to silty, fine sand. Small shell fragment.				▲
		Easy drilling.	75			
		Wet, black, fine sand with some silt.				▲
		Easy drilling.	80			
		Wet, black, sandy silt with occasional approx. 1 cm. long vertical pockets of fine to medium sand.				▲
		BOH @ 84'	85			
		Note: Water added into auger during drilling.				

Subsurface conditions depicted represent our observations at the time and location of this exploratory hole, modified by geologic interpretation, engineering analysis, and judgment. They are not necessarily representative of other times and locations. We will not accept responsibility for the use or interpretation by others of information presented on this log.

Jack In The Box #8467
Seattle, Washington

9010-16G	November 1990	JKH

ASSOCIATED EARTH SCIENCES, INC

APPENDIX C. RAIL CROSSING DIAGNOSTICS MEMO

MEMORANDUM

To: Wintana Miller, PE, PTOE
DKS Associates

From: Lauren Jumanan, PE
Kimley-Horn and Associates, Inc.

Date: 08/21/2025

Subject: South Holgate Street Rail Crossing Study – Diagnostics Technical Memorandum

---

Diagnostic Meeting Overview

CROSSING INFORMATION AND MEETING ATTENDANCE

The four crossings evaluated during the field diagnostic reviews are located along the BNSF Railway Company ("BNSF") Seattle Subdivision. The crossings, identified by roadway name, DOT #, and BNSF milepost, are as follows:

Roadway Name	DOT #	BNSF Milepost
S Holgate Street	927461X	0.795X
S Horton Street	085585M	1.591X
S Spokane Street (Westbound)	085586U	1.750X
S Spokane Street (Eastbound)	085587B	1.776X

BNSF is the primary operating railroad for all four crossings with Amtrak and Sound Transit as additional operating railroads.

The field diagnostic meetings were conducted on Tuesday, June 24, 2025 and attended by the following agencies/organizations, referred to as the Diagnostic Team hereafter:

- Roadway Authority
  - Seattle Department of Transportation ("SDOT")
  - Kimley-Horn (*SDOT's consultant*)
- Federal Railroad Administration ("FRA")
- Railroad Operators
  - BNSF
  - Amtrak

Data Sources

The Diagnostic Team utilized multiple data sources to inform their evaluations and recommendations, including FRA-reported crossing inventory and incident data, field observations, input from BNSF and Amtrak, and SDOT-provided roadway and traffic data. Updated AADT data from SDOT is expected to supplement the FRA data as part of this study, however, the data is not yet available for use in this technical memorandum.

Existing Crossing Operations

At S Holgate Street, the FRA-reported AADT was 6,700 in 2015, with a posted speed limit of 25 mph. The estimated percent of trucks is not provided on the FRA inventory form. FRA reported 42 daily train movements in 2023, though BNSF estimates the actual number is closer to 150-200 trains per day. The crossing is reported as part of a planned emergency response route but is not a school bus route.

At S Horton Street, the AADT was 3,530 in 2006, with 6% truck traffic and a 25 mph speed limit. FRA data reported 40 daily trains in 2023, though BNSF again noted the actual number is closer to 150. This crossing is not reported as part of an emergency or school bus route.

At S Spokane Street, the FRA reports the westbound crossing (DOT# 085586U) AADT of 3,408 from 2014, and the eastbound crossing (DOT# 085587B) has an AADT of 9,817. Both directions 12% truck traffic and a 25-mph speed limit. FRA-reported train counts of 40 per day were confirmed as accurate. These crossings are not part of an emergency or school bus route.

Incident History

The Diagnostic Team reviewed the FRA-reported incidents at the crossings for the past five years, since 2019. S Holgate Street has experienced three incidents: two gate violations resulting in injuries (June 2024 and April 2023), and one fatality involving a pedestrian in August 2019. S Horton Street has had no reported incidents. S Spokane Street has had three incidents: a gate violation in July 2022, a vehicle stopped on the tracks in August 2023, and another gate violation in December 2019. All incidents at S Spokane Street reported no injuries or fatalities.

DIAGNOSTIC MEETING DISCUSSIONS

S Holgate Street

The team noted discrepancies in the FRA-reported train counts, and future plans to increase the number of tracks across S Holgate Street. The team discussed the preemption time at the crossing, which is the length of time the warning devices are active prior to a train arriving at the crossing. The current configuration requires a preemption time of sixty-one seconds, as reported by BNSF during the field meeting. The team discussed concerns with this length of time leading to potential unsafe motorist and pedestrian behavior, as it may appear safe to enter the crossing area without the train immediately present at the crossing. BNSF expressed the preemption time will increase as additional tracks are introduced across Holgate Street.

The team also noted other concerns at the crossing such as high volumes of pedestrians using the crossing, as well as the intersection at 3rd Avenue causing frequent queuing back to the tracks. The team also discussed the increased potential for pedestrians using the crossing to be under the influence and/or impaired.

BNSF and Amtrak expressed support for potential closure of the crossing due to operational complexity and safety considerations.

S Horton Street

The team noted discrepancies in FRA-reported train counts and estimated percent trucks. A commercial driveway near the crossing poses risks during train events. Visibility issues with warning devices and missing signage were identified. The team discussed options for improving visibility and delineation, including additional flashing light pairs over the roadway on cantilevers and curb installations.

S Spokane Avenue (Eastbound and Westbound)

The team confirmed FRA train counts were accurate but noted truck percentages may be underreported. The crossing serves as an emergency route, is located immediately adjacent to a fire station, and has a history of minor incidents. Traffic backups from 4th Avenue S contribute to vehicles queueing up to and across the tracks for the eastbound direction. The team discussed signage, pavement markings, and pedestrian safety enhancements.

NEAR-TERM RECOMMENDATIONS BY LOCATION

S Holgate Street

At the Holgate Street crossing and adjacent areas, several immediate improvements were recommended for SDOT's consideration. Review and adjust the placement and size of the W10-1 advanced warning signs, particularly those mounted on utility poles, to align with the current MUTCD guidance. The R8-8 ("DO NOT STOP ON TRACKS") and R8-10 ("STOP HERE WHEN FLASHING") signs located in the median may obstruct visibility of the warning flashers and should be evaluated for repositioning. A tree obstructing the westbound warning device near the crossing immediately west (DOT #085583Y) should be reviewed for removal. Additional RXR pavement markings and W10-4 signs should be installed on southbound and northbound 3rd Avenue to improve driver awareness. The R3-5 "RIGHT TURN ONLY" signs on both approaches to 3rd Avenue should be upsized and mounted at appropriate heights. It is also recommended SDOT assess the need for trimming or removing trees that impair visibility of the W10-1 signs for westbound traffic.

Summary of Near-Term Recommendations for S Holgate Street:

- Review and adjust placement and size of W10-1, R8-8, and R8-10 signs for MUTCD compliance
- Remove tree obstructing visibility of westbound warning device
- Install W10-4 signs and RXR pavement markings on 3rd Avenue
- Replace undersized R3-5 signs and increase post height

S Horton Street

Immediate improvement recommendations at S Horton Street include the installation of a missing W10-1 sign on the westbound approach and an R8-8 sign to discourage vehicles from stopping on the tracks, particularly due to queuing from the nearby commercial driveway. Edgeline pavement markings should be considered to improve channelization of both vehicles and pedestrians through the crossing. The RXR pavement markings and crossing limit lines are faded or missing and should be refreshed. Visibility of the warning device in the northeast quadrant is obstructed by a utility pole; SDOT should explore two options: installing a curb to allow the device to be relocated closer to the roadway or installing a cantilever to provide overhead flashers. Additionally, the W10-1 sign in the southwest quadrant is undersized and should be replaced to meet current MUTCD guidance.

Summary of Near-Term Recommendations for S Horton Street:

- Install missing W10-1 sign for westbound approach
- Install R8-8 sign at crossing
- Install edgeline pavement markings
- Refresh RXR and limit line pavement markings
- Evaluate visibility improvements for warning devices

S Spokane Avenue (Eastbound and Westbound)

At S Spokane Street, it is recommended SDOT replace the undersized W10-1 signs in the southwest and northeast quadrants and install additional signs in the medians. In the southeast quadrant, it is recommended R8-8 signs be installed to deter vehicles from stopping on the tracks due to backups from the 4th Avenue S intersection. R5-1 (“DO NOT ENTER”) and R6-1 (“ONE WAY”) signs are recommended to deter illegal turns from the U-turn area. In the southwest quadrant, it is recommended “KEEP CLEAR” pavement markings be added between the stop bar and the warning devices, and R8-10 signs be installed both curbside and in the median. Pedestrian barricades are also recommended in the medians to prevent unsafe crossings outside of designated areas.

Summary of Near-Term Recommendations for S Spokane Street:

- Replace undersized W10-1 signs in SW and NE quadrants
- Install R8-8, R5-1, and R6-1 signs in SE quadrant
- Add “KEEP CLEAR” markings and R8-10 signs in SW quadrant
- Install pedestrian barricades in medians

LONG-TERM RECOMMENDATIONS BY LOCATION

S Holgate Street

Given the planned addition of tracks and the resulting increase in gate-down time, BNSF and Amtrak have expressed support for the potential closure of the Holgate Street crossing. The diagnostic team recommends SDOT evaluate this option in coordination with stakeholders. If the crossing remains open, long-term improvements may include the installation of train-activated pedestrian gates to address the high volume of pedestrians, particularly during stadium events, including nighttime pedestrian activity. Additional pedestrian channelization and delineation measures should also be considered, such as a raised median on either side of the crossing, including through the intersection with S 3rd Street.

Summary of Long-Term Recommendations for S Holgate Street:

- Consider crossing closure or grade separation
- Consider pedestrian gates and channelization
- Assess the feasibility of raised medians to deter illegal movements

S Horton Street

Due to the proximity of a commercial driveway with frequent truck movements, BNSF request SDOT consider of a four-quadrant gate system to prevent vehicles from circumventing the gates during train events. The diagnostic team supports this recommendation and suggests SDOT evaluate the feasibility of quad gates as a long-term safety enhancement.

Summary of Long-Term Recommendations for S Horton Street:

- Consider four-quadrant gates due to driveway proximity

S Spokane Avenue (Eastbound and Westbound)

Long-term improvements at Spokane Street should focus on maintaining clear sightlines and safe traffic operations in coordination with emergency services and utility providers. The diagnostic team recommends continued monitoring of traffic patterns and pedestrian behavior, particularly during peak periods. If queuing or illegal movements persist, additional physical barriers or signal timing adjustments at the intersection with 4th Street S may be warranted.

Summary of Long-Term Recommendations for S Spokane Street:

- Monitor traffic patterns and adjust signage and/or traffic signal timing as needed

Conclusion

The diagnostic team's field reviews of the S Holgate Street, S Horton Street, and S Spokane Street rail crossings provided a comprehensive assessment of current conditions and operational challenges. Each location presents unique safety concerns, ranging from visibility issues and pedestrian volumes to traffic queuing and infrastructure constraints. Implementation of any of the recommended improvements identified in this memo should be coordinated with all diagnostic team parties and reported to FRA to maintain accuracy of their railroad crossing inventory.

List of Attachments

- Attachment A – Diagnostic Meeting Notes
- Attachment B – FRA Inventory Reports
- Attachment C – FRA Incident Data

ATTACHMENT A
DIAGNOSTIC MEETING NOTES

Field Diagnostic Meeting
SDOT South Holgate Street Rail Crossing Study
South Holgate Street Crossing (DOT# 927461X)
BNSF Seattle Subdivision | MP 0.795X
June 25th, 2025 | 9:00 AM

Attendees: See attached sign-in sheet

Meeting Notes:

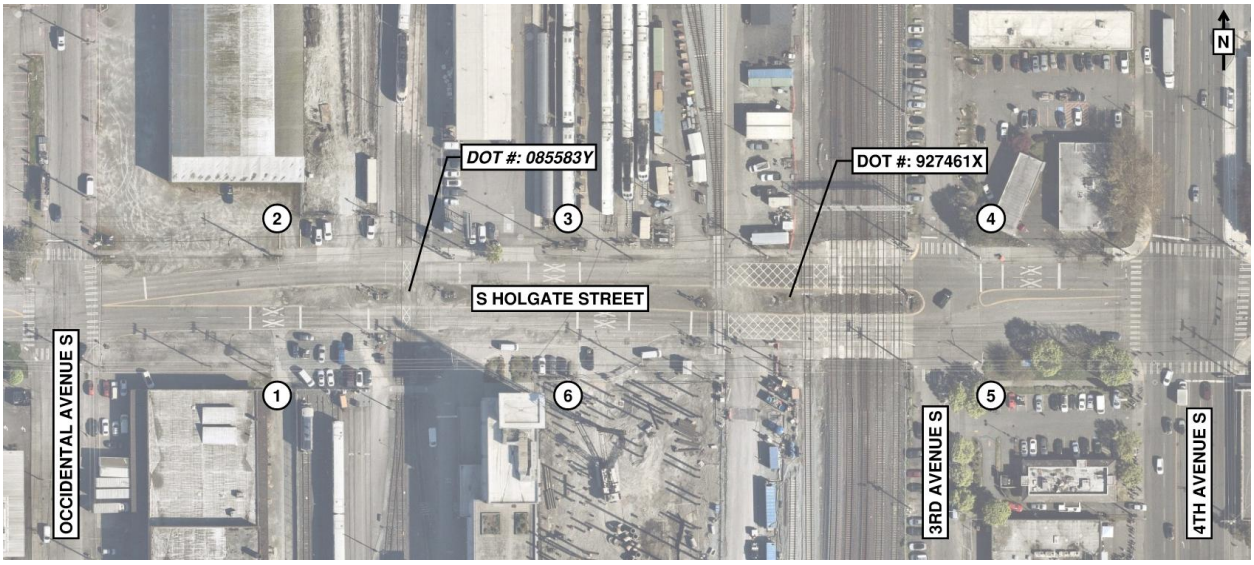
1. **Existing Conditions and Operations**
    a. Review FRA-Reported Data:

AADT (year)	6,700 (2015)
Estimated % Trucks	-
Speed Limit (mph)	25 mph
Train Counts (year)	42 (2023)
Train Speed (mph, max)	50 mph
School Bus Route	No
Emergency Services Route	Yes (planned response – snow, ice, SFD)
Incident History (since 2019)	06/2024 – Highway user went around the gate – 1 injury 04/2023 – Highway user went around the gate – 1 injury 08/2019 – Train reported striking trespasser – 1 fatality

    b. BNSF and Amtrak noted the number of train activations per day reported to FRA is inaccurate and is closer to 150 according to recent data collected by BNSF. During the busier season for the railroad, this could be closer to 200 trains per day.
    c. SDOT will be providing an update on the roadway AADTs as part of this project, however, that data is not yet available.
2. **General Crossing Comments:**
    a. The Diagnostic Team ("Team") discussed the planned final configuration of the crossing, which will include additional tracks. BNSF and Amtrak expressed concern regarding the proposed preemption/gate-down time once the additional tracks are introduced.
        i. BNSF relayed to the Team the current preemption timing from the signal cabin. The preemption timing is 61 seconds before the train arrives at the crossing. This is the time needed to clear all modes (vehicles, pedestrians, and bicycles) from the crossing before a train passes through.
        ii. BNSF noted this time will increase significantly when additional tracks are introduced, and the crossing covers more length of roadway.
        iii. The Team discussed concern with preemption time greater than 50 seconds since roadway users may not immediately see the train approaching as the devices are activated and may choose to enter the crossing area as a train approaches.
    b. The Team discussed nearby encampment areas generating high volumes of unhoused pedestrians, particularly at night, as well as large pedestrian volumes generated by nearby stadiums.

c. The Team discussed frequent queuing on the tracks caused by the intersection of 3rd Avenue and South Holgate Street.
    i. SDOT confirmed the signalized intersection is interconnected with the railroad and utilizes simultaneous preemption.
d. The Team noted the purpose of today's meeting is to evaluate current conditions, document safety concerns, and identify near-term improvements for the crossing.
    i. BNSF and AMTRAK expressed support for the closure of this crossing due to the existing and planned track configurations across S Holgate Street.
e. The Team agreed to begin the diagnostic meeting with an evaluation of the crossing located immediately west of the subject crossing (DOT #085583Y).

Diagnostic Team Review and Recommendations by Location:



3. Location 1, SW Quadrant (DOT #085583Y)

a. Amtrak noted this crossing was recently improved and included updating the signing and pavement markings, as well as replacement of the asphalt crossing surface.
b. The Team noted the W10-1 sign mounted high on an existing utility pole.
    i. BNSF noted this is likely due to the theft of the properly-installed advanced warning signs.
    ii. SDOT will review relocating the W10-1 advanced warning sign for better compliance with the MUTCD.
c. The Team noted the existing R8-8 and R8-10 signs in the median may impair visibility to the flashers.
    i. Kimley-Horn noted the R8-8 ("DO NOT STOP ON TRACKS") sign is typically placed immediately downstream of the crossing.
    ii. SDOT will review placement of these signs and will modify the configuration to accommodate visibility and compliance with the current MUTCD.
d. *Immediate Action Items:*
    i. *SDOT to review placement and size of the W10-1 advanced warning sign per MUTCD, modify appropriately.*

ii. *SDOT to review placement of the R8-8 and R8-10 signs for visibility of the median flashers and compliance with the MUTCD, modify appropriately.*

4. Location 2, NW Quadrant (DOT #085583Y)

a. The Team discussed the recently installed dynamic envelope markings.
   i. Kimley-Horn noted additional cross-hatching up to the dynamic envelope markings is allowed per MUTCD, if desired.

b. Immediate Action Items: N/A

5. Location 3, NW Quadrant (DOT #927461X)

a. The Team observed a westbound vehicle U-turn between the two crossing areas.
b. The Team discussed the possibility of a raised median between the two railroad crossings.
   i. The Team noted a raised median would conflict with current Amtrak vehicle movements across Holgate Street.
c. The Team discussed the "LOOK" warning signs for pedestrians on the sidewalk approach to the crossing.
   i. Amtrak noted the signs were installed after a pedestrian fatality on this side of the road.
d. The Team discussed an existing tree blocking visibility to the curbside warning device for the crossing located west of the subject crossing (DOT #085583Y).
   i. SDOT will review the removal of the tree as an immediate action item.

e. Immediate Action items:

i. SDOT to review removal of the tree blocking visibility to the westbound warning device for crossing DOT #085583Y.

6. Location 4, NE Quadrant (DOT #927461X)

a. The Team discussed the current left-turn and through-movement restrictions from southbound 3rd Avenue.
   i. The Team noted there are many traffic violations despite the regulatory signage and pavement markings.
   ii. The Team discussed the potential for a raised median or a physical barrier preventing the left and through movements.
      1. SDOT noted this has been previously discussed but would need to be reviewed against mobility for pedestrians and bicyclists.
b. The Team noted the curb return radius from southbound 3rd Avenue is too small and results in frequent broken gates.
c. The Team witnessed two violations of the warning devices while performing field observations in this quadrant:
   i. An eastbound vehicle entered the crossing area well after the gate arms were activated from an Amtrak driveway located within the track area. The vehicle was able to clear the crossing prior to the train entering the crossing area.
   ii. Two individuals on a motorized bicycle heading westbound entered the crossing area well after the gate arms were activated due to the perceived distance of the train from the crossing area. The individuals were able to clear the crossing prior to the train entering the crossing area.

d. The Team recommended SDOT install a W10-4 advanced warning sign and RXR pavement markings for southbound 3rd Avenue as an immediate action item.
e. The Team discussed the need for additional pedestrian channelization and delineation through the crossing due to the high volumes of pedestrians during game days, as well as high volumes of unhoused pedestrians.
    i. The Team noted train-activated pedestrian gates may be warranted.
f. The Team recommended SDOT review the size and placement of the W10-1 sign and pavement markings for the westbound approach as an immediate action item.
    i. The Team noted existing trees located east of the W10-1 sign impair visibility of the flashers. SDOT to consider trimming or removing the trees to improve visibility of the warning signs.
g. Immediate Action Items:
    i. SDOT to place a W10-4 advanced warning sign and RXR pavement markings for southbound 3rd Avenue.
    ii. SDOT to review placement and size of the W10-1 advanced warning sign per MUTCD, modify appropriately.
    iii. SDOT to review trimming or removing the trees impairing visibility of the W10-1 sign for westbound S Holgate Street.

7. Location 5, SE Quadrant (DOT #927461X)

a. The Team discussed the current left-turn and through-movement restrictions from northbound 3rd Avenue.
    i. The Team noted there are many traffic violations despite the regulatory signage and pavement markings.
b. The Team recommended SDOT install a W10-4 advanced warning sign and RXR pavement markings for northbound 3rd Avenue as an immediate action item.
c. The Team noted the right-turn only (R3-5) sign is too small. SDOT noted this is because of the minimum height requirements for post-mounted signs. SDOT will increase the post height and upsize the R3-5 sign as an immediate action item.
    i. This immediate action item also applies to the right-turn only sign and sign post for southbound 3rd Avenue.
d. Immediate Action Items:
    i. SDOT to place a W10-4 advanced warning sign and RXR pavement markings for southbound 3rd Avenue per the MUTCD.
    ii. SDOT to replace the R3-5 sign to be MUTCD compliant and increase the height of the sign post as needed for northbound 3rd Avenue and southbound 3rd Avenue (northeast quadrant).

8. Location 6, SW Quadrant (DOT #927461X)

a. The Team noted the W10-1 sign mounted high on an existing utility pole.
    i. SDOT will review relocating the W10-1 advanced warning sign for better compliance with the MUTCD.
b. *Immediate Action Items:*
    i. *SDOT to review placement and size of the W10-1 advanced warning sign per MUTCD, modify appropriately.*

Field Diagnostic Meeting
SDOT South Holgate Street Rail Crossing Study
South Horton Street Crossing (DOT #085585M)
BNSF Seattle Subdivision | MP 1.591X
June 24, 2025 | 11:00 AM

Attendees: See attached sign-in sheet

Meeting Notes:

1. Existing Conditions and Operations

a. Review FRA-Reported Data:

AADT (year)	3,530 (2006)
Estimated % Trucks	6%
Speed Limit (mph)	25 mph
Train Counts (year)	40 (2023)
Train Speed (mph, max)	50 mph
School Bus Route	No
Emergency Services Route	No
Incident History (since 2019)	None

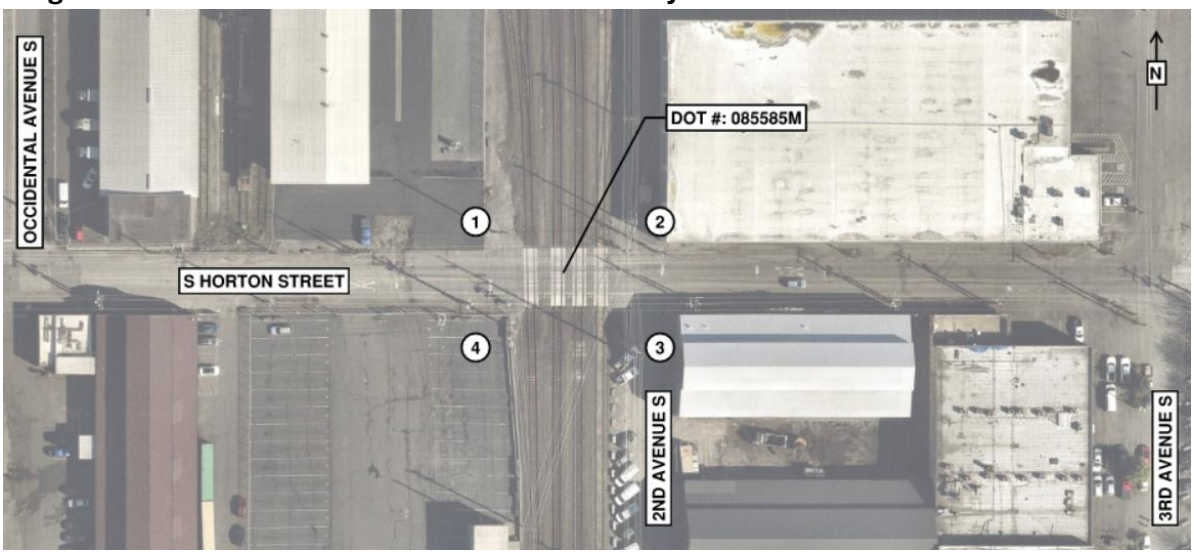
b. BNSF and Amtrak noted the number of trains per day reported to FRA are inaccurate and likely closer to 150 trains per day. BNSF noted there is a "garbage train" that operates frequently through the crossing.

c. Amtrak noted the Horton Street corridor at the crossing experiences high volumes of trucks as a main thoroughfare.
   i. BNSF noted a fueling facility located immediately northeast of the crossing.

d. Amtrak reported high vehicle and pedestrian volumes during events at the stadium located about 1 mile north of the crossing.
   i. S Horton Street becomes a passageway for roadway users looking to avoid other congested roadways and/or attempt free street parking.

e. SDOT will provide updated roadway AADTs as part of this project.

Diagnostic Team Review and Recommendations by Location:



2. **Location 1, NW Quadrant**
    a. There is a commercial driveway located in this driveway that experiences frequent truck turning movements immediately downstream of the crossing.
    b. BNSF recommended exit gates (quad gates) be considered due to the proximity of the driveway and the likelihood of vehicles evading the gates during a train event.
    c. The Diagnostic Team ("Team") recommended additional pavement markings such as roadway edgelines, and centerline striping through the crossing area.
        i. Roadway edgelines will also better delineate the pedestrian path of travel through the crossing.
        ii. BNSF noted the crossing panels may not be painted, but the asphalt between tracks can be delineated.
    d. Immediate Action Items: N/A

3. **Location 2, NE Quadrant**
    a. The Team noted the W10-1 advanced warning sign is missing for the westbound approach to the crossing. SDOT to install this sign as an immediate action item.
    b. The Team recommended an R8-8 ("DO NOT STOP ON TRACKS") sign be installed at the crossing due to the potential for queueing on the tracks caused by the driveway in the northwest quadrant.
    c. Kimley-Horn noted the crossing limit line is not installed per MUTCD and may be updated with other pavement marking improvements at the crossing. Additionally, the RXR pavement markings were faded and may be refreshed with other pavement marking improvements.
    d. The Team discussed visibility of the warning device in this quadrant. The warning device flashers are blocked by an existing utility pole that likely must remain in place. The Team discussed two options to enhance visibility of the flashers.
        i. Install a raised curb and relocate the warning device closer to the roadway. The warning device is currently placed appropriately given there is no curb at the crossing. Installing a curb would allow the device to be moved in closer and still meet BNSF standards.
    e. Install a cantilever, allowing an additional pair of flashing lights to be located over the roadway.
    f. Immediate Action Items:
        i. SDOT to install W10-1 sign for the westbound travel lane.

4. **Location 3, SE Quadrant**
    a. The Team discussed the construction activity on the property located in this quadrant. SDOT will verify the proposed use for the development and if its use may generate additional roadway volumes.
    b. The Team recommended installing an R8-8 sign in this quadrant for eastbound traffic.
    c. Immediate Action Items: N/A

5. **Location 4, SW Quadrant**
    a. The Team noted the W10-1 advance warning sign is too small per the MUTCD. SDOT to upsize the sign as an immediate action item.
    b. Immediate Action Items:
        i. SDOT to replace W10-1 sign per MUTCD.

Field Diagnostic Meeting
SDOT South Holgate Street Rail Crossing Study
South Spokane Street Crossings (DOT #085586U, 085587B)
BNSF Seattle Subdivision | MP 1.750X, 1.776X
June 24, 2025 | 11:00 AM

Attendees: See attached sign-in sheet

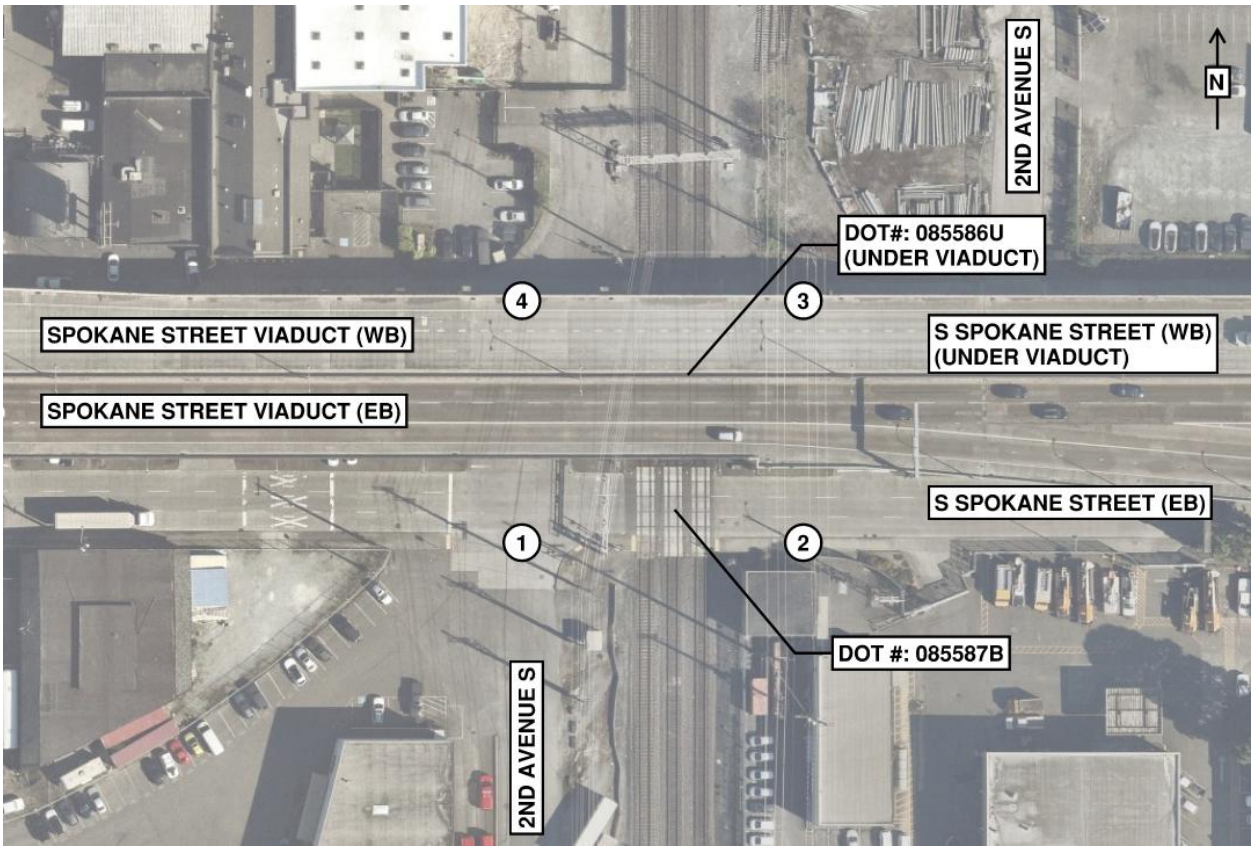
Meeting Notes:

1. **Existing Conditions and Operations**
    a. Review FRA-Reported Data:

DOT # / Direction of Travel	085586U / Westbound	085587B / Eastbound
AADT (year)	3,408 (2014)	9,817 (2014)
Estimated % Trucks	12%	12%
Speed Limit (mph)	25 mph	25 mph
Train Counts (year)	40 (2023)	40 (2023)
Train Speed (mph, max)	50 mph	50 mph
School Bus Route	No	No
Emergency Services Route	Yes (planned response – snow, ice, SFD)	Yes (planned response – snow, ice, SFD)
Incident History (since 2019)	07/2022 – highway user preceded gates, no injuries	08/2023 – highway user stopped on crossing (traffic backup), no injuries 12/2019– highway user preceded gate, no injuries

    b. BNSF and Amtrak noted the number of trains per day reported to FRA is accurate at these locations.
    c. SDOT will provide updated roadway AADTs as part of this project.
        i. BNSF noted the percentage of trucks may be low given field observations.
2. **General Crossing Comments**
    a. The crossings have had recent signing/striping improvements installed by SDOT.
    b. The Diagnostic Team ("Team") noted the Fire Department facility located in the southwest quadrant of the crossings. The driveway is located between the stop bar for the crossing and the warning device.
    c. The crossings are divided between eastbound and westbound traffic, with parking in the medians on either side of the crossing, and has U-Turn facilities on both sides of the tracks.
    d. BNSF noted the Seattle City Light station is located nearby, and there are many high-voltage electrical lines that must be maintained.
    e. The Team recommended SDOT refresh all pavement markings within the crossing area.

Diagnostic Team Review and Recommendations by Location:



3. **Location 1, SW Quadrant**
    a. The Team recommended "Stop Here When Flashing" (R8-10) signs be installed (curbside and median-mounted) at the stop bar, since it is offset from the warning devices.
    b. The Team recommended "KEEP CLEAR" pavement markings be installed between the stop bar and the warning devices.
    c. The Team recommended pedestrian barricades be added to the median areas to prevent pedestrians from crossing the tracks outside of the designated sidewalk crossing areas.
    d. SDOT noted the W10-1 advance warning sign appears to be too small and will replace the sign to be MUTCD-compliant as an immediate action item.
        i. The Team recommended SDOT also consider adding an additional W10-1 advance warning sign in the median.
    e. *Immediate Action Items:*
        i. SDOT to replace W10-1 sign per MUTCD.

4. **Location 2, SE Quadrant**
    a. The Team noted eastbound traffic tends to back up from the traffic signal at 4th Avenue S, located approximately 650' east of the crossing.
        i. Amtrak noted the backup is largely due to right-turning vehicles onto 4th Avenue South.

ii. The Team recommended “DO NOT STOP ON TRACKS” (R8-8) signs be installed as an immediate action item to mitigate roadway users from backing up onto the tracks.

b. The Team recommended “DO NOT ENTER” (R5-1) signs be installed facing east to prevent roadway users from turning westbound from the U-turn area located immediately east of the crossing.
    i. The Team also recommended a “ONEWAY” (R6-1) sign be installed on the south side of the road facing the U-turn area.

c. *Immediate Action Items:*
    i. SDOT to install R8-8 signs immediately downstream from the crossing.

5. Location 3, NE Quadrant

a. The Team noted the W10-1 advance warning signs are missing from the approach to the crossing. SDOT to install W10-1 signs (curbside and median-mounted) as an immediate action item.
b. The Team recommended a “ONEWAY” (R6-1) sign be installed on the north side of the road facing the U-turn area.
c. *Immediate Action Items:*
    i. SDOT to install curbside and median-mounted W10-1 signs.

6. Location 4, NW Quadrant

a. No comments or discussions for this quadrant.
b. Immediate Action Items: N/A

ATTACHMENT B
FRA INVENTORY REPORTS

U. S. DOT CROSSING INVENTORY FORM

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION

OMB No. 2130-0017

Instructions for the initial reporting of the following types of new or previously unreported crossings: For public highway-rail grade crossings, complete the entire inventory Form. For private highway-rail grade crossings, complete the Header, Parts I and II, and the Submission Information section. For public pathway grade crossings (including pedestrian station grade crossings), complete the Header, Parts I and II, and the Submission Information section. For Private pathway grade crossings, complete the Header, Parts I and II, and the Submission Information section. For grade-separated highway-rail or pathway crossings (including pedestrian station crossings), complete the Header, Part I, and the Submission Information section. For changes to existing data, complete the Header, Part I Items 1-3, and the Submission Information section, in addition to the updated data fields. Note: For private crossings only, Part I Item 20 and Part III Item 2.K. are required unless otherwise noted. An asterisk * denotes an optional field.

A. Revision Date *(MM/DD/YYYY)*: 01 / 16 / 2025

B. Reporting Agency: ☒ Railroad ☐ Transit ☐ State ☐ Other

C. Reason for Update *(Select only one)*: ☒ Change in Data ☐ New Crossing ☐ Closed ☐ No Train Traffic ☐ Quiet Zone Update ☐ Re-Open ☐ Date Change Only ☐ Change in Primary Operating RR ☐ Admin. Correction

D. DOT Crossing Inventory Number: 927461X

Part I: Location and Classification Information

1. Primary Operating Railroad: BNSF Railway Company [BNSF]

2. State: WASHINGTON

3. County: KING

4. City / Municipality: ☒ In ☐ Near SEATTLE

5. Street/Road Name & Block Number: HOLGATE STREET | _____ *(Street/Road Name)* | *(Block Number)*

6. Highway Type & No.: NOT YET REPORTED BY STATE

7. Do Other Railroads Operate a Separate Track at Crossing? ☐ Yes ☒ No
If Yes, Specify RR _____, _____, _____, _____

8. Do Other Railroads Operate Over Your Track at Crossing? ☒ Yes ☐ No
If Yes, Specify RR ATK, _____, _____, _____

9. Railroad Division or Region: ☐ None NORTHWEST

10. Railroad Subdivision or District: ☐ None SEATTLE

11. Branch or Line Name: ☐ None SEATTLE-VANC WA

12. RR Milepost: _____ | 0000.795 | _____ *(prefix)* | *(nnnn.nnn)* | *(suffix)*

13. Line Segment *: 51

14. Nearest RR Timetable Station *: _____

15. Parent RR *(if applicable)*: ☒ N/A

16. Crossing Owner *(if applicable)*: ☐ N/A BNSF

17. Crossing Type: ☒ Public ☐ Private

18. Crossing Purpose: ☒ Highway ☐ Pathway, Ped. ☐ Station, Ped.

19. Crossing Position: ☒ At Grade ☐ RR Under ☐ RR Over

20. Public Access *(if Private Crossing)*: ☐ Yes ☐ No

21. Type of Train: ☒ Freight ☐ Transit ☒ Intercity Passenger ☐ Shared Use Transit ☐ Commuter ☐ Tourist/Other

22. Average Passenger Train Count Per Day: ☐ Less Than One Per Day ☒ Number Per Day 28

23. Type of Land Use: ☒ Open Space ☐ Farm ☐ Residential ☐ Commercial ☐ Industrial ☐ Institutional ☐ Recreational ☐ RR Yard

24. Is there an Adjacent Crossing with a Separate Number?: ☐ Yes ☒ No If Yes, Provide Crossing Number _____

25. Quiet Zone *(FRA provided)*: ☐ No ☐ 24 Hr ☐ Partial ☐ Chicago Excused Date Established _____

26. HSR Corridor ID: _____ ☒ N/A

27. Latitude in decimal degrees *(WGS84 std: nn.nnnnnnn)*: 47.5861700

28. Longitude in decimal degrees *(WGS84 std: -nnn.nnnnnnn)*: -122.330324

29. Lat/Long Source: ☒ Actual ☐ Estimated

30.A. Railroad Use *:

31.A. State Use *:

30.B. Railroad Use *:

31.B. State Use *:

30.C. Railroad Use *:

31.C. State Use *:

30.D. Railroad Use *:

31.D. State Use *:

32.A. Narrative *(Railroad Use)* *: (IV.6 I.23 I.6 I.18 I.27 I.28 I.29)Value Provided by

32.B. Narrative *(State Use)* *:

33. Emergency Notification Telephone No. *(posted)*: 800-832-5452

34. Railroad Contact *(Telephone No.)*: 817-352-1549

35. State Contact *(Telephone No.)*: 360-664-1262

Part II: Railroad Information

1. Estimated Number of Daily Train Movements

1.A. Total Day Thru Trains *(6 AM to 6 PM)*	1.B. Total Night Thru Trains *(6 PM to 6 AM)*	1.C. Total Switching Trains	1.D. Total Transit Trains	1.E. Check if Less Than One Movement Per Day ☐ How many trains per week?
21	21	0	0	

2. Year of Train Count Data *(YYYY)*: 2023

3. Speed of Train at Crossing
3.A. Maximum Timetable Speed *(mph)*: 50
3.B. Typical Speed Range Over Crossing *(mph)* From 1 to 50

4. Type and Count of Tracks
Main 3 Siding 0 Yard 3 Transit 0 Industry 0

5. Train Detection *(Main Track only)*
☒ Constant Warning Time ☐ Motion Detection ☐AFO ☐ PTC ☐ DC ☐ Other ☐ None

6. Is Track Signaled? ☒ Yes ☐ No

7.A. Event Recorder ☒ Yes ☐ No

7.B. Remote Health Monitoring ☒ Yes ☐ No

U. S. DOT CROSSING INVENTORY FORM

A. Revision Date *(MM/DD/YYYY)*	PAGE 2	D. Crossing Inventory Number *(7 char.)*
01/16/2025		927461X

Part III: Highway or Pathway Traffic Control Device Information

1. Are there Signs or Signals? ☒ Yes ☐ No

2. Types of Passive Traffic Control Devices associated with the Crossing

2.A. Crossbuck Assemblies *(count)*	2.B. STOP Signs *(R1-1)* *(count)*	2.C. YIELD Signs *(R1-2)* *(count)*	2.D. Advance Warning Signs *(Check all that apply; include count)* ☐ None
0	0	0	☒ W10-1 2 ☐ W10-3 ☐ W10-11 ☐ W10-2 ☐ W10-4 ☐ W10-12

2.E. Low Ground Clearance Sign *(W10-5)*	2.F. Pavement Markings	2.G. Channelization Devices/Medians	2.H. EXEMPT Sign *(R15-3)*	2.I. ENS Sign *(I-13)* Displayed
☐ Yes *(count_____)* ☒ No	☒ Stop Lines ☐ Dynamic Envelope ☒ RR Xing Symbols ☐ None	☐ All Approaches ☐ Median ☐ One Approach ☒ None	☐ Yes ☒ No	☒ Yes ☐ No

2.J. Other MUTCD Signs ☒ Yes ☐ No	2.K. Private Crossing Signs *(if private)*	2.L. LED Enhanced Signs *(List types)*
Specify Type R15-8 Count 3 Specify Type R15-2P Count 7 Specify Type R8-10 Count 2	☐ Yes ☐ No	

3. Types of Train Activated Warning Devices at the Grade Crossing *(specify count of each device for all that apply)*

3.A. Gate Arms *(count)*	3.B. Gate Configuration	3.C. Cantilevered *(or Bridged)* Flashing Light Structures *(count)*	3.D. Mast Mounted Flashing Lights *(count of masts)* 4	3.E. Total Count of Flashing Light Pairs
Roadway 4 Pedestrian 0	☒ 2 Quad ☐ Full *(Barrier)* Resistance ☐ 3 Quad ☐ 4 Quad ☐ Median Gates	Over Traffic Lane 0 ☐ Incandescent Not Over Traffic Lane 0 ☐ LED	☐ Incandescent ☒ LED ☐ Back Lights Included ☐ Side Lights Included	10

3.F. Installation Date of Current Active Warning Devices: *(MM/YYYY)*	3.G. Wayside Horn	3.H. Highway Traffic Signals Controlling Crossing	3.I. Bells *(count)*
_____/_____ ☐ Not Required	☐ Yes Installed on *(MM/YYYY)* _____/_____ ☒ No	☐ Yes ☒ No	2

3.J. Non-Train Active Warning	3.K. Other Flashing Lights or Warning Devices
☐ Flagging/Flagman ☐ Manually Operated Signals ☐ Watchman ☐ Floodlighting ☐ None	Count 0 Specify type _____

4.A. Does nearby Hwy Intersection have Traffic Signals?	4.B. Hwy Traffic Signal Interconnection	4.C. Hwy Traffic Signal Preemption	5. Highway Traffic Pre-Signals	6. Highway Monitoring Devices *(Check all that apply)*
☐ Yes ☐ No	☐ Not Interconnected ☐ For Traffic Signals ☐ For Warning Signs	☐ Simultaneous ☐ Advance	☐ Yes ☐ No Storage Distance * _____ Stop Line Distance * _____	☐ Yes - Photo/Video Recording ☐ Yes – Vehicle Presence Detection ☐ None

Part IV: Physical Characteristics

1. Traffic Lanes Crossing Railroad	2. Is Roadway/Pathway Paved?	3. Does Track Run Down a Street?	4. Is Crossing Illuminated? *(Street lights within approx. 50 feet from nearest rail)*
☐ One-way Traffic ☐ Two-way Traffic ☐ Divided Traffic Number of Lanes 4	☒ Yes ☐ No	☐ Yes ☒ No	☒ Yes ☐ No

5. Crossing Surface *(on Main Track, multiple types allowed)* Installation Date * *(MM/YYYY)* _____/_____ Width * 174 Length * 107

☐ 1 Timber ☐ 2 Asphalt ☐ 3 Asphalt and Timber ☒ 4 Concrete ☐ 5 Concrete and Rubber ☐ 6 Rubber ☐ 7 Metal
☐ 8 Unconsolidated ☐ 9 Composite ☐ 10 Other *(specify)* _____

6. Intersecting Roadway within 500 feet?	7. Smallest Crossing Angle	8. Is Commercial Power Available? *
☒ Yes ☐ No If Yes, Approximate Distance *(feet)* _____	☐ 0° – 29° ☐ 30° – 59° ☒ 60° - 90°	☐ Yes ☐ No

Part V: Public Highway Information

1. Highway System	2. Functional Classification of Road at Crossing	3. Is Crossing on State Highway System?	4. Highway Speed Limit
☐ (01) Interstate Highway System ☐ (02) Other Nat Hwy System (NHS) ☐ (03) Federal AID, Not NHS ☐ (08) Non-Federal Aid	☐ (0) Rural ☒ (1) Urban ☐ (1) Interstate ☐ (5) Major Collector ☐ (2) Other Freeways and Expressways ☐ (3) Other Principal Arterial ☐ (6) Minor Collector ☒ (4) Minor Arterial ☐ (7) Local	☐ Yes ☐ No	30 MPH ☐ Posted ☐ Statutory

5. Linear Referencing System *(LRS Route ID)* *

6. LRS Milepost *

7. Annual Average Daily Traffic *(AADT)*	8. Estimated Percent Trucks	9. Regularly Used by School Buses?	10. Emergency Services Route
Year 2015 AADT 6700	_____ %	☐ Yes ☐ No Average Number per Day _____	☐ Yes ☐ No

Submission Information - *This information is used for administrative purposes and is not available on the public website.*

Submitted by _____ Organization _____ Phone _____ Date _____

U. S. DOT CROSSING INVENTORY FORM

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION

OMB No. 2130-0017

Instructions for the initial reporting of the following types of new or previously unreported crossings: For public highway-rail grade crossings, complete the entire inventory Form. For private highway-rail grade crossings, complete the Header, Parts I and II, and the Submission Information section. For public pathway grade crossings (including pedestrian station grade crossings), complete the Header, Parts I and II, and the Submission Information section. For Private pathway grade crossings, complete the Header, Parts I and II, and the Submission Information section. For grade-separated highway-rail or pathway crossings (including pedestrian station crossings), complete the Header, Part I, and the Submission Information section. For changes to existing data, complete the Header, Part I Items 1-3, and the Submission Information section, in addition to the updated data fields. Note: For private crossings only, Part I Item 20 and Part III Item 2.K. are required unless otherwise noted. An asterisk * denotes an optional field.

A. Revision Date (MM/DD/YYYY)	B. Reporting Agency	C. Reason for Update (Select only one)	D. DOT Crossing Inventory Number
12 / 20 / 2024	☒ Railroad ☐ Transit ☐ State ☐ Other	☒ Change in Data ☐ New Crossing ☐ Closed ☐ No Train Traffic ☐ Quiet Zone Update ☐ Re-Open ☐ Date Change Only ☐ Change in Primary Operating RR ☐ Admin. Correction	085585M

Part I: Location and Classification Information

1. Primary Operating Railroad	2. State	3. County
BNSF Railway Company [BNSF]	WASHINGTON	KING

4. City / Municipality	5. Street/Road Name & Block Number	6. Highway Type & No.
☒ In ☐ Near SEATTLE	HORTON ST (Street/Road Name) | * (Block Number)	Not Yet Reported by State

7. Do Other Railroads Operate a Separate Track at Crossing?	8. Do Other Railroads Operate Over Your Track at Crossing?
☐ Yes ☒ No If Yes, Specify RR	☒ Yes ☐ No If Yes, Specify RR ATK, SCR

9. Railroad Division or Region	10. Railroad Subdivision or District	11. Branch or Line Name	12. RR Milepost
☐ None NORTHWEST	☐ None SEATTLE	☐ None SEATTLE-VANC WA	(prefix) | 0001.591 (nnnn.nnn) | (suffix)

13. Line Segment *	14. Nearest RR Timetable Station *	15. Parent RR (if applicable)	16. Crossing Owner (if applicable)
51	WEST SEATTLE YD WA	☒ N/A	☐ N/A BNSF

17. Crossing Type	18. Crossing Purpose	19. Crossing Position	20. Public Access (if Private Crossing)	21. Type of Train	22. Average Passenger Train Count Per Day
☒ Public ☐ Private	☒ Highway ☐ Pathway, Ped. ☐ Station, Ped.	☒ At Grade ☐ RR Under ☐ RR Over	☐ Yes ☐ No	☒ Freight ☐ Transit ☒ Intercity Passenger ☐ Shared Use Transit ☐ Commuter ☐ Tourist/Other	☐ Less Than One Per Day ☒ Number Per Day 36

23. Type of Land Use
☐ Open Space ☐ Farm ☐ Residential ☐ Commercial ☒ Industrial ☐ Institutional ☐ Recreational ☐ RR Yard

24. Is there an Adjacent Crossing with a Separate Number?	25. Quiet Zone (FRA provided)
☐ Yes ☒ No If Yes, Provide Crossing Number	☒ No ☐ 24 Hr ☐ Partial ☐ Chicago Excused Date Established

26. HSR Corridor ID	27. Latitude in decimal degrees	28. Longitude in decimal degrees	29. Lat/Long Source
☒ N/A	(WGS84 std: nn.nnnnnnn) 47.5744600	(WGS84 std: -nnn.nnnnnnn) -122.3316700	☒ Actual ☐ Estimated

30.A. Railroad Use *	31.A. State Use *
30.B. Railroad Use *	31.B. State Use *
30.C. Railroad Use *	31.C. State Use *
30.D. Railroad Use *	31.D. State Use *
32.A. Narrative (Railroad Use) * (I.27 I.28 I.29)Value Provided by Railroad, Not Ye	32.B. Narrative (State Use) *

33. Emergency Notification Telephone No. (posted)	34. Railroad Contact (Telephone No.)	35. State Contact (Telephone No.)
800-832-5452	817-352-1549	360-664-1262

Part II: Railroad Information

1. Estimated Number of Daily Train Movements

1.A. Total Day Thru Trains (6 AM to 6 PM)	1.B. Total Night Thru Trains (6 PM to 6 AM)	1.C. Total Switching Trains	1.D. Total Transit Trains	1.E. Check if Less Than One Movement Per Day ☐ How many trains per week?
20	20	0	0	

2. Year of Train Count Data (YYYY)	3. Speed of Train at Crossing
2023	3.A. Maximum Timetable Speed (mph) 50 3.B. Typical Speed Range Over Crossing (mph) From 1 to 50

4. Type and Count of Tracks
Main 3 Siding 0 Yard 1 Transit 0 Industry 0

5. Train Detection (Main Track only)
☒ Constant Warning Time ☐ Motion Detection ☐AFO ☐ PTC ☐ DC ☐ Other ☐ None

6. Is Track Signaled?	7.A. Event Recorder	7.B. Remote Health Monitoring
☒ Yes ☐ No	☒ Yes ☐ No	☐ Yes ☒ No

U. S. DOT CROSSING INVENTORY FORM

A. Revision Date *(MM/DD/YYYY)*	PAGE 2	D. Crossing Inventory Number *(7 char.)*
12/20/2024		085585M

Part III: Highway or Pathway Traffic Control Device Information

1. Are there Signs or Signals? ☒ Yes ☐ No

2. Types of Passive Traffic Control Devices associated with the Crossing

2.A. Crossbuck Assemblies *(count)*	2.B. STOP Signs *(R1-1) (count)*	2.C. YIELD Signs *(R1-2) (count)*	2.D. Advance Warning Signs *(Check all that apply; include count)* ☐ None
0	0	0	☒ W10-1 1 ☐ W10-3 0 ☐ W10-11 0 ☐ W10-2 0 ☐ W10-4 0 ☐ W10-12 0

2.E. Low Ground Clearance Sign *(W10-5)*	2.F. Pavement Markings	2.G. Channelization Devices/Medians	2.H. EXEMPT Sign *(R15-3)*	2.I. ENS Sign *(I-13)* Displayed
☐ Yes *(count_____)* ☒ No	☒ Stop Lines ☐ Dynamic Envelope ☒ RR Xing Symbols ☐ None	☐ All Approaches ☐ Median ☐ One Approach ☒ None	☐ Yes ☒ No	☒ Yes ☐ No

2.J. Other MUTCD Signs ☒ Yes ☐ No	2.K. Private Crossing Signs *(if private)*	2.L. LED Enhanced Signs *(List types)*
Specify Type R15-2P Count 2 Specify Type R8-10 Count 1 Specify Type _____ Count _____	☐ Yes ☐ No	

3. Types of Train Activated Warning Devices at the Grade Crossing *(specify count of each device for all that apply)*

3.A. Gate Arms *(count)*	3.B. Gate Configuration	3.C. Cantilevered *(or Bridged)* Flashing Light Structures *(count)*	3.D. Mast Mounted Flashing Lights *(count of masts)* 2	3.E. Total Count of Flashing Light Pairs
Roadway 2 Pedestrian 0	☒ 2 Quad ☐ Full *(Barrier)* Resistance ☐ 3 Quad ☐ 4 Quad ☐ Median Gates	Over Traffic Lane 0 ☐ Incandescent Not Over Traffic Lane 0 ☐ LED	☐ Incandescent ☒ LED ☐ Back Lights Included ☐ Side Lights Included	6

3.F. Installation Date of Current Active Warning Devices: *(MM/YYYY)*	3.G. Wayside Horn	3.H. Highway Traffic Signals Controlling Crossing	3.I. Bells *(count)*
_____/_____ ☐ Not Required	☐ Yes Installed on *(MM/YYYY)* _____/_____ ☒ No	☐ Yes ☒ No	2

3.J. Non-Train Active Warning	3.K. Other Flashing Lights or Warning Devices
☐ Flagging/Flagman ☐ Manually Operated Signals ☐ Watchman ☐ Floodlighting ☐ None	Count 0 Specify type _____

4.A. Does nearby Hwy Intersection have Traffic Signals?	4.B. Hwy Traffic Signal Interconnection	4.C. Hwy Traffic Signal Preemption	5. Highway Traffic Pre-Signals	6. Highway Monitoring Devices *(Check all that apply)*
☐ Yes ☐ No	☐ Not Interconnected ☐ For Traffic Signals ☐ For Warning Signs	☐ Simultaneous ☐ Advance	☐ Yes ☐ No Storage Distance * _____ Stop Line Distance * _____	☐ Yes - Photo/Video Recording ☐ Yes – Vehicle Presence Detection ☐ None

Part IV: Physical Characteristics

1. Traffic Lanes Crossing Railroad	2. Is Roadway/Pathway Paved?	3. Does Track Run Down a Street?	4. Is Crossing Illuminated? *(Street lights within approx. 50 feet from nearest rail)*
☐ One-way Traffic ☒ Two-way Traffic ☐ Divided Traffic Number of Lanes 2	☒ Yes ☐ No	☐ Yes ☒ No	☒ Yes ☐ No

5. Crossing Surface *(on Main Track, multiple types allowed)* Installation Date * *(MM/YYYY)* _____/_____ Width * 60 Length * 41

☐ 1 Timber ☐ 2 Asphalt ☐ 3 Asphalt and Timber ☒ 4 Concrete ☐ 5 Concrete and Rubber ☐ 6 Rubber ☐ 7 Metal
☐ 8 Unconsolidated ☐ 9 Composite ☐ 10 Other *(specify)* _____

6. Intersecting Roadway within 500 feet?	7. Smallest Crossing Angle	8. Is Commercial Power Available? *
☒ Yes ☐ No If Yes, Approximate Distance *(feet)* _____	☐ 0° – 29° ☐ 30° – 59° ☒ 60° - 90°	☒ Yes ☐ No

Part V: Public Highway Information

1. Highway System	2. Functional Classification of Road at Crossing	3. Is Crossing on State Highway System?	4. Highway Speed Limit
☐ (01) Interstate Highway System ☐ (02) Other Nat Hwy System (NHS) ☐ (03) Federal AID, Not NHS ☒ (08) Non-Federal Aid	☐ (0) Rural ☒ (1) Urban ☐ (1) Interstate ☐ (5) Major Collector ☐ (2) Other Freeways and Expressways ☐ (3) Other Principal Arterial ☐ (6) Minor Collector ☐ (4) Minor Arterial ☒ (7) Local	☐ Yes ☒ No	25 MPH ☐ Posted ☐ Statutory

5. Linear Referencing System *(LRS Route ID)* *

6. LRS Milepost *

7. Annual Average Daily Traffic *(AADT)*	8. Estimated Percent Trucks	9. Regularly Used by School Buses?	10. Emergency Services Route
Year 2006 AADT 003530	6 %	☐ Yes ☐ No Average Number per Day _____	☐ Yes ☒ No

Submission Information - *This information is used for administrative purposes and is not available on the public website.*

Submitted by _____ Organization _____ Phone _____ Date _____

U. S. DOT CROSSING INVENTORY FORM

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION

OMB No. 2130-0017

Instructions for the initial reporting of the following types of new or previously unreported crossings: For public highway-rail grade crossings, complete the entire inventory Form. For private highway-rail grade crossings, complete the Header, Parts I and II, and the Submission Information section. For public pathway grade crossings (including pedestrian station grade crossings), complete the Header, Parts I and II, and the Submission Information section. For Private pathway grade crossings, complete the Header, Parts I and II, and the Submission Information section. For grade-separated highway-rail or pathway crossings (including pedestrian station crossings), complete the Header, Part I, and the Submission Information section. For changes to existing data, complete the Header, Part I Items 1-3, and the Submission Information section, in addition to the updated data fields. Note: For private crossings only, Part I Item 20 and Part III Item 2.K. are required unless otherwise noted. An asterisk * denotes an optional field.

A. Revision Date (MM/DD/YYYY)	B. Reporting Agency	C. Reason for Update (Select only one)	D. DOT Crossing Inventory Number
12 / 20 / 2024	☒ Railroad ☐ Transit ☐ State ☐ Other	☒ Change in Data ☐ New Crossing ☐ Closed ☐ No Train Traffic ☐ Quiet Zone Update ☐ Re-Open ☐ Date Change Only ☐ Change in Primary Operating RR ☐ Admin. Correction	085586U

Part I: Location and Classification Information

1. Primary Operating Railroad	2. State	3. County
BNSF Railway Company [BNSF]	WASHINGTON	KING

4. City / Municipality	5. Street/Road Name & Block Number	6. Highway Type & No.
☒ In ☐ Near SEATTLE	WB SPOKANE ST (Street/Road Name) | * (Block Number)	Not Yet Reported by State

7. Do Other Railroads Operate a Separate Track at Crossing?	8. Do Other Railroads Operate Over Your Track at Crossing?
☐ Yes ☒ No If Yes, Specify RR	☒ Yes ☐ No If Yes, Specify RR ATK, SCR

9. Railroad Division or Region	10. Railroad Subdivision or District	11. Branch or Line Name	12. RR Milepost
☐ None NORTHWEST	☐ None SEATTLE	☐ None SEATTLE-VANC WA	(prefix) | 0001.750 | (nnnn.nnn) | (suffix)

13. Line Segment *	14. Nearest RR Timetable Station *	15. Parent RR (if applicable)	16. Crossing Owner (if applicable)
0051	YARDLEY	☒ N/A	☐ N/A BNSF

17. Crossing Type	18. Crossing Purpose	19. Crossing Position	20. Public Access (if Private Crossing)	21. Type of Train	22. Average Passenger Train Count Per Day
☒ Public ☐ Private	☒ Highway ☐ Pathway, Ped. ☐ Station, Ped.	☒ At Grade ☐ RR Under ☐ RR Over	☐ Yes ☐ No	☒ Freight ☐ Transit ☒ Intercity Passenger ☐ Shared Use Transit ☐ Commuter ☐ Tourist/Other	☐ Less Than One Per Day ☒ Number Per Day 36

23. Type of Land Use
☐ Open Space ☐ Farm ☐ Residential ☒ Commercial ☐ Industrial ☐ Institutional ☐ Recreational ☐ RR Yard

24. Is there an Adjacent Crossing with a Separate Number?	25. Quiet Zone (FRA provided)
☒ Yes ☐ No If Yes, Provide Crossing Number 085587B	☒ No ☐ 24 Hr ☐ Partial ☐ Chicago Excused Date Established

26. HSR Corridor ID	27. Latitude in decimal degrees	28. Longitude in decimal degrees	29. Lat/Long Source
☒ N/A	(WGS84 std: nn.nnnnnnn) 47.5715939	(WGS84 std: -nnn.nnnnnnn) -122.3317173	☒ Actual ☐ Estimated

30.A. Railroad Use *	31.A. State Use *
30.B. Railroad Use *	31.B. State Use *
30.C. Railroad Use *	31.C. State Use *
30.D. Railroad Use *	31.D. State Use *
32.A. Narrative (Railroad Use) *	32.B. Narrative (State Use) *

33. Emergency Notification Telephone No. (posted)	34. Railroad Contact (Telephone No.)	35. State Contact (Telephone No.)
800-832-5452	817-352-1549	360-664-1262

Part II: Railroad Information

1. Estimated Number of Daily Train Movements

1.A. Total Day Thru Trains (6 AM to 6 PM)	1.B. Total Night Thru Trains (6 PM to 6 AM)	1.C. Total Switching Trains	1.D. Total Transit Trains	1.E. Check if Less Than One Movement Per Day ☐ How many trains per week?
20	20	0	0	

2. Year of Train Count Data (YYYY)	3. Speed of Train at Crossing
2023	3.A. Maximum Timetable Speed (mph) 50 3.B. Typical Speed Range Over Crossing (mph) From 1 to 50

4. Type and Count of Tracks
Main 3 Siding 0 Yard 0 Transit 0 Industry 0

5. Train Detection (Main Track only)
☒ Constant Warning Time ☐ Motion Detection ☐AFO ☐ PTC ☐ DC ☐ Other ☐ None

6. Is Track Signaled?	7.A. Event Recorder	7.B. Remote Health Monitoring
☒ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No

U. S. DOT CROSSING INVENTORY FORM

A. Revision Date *(MM/DD/YYYY)*	PAGE 2	D. Crossing Inventory Number *(7 char.)*
12/20/2024		085586U

Part III: Highway or Pathway Traffic Control Device Information

1. Are there Signs or Signals? ☒ Yes ☐ No

2. Types of Passive Traffic Control Devices associated with the Crossing

2.A. Crossbuck Assemblies *(count)*	2.B. STOP Signs *(R1-1)* *(count)*	2.C. YIELD Signs *(R1-2)* *(count)*	2.D. Advance Warning Signs *(Check all that apply; include count)* ☒ None
0	0	0	☐ W10-1 0 ☐ W10-2 0 ☐ W10-3 0 ☐ W10-4 0 ☐ W10-11 0 ☐ W10-12 0

2.E. Low Ground Clearance Sign *(W10-5)*	2.F. Pavement Markings	2.G. Channelization Devices/Medians	2.H. EXEMPT Sign *(R15-3)*	2.I. ENS Sign *(I-13)* Displayed
☐ Yes *(count 0)* ☒ No	☒ Stop Lines ☐ Dynamic Envelope ☒ RR Xing Symbols ☐ None	☐ All Approaches ☐ Median ☐ One Approach ☒ None	☐ Yes ☒ No	☒ Yes ☐ No

2.J. Other MUTCD Signs	2.K. Private Crossing Signs *(if private)*	2.L. LED Enhanced Signs *(List types)*
☐ Yes ☒ No Specify Type _____ Count _____ Specify Type _____ Count _____ Specify Type _____ Count _____	☐ Yes ☐ No	

3. Types of Train Activated Warning Devices at the Grade Crossing *(specify count of each device for all that apply)*

3.A. Gate Arms *(count)*	3.B. Gate Configuration	3.C. Cantilevered *(or Bridged)* Flashing Light Structures *(count)*	3.D. Mast Mounted Flashing Lights *(count of masts)* 1	3.E. Total Count of Flashing Light Pairs
Roadway 2 Pedestrian 0	☒ 2 Quad ☐ 3 Quad ☐ 4 Quad ☐ Full *(Barrier)* Resistance ☐ Median Gates	Over Traffic Lane 1 ☐ Incandescent Not Over Traffic Lane 0 ☒ LED	☐ Incandescent ☒ LED ☐ Back Lights Included ☐ Side Lights Included	7

3.F. Installation Date of Current Active Warning Devices: *(MM/YYYY)*	3.G. Wayside Horn	3.H. Highway Traffic Signals Controlling Crossing	3.I. Bells *(count)*
_____/_____ ☐ Not Required	☐ Yes Installed on *(MM/YYYY)* _____/_____ ☒ No	☐ Yes ☒ No	2

3.J. Non-Train Active Warning	3.K. Other Flashing Lights or Warning Devices
☐ Flagging/Flagman ☐ Manually Operated Signals ☐ Watchman ☐ Floodlighting ☐ None	Count 0 Specify type _____

4.A. Does nearby Hwy Intersection have Traffic Signals?	4.B. Hwy Traffic Signal Interconnection	4.C. Hwy Traffic Signal Preemption	5. Highway Traffic Pre-Signals	6. Highway Monitoring Devices *(Check all that apply)*
☐ Yes ☐ No	☐ Not Interconnected ☐ For Traffic Signals ☐ For Warning Signs	☐ Simultaneous ☐ Advance	☐ Yes ☐ No Storage Distance * _____ Stop Line Distance * _____	☐ Yes - Photo/Video Recording ☐ Yes – Vehicle Presence Detection ☐ None

Part IV: Physical Characteristics

1. Traffic Lanes Crossing Railroad	2. Is Roadway/Pathway Paved?	3. Does Track Run Down a Street?	4. Is Crossing Illuminated? *(Street lights within approx. 50 feet from nearest rail)*
☒ One-way Traffic ☐ Two-way Traffic ☐ Divided Traffic Number of Lanes 2	☒ Yes ☐ No	☐ Yes ☒ No	☒ Yes ☐ No

5. Crossing Surface *(on Main Track, multiple types allowed)* Installation Date * *(MM/YYYY)* _____/_____ Width * 41 Length * 48

☐ 1 Timber ☐ 2 Asphalt ☐ 3 Asphalt and Timber ☒ 4 Concrete ☐ 5 Concrete and Rubber ☐ 6 Rubber ☐ 7 Metal
☐ 8 Unconsolidated ☐ 9 Composite ☐ 10 Other *(specify)* _____

6. Intersecting Roadway within 500 feet?	7. Smallest Crossing Angle	8. Is Commercial Power Available? *
☒ Yes ☐ No If Yes, Approximate Distance *(feet)* _____	☐ 0° – 29° ☐ 30° – 59° ☒ 60° - 90°	☒ Yes ☐ No

Part V: Public Highway Information

1. Highway System	2. Functional Classification of Road at Crossing	3. Is Crossing on State Highway System?	4. Highway Speed Limit
☐ (01) Interstate Highway System ☐ (02) Other Nat Hwy System (NHS) ☒ (03) Federal AID, Not NHS ☐ (08) Non-Federal Aid	☐ (0) Rural ☒ (1) Urban ☐ (1) Interstate ☐ (5) Major Collector ☐ (2) Other Freeways and Expressways ☐ (3) Other Principal Arterial ☐ (6) Minor Collector ☒ (4) Minor Arterial ☐ (7) Local	☐ Yes ☒ No	30 MPH ☐ Posted ☐ Statutory

5. Linear Referencing System *(LRS Route ID)* *

6. LRS Milepost *

7. Annual Average Daily Traffic *(AADT)*	8. Estimated Percent Trucks	9. Regularly Used by School Buses?	10. Emergency Services Route
Year 2014 AADT 003408	12 %	☐ Yes ☒ No Average Number per Day _____	☐ Yes ☒ No

Submission Information - *This information is used for administrative purposes and is not available on the public website.*

Submitted by _____ Organization _____ Phone _____ Date _____

U. S. DOT CROSSING INVENTORY FORM

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION

OMB No. 2130-0017

Instructions for the initial reporting of the following types of new or previously unreported crossings: For public highway-rail grade crossings, complete the entire inventory Form. For private highway-rail grade crossings, complete the Header, Parts I and II, and the Submission Information section. For public pathway grade crossings (including pedestrian station grade crossings), complete the Header, Parts I and II, and the Submission Information section. For Private pathway grade crossings, complete the Header, Parts I and II, and the Submission Information section. For grade-separated highway-rail or pathway crossings (including pedestrian station crossings), complete the Header, Part I, and the Submission Information section. For changes to existing data, complete the Header, Part I Items 1-3, and the Submission Information section, in addition to the updated data fields. Note: For private crossings only, Part I Item 20 and Part III Item 2.K. are required unless otherwise noted. An asterisk * denotes an optional field.

A. Revision Date (MM/DD/YYYY)	B. Reporting Agency	C. Reason for Update (Select only one)	D. DOT Crossing Inventory Number
12 / 20 / 2024	☒ Railroad ☐ Transit ☐ State ☐ Other	☒ Change in Data ☐ New Crossing ☐ Closed ☐ No Train Traffic ☐ Quiet Zone Update ☐ Re-Open ☐ Date Change Only ☐ Change in Primary Operating RR ☐ Admin. Correction	085587B

Part I: Location and Classification Information

1. Primary Operating Railroad	2. State	3. County
BNSF Railway Company [BNSF]	WASHINGTON	KING

4. City / Municipality	5. Street/Road Name & Block Number	6. Highway Type & No.
☒ In ☐ Near SEATTLE	S Spokane St EB (Street/Road Name) | * (Block Number)	Not Yet Reported by State

7. Do Other Railroads Operate a Separate Track at Crossing?	8. Do Other Railroads Operate Over Your Track at Crossing?
☐ Yes ☒ No If Yes, Specify RR	☒ Yes ☐ No If Yes, Specify RR ATK, SCR

9. Railroad Division or Region	10. Railroad Subdivision or District	11. Branch or Line Name	12. RR Milepost
☐ None NORTHWEST	☐ None SEATTLE	☐ None SEATTLE-VANC WA	(prefix) | 0001.776 | (suffix) (nnnn.nnn)

13. Line Segment *	14. Nearest RR Timetable Station *	15. Parent RR (if applicable)	16. Crossing Owner (if applicable)
51	YARDLEY	☒ N/A	☐ N/A BNSF

17. Crossing Type	18. Crossing Purpose	19. Crossing Position	20. Public Access (if Private Crossing)	21. Type of Train	22. Average Passenger Train Count Per Day
☒ Public ☐ Private	☒ Highway ☐ Pathway, Ped. ☐ Station, Ped.	☒ At Grade ☐ RR Under ☐ RR Over	☐ Yes ☐ No	☒ Freight ☐ Transit ☒ Intercity Passenger ☐ Shared Use Transit ☐ Commuter ☐ Tourist/Other	☐ Less Than One Per Day ☒ Number Per Day 36

23. Type of Land Use
☐ Open Space ☐ Farm ☐ Residential ☒ Commercial ☐ Industrial ☐ Institutional ☐ Recreational ☐ RR Yard

24. Is there an Adjacent Crossing with a Separate Number?	25. Quiet Zone (FRA provided)
☒ Yes ☐ No If Yes, Provide Crossing Number 085586U	☒ No ☐ 24 Hr ☐ Partial ☐ Chicago Excused Date Established

26. HSR Corridor ID	27. Latitude in decimal degrees	28. Longitude in decimal degrees	29. Lat/Long Source
☒ N/A	(WGS84 std: nn.nnnnnnn) 47.5714049	(WGS84 std: -nnn.nnnnnnn) -122.3317176	☒ Actual ☐ Estimated

30.A. Railroad Use *	31.A. State Use *
30.B. Railroad Use *	31.B. State Use *
30.C. Railroad Use *	31.C. State Use *
30.D. Railroad Use *	31.D. State Use *
32.A. Narrative (Railroad Use) * (I.27 I.28 I.29)Value Provided by Railroad, Not Ye	32.B. Narrative (State Use) *

33. Emergency Notification Telephone No. (posted)	34. Railroad Contact (Telephone No.)	35. State Contact (Telephone No.)
800-832-5452	817-352-1549	360-664-1262

Part II: Railroad Information

1. Estimated Number of Daily Train Movements

1.A. Total Day Thru Trains (6 AM to 6 PM)	1.B. Total Night Thru Trains (6 PM to 6 AM)	1.C. Total Switching Trains	1.D. Total Transit Trains	1.E. Check if Less Than One Movement Per Day ☐ How many trains per week?
20	20	0	0	

2. Year of Train Count Data (YYYY)	3. Speed of Train at Crossing
2023	3.A. Maximum Timetable Speed (mph) 50 3.B. Typical Speed Range Over Crossing (mph) From 1 to 50

4. Type and Count of Tracks
Main 3 Siding 0 Yard 0 Transit 0 Industry 0

5. Train Detection (Main Track only)
☒ Constant Warning Time ☐ Motion Detection ☐AFO ☐ PTC ☐ DC ☐ Other ☐ None

6. Is Track Signaled?	7.A. Event Recorder	7.B. Remote Health Monitoring
☒ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No

U. S. DOT CROSSING INVENTORY FORM

A. Revision Date *(MM/DD/YYYY)*	PAGE 2	D. Crossing Inventory Number *(7 char.)*
12/20/2024		085587B

Part III: Highway or Pathway Traffic Control Device Information

1. Are there Signs or Signals? ☒ Yes ☐ No

2. Types of Passive Traffic Control Devices associated with the Crossing

2.A. Crossbuck Assemblies *(count)*	2.B. STOP Signs *(R1-1) (count)*	2.C. YIELD Signs *(R1-2) (count)*	2.D. Advance Warning Signs *(Check all that apply; include count)* ☐ None
0	0	0	☒ W10-1 1 ☐ W10-3 0 ☐ W10-11 0 ☐ W10-2 0 ☐ W10-4 0 ☐ W10-12 0

2.E. Low Ground Clearance Sign *(W10-5)*	2.F. Pavement Markings	2.G. Channelization Devices/Medians	2.H. EXEMPT Sign *(R15-3)*	2.I. ENS Sign *(I-13)* Displayed
☐ Yes *(count_____)* ☒ No	☒ Stop Lines ☐ Dynamic Envelope ☒ RR Xing Symbols ☐ None	☐ All Approaches ☐ Median ☐ One Approach ☒ None	☐ Yes ☒ No	☒ Yes ☐ No

2.J. Other MUTCD Signs ☒ Yes ☐ No	2.K. Private Crossing Signs *(if private)*	2.L. LED Enhanced Signs *(List types)*
Specify Type R15-2P Count 4 Specify Type R8-10 Count 1 Specify Type _____ Count _____	☐ Yes ☐ No	

3. Types of Train Activated Warning Devices at the Grade Crossing *(specify count of each device for all that apply)*

3.A. Gate Arms *(count)*	3.B. Gate Configuration	3.C. Cantilevered *(or Bridged)* Flashing Light Structures *(count)*	3.D. Mast Mounted Flashing Lights *(count of masts)* 2	3.E. Total Count of Flashing Light Pairs
Roadway 2 Pedestrian 0	☒ 2 Quad ☐ Full *(Barrier)* Resistance ☐ 3 Quad ☐ 4 Quad ☐ Median Gates	Over Traffic Lane 1 ☐ Incandescent Not Over Traffic Lane 0 ☒ LED	☒ Incandescent ☒ LED ☐ Back Lights Included ☐ Side Lights Included	10

3.F. Installation Date of Current Active Warning Devices: *(MM/YYYY)*	3.G. Wayside Horn	3.H. Highway Traffic Signals Controlling Crossing	3.I. Bells *(count)*
_____/_____ ☐ Not Required	☐ Yes Installed on *(MM/YYYY)* _____/_____ ☒ No	☐ Yes ☒ No	2

3.J. Non-Train Active Warning	3.K. Other Flashing Lights or Warning Devices
☐ Flagging/Flagman ☐ Manually Operated Signals ☐ Watchman ☐ Floodlighting ☐ None	Count 0 Specify type _____

4.A. Does nearby Hwy Intersection have Traffic Signals?	4.B. Hwy Traffic Signal Interconnection	4.C. Hwy Traffic Signal Preemption	5. Highway Traffic Pre-Signals	6. Highway Monitoring Devices *(Check all that apply)*
☐ Yes ☐ No	☐ Not Interconnected ☒ For Traffic Signals ☐ For Warning Signs	☒ Simultaneous ☐ Advance	☐ Yes ☐ No Storage Distance * _____ Stop Line Distance * _____	☐ Yes - Photo/Video Recording ☐ Yes – Vehicle Presence Detection ☐ None

Part IV: Physical Characteristics

1. Traffic Lanes Crossing Railroad	2. Is Roadway/Pathway Paved?	3. Does Track Run Down a Street?	4. Is Crossing Illuminated? *(Street lights within approx. 50 feet from nearest rail)*
☒ One-way Traffic ☐ Two-way Traffic ☐ Divided Traffic Number of Lanes 3	☒ Yes ☐ No	☐ Yes ☒ No	☒ Yes ☐ No

5. Crossing Surface *(on Main Track, multiple types allowed)* Installation Date * *(MM/YYYY)* _____/_____ Width * 41 Length * 48

☐ 1 Timber ☐ 2 Asphalt ☐ 3 Asphalt and Timber ☒ 4 Concrete ☐ 5 Concrete and Rubber ☐ 6 Rubber ☐ 7 Metal
☐ 8 Unconsolidated ☐ 9 Composite ☐ 10 Other *(specify)* _____

6. Intersecting Roadway within 500 feet?	7. Smallest Crossing Angle	8. Is Commercial Power Available? *
☒ Yes ☐ No If Yes, Approximate Distance *(feet)* _____	☐ 0° – 29° ☐ 30° – 59° ☒ 60° - 90°	☒ Yes ☐ No

Part V: Public Highway Information

1. Highway System	2. Functional Classification of Road at Crossing	3. Is Crossing on State Highway System?	4. Highway Speed Limit
☐ (01) Interstate Highway System ☐ (02) Other Nat Hwy System (NHS) ☒ (03) Federal AID, Not NHS ☐ (08) Non-Federal Aid	☐ (0) Rural ☒ (1) Urban ☐ (1) Interstate ☐ (5) Major Collector ☐ (2) Other Freeways and Expressways ☐ (3) Other Principal Arterial ☐ (6) Minor Collector ☒ (4) Minor Arterial ☐ (7) Local	☐ Yes ☒ No	30 MPH ☐ Posted ☐ Statutory

5. Linear Referencing System *(LRS Route ID)* *

6. LRS Milepost *

7. Annual Average Daily Traffic *(AADT)*	8. Estimated Percent Trucks	9. Regularly Used by School Buses?	10. Emergency Services Route
Year 2014 AADT 009817	12 %	☐ Yes ☐ No Average Number per Day _____	☐ Yes ☒ No

Submission Information - *This information is used for administrative purposes and is not available on the public website.*

Submitted by _____ Organization _____ Phone _____ Date _____

ATTACHMENT C
FRA INCIDENT DATA

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION (FRA)

HIGHWAY-RAIL GRADE CROSSING ACCIDENT/INCIDENT REPORT

OMB Approval No. 2130-0500

1.Name of Reporting Railroad: **BNSF Railway Company [BNSF]**	1a. Alphabetic Code: **BNSF**	1b. Railroad Accident/Incident No.: **NW0624203**
2.Name of Other Railroad or Other Entity Filling for Equipment Involved in Train Accident/Incident	2a. Alphabetic Code	2b. Railroad Accident/Incident No.
3. Name of Railroad or Other Entity Responsible for Track Maintenance *(single entry)*: **BNSF Railway Company [BNSF]**	3a. Alphabetic Code: **BNSF**	3b. Railroad Accident/Incident No.: **NW0624203**
4. U.S. DOT Grade Crossing ID No.: **927461X**	5. Date of Accident/Incident (month/day/year): **06/28/2024**	6. Time of Accident/Incident: **9:23** AM ☑ PM ☐
7. Nearest Railroad Station: **SEATTLE PIER 30**	8. Subdivision: **SEATTLE**	9. County: **KING**
10. State Abbr.: **WA** Code: **53**	11. City *(if in a city)*: **SEATTLE**	12. Highway Name or No.: **HOLGATE STREET** Public ☑ Private ☐

Highway User Involved

13. Type: C. Truck-trailer; F. Bus; J. Other Motor Vehicle; A. Auto; D. Pick-up truck; G. School Bus; K. Pedestrian; B. Truck; E. Van; H. Motorcycle; M. Other *(specify)* — Code: **A**

14. Vehicle Speed *(est. mph at impact)*: **30**

15. Direction *(geographical)*: 1. North 2. South 3. East 4. West — Code: **4**

16. Position: 1. Stalled or stuck on crossing; 2. Stopped on Crossing; 3. Moving over crossing; 4. Trapped on crossing by traffic; 5. Blocked on crossing by gates — Code: **3**

20a. Was the highway user and/or rail equipment involved in the impact transporting hazardous materials? 1. Highway User 2. Rail Equipment 3. Both 4. Neither — Code: **2**

Rail Equipment Involved

17. Equipment: 1. Train *(units pulling)*; 2. Train *(units pushing)*; 3. Train *(standing)*; 4. Car(s) *(moving)*; 5. Car(s) *(standing)*; 6. Light loco(s) *(moving)*; 7. Light loco(s) *(standing)*; 8. Other *(specify)*; A. Train pulling- RCL; B. Train pushing- RCL; C. Train standing- RCL; D. EMU Locomotive(s); E. DMU Locomotive(s) — Code: **1**

18. Position of Car Unit in Train: **54**

19. Circumstance: 1. Rail equipment struck highway user 2. Rail equipment struck by highway user — Code: **2**

20b. Was there a hazardous materials release by: 1. Highway User 2. Rail Equipment 3. Both 4. Neither — Code: **4**

20c. State here the name and quantity of the hazardous material released, if any

21. Temperature *(specify if minus)*: **65** °F

22. Visibility *(single entry)*: 1. Dawn 2. Day 3. Dusk 4. Dark — Code: **2**

23. Weather *(single entry)*: 1. Clear 2. Cloudy 3. Rain 4. Fog 5. Sleet 6. Snow — Code: **2**

24. Type of Equipment Consist *(single entry)*: 1. Freight Train; 2. Passenger Train-Pulling; 3. Commuter Train-Pulling; 4. Work Train; 5. Single Car; 6. Cut of cars; 7. Yard/Switching; 8. Light loco(s); 9. Maint./inspect. car; A. Spec. MoW Equip.; B. Passenger Train-Pushing; C. Commuter Train-Pushing; D. EMU; E. DMU — Code: **1**

25. Track Type Used by Rail Equipment Involved: 1. Main 2. Yard 3. Siding 4. Industry — Code: **1**

26. Track Number or Name: **MAIN 2 TRACK**

27. FRA Track Class (1-9,X): **4**

28. Number of Locomotive Units: **3**

29. Number of Cars: **91**

30. Consist Speed *(Recorded speed if available)*: R. Recorded; E. Estimated — **25** mph — Code: **E**

31. Time Table Direction: 1. North 2. East 3. South 4. West — Code: **2**

32. Type of Crossing Warning: 1. Gates; 2. Cantilever FLS; 3. Standard FLS; 4. Wig wags; 5. Hwy. traffic signals; 6. Audible; 7. Crossbucks; 8. Stop signs; 9. Watchman; 10. Flagged by crew; 11. Other *(specify)*; 12. None — Code(s): **01 03 06 07**

33. Signaled Crossing Warning (See reverse side for instructions and codes) — Code: **1**

34. Roadway Conditions: A. Dry; B. Wet; C.Snow/Slush; D.Ice; E. Sand,Mud,Dirt,Oil,Gravel; F.Water (Standing, Moving) — Code: **A**

35. Location of Warning: 1. Both Sides; 2. Side of Vehicle Approach; 3. Opposite Side of Vehicle Approach — Code: **1**

36. Crossing Warning Interconnected with Highway Signals: 1. Yes 2. No 3. Unknown — Code: **2**

37. Crossing Illuminated by Street Lights or Special Lights: 1. Yes 2. No 3. Unknown — Code: **1**

38. Highway User's Age: **19**

39. Highway User's Gender: 1. Male 2. Female — Code: **1**

40. Highway User Went Behind or in Front of Train and Struck or was Struck by Second Train: 1. Yes 2. No 3. Unknown — Code: **2**

41. Highway User: 1. Went around the gate; 2. Stopped and then proceeded; 3. Did not stop; 4. Stopped on crossing; 5. Other *(specify)*; 6. Went around/thru temporary barricade (if yes, see instructions); 7. Went thru the gate; 8. Suicide/Attempted suicide — Code: **1**

42. Driver Passed Standing Highway Vehicle: 1. Yes 2. No 3. Unknown — Code: **2**

43. View of Track Obscured by *(primary obstruction)*: 1. Permanent Structure; 2. Standing railroad equipment; 3. Passing Train; 4. Topography; 5. Vegetation; 6. Highway Vehicles; 7. Other (specify); 8. Not Obstructed — Code: **8**

Casualties to:	Killed	Injured
46. Highway-Rail Crossing Users	**0**	**1**
49. Railroad Employees	**0**	**0**
52. Passengers on Train	**0**	**0**

44. Driver was: 1. Killed 2. Injured 3. Uninjured — **2**

45. Was Driver in the Vehicle? 1. Yes 2. No — Code: **1**

47. Highway Vehicle Property Damage *(est. dollar damage)*: **$2,000**

48. Total Number of Vehicle Occupants *(including driver)*: **1**

50. Total Number of People on Train *(include passengers and train crew)*: **2**

51. Is a Rail Equipment Accident / Incident Report Being Filed? 1. Yes 2. No — Code: **2**

53a. Special Study Block — Video Taken? ☑ Yes ☐ No; Video Used? ☐ Yes ☑ No

53b. Special Study Block

54. Narrative Description *(Be specific, and continue on separate sheet if necessary)*

Z-CHCTAC8-25A ON MAIN 2 TRACK WAS UNKNOWINGLY STRUCK BY AN AUTO THAT WENT AROUND THE GATES AT A HGX, THEN WAS STRUCK BY A NORTHBOUND Q TACCHC6 28A. NO DERAILMENT. NO HAZMAT RELEASE.

55. Typed Name and Title | 56. Signature | 57. Date

NOTE: This report is part of the reporting railroad's accident report pursuant to the accident reports statute and, as such shall not "be admitted as evidence or used for any purpose in any suit or action for damages growing out of any matter mentioned in said report...." 49 U.S.C. 20903. See 49 C.F.R. 225.7 (b).

* NOTE THAT ALL CASUALTIES MUST BE REPORTED ON FORM FRA F 6180.55A

OMB Approval expires 7/31/2023

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION (FRA)

HIGHWAY-RAIL GRADE CROSSING ACCIDENT/INCIDENT REPORT

OMB Approval No. 2130-0500

1.Name of Reporting Railroad: **BNSF Railway Company [BNSF]**	1a. Alphabetic Code: **BNSF**	1b. Railroad Accident/Incident No.: **NW0624204**
2.Name of Other Railroad or Other Entity Filling for Equipment Involved in Train Accident/Incident	2a. Alphabetic Code	2b. Railroad Accident/Incident No.
3. Name of Railroad or Other Entity Responsible for Track Maintenance *(single entry)*: **BNSF Railway Company [BNSF]**	3a. Alphabetic Code: **BNSF**	3b. Railroad Accident/Incident No.: **NW0624204**
4. U.S. DOT Grade Crossing ID No.: **927461X**	5. Date of Accident/Incident (month/day/year): **0 6 / 2 8 / 2024**	6. Time of Accident/Incident: **9:30** AM ☑ PM ☐
7. Nearest Railroad Station: **SEATTLE PIER 30**	8. Subdivision: **SEATTLE**	9. County: **KING**
10. State Abbr.: **WA** Code: **53**		
11. City *(if in a city)*: **SEATTLE**	12. Highway Name or No.: **HOLGATE STREET**	Public ☑ Private ☐

Highway User Involved

13. Type — C. Truck-trailer; F. Bus; J. Other Motor Vehicle; A. Auto; D. Pick-up truck; G. School Bus; K. Pedestrian; B. Truck; E. Van; H. Motorcycle; M. Other *(specify)*. Code: **A**

14. Vehicle Speed *(est. mph at impact)*: **0**

15. Direction *(geographical)* 1. North 2. South 3. East 4. West. Code: **4**

16. Position — 1. Stalled or stuck on crossing; 2. Stopped on Crossing; 3. Moving over crossing; 4. Trapped on crossing by traffic; 5. Blocked on crossing by gates. Code: **1**

20a. Was the highway user and/or rail equipment involved in the impact transporting hazardous materials? 1. Highway User 2. Rail Equipment 3. Both 4. Neither. Code: **2**

Rail Equipment Involved

17. Equipment — 1. Train *(units pulling)*; 2. Train *(units pushing)*; 3. Train *(standing)*; 4. Car(s) *(moving)*; 5. Car(s) *(standing)*; 6. Light loco(s) *(moving)*; 7. Light loco(s) *(standing)*; 8. Other *(specify)*; A. Train pulling- RCL; B. Train pushing- RCL; C. Train standing- RCL; D. EMU Locomotive(s); E. DMU Locomotive(s). Code: **1**

18. Position of Car Unit in Train: **1**

19. Circumstance — 1. Rail equipment struck highway user 2. Rail equipment struck by highway user. Code: **1**

20b. Was there a hazardous materials release by 1. Highway User 2. Rail Equipment 3. Both 4. Neither. Code: **4**

20c. State here the name and quantity of the hazardous material released, if any

21. Temperature *(specify if minus)*: **65** °F

22. Visibility *(single entry)* 1. Dawn 2. Day 3. Dusk 4. Dark. Code: **2**

23. Weather *(single entry)* 1. Clear 2. Cloudy 3. Rain 4. Fog 5. Sleet 6. Snow. Code: **2**

24. Type of Equipment Consist *(single entry)* — 1. Freight Train; 2. Passenger Train-Pulling; 3. Commuter Train-Pulling; 4. Work Train; 5. Single Car; 6. Cut of cars; 7. Yard/Switching; 8. Light loco(s); 9. Maint./inspect. car; A. Spec. MoW Equip.; B. Passenger Train-Pushing; C. Commuter Train-Pushing; D. EMU; E. DMU. Code: **1**

25. Track Type Used by Rail Equipment Involved 1. Main 2. Yard 3. Siding 4. Industry. Code: **1**

26. Track Number or Name: **MAIN 3 TRACK**

27. FRA Track Class (1-9,X): **4**

28. Number of Locomotive Units: **3**

29. Number of Cars: **73**

30. Consist Speed *(Recorded speed if available)* R. Recorded E. Estimated: **25** mph. Code: **E**

31. Time Table Direction 1. North 2. South 3. East 4. West. Code: **1**

32. Type of Crossing Warning — 1. Gates; 2. Cantilever FLS; 3. Standard FLS; 4. Wig wags; 5. Hwy. traffic signals; 6. Audible; 7. Crossbucks; 8. Stop signs; 9. Watchman; 10. Flagged by crew; 11. Other *(specify)*; 12. None. Code(s): **01 03 06 07**

33. Signaled Crossing Warning (See reverse side for instructions and codes). Code: **1**

34. Roadway Conditions — A. Dry; B. Wet; C.Snow/Slush; D.Ice; E. Sand,Mud,Dirt,Oil,Gravel; F.Water (Standing, Moving). Code: **A**

35. Location of Warning 1. Both Sides 2. Side of Vehicle Approach 3. Opposite Side of Vehicle Approach. Code: **1**

36. Crossing Warning Interconnected with Highway Signals 1. Yes 2. No 3. Unknown. Code: **2**

37. Crossing Illuminated by Street Lights or Special Lights 1. Yes 2. No 3. Unknown. Code: **1**

38. Highway User's Age

39. Highway User's Gender 1. Male 2. Female. Code: **1**

40. Highway User Went Behind or in Front of Train and Struck or was Struck by Second Train 1. Yes 2. No 3. Unknown. Code: **2**

41. Highway User 1. Went around the gate; 2. Stopped and then proceeded; 3. Did not stop; 4. Stopped on crossing; 5. Other *(specify)*; 6. Went around/thru temporary barricade (if yes, see instructions); 7. Went thru the gate; 8. Suicide/Attempted suicide. Code: **5**

42. Driver Passed Standing Highway Vehicle 1. Yes 2. No 3. Unknown. Code: **2**

43. View of Track Obscured by *(primary obstruction)* 1. Permanent Structure; 2. Standing railroad equipment; 3. Passing Train; 4. Topography; 5. Vegetation; 6. Highway Vehicles; 7. Other (specify); 8. Not Obstructed. Code: **8**

Casualties to:	Killed	Injured
46. Highway-Rail Crossing Users	0	0
49. Railroad Employees	0	0
52. Passengers on Train	0	0

44. Driver was 1. Killed 2. Injured 3. Uninjured: **3**

45. Was Driver in the Vehicle? 1. Yes 2. No. Code: **2**

47. Highway Vehicle Property Damage *(est. dollar damage)*: **$2,000**

48. Total Number of Vehicle Occupants *(including driver)*: **0**

50. Total Number of People on Train *(include passengers and train crew)*: **2**

51. Is a Rail Equipment Accident / Incident Report Being Filed 1. Yes 2. No. Code: **2**

53a. Special Study Block — Video Taken? ☑ Yes ☐ No; Video Used? ☑ Yes ☐ No

53b. Special Study Block

54. Narrative Description *(Be specific, and continue on separate sheet if necessary)*

Z-CHCTAC8-25A ON MAIN 2 TRACK WAS UNKNOWINGLY STRUCK BY AN AUTO THAT WENT AROUND THE GATES AT A HGX, THEN WAS STRUCK BY A NORTHBOUND Q TACCHC6 28A. NO DERAILMENT. NO HAZMAT RELEASE. NO INJURIES REPORTED USER'S AGE UNKNOWN

55. Typed Name and Title | 56. Signature | 57. Date

NOTE: This report is part of the reporting railroad's accident report pursuant to the accident reports statute and, as such shall not "be admitted as evidence or used for any purpose in any suit or action for damages growing out of any matter mentioned in said report...." 49 U.S.C. 20903. See 49 C.F.R. 225.7 (b).

FORM FRA F 6180.57 (Rev. 08/10)

* NOTE THAT ALL CASUALTIES MUST BE REPORTED ON FORM FRA F 6180.55A

OMB Approval expires 7/31/2023

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION (FRA)

HIGHWAY-RAIL GRADE CROSSING ACCIDENT/INCIDENT REPORT

OMB Approval No. 2130-0500

1.Name of Reporting Railroad: **BNSF Railway Company [BNSF]**	1a. Alphabetic Code: **BNSF**	1b. Railroad Accident/Incident No.: **NW0423201**
2.Name of Other Railroad or Other Entity Filling for Equipment Involved in Train Accident/Incident	2a. Alphabetic Code	2b. Railroad Accident/Incident No.
3. Name of Railroad or Other Entity Responsible for Track Maintenance *(single entry)*: **BNSF Railway Company [BNSF]**	3a. Alphabetic Code: **BNSF**	3b. Railroad Accident/Incident No.: **NW0423201**
4. U.S. DOT Grade Crossing ID No.: **927461X**	5. Date of Accident/Incident (month/day/year): **0 4 / 1 4 / 2023**	6. Time of Accident/Incident: **10:20** AM ☐ PM ☑
7. Nearest Railroad Station: **SEATTLE PIER 30**	8. Subdivision: **SEATTLE**	9. County: **KING**
10. State Abbr.: **WA** Code: **53**		
11. City *(if in a city)*: **SEATTLE**	12. Highway Name or No.: **HOLGATE ST**	Public ☑ Private ☐

Highway User Involved

13. Type — C. Truck-trailer, F. Bus, J. Other Motor Vehicle; A. Auto, D. Pick-up truck, G. School Bus, K. Pedestrian; B. Truck, E. Van, H. Motorcycle, M. Other *(specify)*: Code **K**

14. Vehicle Speed *(est. mph at impact)*:

15. Direction *(geographical)* 1. North 2. South 3. East 4. West: Code **3**

16. Position — 1. Stalled or stuck on crossing, 2. Stopped on Crossing, 3. Moving over crossing, 4. Trapped on crossing by traffic, 5. Blocked on crossing by gates: Code **3**

20a. Was the highway user and/or rail equipment involved in the impact transporting hazardous materials? 1. Highway User 2. Rail Equipment 3. Both 4. Neither: Code **4**

Rail Equipment Involved

17. Equipment — 1. Train *(units pulling)*, 2. Train *(units pushing)*, 3. Train *(standing)*, 4. Car(s) *(moving)*, 5. Car(s) *(standing)*, 6. Light loco(s) *(moving)*, 7. Light loco(s) *(standing)*, 8. Other *(specify)*; A. Train pulling- RCL, B. Train pushing- RCL, C. Train standing- RCL, D. EMU Locomotive(s), E. DMU Locomotive(s): Code **1**

18. Position of Car Unit in Train: **1**

19. Circumstance — 1. Rail equipment struck highway user 2. Rail equipment struck by highway user: Code **1**

20b. Was there a hazardous materials release by 1. Highway User 2. Rail Equipment 3. Both 4. Neither: Code **4**

20c. State here the name and quantity of the hazardous material released, if any

21. Temperature *(specify if minus)*: **53** °F

22. Visibility *(single entry)* 1. Dawn 2. Day 3. Dusk 4. Dark: Code **4**

23. Weather *(single entry)* 1. Clear 2. Cloudy 3. Rain 4. Fog 5. Sleet 6. Snow: Code **2**

24. Type of Equipment Consist *(single entry)* — 1. Freight Train, 2. Passenger Train-Pulling, 3. Commuter Train-Pulling, 4. Work Train, 5. Single Car, 6. Cut of cars, 7. Yard/Switching, 8. Light loco(s), 9. Maint./inspect. car, A. Spec. MoW Equip., B. Passenger Train-Pushing, C. Commuter Train-Pushing, D. EMU, E. DMU: Code **4**

25. Track Type Used by Rail Equipment Involved 1. Main 2. Yard 3. Siding 4. Industry: Code **1**

26. Track Number or Name: **MAIN 3 TRACK**

27. FRA Track Class (1-9,X): **4**

28. Number of Locomotive Units: **1**

29. Number of Cars: **2**

30. Consist Speed *(Recorded speed if available)* R. Recorded E. Estimated: **25** mph Code **E**

31. Time Table Direction 1. North 2. East 3. South 4. West: Code **2**

32. Type of Crossing Warning — 1. Gates, 2. Cantilever FLS, 3. Standard FLS, 4. Wig wags, 5. Hwy. traffic signals, 6. Audible, 7. Crossbucks, 8. Stop signs, 9. Watchman, 10. Flagged by crew, 11. Other *(specify)*, 12. None

Code(s): **01** **03** **06** **07**

33. Signaled Crossing Warning (See reverse side for instructions and codes): Code **1**

34. Roadway Conditions — A. Dry, B. Wet, C.Snow/Slush, D.Ice, E. Sand,Mud,Dirt,Oil,Gravel, F.Water (Standing, Moving): Code **A**

35. Location of Warning 1. Both Sides 2. Side of Vehicle Approach 3. Opposite Side of Vehicle Approach: Code **1**

36. Crossing Warning Interconnected with Highway Signals 1. Yes 2. No 3. Unknown: Code **2**

37. Crossing Illuminated by Street Lights or Special Lights 1. Yes 2. No 3. Unknown: Code **1**

38. Highway User's Age: **50**

39. Highway User's Gender 1. Male 2. Female: Code **1**

40. Highway User Went Behind or in Front of Train and Struck or was Struck by Second Train 1. Yes 2. No 3. Unknown: Code **2**

41. Highway User 1. Went around the gate 2. Stopped and then proceeded 3. Did not stop 4. Stopped on crossing 5. Other *(specify)* 6. Went around/thru temporary barricade (if yes, see instructions) 7. Went thru the gate 8. Suicide/Attempted suicide: Code **1**

42. Driver Passed Standing Highway Vehicle 1. Yes 2. No 3. Unknown: Code

43. View of Track Obscured by *(primary obstruction)* 1. Permanent Structure 2. Standing railroad equipment 3. Passing Train 4. Topography 5. Vegetation 6. Highway Vehicles 7. Other (specify) 8. Not Obstructed: Code **8**

Casualties to:	Killed	Injured
46. Highway-Rail Crossing Users	**0**	**1**
49. Railroad Employees	**0**	**0**
52. Passengers on Train	**0**	**0**

44. Driver was 1. Killed 2. Injured 3. Uninjured:

45. Was Driver in the Vehicle? 1. Yes 2. No: Code

47. Highway Vehicle Property Damage *(est. dollar damage)*: **$0**

48. Total Number of Vehicle Occupants *(including driver)*: **0**

50. Total Number of People on Train *(include passengers and train crew)*: **2**

51. Is a Rail Equipment Accident / Incident Report Being Filed 1. Yes 2. No: Code **2**

53a. Special Study Block — Video Taken? ☑ Yes ☐ No; Video Used? ☑ Yes ☐ No

53b. Special Study Block

54. Narrative Description *(Be specific, and continue on separate sheet if necessary)*

UNTWVAW512 ON MAIN 3 TRACK STRUCK AND INJURED A PEDESTRIAN THAT WENT AROUND THE GATES AT A HGX. NO HAZMAT RELEASED.

55. Typed Name and Title | 56. Signature | 57. Date

NOTE: This report is part of the reporting railroad's accident report pursuant to the accident reports statute and, as such shall not "be admitted as evidence or used for any purpose in any suit or action for damages growing out of any matter mentioned in said report...." 49 U.S.C. 20903. See 49 C.F.R. 225.7 (b).

FORM FRA F 6180.57 (Rev. 08/10)

* NOTE THAT ALL CASUALTIES MUST BE REPORTED ON FORM FRA F 6180.55A

OMB Approval expires 7/31/2023

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION (FRA)

HIGHWAY-RAIL GRADE CROSSING ACCIDENT/INCIDENT REPORT

OMB Approval No. 2130-0500

1.Name of Reporting Railroad: **BNSF Railway Company [BNSF]**	1a. Alphabetic Code: **BNSF**	1b. Railroad Accident/Incident No.: **NW0819202**
2.Name of Other Railroad or Other Entity Filling for Equipment Involved in Train Accident/Incident	2a. Alphabetic Code	2b. Railroad Accident/Incident No.
3. Name of Railroad or Other Entity Responsible for Track Maintenance *(single entry)*: **BNSF Railway Company [BNSF]**	3a. Alphabetic Code: **BNSF**	3b. Railroad Accident/Incident No.: **NW0819202**
4. U.S. DOT Grade Crossing ID No.: **927461X**	5. Date of Accident/Incident (month/day/year): **0 8 / 1 1 / 2019**	6. Time of Accident/Incident: **10:00** AM ☑ PM ☐
7. Nearest Railroad Station: **SEATTLE**	8. Subdivision: **SEATTLE**	9. County: **KING**
10. State Abbr.: **WA** Code: **53**		
11. City *(if in a city)*: **SEATTLE**	12. Highway Name or No.: **HOLGATE ST**	Public ☑ Private ☐

Highway User Involved

13. Type — Code: **K**
C. Truck-trailer; F. Bus; J. Other Motor Vehicle; A. Auto; D. Pick-up truck; G. School Bus; K. Pedestrian; B. Truck; E. Van; H. Motorcycle; M. Other *(specify)*

14. Vehicle Speed *(est. mph at impact)*:

15. Direction *(geographical)* — Code: **4**
1. North 2. South 3. East 4. West

16. Position — Code: **3**
1. Stalled or stuck on crossing; 2. Stopped on Crossing; 3. Moving over crossing; 4. Trapped on crossing by traffic; 5. Blocked on crossing by gates

20a. Was the highway user and/or rail equipment involved in the impact transporting hazardous materials? — Code: **2**
1. Highway User 2. Rail Equipment 3. Both 4. Neither

Rail Equipment Involved

17. Equipment — Code: **1**
1. Train *(units pulling)*; 2. Train *(units pushing)*; 3. Train *(standing)*; 4. Car(s) *(moving)*; 5. Car(s) *(standing)*; 6. Light loco(s) *(moving)*; 7. Light loco(s) *(standing)*; 8. Other *(specify)*; A. Train pulling- RCL; B. Train pushing- RCL; C. Train standing- RCL; D. EMU Locomotive(s); E. DMU Locomotive(s)

18. Position of Car Unit in Train: **44**

19. Circumstance — Code: **2**
1. Rail equipment struck highway user 2. Rail equipment struck by highway user

20b. Was there a hazardous materials release by — Code: **4**
1. Highway User 2. Rail Equipment 3. Both 4. Neither

20c. State here the name and quantity of the hazardous material released, if any

21. Temperature *(specify if minus)*: **68** °F	22. Visibility *(single entry)* — Code: **2** (1. Dawn 2. Day 3. Dusk 4. Dark)	23. Weather *(single entry)* — Code: **1** (1. Clear 2. Cloudy 3. Rain 4. Fog 5. Sleet 6. Snow)		
24. Type of Equipment Consist *(single entry)* — Code: **1** (1. Freight Train; 2. Passenger Train-Pulling; 3. Commuter Train-Pulling; 4. Work Train; 5. Single Car; 6. Cut of cars; 7. Yard/Switching; 8. Light loco(s); 9. Maint./inspect. car; A. Spec. MoW Equip.; B. Passenger Train-Pushing; C. Commuter Train-Pushing; D. EMU; E. DMU)	25. Track Type Used by Rail Equipment Involved — Code: **1** (1. Main 2. Yard 3. Siding 4. Industry)	26. Track Number or Name: **MAIN 3 TRACK**		
27. FRA Track Class (1-9,X): **4**	28. Number of Locomotive Units: **2**	29. Number of Cars: **75**	30. Consist Speed *(Recorded speed if available)* R. Recorded E. Estimated: **19** mph — Code: **E**	31. Time Table Direction — Code: **1** (1. North 2. South 3. East 4. West)

32. Type of Crossing Warning — Code(s): **01 03 06 07**
1. Gates; 2. Cantilever FLS; 3. Standard FLS; 4. Wig wags; 5. Hwy. traffic signals; 6. Audible; 7. Crossbucks; 8. Stop signs; 9. Watchman; 10. Flagged by crew; 11. Other *(specify)*; 12. None

33. Signaled Crossing Warning (See reverse side for instructions and codes) — Code: **1**

34. Roadway Conditions — Code: **A**
A. Dry; B. Wet; C.Snow/Slush; D.Ice; E. Sand,Mud,Dirt,Oil,Gravel; F.Water (Standing, Moving)

35. Location of Warning — Code: **1**
1. Both Sides; 2. Side of Vehicle Approach; 3. Opposite Side of Vehicle Approach

36. Crossing Warning Interconnected with Highway Signals — Code: **2**
1. Yes 2. No 3. Unknown

37. Crossing Illuminated by Street Lights or Special Lights — Code: **1**
1. Yes 2. No 3. Unknown

38.Highway User's Age: **65**	39.Highway User's Gender — Code: **1** (1. Male 2. Female)	40. Highway User Went Behind or in Front of Train and Struck or was Struck by Second Train — Code: **2** (1. Yes 2. No 3. Unknown)	41. Highway User — Code: **5** (1. Went around the gate; 2. Stopped and then proceeded; 3. Did not stop; 4. Stopped on crossing; 5. Other *(specify)*; 6. Went around/thru temporary barricade (if yes, see instructions); 7. Went thru the gate; 8. Suicide/Attempted suicide)	

42. Driver Passed Standing Highway Vehicle — Code:
1. Yes 2. No 3. Unknown

43. View of Track Obscured by *(primary obstruction)* — Code: **8**
1. Permanent Structure; 2. Standing railroad equipment; 3. Passing Train; 4. Topography; 5. Vegetation; 6. Highway Vehicles; 7. Other (specify); 8. Not Obstructed

Casualties to:	Killed	Injured
46. Highway-Rail Crossing Users	1	0
49. Railroad Employees	0	0
52. Passengers on Train	0	0

44. Driver was
1. Killed 2. Injured 3. Uninjured

45. Was Driver in the Vehicle? — Code:
1. Yes 2. No

47. Highway Vehicle Property Damage *(est. dollar damage)*:

48. Total Number of Vehicle Occupants *(including driver)*: **0**

50. Total Number of People on Train *(include passengers and train crew)*: **2**

51. Is a Rail Equipment Accident / Incident Report Being Filed — Code: **2**
1. Yes 2. No

53a. Special Study Block — Video Taken? ☐ Yes ☑ No; Video Used? ☐ Yes ☑ No

53b. Special Study Block

54. Narrative Description *(Be specific, and continue on separate sheet if necessary)*
HPASVBT809A TRAIN REPORTED FATALLY STRIKING TRESPASSER.

55. Typed Name and Title | 56. Signature | 57. Date

NOTE: This report is part of the reporting railroad's accident report pursuant to the accident reports statute and, as such shall not "be admitted as evidence or used for any purpose in any suit or action for damages growing out of any matter mentioned in said report...." 49 U.S.C. 20903. See 49 C.F.R. 225.7 (b).

* NOTE THAT ALL CASUALTIES MUST BE REPORTED ON FORM FRA F 6180.55A

OMB Approval expires 6/30/2021

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION (FRA)

HIGHWAY-RAIL GRADE CROSSING ACCIDENT/INCIDENT REPORT

OMB Approval No. 2130-0500

1. Name of Reporting Railroad: **BNSF Railway Company [BNSF]**	1a. Alphabetic Code: **BNSF**	1b. Railroad Accident/Incident No.: **NW0418203**
2. Name of Other Railroad or Other Entity Filling for Equipment Involved in Train Accident/Incident	2a. Alphabetic Code	2b. Railroad Accident/Incident No.
3. Name of Railroad or Other Entity Responsible for Track Maintenance *(single entry)*: **BNSF Railway Company [BNSF]**	3a. Alphabetic Code: **BNSF**	3b. Railroad Accident/Incident No.: **NW0418203**
4. U.S. DOT Grade Crossing ID No.: **927461X**	5. Date of Accident/Incident (month/day/year): **0 4 / 2 7 / 2018**	6. Time of Accident/Incident: **11:45** AM ☐ PM ☑
7. Nearest Railroad Station: **SEATTLE**	8. Subdivision: **SEATTLE**	9. County: **KING**
10. State Abbr.: **WA** Code: **53**		
11. City *(if in a city)*: **SEATTLE**	12. Highway Name or No.: **HOLGATE ST**	Public ☑ Private ☐

Highway User Involved

13. Type: C. Truck-trailer; F. Bus; J. Other Motor Vehicle; A. Auto; D. Pick-up truck; G. School Bus; K. Pedestrian; B. Truck; E. Van; H. Motorcycle; M. Other *(specify)* — Code: **K**

14. Vehicle Speed *(est. mph at impact)*: **0**

15. Direction *(geographical)* 1. North 2. South 3. East 4. West — Code: **3**

16. Position: 1. Stalled or stuck on crossing; 2. Stopped on Crossing; 3. Moving over crossing; 4. Trapped on crossing by traffic; 5. Blocked on crossing by gates — Code: **2**

20a. Was the highway user and/or rail equipment involved in the impact transporting hazardous materials? 1. Highway User 2. Rail Equipment 3. Both 4. Neither — Code: **4**

Rail Equipment Involved

17. Equipment: 1. Train *(units pulling)*; 2. Train *(units pushing)*; 3. Train *(standing)*; 4. Car(s) *(moving)*; 5. Car(s) *(standing)*; 6. Light loco(s) *(moving)*; 7. Light loco(s) *(standing)*; 8. Other *(specify)*; A. Train pulling- RCL; B. Train pushing- RCL; C. Train standing- RCL; D. EMU Locomotive(s); E. DMU Locomotive(s) — Code: **1**

18. Position of Car Unit in Train: **1**

19. Circumstance: 1. Rail equipment struck highway user 2. Rail equipment struck by highway user — Code: **1**

20b. Was there a hazardous materials release by 1. Highway User 2. Rail Equipment 3. Both 4. Neither — Code: **4**

20c. State here the name and quantity of the hazardous material released, if any

21. Temperature *(specify if minus)*: **40** °F

22. Visibility *(single entry)*: 1. Dawn 2. Day 3. Dusk 4. Dark — Code: **4**

23. Weather *(single entry)*: 1. Clear 2. Cloudy 3. Rain 4. Fog 5. Sleet 6. Snow — Code: **2**

24. Type of Equipment Consist *(single entry)*: 1. Freight Train; 2. Passenger Train-Pulling; 3. Commuter Train-Pulling; 4. Work Train; 5. Single Car; 6. Cut of cars; 7. Yard/Switching; 8. Light loco(s); 9. Maint./inspect. car; A. Spec. MoW Equip.; B. Passenger Train-Pushing; C. Commuter Train-Pushing; D. EMU; E. DMU — Code: **1**

25. Track Type Used by Rail Equipment Involved: 1. Main 2. Yard 3. Siding 4. Industry — Code: **1**

26. Track Number or Name: **MAIN 2 TRACK**

27. FRA Track Class (1-9,X): **3**

28. Number of Locomotive Units: **3**

29. Number of Cars: **115**

30. Consist Speed *(Recorded speed if available)*: R. Recorded; E. Estimated — **21** mph — Code: **R**

31. Time Table Direction: 1. North 2. East 3. South 4. West — Code: **3**

32. Type of Crossing Warning: 1. Gates; 2. Cantilever FLS; 3. Standard FLS; 4. Wig wags; 5. Hwy. traffic signals; 6. Audible; 7. Crossbucks; 8. Stop signs; 9. Watchman; 10. Flagged by crew; 11. Other *(specify)*; 12. None

Code(s): **01** **03** **06** **07**

33. Signaled Crossing Warning (See reverse side for instructions and codes) — Code: **1**

34. Roadway Conditions: A. Dry; B. Wet; C.Snow/Slush; D.Ice; E. Sand,Mud,Dirt,Oil,Gravel; F.Water (Standing, Moving) — Code: **B**

35. Location of Warning: 1. Both Sides; 2. Side of Vehicle Approach; 3. Opposite Side of Vehicle Approach — Code: **1**

36. Crossing Warning Interconnected with Highway Signals: 1. Yes 2. No 3. Unknown — Code: **2**

37. Crossing Illuminated by Street Lights or Special Lights: 1. Yes 2. No 3. Unknown — Code: **1**

38. Highway User's Age

39. Highway User's Gender: 1. Male; 2. Female — Code: **1**

40. Highway User Went Behind or in Front of Train and Struck or was Struck by Second Train: 1. Yes 2. No 3. Unknown — Code: **2**

41. Highway User: 1. Went around the gate; 2. Stopped and then proceeded; 3. Did not stop; 4. Stopped on crossing; 5. Other *(specify)*; 6. Went around/thru temporary barricade (if yes, see instructions); 7. Went thru the gate; 8. Suicide/Attempted suicide — Code: **5**

42. Driver Passed Standing Highway Vehicle: 1. Yes 2. No 3. Unknown — Code:

43. View of Track Obscured by *(primary obstruction)*: 1. Permanent Structure; 2. Standing railroad equipment; 3. Passing Train; 4. Topography; 5. Vegetation; 6. Highway Vehicles; 7. Other (specify); 8. Not Obstructed — Code: **8**

Casualties to:	Killed	Injured
46. Highway-Rail Crossing Users	**1**	**0**
49. Railroad Employees	**0**	**0**
52. Passengers on Train	**0**	**0**

44. Driver was 1. Killed 2. Injured 3. Uninjured

45. Was Driver in the Vehicle? 1. Yes 2. No — Code:

47. Highway Vehicle Property Damage *(est. dollar damage)*

48. Total Number of Vehicle Occupants *(including driver)*: **0**

50. Total Number of People on Train *(include passengers and train crew)*: **2**

51. Is a Rail Equipment Accident / Incident Report Being Filed 1. Yes 2. No — Code: **2**

53a. Special Study Block — Video Taken? ☑ Yes ☐ No; Video Used? ☑ Yes ☐ No

53b. Special Study Block

54. Narrative Description *(Be specific, and continue on separate sheet if necessary)*

DRIVER AGE UNKNOWN. TRESPASSER WAS SITTING ON CROSSING AND WAS STRUCK BY EASTBOUND XINBOTV27H. RESULTING IN FATALITY. NO CREWMEMBERS WERE DRUG/ALCOHOL TESTED.

55. Typed Name and Title | 56. Signature | 57. Date

NOTE: This report is part of the reporting railroad's accident report pursuant to the accident reports statute and, as such shall not "be admitted as evidence or used for any purpose in any suit or action for damages growing out of any matter mentioned in said report...." 49 U.S.C. 20903. See 49 C.F.R. 225.7 (b).

* NOTE THAT ALL CASUALTIES MUST BE REPORTED ON FORM FRA F 6180.55A

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION (FRA)

HIGHWAY-RAIL GRADE CROSSING ACCIDENT/INCIDENT REPORT

OMB Approval No. 2130-0500

1.Name of Reporting Railroad: **BNSF Railway Company [BNSF]**	1a. Alphabetic Code: **BNSF**	1b. Railroad Accident/Incident No.: **NW0617200**
2.Name of Other Railroad or Other Entity Filling for Equipment Involved in Train Accident/Incident	2a. Alphabetic Code	2b. Railroad Accident/Incident No.
3. Name of Railroad or Other Entity Responsible for Track Maintenance *(single entry)*: **BNSF Railway Company [BNSF]**	3a. Alphabetic Code: **BNSF**	3b. Railroad Accident/Incident No.: **NW0617200**
4. U.S. DOT Grade Crossing ID No.: **927461X**	5. Date of Accident/Incident (month/day/year): **0 6 / 0 4 / 2017**	6. Time of Accident/Incident: **9:08** AM ☑ PM ☐
7. Nearest Railroad Station: **SEATTLE**	8. Subdivision: **SEATTLE**	9. County: **KING**
10. State Abbr.: **WA** Code: **53**		
11. City *(if in a city)*: **SEATTLE**	12. Highway Name or No.: **HOLGATE ST**	Public ☑ Private ☐

Highway User Involved

13. Type — C. Truck-trailer; F. Bus; J. Other Motor Vehicle; A. Auto; D. Pick-up truck; G. School Bus; K. Pedestrian; B. Truck; E. Van; H. Motorcycle; M. Other *(specify)*. Code: **K**

14. Vehicle Speed *(est. mph at impact)*:

15. Direction *(geographical)* 1. North 2. South 3. East 4. West. Code: **3**

16. Position — 1. Stalled or stuck on crossing; 2. Stopped on Crossing; 3. Moving over crossing; 4. Trapped on crossing by traffic; 5. Blocked on crossing by gates. Code: **3**

20a. Was the highway user and/or rail equipment involved in the impact transporting hazardous materials? 1. Highway User 2. Rail Equipment 3. Both 4. Neither. Code: **4**

Rail Equipment Involved

17. Equipment — 1. Train *(units pulling)*; 2. Train *(units pushing)*; 3. Train *(standing)*; 4. Car(s) *(moving)*; 5. Car(s) *(standing)*; 6. Light loco(s) *(moving)*; 7. Light loco(s) *(standing)*; 8. Other *(specify)*; A. Train pulling- RCL; B. Train pushing- RCL; C. Train standing- RCL; D. EMU Locomotive(s); E. DMU Locomotive(s). Code: **1**

18. Position of Car Unit in Train: **5**

19. Circumstance — 1. Rail equipment struck highway user 2. Rail equipment struck by highway user. Code: **2**

20b. Was there a hazardous materials release by 1. Highway User 2. Rail Equipment 3. Both 4. Neither. Code: **4**

20c. State here the name and quantity of the hazardous material released, if any

21. Temperature *(specify if minus)*: **55** °F

22. Visibility *(single entry)* 1. Dawn 2. Day 3. Dusk 4. Dark. Code: **2**

23. Weather *(single entry)* 1. Clear 2. Cloudy 3. Rain 4. Fog 5. Sleet 6. Snow. Code: **2**

24. Type of Equipment Consist *(single entry)* — 1. Freight Train; 2. Passenger Train-Pulling; 3. Commuter Train-Pulling; 4. Work Train; 5. Single Car; 6. Cut of cars; 7. Yard/Switching; 8. Light loco(s); 9. Maint./inspect. car; A. Spec. MoW Equip.; B. Passenger Train-Pushing; C. Commuter Train-Pushing; D. EMU; E. DMU. Code: **1**

25. Track Type Used by Rail Equipment Involved 1. Main 2. Yard 3. Siding 4. Industry. Code: **1**

26. Track Number or Name: **MAIN 2 TRACK**

27. FRA Track Class (1-9,X): **4**

28. Number of Locomotive Units: **4**

29. Number of Cars: **113**

30. Consist Speed *(Recorded speed if available)* R. Recorded E. Estimated: **15** mph. Code: **E**

31. Time Table Direction 1. North 2. South 3. East 4. West. Code: **1**

32. Type of Crossing Warning — 1. Gates; 2. Cantilever FLS; 3. Standard FLS; 4. Wig wags; 5. Hwy. traffic signals; 6. Audible; 7. Crossbucks; 8. Stop signs; 9. Watchman; 10. Flagged by crew; 11. Other *(specify)*; 12. None. Code(s): **01** **03**

33. Signaled Crossing Warning (See reverse side for instructions and codes). Code: **1**

34. Roadway Conditions — A. Dry; B. Wet; C.Snow/Slush; D.Ice; E. Sand,Mud,Dirt,Oil,Gravel; F.Water (Standing, Moving). Code: **A**

35. Location of Warning 1. Both Sides 2. Side of Vehicle Approach 3. Opposite Side of Vehicle Approach. Code: **1**

36. Crossing Warning Interconnected with Highway Signals 1. Yes 2. No 3. Unknown. Code:

37. Crossing Illuminated by Street Lights or Special Lights 1. Yes 2. No 3. Unknown. Code: **1**

38. Highway User's Age: **60**

39. Highway User's Gender 1. Male 2. Female. Code: **1**

40. Highway User Went Behind or in Front of Train and Struck or was Struck by Second Train 1. Yes 2. No 3. Unknown. Code: **2**

41. Highway User 1. Went around the gate; 2. Stopped and then proceeded; 3. Did not stop; 4. Stopped on crossing; 5. Other *(specify)*; 6. Went around/thru temporary barricade (if yes, see instructions); 7. Went thru the gate; 8. Suicide/Attempted suicide. Code: **5**

42. Driver Passed Standing Highway Vehicle 1. Yes 2. No 3. Unknown. Code:

43. View of Track Obscured by *(primary obstruction)* 1. Permanent Structure; 2. Standing railroad equipment; 3. Passing Train; 4. Topography; 5. Vegetation; 6. Highway Vehicles; 7. Other (specify); 8. Not Obstructed. Code: **8**

Casualties to:	Killed	Injured
46. Highway-Rail Crossing Users	**1**	**0**
49. Railroad Employees	**0**	**0**
52. Passengers on Train	**0**	**0**

44. Driver was 1. Killed 2. Injured 3. Uninjured

45. Was Driver in the Vehicle? 1. Yes 2. No

47. Highway Vehicle Property Damage *(est. dollar damage)*

48. Total Number of Vehicle Occupants *(including driver)*: **0**

50. Total Number of People on Train *(include passengers and train crew)*: **2**

51. Is a Rail Equipment Accident / Incident Report Being Filed 1. Yes 2. No. Code: **2**

53a. Special Study Block — Video Taken? ☐ Yes ☑ No; Video Used? ☐ Yes ☑ No

53b. Special Study Block

54. Narrative Description *(Be specific, and continue on separate sheet if necessary)*

41: PRECEDED GATES

55. Typed Name and Title | 56. Signature | 57. Date

NOTE: This report is part of the reporting railroad's accident report pursuant to the accident reports statute and, as such shall not "be admitted as evidence or used for any purpose in any suit or action for damages growing out of any matter mentioned in said report...." 49 U.S.C. 20903. See 49 C.F.R. 225.7 (b).

* NOTE THAT ALL CASUALTIES MUST BE REPORTED ON FORM FRA F 6180.55A

OMB Approval expires 6/30/2021

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION (FRA)

HIGHWAY-RAIL GRADE CROSSING ACCIDENT/INCIDENT REPORT

OMB Approval No. 2130-0500

1. Name of Reporting Railroad: **Sounder Commuter Rail [SCR]**	1a. Alphabetic Code: **SCR**	1b. Railroad Accident/Incident No.: **20160920**
2. Name of Other Railroad or Other Entity Filling for Equipment Involved in Train Accident/Incident	2a. Alphabetic Code	2b. Railroad Accident/Incident No.
3. Name of Railroad or Other Entity Responsible for Track Maintenance *(single entry)*: **BNSF Railway Company [BNSF]**	3a. Alphabetic Code: **BNSF**	3b. Railroad Accident/Incident No.: **XXX**
4. U.S. DOT Grade Crossing ID No.: **927461X**	5. Date of Accident/Incident (month/day/year): **09/20/2016**	6. Time of Accident/Incident: **4:14** AM ☐ PM ☑
7. Nearest Railroad Station: **SEATTLE**	8. Subdivision: **SEATTLE**	9. County: **KING**
10. State Abbr.: **WA** Code: **53**		
11. City *(if in a city)*: **SEATTLE**	12. Highway Name or No.: **HOLGATE** Public ☑ Private ☐	

Highway User Involved

13. Type — Code: **A**
C. Truck-trailer; F. Bus; J. Other Motor Vehicle; A. Auto; D. Pick-up truck; G. School Bus; K. Pedestrian; B. Truck; E. Van; H. Motorcycle; M. Other *(specify)*

14. Vehicle Speed *(est. mph at impact)*: **0**

15. Direction *(geographical)* — Code: **4**
1. North 2. South 3. East 4. West

16. Position — Code: **1**
1. Stalled or stuck on crossing; 2. Stopped on Crossing; 3. Moving over crossing; 4. Trapped on crossing by traffic; 5. Blocked on crossing by gates

20a. Was the highway user and/or rail equipment involved in the impact transporting hazardous materials? — Code: **4**
1. Highway User 2. Rail Equipment 3. Both 4. Neither

Rail Equipment Involved

17. Equipment — Code: **1**
1. Train *(units pulling)*; 2. Train *(units pushing)*; 3. Train *(standing)*; 4. Car(s) *(moving)*; 5. Car(s) *(standing)*; 6. Light loco(s) *(moving)*; 7. Light loco(s) *(standing)*; 8. Other *(specify)*
A. Train pulling- RCL; B. Train pushing- RCL; C. Train standing- RCL; D. EMU Locomotive(s); E. DMU Locomotive(s)

18. Position of Car Unit in Train: **1**

19. Circumstance — Code: **1**
1. Rail equipment struck highway user 2. Rail equipment struck by highway user

20b. Was there a hazardous materials release by — Code: **4**
1. Highway User 2. Rail Equipment 3. Both 4. Neither

20c. State here the name and quantity of the hazardous material released, if any

21. Temperature *(specify if minus)*: **65** °F	22. Visibility *(single entry)* — Code: **2** (1. Dawn 2. Day 3. Dusk 4. Dark)	23. Weather *(single entry)* — Code: **1** (1. Clear 2. Cloudy 3. Rain 4. Fog 5. Sleet 6. Snow)	
24. Type of Equipment Consist *(single entry)* — Code: **3** (1. Freight Train; 2. Passenger Train-Pulling; 3. Commuter Train-Pulling; 4. Work Train; 5. Single Car; 6. Cut of cars; 7. Yard/Switching; 8. Light loco(s); 9. Maint./inspect. car; A. Spec. MoW Equip.; B. Passenger Train-Pushing; C. Commuter Train-Pushing; D. EMU; E. DMU)	25. Track Type Used by Rail Equipment Involved — Code: **1** (1. Main 2. Yard 3. Siding 4. Industry)	26. Track Number or Name: **MAIN-3**	
27. FRA Track Class (1-9,X): **4**	28. Number of Locomotive Units: **1**	29. Number of Cars: **7**	30. Consist Speed *(Recorded speed if available)*: **39** mph — Code: **R** (R. Recorded; E. Estimated)
31. Time Table Direction — Code: **2** (1. North 2. South 3. East 4. West)			

32. Type of Crossing Warning — Code(s): **01 02 04 07**
1. Gates; 2. Cantilever FLS; 3. Standard FLS; 4. Wig wags; 5. Hwy. traffic signals; 6. Audible; 7. Crossbucks; 8. Stop signs; 9. Watchman; 10. Flagged by crew; 11. Other *(specify)*; 12. None

33. Signaled Crossing Warning (See reverse side for instructions and codes) — Code: **1**

34. Roadway Conditions — Code: **A**
A. Dry; B. Wet; C.Snow/Slush; D.Ice; E. Sand,Mud,Dirt,Oil,Gravel; F.Water (Standing, Moving)

35. Location of Warning — Code: **1** (1. Both Sides; 2. Side of Vehicle Approach; 3. Opposite Side of Vehicle Approach)	36. Crossing Warning Interconnected with Highway Signals — Code: **1** (1. Yes 2. No 3. Unknown)	37. Crossing Illuminated by Street Lights or Special Lights — Code: **1** (1. Yes 2. No 3. Unknown)	
38. Highway User's Age: **76**	39. Highway User's Gender — Code: **1** (1. Male 2. Female)	40. Highway User Went Behind or in Front of Train and Struck or was Struck by Second Train — Code: **2** (1. Yes 2. No 3. Unknown)	41. Highway User — Code: **4** (1. Went around the gate; 2. Stopped and then proceeded; 3. Did not stop; 4. Stopped on crossing; 5. Other *(specify)*; 6. Went around/thru temporary barricade (if yes, see instructions); 7. Went thru the gate; 8. Suicide/Attempted suicide)
42. Driver Passed Standing Highway Vehicle — Code: **2** (1. Yes 2. No 3. Unknown)	43. View of Track Obscured by *(primary obstruction)* — Code: **8** (1. Permanent Structure; 2. Standing railroad equipment; 3. Passing Train; 4. Topography; 5. Vegetation; 6. Highway Vehicles; 7. Other (specify); 8. Not Obstructed)		

Casualties to:	Killed	Injured
46. Highway-Rail Crossing Users	0	1
49. Railroad Employees	0	0
52. Passengers on Train	0	0

44. Driver was — Code: **2** (1. Killed 2. Injured 3. Uninjured)	45. Was Driver in the Vehicle? — Code: **1** (1. Yes 2. No)
47. Highway Vehicle Property Damage *(est. dollar damage)*: **$5,000**	48. Total Number of Vehicle Occupants *(including driver)*: **1**
50. Total Number of People on Train *(include passengers and train crew)*: **250**	51. Is a Rail Equipment Accident / Incident Report Being Filed — Code: **2** (1. Yes 2. No)

53a. Special Study Block — Video Taken? ☑ Yes ☐ No; Video Used? ☑ Yes ☐ No

53b. Special Study Block

54. Narrative Description *(Be specific, and continue on separate sheet if necessary)*

55. Typed Name and Title	56. Signature	57. Date

NOTE: This report is part of the reporting railroad's accident report pursuant to the accident reports statute and, as such shall not "be admitted as evidence or used for any purpose in any suit or action for damages growing out of any matter mentioned in said report...." 49 U.S.C. 20903. See 49 C.F.R. 225.7 (b).

* NOTE THAT ALL CASUALTIES MUST BE REPORTED ON FORM FRA F 6180.55A

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION (FRA)

HIGHWAY-RAIL GRADE CROSSING ACCIDENT/INCIDENT REPORT

OMB Approval No. 2130-0500

1.Name of Reporting Railroad: **BNSF Railway Company [BNSF]**	1a. Alphabetic Code: **BNSF**	1b. Railroad Accident/Incident No.: **NW0516201**
2.Name of Other Railroad or Other Entity Filling for Equipment Involved in Train Accident/Incident	2a. Alphabetic Code	2b. Railroad Accident/Incident No.
3. Name of Railroad or Other Entity Responsible for Track Maintenance *(single entry)*: **BNSF Railway Company [BNSF]**	3a. Alphabetic Code: **BNSF**	3b. Railroad Accident/Incident No.: **NW0516201**
4. U.S. DOT Grade Crossing ID No.: **085585M**	5. Date of Accident/Incident (month/day/year): **0 5 / 1 4 / 2016**	6. Time of Accident/Incident: **9:57** AM ☐ PM ☑
7. Nearest Railroad Station: **SEATTLE**	8. Subdivision: **SEATTLE**	9. County: **KING**
10. State Abbr.: **WA** Code: **53**		
11. City *(if in a city)*: **SEATTLE**	12. Highway Name or No.: **HORTON ST**	Public ☑ Private ☐

Highway User Involved

13. Type — C. Truck-trailer, F. Bus, J. Other Motor Vehicle; A. Auto, D. Pick-up truck, G. School Bus, K. Pedestrian; B. Truck, E. Van, H. Motorcycle, M. Other *(specify)*: Code **A**

14. Vehicle Speed *(est. mph at impact)*: **0**

15. Direction *(geographical)* 1. North 2. South 3. East 4. West: Code **3**

16. Position — 1. Stalled or stuck on crossing, 2. Stopped on Crossing, 3. Moving over crossing, 4. Trapped on crossing by traffic, 5. Blocked on crossing by gates: Code **1**

20a. Was the highway user and/or rail equipment involved in the impact transporting hazardous materials? 1. Highway User 2. Rail Equipment 3. Both 4. Neither: Code **4**

Rail Equipment Involved

17. Equipment — 1. Train *(units pulling)*, 2. Train *(units pushing)*, 3. Train *(standing)*, 4. Car(s) *(moving)*, 5. Car(s) *(standing)*, 6. Light loco(s) *(moving)*, 7. Light loco(s) *(standing)*, 8. Other *(specify)*; A. Train pulling- RCL, B. Train pushing- RCL, C. Train standing- RCL, D. EMU Locomotive(s), E. DMU Locomotive(s): Code **1**

18. Position of Car Unit in Train: **1**

19. Circumstance — 1. Rail equipment struck highway user 2. Rail equipment struck by highway user: Code **1**

20b. Was there a hazardous materials release by 1. Highway User 2. Rail Equipment 3. Both 4. Neither: Code **4**

20c. State here the name and quantity of the hazardous material released, if any

21. Temperature *(specify if minus)*: **65** °F

22. Visibility *(single entry)* 1. Dawn 2. Day 3. Dusk 4. Dark: Code **4**

23. Weather *(single entry)* 1. Clear 2. Cloudy 3. Rain 4. Fog 5. Sleet 6. Snow: Code **1**

24. Type of Equipment Consist *(single entry)* — 1. Freight Train, 2. Passenger Train-Pulling, 3. Commuter Train-Pulling, 4. Work Train, 5. Single Car, 6. Cut of cars, 7. Yard/Switching, 8. Light loco(s), 9. Maint./inspect. car, A. Spec. MoW Equip., B. Passenger Train-Pushing, C. Commuter Train-Pushing, D. EMU, E. DMU: Code **1**

25. Track Type Used by Rail Equipment Involved 1. Main 2. Yard 3. Siding 4. Industry: Code **1**

26. Track Number or Name: **MAIN 3 TRACK**

27. FRA Track Class (1-9,X): **4**

28. Number of Locomotive Units: **3**

29. Number of Cars: **110**

30. Consist Speed *(Recorded speed if available)* R. Recorded E. Estimated: **10** mph Code **E**

31. Time Table Direction 1. North 2. South 3. East 4. West: Code **3**

32. Type of Crossing Warning — 1. Gates, 2. Cantilever FLS, 3. Standard FLS, 4. Wig wags, 5. Hwy. traffic signals, 6. Audible, 7. Crossbucks, 8. Stop signs, 9. Watchman, 10. Flagged by crew, 11. Other *(specify)*, 12. None

Code(s): **01** **03**

33. Signaled Crossing Warning (See reverse side for instructions and codes): Code **1**

34. Roadway Conditions — A. Dry, B. Wet, C.Snow/Slush, D.Ice, E. Sand,Mud,Dirt,Oil,Gravel, F.Water (Standing, Moving): Code **A**

35. Location of Warning 1. Both Sides 2. Side of Vehicle Approach 3. Opposite Side of Vehicle Approach: Code **2**

36. Crossing Warning Interconnected with Highway Signals 1. Yes 2. No 3. Unknown: Code

37. Crossing Illuminated by Street Lights or Special Lights 1. Yes 2. No 3. Unknown: Code **1**

38. Highway User's Age: **27**

39. Highway User's Gender 1. Male 2. Female: Code **1**

40. Highway User Went Behind or in Front of Train and Struck or was Struck by Second Train 1. Yes 2. No 3. Unknown: Code **2**

41. Highway User 1. Went around the gate 2. Stopped and then proceeded 3. Did not stop 4. Stopped on crossing 5. Other *(specify)* 6. Went around/thru temporary barricade (if yes, see instructions) 7. Went thru the gate 8. Suicide/Attempted suicide: Code **5**

42. Driver Passed Standing Highway Vehicle 1. Yes 2. No 3. Unknown: Code **2**

43. View of Track Obscured by *(primary obstruction)* 1. Permanent Structure 2. Standing railroad equipment 3. Passing Train 4. Topography 5. Vegetation 6. Highway Vehicles 7. Other (specify) 8. Not Obstructed: Code **3**

Casualties to:	Killed	Injured
46. Highway-Rail Crossing Users	**0**	**0**
49. Railroad Employees	**0**	**0**
52. Passengers on Train	**0**	**0**

44. Driver was 1. Killed 2. Injured 3. Uninjured: **3**

45. Was Driver in the Vehicle? 1. Yes 2. No: Code **2**

47. Highway Vehicle Property Damage *(est. dollar damage)*: **$2,000**

48. Total Number of Vehicle Occupants *(including driver)*: **0**

50. Total Number of People on Train *(include passengers and train crew)*: **2**

51. Is a Rail Equipment Accident / Incident Report Being Filed 1. Yes 2. No: Code **2**

53a. Special Study Block — Video Taken? ☐ Yes ☑ No; Video Used? ☐ Yes ☑ No

53b. Special Study Block

54. Narrative Description *(Be specific, and continue on separate sheet if necessary)*

41. UNOCCUPIED VEHICLE

55. Typed Name and Title | 56. Signature | 57. Date

NOTE: This report is part of the reporting railroad's accident report pursuant to the accident reports statute and, as such shall not "be admitted as evidence or used for any purpose in any suit or action for damages growing out of any matter mentioned in said report...." 49 U.S.C. 20903. See 49 C.F.R. 225.7 (b).

FORM FRA F 6180.57 (Rev. 08/10)

* NOTE THAT ALL CASUALTIES MUST BE REPORTED ON FORM FRA F 6180.55A

OMB Approval expires 6/30/2021

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION (FRA)

HIGHWAY-RAIL GRADE CROSSING ACCIDENT/INCIDENT REPORT

OMB Approval No. 2130-0500

1. Name of Reporting Railroad: **Sounder Commuter Rail [SCR]**	1a. Alphabetic Code: **SCR**	1b. Railroad Accident/Incident No.: **140910**
2. Name of Other Railroad or Other Entity Filling for Equipment Involved in Train Accident/Incident	2a. Alphabetic Code	2b. Railroad Accident/Incident No.
3. Name of Railroad or Other Entity Responsible for Track Maintenance *(single entry)*: **BNSF Railway Company [BNSF]**	3a. Alphabetic Code: **BNSF**	3b. Railroad Accident/Incident No.: **XXX**
4. U.S. DOT Grade Crossing ID No.: **085585M**	5. Date of Accident/Incident (month/day/year): **0 9 / 1 0 / 2014**	6. Time of Accident/Incident: **7:50** AM ☐ PM ☑
7. Nearest Railroad Station: **SEATTLE**	8. Subdivision: **SEATTLE**	9. County: **KING**
10. State Abbr.: **WA** Code: **53**		
11. City *(if in a city)*: **SEATTLE**	12. Highway Name or No.: **HORTON ST**	Public ☑ Private ☐

Highway User Involved

13. Type — Code: **K**
C. Truck-trailer; F. Bus; J. Other Motor Vehicle; A. Auto; D. Pick-up truck; G. School Bus; K. Pedestrian; B. Truck; E. Van; H. Motorcycle; M. Other *(specify)*

14. Vehicle Speed *(est. mph at impact)*: **30**

15. Direction *(geographical)* — Code: **1**
1. North 2. South 3. East 4. West

16. Position — Code: **3**
1. Stalled or stuck on crossing; 2. Stopped on Crossing; 3. Moving over crossing; 4. Trapped on crossing by traffic; 5. Blocked on crossing by gates

20a. Was the highway user and/or rail equipment involved in the impact transporting hazardous materials? — Code: **4**
1. Highway User 2. Rail Equipment 3. Both 4. Neither

Rail Equipment Involved

17. Equipment — Code: **2**
1. Train *(units pulling)*; 2. Train *(units pushing)*; 3. Train *(standing)*; 4. Car(s) *(moving)*; 5. Car(s) *(standing)*; 6. Light loco(s) *(moving)*; 7. Light loco(s) *(standing)*; 8. Other *(specify)*
A. Train pulling- RCL; B. Train pushing- RCL; C. Train standing- RCL; D. EMU Locomotive(s); E. DMU Locomotive(s)

18. Position of Car Unit in Train: **1**

19. Circumstance — Code: **1**
1. Rail equipment struck highway user 2. Rail equipment struck by highway user

20b. Was there a hazardous materials release by — Code: **4**
1. Highway User 2. Rail Equipment 3. Both 4. Neither

20c. State here the name and quantity of the hazardous material released, if any

21. Temperature *(specify if minus)*: **75** °F	22. Visibility *(single entry)* — Code: **2** (1. Dawn 2. Day 3. Dusk 4. Dark)	23. Weather *(single entry)* — Code: **1** (1. Clear 2. Cloudy 3. Rain 4. Fog 5. Sleet 6. Snow)

24. Type of Equipment Consist *(single entry)* — Code: **C**
1. Freight Train; 2. Passenger Train-Pulling; 3. Commuter Train-Pulling; 4. Work Train; 5. Single Car; 6. Cut of cars; 7. Yard/Switching; 8. Light loco(s); 9. Maint./inspect. car; A. Spec. MoW Equip.; B. Passenger Train-Pushing; C. Commuter Train-Pushing; D. EMU; E. DMU

25. Track Type Used by Rail Equipment Involved — Code: **1**
1. Main 2. Yard 3. Siding 4. Industry

26. Track Number or Name: **#1 MAIN**

27. FRA Track Class (1-9,X): **4**	28. Number of Locomotive Units: **1**	29. Number of Cars: **7**	30. Consist Speed *(Recorded speed if available)* R. Recorded E. Estimated: **30** mph — Code: **E**	31. Time Table Direction — Code: **1** (1. North 2. South 3. East 4. West)

32. Type of Crossing Warning — Code(s): **01 02 06 07**
1. Gates; 2. Cantilever FLS; 3. Standard FLS; 4. Wig wags; 5. Hwy. traffic signals; 6. Audible; 7. Crossbucks; 8. Stop signs; 9. Watchman; 10. Flagged by crew; 11. Other *(specify)*; 12. None

33. Signaled Crossing Warning (See reverse side for instructions and codes) — Code: **1**

34. Roadway Conditions — Code: **A**
A. Dry; B. Wet; C.Snow/Slush; D.Ice; E. Sand,Mud,Dirt,Oil,Gravel; F.Water (Standing, Moving)

35. Location of Warning — Code: **1**
1. Both Sides; 2. Side of Vehicle Approach; 3. Opposite Side of Vehicle Approach

36. Crossing Warning Interconnected with Highway Signals — Code: **1**
1. Yes 2. No 3. Unknown

37. Crossing Illuminated by Street Lights or Special Lights — Code: **1**
1. Yes 2. No 3. Unknown

38. Highway User's Age: **45**	39. Highway User's Gender (1. Male 2. Female) — Code: **1**	40. Highway User Went Behind or in Front of Train and Struck or was Struck by Second Train (1. Yes 2. No 3. Unknown) — Code: **2**	41. Highway User — Code: **1** (1. Went around the gate; 2. Stopped and then proceeded; 3. Did not stop; 4. Stopped on crossing; 5. Other *(specify)*; 6. Went around/thru temporary barricade (if yes, see instructions); 7. Went thru the gate; 8. Suicide/Attempted suicide)

42. Driver Passed Standing Highway Vehicle — Code: **2**
1. Yes 2. No 3. Unknown

43. View of Track Obscured by *(primary obstruction)* — Code: **8**
1. Permanent Structure; 2. Standing railroad equipment; 3. Passing Train; 4. Topography; 5. Vegetation; 6. Highway Vehicles; 7. Other (specify); 8. Not Obstructed

Casualties to:	Killed	Injured
46. Highway-Rail Crossing Users	0	1
49. Railroad Employees	0	0
52. Passengers on Train	0	0

44. Driver was: 1. Killed 2. Injured 3. Uninjured

45. Was Driver in the Vehicle? — Code: 1. Yes 2. No

47. Highway Vehicle Property Damage *(est. dollar damage)*

48. Total Number of Vehicle Occupants *(including driver)*: **0**

50. Total Number of People on Train *(include passengers and train crew)*: **50**

51. Is a Rail Equipment Accident / Incident Report Being Filed — Code: **2**
1. Yes 2. No

53a. Special Study Block — Video Taken? ☑ Yes ☐ No; Video Used? ☑ Yes ☐ No

53b. Special Study Block

54. Narrative Description *(Be specific, and continue on separate sheet if necessary)*

55. Typed Name and Title	56. Signature	57. Date

NOTE: This report is part of the reporting railroad's accident report pursuant to the accident reports statute and, as such shall not "be admitted as evidence or used for any purpose in any suit or action for damages growing out of any matter mentioned in said report...." 49 U.S.C. 20903. See 49 C.F.R. 225.7 (b).

* NOTE THAT ALL CASUALTIES MUST BE REPORTED ON FORM FRA F 6180.55A

OMB Approval expires 6/30/2021

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION (FRA)

HIGHWAY-RAIL GRADE CROSSING ACCIDENT/INCIDENT REPORT

OMB Approval No. 2130-0500

1.Name of Reporting Railroad: **BNSF Railway Company [BNSF]**	1a. Alphabetic Code: **BNSF**	1b. Railroad Accident/Incident No.: **NW0722202**
2.Name of Other Railroad or Other Entity Filling for Equipment Involved in Train Accident/Incident	2a. Alphabetic Code	2b. Railroad Accident/Incident No.
3. Name of Railroad or Other Entity Responsible for Track Maintenance *(single entry)*: **BNSF Railway Company [BNSF]**	3a. Alphabetic Code: **BNSF**	3b. Railroad Accident/Incident No.: **NW0722202**
4. U.S. DOT Grade Crossing ID No.: **085586U**	5. Date of Accident/Incident (month/day/year): **0 / 7 / 2 / 7 / 2022**	6. Time of Accident/Incident: **11:50** AM ☐ PM ☑
7. Nearest Railroad Station: **SEATTLE PIER 25**	8. Subdivision: **SEATTLE**	9. County: **KING**
10. State Abbr.: **WA** Code: **53**		
11. City *(if in a city)*: **SEATTLE**	12. Highway Name or No.: **WB SPOKANE ST**	Public ☑ Private ☐

Highway User Involved

13. Type: C. Truck-trailer; F. Bus; J. Other Motor Vehicle; A. Auto; D. Pick-up truck; G. School Bus; K. Pedestrian; B. Truck; E. Van; H. Motorcycle; M. Other *(specify)* — Code: **A**

14. Vehicle Speed *(est. mph at impact)*: **0**

15. Direction *(geographical)*: 1. North 2. South 3. East 4. West — Code: **4**

16. Position: 1. Stalled or stuck on crossing; 2. Stopped on Crossing; 3. Moving over crossing; 4. Trapped on crossing by traffic; 5. Blocked on crossing by gates — Code: **1**

20a. Was the highway user and/or rail equipment involved in the impact transporting hazardous materials? 1. Highway User 2. Rail Equipment 3. Both 4. Neither — Code: **2**

Rail Equipment Involved

17. Equipment: 1. Train *(units pulling)*; 2. Train *(units pushing)*; 3. Train *(standing)*; 4. Car(s) *(moving)*; 5. Car(s) *(standing)*; 6. Light loco(s) *(moving)*; 7. Light loco(s) *(standing)*; 8. Other *(specify)*; A. Train pulling- RCL; B. Train pushing- RCL; C. Train standing- RCL; D. EMU Locomotive(s); E. DMU Locomotive(s) — Code: **1**

18. Position of Car Unit in Train: **1**

19. Circumstance: 1. Rail equipment struck highway user 2. Rail equipment struck by highway user — Code: **1**

20b. Was there a hazardous materials release by: 1. Highway User 2. Rail Equipment 3. Both 4. Neither — Code: **4**

20c. State here the name and quantity of the hazardous material released, if any

21. Temperature *(specify if minus)*: **71** °F

22. Visibility *(single entry)*: 1. Dawn 2. Day 3. Dusk 4. Dark — Code: **4**

23. Weather *(single entry)*: 1. Clear 2. Cloudy 3. Rain 4. Fog 5. Sleet 6. Snow — Code: **1**

24. Type of Equipment Consist *(single entry)*: 1. Freight Train; 2. Passenger Train-Pulling; 3. Commuter Train-Pulling; 4. Work Train; 5. Single Car; 6. Cut of cars; 7. Yard/Switching; 8. Light loco(s); 9. Maint./inspect. car; A. Spec. MoW Equip.; B. Passenger Train-Pushing; C. Commuter Train-Pushing; D. EMU; E. DMU — Code: **1**

25. Track Type Used by Rail Equipment Involved: 1. Main 2. Yard 3. Siding 4. Industry — Code: **1**

26. Track Number or Name: **MAIN 2 TRACK**

27. FRA Track Class (1-9,X): **4**

28. Number of Locomotive Units: **3**

29. Number of Cars: **58**

30. Consist Speed *(Recorded speed if available)*: R. Recorded; E. Estimated: **45** mph — Code: **E**

31. Time Table Direction: 1. North 3. East 2. South 4. West — Code: **1**

32. Type of Crossing Warning: 1. Gates; 2. Cantilever FLS; 3. Standard FLS; 4. Wig wags; 5. Hwy. traffic signals; 6. Audible; 7. Crossbucks; 8. Stop signs; 9. Watchman; 10. Flagged by crew; 11. Other *(specify)*; 12. None

Code(s): **01** **02** **03** **06** **07**

33. Signaled Crossing Warning (See reverse side for instructions and codes) — Code: **1**

34. Roadway Conditions: A. Dry; B. Wet; C.Snow/Slush; D.Ice; E. Sand,Mud,Dirt,Oil,Gravel; F.Water (Standing, Moving) — Code: **A**

35. Location of Warning: 1. Both Sides; 2. Side of Vehicle Approach; 3. Opposite Side of Vehicle Approach — Code: **1**

36. Crossing Warning Interconnected with Highway Signals: 1. Yes 2. No 3. Unknown — Code: **2**

37. Crossing Illuminated by Street Lights or Special Lights: 1. Yes 2. No 3. Unknown — Code: **1**

38. Highway User's Age: **26**

39. Highway User's Gender: 1. Male 2. Female — Code: **2**

40. Highway User Went Behind or in Front of Train and Struck or was Struck by Second Train: 1. Yes 2. No 3. Unknown — Code: **2**

41. Highway User: 1. Went around the gate; 2. Stopped and then proceeded; 3. Did not stop; 4. Stopped on crossing; 5. Other *(specify)*; 6. Went around/thru temporary barricade (if yes, see instructions); 7. Went thru the gate; 8. Suicide/Attempted suicide — Code: **5**

42. Driver Passed Standing Highway Vehicle: 1. Yes 2. No 3. Unknown — Code: **2**

43. View of Track Obscured by *(primary obstruction)*: 1. Permanent Structure; 2. Standing railroad equipment; 3. Passing Train; 4. Topography; 5. Vegetation; 6. Highway Vehicles; 7. Other (specify); 8. Not Obstructed — Code: **8**

Casualties to:	Killed	Injured
46. Highway-Rail Crossing Users	**0**	**0**
49. Railroad Employees	**0**	**0**
52. Passengers on Train	**0**	**0**

44. Driver was: 1. Killed 2. Injured 3. Uninjured: **3**

45. Was Driver in the Vehicle? 1. Yes 2. No — Code: **2**

47. Highway Vehicle Property Damage *(est. dollar damage)*: **$2,000**

48. Total Number of Vehicle Occupants *(including driver)*: **0**

50. Total Number of People on Train *(include passengers and train crew)*: **3**

51. Is a Rail Equipment Accident / Incident Report Being Filed? 1. Yes 2. No — Code: **2**

53a. Special Study Block — Video Taken? ☑ Yes ☐ No; Video Used? ☐ Yes ☑ No

53b. Special Study Block

54. Narrative Description *(Be specific, and continue on separate sheet if necessary)*

HLVJEVE126A ON MAIN 2 TRACK STRUCK AN AUTO THAT HAD PRECEDED THE GATES AND GOT STUCK ON THE HGX WHEN THEY DROVE OFF THE CROSSING PLANKS. NO HAZMAT RELEASED.

55. Typed Name and Title	56. Signature	57. Date

* NOTE THAT ALL CASUALTIES MUST BE REPORTED ON FORM FRA F 6180.55A

OMB Approval expires 7/31/2023

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION (FRA)

HIGHWAY-RAIL GRADE CROSSING ACCIDENT/INCIDENT REPORT

OMB Approval No. 2130-0500

1.Name of Reporting Railroad: **BNSF Railway Company [BNSF]**	1a. Alphabetic Code: **BNSF**	1b. Railroad Accident/Incident No.: **NW1116205**
2.Name of Other Railroad or Other Entity Filling for Equipment Involved in Train Accident/Incident	2a. Alphabetic Code	2b. Railroad Accident/Incident No.
3. Name of Railroad or Other Entity Responsible for Track Maintenance *(single entry)*: **BNSF Railway Company [BNSF]**	3a. Alphabetic Code: **BNSF**	3b. Railroad Accident/Incident No.: **NW1116205**
4. U.S. DOT Grade Crossing ID No.: **085586U**	5. Date of Accident/Incident (month/day/year): **1 / 1 / 2 0 / 2016**	6. Time of Accident/Incident: **11:30** AM ☐ PM ☑
7. Nearest Railroad Station: **SEATTLE**	8. Subdivision: **SEATTLE**	9. County: **KING**
10. State: Abbr. **WA** Code **53**		
11. City *(if in a city)*: **SEATTLE**	12. Highway Name or No.: **WB SPOKANE ST**	Public ☑ Private ☐

Highway User Involved

13. Type — C. Truck-trailer, F. Bus, J. Other Motor Vehicle; A. Auto, D. Pick-up truck, G. School Bus, K. Pedestrian; B. Truck, E. Van, H. Motorcycle, M. Other *(specify)*. Code: **A**

14. Vehicle Speed *(est. mph at impact)*: **0**

15. Direction *(geographical)* 1. North 2. South 3. East 4. West. Code: **1**

16. Position — 1. Stalled or stuck on crossing, 2. Stopped on Crossing, 3. Moving over crossing, 4. Trapped on crossing by traffic, 5. Blocked on crossing by gates. Code: **2**

20a. Was the highway user and/or rail equipment involved in the impact transporting hazardous materials? 1. Highway User 2. Rail Equipment 3. Both 4. Neither. Code: **4**

Rail Equipment Involved

17. Equipment — 1. Train *(units pulling)*, 2. Train *(units pushing)*, 3. Train *(standing)*, 4. Car(s) *(moving)*, 5. Car(s) *(standing)*, 6. Light loco(s) *(moving)*, 7. Light loco(s) *(standing)*, 8. Other *(specify)*; A. Train pulling- RCL, B. Train pushing- RCL, C. Train standing- RCL, D. EMU Locomotive(s), E. DMU Locomotive(s). Code: **1**

18. Position of Car Unit in Train: **1**

19. Circumstance — 1. Rail equipment struck highway user 2. Rail equipment struck by highway user. Code: **1**

20b. Was there a hazardous materials release by — 1. Highway User 2. Rail Equipment 3. Both 4. Neither. Code: **4**

20c. State here the name and quantity of the hazardous material released, if any

21. Temperature *(specify if minus)*: **48** °F

22. Visibility *(single entry)* 1. Dawn 2. Day 3. Dusk 4. Dark. Code: **4**

23. Weather *(single entry)* 1. Clear 2. Cloudy 3. Rain 4. Fog 5. Sleet 6. Snow. Code: **2**

24. Type of Equipment Consist *(single entry)* — 1. Freight Train, 2. Passenger Train-Pulling, 3. Commuter Train-Pulling, 4. Work Train, 5. Single Car, 6. Cut of cars, 7. Yard/Switching, 8. Light loco(s), 9. Maint./inspect. car, A. Spec. MoW Equip., B. Passenger Train-Pushing, C. Commuter Train-Pushing, D. EMU, E. DMU. Code: **1**

25. Track Type Used by Rail Equipment Involved — 1. Main 2. Yard 3. Siding 4. Industry. Code: **1**

26. Track Number or Name: **MAIN 1 TRACK**

27. FRA Track Class (1-9,X): **4**

28. Number of Locomotive Units: **3**

29. Number of Cars: **76**

30. Consist Speed *(Recorded speed if available)* R. Recorded E. Estimated: **5** mph. Code: **E**

31. Time Table Direction 1. North 2. South 3. East 4. West. Code: **2**

32. Type of Crossing Warning — 1. Gates, 2. Cantilever FLS, 3. Standard FLS, 4. Wig wags, 5. Hwy. traffic signals, 6. Audible, 7. Crossbucks, 8. Stop signs, 9. Watchman, 10. Flagged by crew, 11. Other *(specify)*, 12. None. Code(s): **01** **03**

33. Signaled Crossing Warning (See reverse side for instructions and codes). Code: **1**

34. Roadway Conditions — A. Dry, B. Wet, C.Snow/Slush, D.Ice, E. Sand,Mud,Dirt,Oil,Gravel, F.Water (Standing, Moving). Code: **A**

35. Location of Warning 1. Both Sides 2. Side of Vehicle Approach 3. Opposite Side of Vehicle Approach. Code: **1**

36. Crossing Warning Interconnected with Highway Signals 1. Yes 2. No 3. Unknown. Code:

37. Crossing Illuminated by Street Lights or Special Lights 1. Yes 2. No 3. Unknown. Code: **1**

38. Highway User's Age

39. Highway User's Gender 1. Male 2. Female. Code: **2**

40. Highway User Went Behind or in Front of Train and Struck or was Struck by Second Train 1. Yes 2. No 3. Unknown. Code: **2**

41. Highway User — 1. Went around the gate, 2. Stopped and then proceeded, 3. Did not stop, 4. Stopped on crossing, 5. Other *(specify)*, 6. Went around/thru temporary barricade (if yes, see instructions), 7. Went thru the gate, 8. Suicide/Attempted suicide. Code: **5**

42. Driver Passed Standing Highway Vehicle 1. Yes 2. No 3. Unknown. Code: **2**

43. View of Track Obscured by *(primary obstruction)* — 1. Permanent Structure, 2. Standing railroad equipment, 3. Passing Train, 4. Topography, 5. Vegetation, 6. Highway Vehicles, 7. Other (specify), 8. Not Obstructed. Code: **8**

Casualties to:	Killed	Injured
46. Highway-Rail Crossing Users	**0**	**0**
49. Railroad Employees	**0**	**0**
52. Passengers on Train	**0**	**0**

44. Driver was 1. Killed 2. Injured 3. Uninjured: **3**

45. Was Driver in the Vehicle? 1. Yes 2. No. Code: **2**

47. Highway Vehicle Property Damage *(est. dollar damage)*: **$2,000**

48. Total Number of Vehicle Occupants *(including driver)*: **0**

50. Total Number of People on Train *(include passengers and train crew)*: **3**

51. Is a Rail Equipment Accident / Incident Report Being Filed 1. Yes 2. No. Code: **2**

53a. Special Study Block — Video Taken? ☑ Yes ☐ No; Video Used? ☐ Yes ☑ No

53b. Special Study Block

54. Narrative Description *(Be specific, and continue on separate sheet if necessary)*
DRIVER AGE UNKNOWN. 41. UNOCCUPIED VEHICLE

55. Typed Name and Title | 56. Signature | 57. Date

NOTE: This report is part of the reporting railroad's accident report pursuant to the accident reports statute and, as such shall not "be admitted as evidence or used for any purpose in any suit or action for damages growing out of any matter mentioned in said report...." 49 U.S.C. 20903. See 49 C.F.R. 225.7 (b).

FORM FRA F 6180.57 (Rev. 08/10)

* NOTE THAT ALL CASUALTIES MUST BE REPORTED ON FORM FRA F 6180.55A

OMB Approval expires 6/30/2021

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION (FRA)

HIGHWAY-RAIL GRADE CROSSING ACCIDENT/INCIDENT REPORT

OMB Approval No. 2130-0500

1.Name of Reporting Railroad: **BNSF Railway Company [BNSF]**	1a. Alphabetic Code: **BNSF**	1b. Railroad Accident/Incident No.: **NW0502203**
2.Name of Other Railroad or Other Entity Filling for Equipment Involved in Train Accident/Incident	2a. Alphabetic Code	2b. Railroad Accident/Incident No.: **XXX**
3. Name of Railroad or Other Entity Responsible for Track Maintenance *(single entry)*: **KITSAP LEAD [KLQ]**	3a. Alphabetic Code: **KLQ**	3b. Railroad Accident/Incident No.: **XXX**
4. U.S. DOT Grade Crossing ID No.: **085586U**	5. Date of Accident/Incident (month/day/year): **0 5 / 1 6 / 2002**	6. Time of Accident/Incident: **6:20** AM ☐ PM ☑
7. Nearest Railroad Station: **SEATTLE**	8. Subdivision	9. County: **KING**
10. State Abbr.: **WA** Code: **53**		
11. City *(if in a city)*: **SEATTLE**	12. Highway Name or No.: **KITSAP LEAD**	Public ☑ Private ☐

Highway User Involved

13. Type: C. Truck-trailer; F. Bus; J. Other Motor Vehicle; A. Auto; D. Pick-up truck; G. School Bus; K. Pedestrian; B. Truck; E. Van; H. Motorcycle; M. Other *(specify)* — Code: **A**

14. Vehicle Speed *(est. mph at impact)*: **2**

15. Direction *(geographical)*: 1. North 2. South 3. East 4. West — Code: **4**

16. Position: 1. Stalled or stuck on crossing; 2. Stopped on Crossing; 3. Moving over crossing; 4. Trapped on crossing by traffic; 5. Blocked on crossing by gates — Code: **3**

20a. Was the highway user and/or rail equipment involved in the impact transporting hazardous materials? 1. Highway User 2. Rail Equipment 3. Both 4. Neither — Code: **4**

Rail Equipment Involved

17. Equipment: 1. Train *(units pulling)*; 2. Train *(units pushing)*; 3. Train *(standing)*; 4. Car(s) *(moving)*; 5. Car(s) *(standing)*; 6. Light loco(s) *(moving)*; 7. Light loco(s) *(standing)*; 8. Other *(specify)*; A. Train pulling- RCL; B. Train pushing- RCL; C. Train standing- RCL; D. EMU Locomotive(s); E. DMU Locomotive(s) — Code: **2**

18. Position of Car Unit in Train: **2**

19. Circumstance: 1. Rail equipment struck highway user 2. Rail equipment struck by highway user — Code: **2**

20b. Was there a hazardous materials release by: 1. Highway User 2. Rail Equipment 3. Both 4. Neither — Code: **4**

20c. State here the name and quantity of the hazardous material released, if any

21. Temperature *(specify if minus)*: **50** °F

22. Visibility *(single entry)*: 1. Dawn 2. Day 3. Dusk 4. Dark — Code: **2**

23. Weather *(single entry)*: 1. Clear 2. Cloudy 3. Rain 4. Fog 5. Sleet 6. Snow — Code: **1**

24. Type of Equipment Consist *(single entry)*: 1. Freight Train; 2. Passenger Train-Pulling; 3. Commuter Train-Pulling; 4. Work Train; 5. Single Car; 6. Cut of cars; 7. Yard/Switching; 8. Light loco(s); 9. Maint./inspect. car; A. Spec. MoW Equip.; B. Passenger Train-Pushing; C. Commuter Train-Pushing; D. EMU; E. DMU — Code: **7**

25. Track Type Used by Rail Equipment Involved: 1. Main 2. Yard 3. Siding 4. Industry — Code: **4**

26. Track Number or Name: **1805**

27. FRA Track Class (1-9,X): **1**

28. Number of Locomotive Units: **1**

29. Number of Cars: **1**

30. Consist Speed *(Recorded speed if available)*: R. Recorded; E. Estimated — **4** mph — Code: **E**

31. Time Table Direction: 1. North 3. East 2. South 4. West — Code: **2**

32. Type of Crossing Warning: 1. Gates; 2. Cantilever FLS; 3. Standard FLS; 4. Wig wags; 5. Hwy. traffic signals; 6. Audible; 7. Crossbucks; 8. Stop signs; 9. Watchman; 10. Flagged by crew; 11. Other *(specify)*; 12. None — Code(s): **05**

33. Signaled Crossing Warning (See reverse side for instructions and codes) — Code: **1**

34. Roadway Conditions: A. Dry; B. Wet; C.Snow/Slush; D.Ice; E. Sand,Mud,Dirt,Oil,Gravel; F.Water (Standing, Moving) — Code:

35. Location of Warning: 1. Both Sides; 2. Side of Vehicle Approach; 3. Opposite Side of Vehicle Approach — Code: **1**

36. Crossing Warning Interconnected with Highway Signals: 1. Yes 2. No 3. Unknown — Code: **1**

37. Crossing Illuminated by Street Lights or Special Lights: 1. Yes 2. No 3. Unknown — Code: **3**

38. Highway User's Age:

39. Highway User's Gender: 1. Male; 2. Female — Code: **1**

40. Highway User Went Behind or in Front of Train and Struck or was Struck by Second Train: 1. Yes 2. No 3. Unknown — Code: **2**

41. Highway User: 1. Went around the gate; 2. Stopped and then proceeded; 3. Did not stop; 4. Stopped on crossing; 5. Other *(specify)*; 6. Went around/thru temporary barricade (if yes, see instructions); 7. Went thru the gate; 8. Suicide/Attempted suicide — Code: **3**

42. Driver Passed Standing Highway Vehicle: 1. Yes 2. No 3. Unknown — Code: **2**

43. View of Track Obscured by *(primary obstruction)*: 1. Permanent Structure; 2. Standing railroad equipment; 3. Passing Train; 4. Topography; 5. Vegetation; 6. Highway Vehicles; 7. Other (specify); 8. Not Obstructed — Code: **8**

Casualties to:	Killed	Injured
46. Highway-Rail Crossing Users	**0**	**0**
49. Railroad Employees	**0**	**0**
52. Passengers on Train	**0**	**0**

44. Driver was: 1. Killed 2. Injured 3. Uninjured — **3**

45. Was Driver in the Vehicle? 1. Yes 2. No — Code: **1**

47. Highway Vehicle Property Damage *(est. dollar damage)*: **$500**

48. Total Number of Vehicle Occupants *(including driver)*: **1**

50. Total Number of People on Train *(include passengers and train crew)*: **3**

51. Is a Rail Equipment Accident / Incident Report Being Filed 1. Yes 2. No — Code: **2**

53a. Special Study Block — Video Taken? ☐ Yes ☐ No; Video Used? ☐ Yes ☐ No

53b. Special Study Block

54. Narrative Description *(Be specific, and continue on separate sheet if necessary)*
AGE OF DRIVER UNKNOWN.

55. Typed Name and Title | 56. Signature | 57. Date

NOTE: This report is part of the reporting railroad's accident report pursuant to the accident reports statute and, as such shall not "be admitted as evidence or used for any purpose in any suit or action for damages growing out of any matter mentioned in said report...." 49 U.S.C. 20903. See 49 C.F.R. 225.7 (b).

FORM FRA F 6180.57 (Rev. 08/10)

* NOTE THAT ALL CASUALTIES MUST BE REPORTED ON FORM FRA F 6180.55A

OMB Approval expires 6/30/2021

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION (FRA)

HIGHWAY-RAIL GRADE CROSSING ACCIDENT/INCIDENT REPORT

OMB Approval No. 2130-0500

1. Name of Reporting Railroad: **BNSF Railway Company [BNSF]**	1a. Alphabetic Code: **BNSF**	1b. Railroad Accident/Incident No.: **PA1097201**
2. Name of Other Railroad or Other Entity Filling for Equipment Involved in Train Accident/Incident	2a. Alphabetic Code	2b. Railroad Accident/Incident No.
3. Name of Railroad or Other Entity Responsible for Track Maintenance *(single entry)*: **Union Pacific Railroad Company [UP]**	3a. Alphabetic Code: **UP**	3b. Railroad Accident/Incident No.: **XXX**
4. U.S. DOT Grade Crossing ID No.: **085586U**	5. Date of Accident/Incident (month/day/year): **1 / 0 / 1 / 3 / 1997**	6. Time of Accident/Incident: **12:40** AM ☐ PM ☑
7. Nearest Railroad Station: **SEATTLE**	8. Subdivision	9. County: **KING**
10. State Abbr.: **WA** Code: **53**		
11. City *(if in a city)*	12. Highway Name or No.: **SPOKANE & 11TH S.W.** Public ☑ Private ☐	

Highway User Involved

13. Type — C. Truck-trailer; F. Bus; J. Other Motor Vehicle; A. Auto; D. Pick-up truck; G. School Bus; K. Pedestrian; B. Truck; E. Van; H. Motorcycle; M. Other *(specify)*. Code: **J**

14. Vehicle Speed *(est. mph at impact)*: **20**

15. Direction *(geographical)* 1. North 2. South 3. East 4. West. Code: **4**

16. Position — 1. Stalled or stuck on crossing; 2. Stopped on Crossing; 3. Moving over crossing; 4. Trapped on crossing by traffic; 5. Blocked on crossing by gates. Code: **3**

20a. Was the highway user and/or rail equipment involved in the impact transporting hazardous materials? 1. Highway User 2. Rail Equipment 3. Both 4. Neither. Code: **4**

Rail Equipment Involved

17. Equipment — 1. Train *(units pulling)*; 2. Train *(units pushing)*; 3. Train *(standing)*; 4. Car(s) *(moving)*; 5. Car(s) *(standing)*; 6. Light loco(s) *(moving)*; 7. Light loco(s) *(standing)*; 8. Other *(specify)*; A. Train pulling- RCL; B. Train pushing- RCL; C. Train standing- RCL; D. EMU Locomotive(s); E. DMU Locomotive(s). Code: **2**

18. Position of Car Unit in Train: **1**

19. Circumstance — 1. Rail equipment struck highway user 2. Rail equipment struck by highway user. Code: **2**

20b. Was there a hazardous materials release by 1. Highway User 2. Rail Equipment 3. Both 4. Neither. Code:

20c. State here the name and quantity of the hazardous material released, if any: **65**

21. Temperature *(specify if minus)*: **65** °F

22. Visibility *(single entry)* 1. Dawn 2. Day 3. Dusk 4. Dark. Code: **2**

23. Weather *(single entry)* 1. Clear 2. Cloudy 3. Rain 4. Fog 5. Sleet 6. Snow. Code: **1**

24. Type of Equipment Consist *(single entry)* — 1. Freight Train; 2. Passenger Train-Pulling; 3. Commuter Train-Pulling; 4. Work Train; 5. Single Car; 6. Cut of cars; 7. Yard/Switching; 8. Light loco(s); 9. Maint./inspect. car; A. Spec. MoW Equip.; B. Passenger Train-Pushing; C. Commuter Train-Pushing; D. EMU; E. DMU. Code: **1**

25. Track Type Used by Rail Equipment Involved 1. Main 2. Yard 3. Siding 4. Industry. Code: **2**

26. Track Number or Name: **1**

27. FRA Track Class (1-9,X): **X**

28. Number of Locomotive Units: **1**

29. Number of Cars: **3**

30. Consist Speed *(Recorded speed if available)* R. Recorded E. Estimated: **2** mph. Code: **E**

31. Time Table Direction 1. North 2. South 3. East 4. West. Code: **1**

32. Type of Crossing Warning — 1. Gates; 2. Cantilever FLS; 3. Standard FLS; 4. Wig wags; 5. Hwy. traffic signals; 6. Audible; 7. Crossbucks; 8. Stop signs; 9. Watchman; 10. Flagged by crew; 11. Other *(specify)*; 12. None. Code(s): **07**

33. Signaled Crossing Warning (See reverse side for instructions and codes). Code:

34. Roadway Conditions — A. Dry; B. Wet; C.Snow/Slush; D.Ice; E. Sand,Mud,Dirt,Oil,Gravel; F.Water (Standing, Moving). Code:

35. Location of Warning 1. Both Sides 2. Side of Vehicle Approach 3. Opposite Side of Vehicle Approach. Code: **1**

36. Crossing Warning Interconnected with Highway Signals 1. Yes 2. No 3. Unknown. Code: **2**

37. Crossing Illuminated by Street Lights or Special Lights 1. Yes 2. No 3. Unknown. Code: **3**

38. Highway User's Age:

39. Highway User's Gender 1. Male 2. Female. Code:

40. Highway User Went Behind or in Front of Train and Struck or was Struck by Second Train 1. Yes 2. No 3. Unknown. Code: **2**

41. Highway User 1. Went around the gate; 2. Stopped and then proceeded; 3. Did not stop; 4. Stopped on crossing; 5. Other *(specify)*; 6. Went around/thru temporary barricade (if yes, see instructions); 7. Went thru the gate; 8. Suicide/Attempted suicide. Code: **3**

42. Driver Passed Standing Highway Vehicle 1. Yes 2. No 3. Unknown. Code: **2**

43. View of Track Obscured by *(primary obstruction)* 1. Permanent Structure; 2. Standing railroad equipment; 3. Passing Train; 4. Topography; 5. Vegetation; 6. Highway Vehicles; 7. Other (specify); 8. Not Obstructed. Code: **8**

Casualties to:	Killed	Injured
46. Highway-Rail Crossing Users	0	0
49. Railroad Employees	0	0
52. Passengers on Train	0	0

44. Driver was 1. Killed 2. Injured 3. Uninjured: **3**

45. Was Driver in the Vehicle? 1. Yes 2. No. Code: **1**

47. Highway Vehicle Property Damage *(est. dollar damage)*: **$500**

48. Total Number of Vehicle Occupants *(including driver)*: **1**

50. Total Number of People on Train *(include passengers and train crew)*: **3**

51. Is a Rail Equipment Accident / Incident Report Being Filed 1. Yes 2. No. Code: **2**

53a. Special Study Block — Video Taken? ☐ Yes ☐ No; Video Used? ☐ Yes ☐ No

53b. Special Study Block

54. Narrative Description *(Be specific, and continue on separate sheet if necessary)*

55. Typed Name and Title | 56. Signature | 57. Date

NOTE: This report is part of the reporting railroad's accident report pursuant to the accident reports statute and, as such shall not "be admitted as evidence or used for any purpose in any suit or action for damages growing out of any matter mentioned in said report...." 49 U.S.C. 20903. See 49 C.F.R. 225.7 (b).

* NOTE THAT ALL CASUALTIES MUST BE REPORTED ON FORM FRA F 6180.55A

OMB Approval expires 6/30/2021

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION (FRA)

HIGHWAY-RAIL GRADE CROSSING ACCIDENT/INCIDENT REPORT

OMB Approval No. 2130-0500

1. Name of Reporting Railroad: **BNSF Railway Company [BNSF]**	1a. Alphabetic Code: **BNSF**	1b. Railroad Accident/Incident No.: **PA0497202**
2. Name of Other Railroad or Other Entity Filling for Equipment Involved in Train Accident/Incident	2a. Alphabetic Code	2b. Railroad Accident/Incident No.
3. Name of Railroad or Other Entity Responsible for Track Maintenance *(single entry)*: **BNSF Railway Company [BNSF]**	3a. Alphabetic Code: **BNSF**	3b. Railroad Accident/Incident No.: **PA0497202**
4. U.S. DOT Grade Crossing ID No.: **085586U**	5. Date of Accident/Incident (month/day/year): **0 4 / 2 9 / 1997**	6. Time of Accident/Incident: **5:00** AM ☑ PM ☐
7. Nearest Railroad Station: **SEATTLE**	8. Subdivision	9. County: **KING**
10. State Abbr.: **WA** Code: **53**		
11. City *(if in a city)*: **SEATTLE**	12. Highway Name or No.: **SPOKANE ST.** Public ☑ Private ☐	

Highway User Involved

13. Type — C. Truck-trailer; F. Bus; J. Other Motor Vehicle; A. Auto; D. Pick-up truck; G. School Bus; K. Pedestrian; B. Truck; E. Van; H. Motorcycle; M. Other *(specify)*. Code: **A**

14. Vehicle Speed *(est. mph at impact)*: **25**

15. Direction *(geographical)* 1. North 2. South 3. East 4. West. Code: **4**

16. Position — 1. Stalled or stuck on crossing; 2. Stopped on Crossing; 3. Moving over crossing; 4. Trapped on crossing by traffic; 5. Blocked on crossing by gates. Code: **3**

20a. Was the highway user and/or rail equipment involved in the impact transporting hazardous materials? 1. Highway User 2. Rail Equipment 3. Both 4. Neither. Code: **4**

Rail Equipment Involved

17. Equipment — 1. Train *(units pulling)*; 2. Train *(units pushing)*; 3. Train *(standing)*; 4. Car(s) *(moving)*; 5. Car(s) *(standing)*; 6. Light loco(s) *(moving)*; 7. Light loco(s) *(standing)*; 8. Other *(specify)*; A. Train pulling- RCL; B. Train pushing- RCL; C. Train standing- RCL; D. EMU Locomotive(s); E. DMU Locomotive(s). Code: **1**

18. Position of Car Unit in Train: **1**

19. Circumstance — 1. Rail equipment struck highway user 2. Rail equipment struck by highway user. Code: **1**

20b. Was there a hazardous materials release by 1. Highway User 2. Rail Equipment 3. Both 4. Neither. Code:

20c. State here the name and quantity of the hazardous material released, if any

21. Temperature *(specify if minus)*: **48** °F

22. Visibility *(single entry)* 1. Dawn 2. Day 3. Dusk 4. Dark. Code: **4**

23. Weather *(single entry)* 1. Clear 2. Cloudy 3. Rain 4. Fog 5. Sleet 6. Snow. Code: **2**

24. Type of Equipment Consist *(single entry)* — 1. Freight Train; 2. Passenger Train-Pulling; 3. Commuter Train-Pulling; 4. Work Train; 5. Single Car; 6. Cut of cars; 7. Yard/Switching; 8. Light loco(s); 9. Maint./inspect. car; A. Spec. MoW Equip.; B. Passenger Train-Pushing; C. Commuter Train-Pushing; D. EMU; E. DMU. Code: **1**

25. Track Type Used by Rail Equipment Involved 1. Main 2. Yard 3. Siding 4. Industry. Code: **1**

26. Track Number or Name: **MAIN**

27. FRA Track Class (1-9,X): **2**

28. Number of Locomotive Units: **1**

29. Number of Cars: **2**

30. Consist Speed *(Recorded speed if available)* R. Recorded E. Estimated: **20** mph. Code: **E**

31. Time Table Direction 1. North 2. South 3. East 4. West. Code: **4**

32. Type of Crossing Warning — 1. Gates; 2. Cantilever FLS; 3. Standard FLS; 4. Wig wags; 5. Hwy. traffic signals; 6. Audible; 7. Crossbucks; 8. Stop signs; 9. Watchman; 10. Flagged by crew; 11. Other *(specify)*; 12. None. Code(s): **01 02 03**

33. Signaled Crossing Warning (See reverse side for instructions and codes). Code: **1**

34. Roadway Conditions — A. Dry; B. Wet; C.Snow/Slush; D.Ice; E. Sand,Mud,Dirt,Oil,Gravel; F.Water (Standing, Moving). Code:

35. Location of Warning 1. Both Sides 2. Side of Vehicle Approach 3. Opposite Side of Vehicle Approach. Code: **1**

36. Crossing Warning Interconnected with Highway Signals 1. Yes 2. No 3. Unknown. Code: **2**

37. Crossing Illuminated by Street Lights or Special Lights 1. Yes 2. No 3. Unknown. Code: **1**

38. Highway User's Age:

39. Highway User's Gender 1. Male 2. Female. Code:

40. Highway User Went Behind or in Front of Train and Struck or was Struck by Second Train 1. Yes 2. No 3. Unknown. Code: **2**

41. Highway User 1. Went around the gate; 2. Stopped and then proceeded; 3. Did not stop; 4. Stopped on crossing; 5. Other *(specify)*; 6. Went around/thru temporary barricade (if yes, see instructions); 7. Went thru the gate; 8. Suicide/Attempted suicide. Code: **3**

42. Driver Passed Standing Highway Vehicle 1. Yes 2. No 3. Unknown. Code: **2**

43. View of Track Obscured by *(primary obstruction)* 1. Permanent Structure; 2. Standing railroad equipment; 3. Passing Train; 4. Topography; 5. Vegetation; 6. Highway Vehicles; 7. Other (specify); 8. Not Obstructed. Code: **8**

Casualties to:	Killed	Injured
46. Highway-Rail Crossing Users	**0**	**1**
49. Railroad Employees	**0**	**0**
52. Passengers on Train	**0**	**0**

44. Driver was 1. Killed 2. Injured 3. Uninjured: **2**

45. Was Driver in the Vehicle? 1. Yes 2. No. Code: **1**

47. Highway Vehicle Property Damage *(est. dollar damage)*: **$1,000**

48. Total Number of Vehicle Occupants *(including driver)*: **1**

50. Total Number of People on Train *(include passengers and train crew)*: **3**

51. Is a Rail Equipment Accident / Incident Report Being Filed 1. Yes 2. No. Code: **2**

53a. Special Study Block — Video Taken? ☐ Yes ☐ No; Video Used? ☐ Yes ☐ No

53b. Special Study Block

54. Narrative Description *(Be specific, and continue on separate sheet if necessary)*

55. Typed Name and Title | 56. Signature | 57. Date

NOTE: This report is part of the reporting railroad's accident report pursuant to the accident reports statute and, as such shall not "be admitted as evidence or used for any purpose in any suit or action for damages growing out of any matter mentioned in said report...." 49 U.S.C. 20903. See 49 C.F.R. 225.7 (b).

* NOTE THAT ALL CASUALTIES MUST BE REPORTED ON FORM FRA F 6180.55A

OMB Approval expires 6/30/2021

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION (FRA)

HIGHWAY-RAIL GRADE CROSSING ACCIDENT/INCIDENT REPORT

OMB Approval No. 2130-0500

1.Name of Reporting Railroad: **Burlington Northern Railroad Company [BN]**	1a. Alphabetic Code: **BN**	1b. Railroad Accident/Incident No.: **PA1962**
2.Name of Other Railroad or Other Entity Filling for Equipment Involved in Train Accident/Incident	2a. Alphabetic Code	2b. Railroad Accident/Incident No.
3. Name of Railroad or Other Entity Responsible for Track Maintenance *(single entry)*: **Burlington Northern Railroad Company [BN]**	3a. Alphabetic Code: **BN**	3b. Railroad Accident/Incident No.: **PA1962**
4. U.S. DOT Grade Crossing ID No.: **085586U**	5. Date of Accident/Incident (month/day/year): **1 2 / 0 7 / 1992**	6. Time of Accident/Incident: **1:40** AM ☑ PM ☐
7. Nearest Railroad Station: **SEATTLE**	8. Subdivision	9. County: **KING**
10. State Abbr.: **WA** Code: **53**		
11. City *(if in a city)*: **SEATTLE**	12. Highway Name or No.: **SPOKANE ST** Public ☑ Private ☐	

Highway User Involved

13. Type — C. Truck-trailer; F. Bus; J. Other Motor Vehicle; A. Auto; D. Pick-up truck; G. School Bus; K. Pedestrian; B. Truck; E. Van; H. Motorcycle; M. Other *(specify)*. Code: **A**

14. Vehicle Speed *(est. mph at impact)*: **20**

15. Direction *(geographical)* 1. North 2. South 3. East 4. West. Code: **3**

16. Position — 1. Stalled or stuck on crossing; 2. Stopped on Crossing; 3. Moving over crossing; 4. Trapped on crossing by traffic; 5. Blocked on crossing by gates. Code: **3**

20a. Was the highway user and/or rail equipment involved in the impact transporting hazardous materials? 1. Highway User 2. Rail Equipment 3. Both 4. Neither. Code: **4**

Rail Equipment Involved

17. Equipment — 1. Train *(units pulling)*; 2. Train *(units pushing)*; 3. Train *(standing)*; 4. Car(s) *(moving)*; 5. Car(s) *(standing)*; 6. Light loco(s) *(moving)*; 7. Light loco(s) *(standing)*; 8. Other *(specify)*; A. Train pulling- RCL; B. Train pushing- RCL; C. Train standing- RCL; D. EMU Locomotive(s); E. DMU Locomotive(s). Code: **6**

18. Position of Car Unit in Train: **1**

19. Circumstance — 1. Rail equipment struck highway user 2. Rail equipment struck by highway user. Code: **2**

20b. Was there a hazardous materials release by 1. Highway User 2. Rail Equipment 3. Both 4. Neither. Code:

20c. State here the name and quantity of the hazardous material released, if any

21. Temperature *(specify if minus)*: **40** °F

22. Visibility *(single entry)* 1. Dawn 2. Day 3. Dusk 4. Dark. Code: **4**

23. Weather *(single entry)* 1. Clear 2. Cloudy 3. Rain 4. Fog 5. Sleet 6. Snow. Code: **2**

24. Type of Equipment Consist *(single entry)* — 1. Freight Train; 2. Passenger Train-Pulling; 3. Commuter Train-Pulling; 4. Work Train; 5. Single Car; 6. Cut of cars; 7. Yard/Switching; 8. Light loco(s); 9. Maint./inspect. car; A. Spec. MoW Equip.; B. Passenger Train-Pushing; C. Commuter Train-Pushing; D. EMU; E. DMU. Code: **8**

25. Track Type Used by Rail Equipment Involved 1. Main 2. Yard 3. Siding 4. Industry. Code: **2**

26. Track Number or Name: **WEST SEA**

27. FRA Track Class (1-9,X): **1**

28. Number of Locomotive Units: **1**

29. Number of Cars: **0**

30. Consist Speed *(Recorded speed if available)* R. Recorded E. Estimated: **4** mph. Code: **E**

31. Time Table Direction 1. North 2. East 3. South 4. West. Code: **2**

32. Type of Crossing Warning — 1. Gates; 2. Cantilever FLS; 3. Standard FLS; 4. Wig wags; 5. Hwy. traffic signals; 6. Audible; 7. Crossbucks; 8. Stop signs; 9. Watchman; 10. Flagged by crew; 11. Other *(specify)*; 12. None. Code(s): **01** **06** **08**

33. Signaled Crossing Warning (See reverse side for instructions and codes). Code: **1**

34. Roadway Conditions — A. Dry; B. Wet; C.Snow/Slush; D.Ice; E. Sand,Mud,Dirt,Oil,Gravel; F.Water (Standing, Moving)

35. Location of Warning 1. Both Sides 2. Side of Vehicle Approach 3. Opposite Side of Vehicle Approach. Code: **1**

36. Crossing Warning Interconnected with Highway Signals 1. Yes 2. No 3. Unknown. Code: **2**

37. Crossing Illuminated by Street Lights or Special Lights 1. Yes 2. No 3. Unknown. Code: **1**

38. Highway User's Age

39. Highway User's Gender 1. Male 2. Female. Code:

40. Highway User Went Behind or in Front of Train and Struck or was Struck by Second Train 1. Yes 2. No 3. Unknown. Code: **2**

41. Highway User 1. Went around the gate; 2. Stopped and then proceeded; 3. Did not stop; 4. Stopped on crossing; 5. Other *(specify)*; 6. Went around/thru temporary barricade (if yes, see instructions); 7. Went thru the gate; 8. Suicide/Attempted suicide. Code: **1**

42. Driver Passed Standing Highway Vehicle 1. Yes 2. No 3. Unknown. Code: **2**

43. View of Track Obscured by *(primary obstruction)* 1. Permanent Structure; 2. Standing railroad equipment; 3. Passing Train; 4. Topography; 5. Vegetation; 6. Highway Vehicles; 7. Other (specify); 8. Not Obstructed. Code: **8**

Casualties to:	Killed	Injured
46. Highway-Rail Crossing Users	**0**	**0**
49. Railroad Employees	**0**	**0**
52. Passengers on Train	**0**	**0**

44. Driver was 1. Killed 2. Injured 3. Uninjured: **3**

45. Was Driver in the Vehicle? 1. Yes 2. No. Code: **1**

47. Highway Vehicle Property Damage *(est. dollar damage)*: **$1,000**

48. Total Number of Vehicle Occupants *(including driver)*: **2**

50. Total Number of People on Train *(include passengers and train crew)*

51. Is a Rail Equipment Accident / Incident Report Being Filed 1. Yes 2. No. Code: **2**

53a. Special Study Block — Video Taken? ☐ Yes ☐ No; Video Used? ☐ Yes ☐ No

53b. Special Study Block

54. Narrative Description *(Be specific, and continue on separate sheet if necessary)*

55. Typed Name and Title | 56. Signature | 57. Date

NOTE: This report is part of the reporting railroad's accident report pursuant to the accident reports statute and, as such shall not "be admitted as evidence or used for any purpose in any suit or action for damages growing out of any matter mentioned in said report...." 49 U.S.C. 20903. See 49 C.F.R. 225.7 (b).

* NOTE THAT ALL CASUALTIES MUST BE REPORTED ON FORM FRA F 6180.55A

OMB Approval expires 6/30/2021

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION (FRA)

HIGHWAY-RAIL GRADE CROSSING ACCIDENT/INCIDENT REPORT

OMB Approval No. 2130-0500

1.Name of Reporting Railroad: **Burlington Northern Railroad Company [BN]**	1a. Alphabetic Code: **BN**	1b. Railroad Accident/Incident No.: **PA2285**
2.Name of Other Railroad or Other Entity Filling for Equipment Involved in Train Accident/Incident	2a. Alphabetic Code	2b. Railroad Accident/Incident No.
3. Name of Railroad or Other Entity Responsible for Track Maintenance *(single entry)*: **Burlington Northern Railroad Company [BN]**	3a. Alphabetic Code: **BN**	3b. Railroad Accident/Incident No.: **PA2285**
4. U.S. DOT Grade Crossing ID No.: **085586U**	5. Date of Accident/Incident (month/day/year): **1 / 1 / 0 5 / 1990**	6. Time of Accident/Incident: **7:20** AM ☑ PM ☐
7. Nearest Railroad Station: **SEATTLE**	8. Subdivision	9. County: **KING**
10. State Abbr.: **WA** Code: **53**		
11. City *(if in a city)*: **SEATTLE**	12. Highway Name or No.: **SPOKANE ST** Public ☑ Private ☐	

Highway User Involved

13. Type — C. Truck-trailer; F. Bus; J. Other Motor Vehicle; A. Auto; D. Pick-up truck; G. School Bus; K. Pedestrian; B. Truck; E. Van; H. Motorcycle; M. Other *(specify)*. Code: **C**

14. Vehicle Speed *(est. mph at impact)*: **2**

15. Direction *(geographical)* 1. North 2. South 3. East 4. West. Code: **4**

16. Position — 1. Stalled or stuck on crossing; 2. Stopped on Crossing; 3. Moving over crossing; 4. Trapped on crossing by traffic; 5. Blocked on crossing by gates. Code: **3**

20a. Was the highway user and/or rail equipment involved in the impact transporting hazardous materials? 1. Highway User 2. Rail Equipment 3. Both 4. Neither. Code: **4**

Rail Equipment Involved

17. Equipment — 1. Train *(units pulling)*; 2. Train *(units pushing)*; 3. Train *(standing)*; 4. Car(s) *(moving)*; 5. Car(s) *(standing)*; 6. Light loco(s) *(moving)*; 7. Light loco(s) *(standing)*; 8. Other *(specify)*; A. Train pulling- RCL; B. Train pushing- RCL; C. Train standing- RCL; D. EMU Locomotive(s); E. DMU Locomotive(s). Code: **1**

18. Position of Car Unit in Train: **1**

19. Circumstance — 1. Rail equipment struck highway user 2. Rail equipment struck by highway user. Code: **1**

20b. Was there a hazardous materials release by 1. Highway User 2. Rail Equipment 3. Both 4. Neither. Code:

20c. State here the name and quantity of the hazardous material released, if any

21. Temperature *(specify if minus)*: **45** °F

22. Visibility *(single entry)* 1. Dawn 2. Day 3. Dusk 4. Dark. Code: **2**

23. Weather *(single entry)* 1. Clear 2. Cloudy 3. Rain 4. Fog 5. Sleet 6. Snow. Code: **2**

24. Type of Equipment Consist *(single entry)* — 1. Freight Train; 2. Passenger Train-Pulling; 3. Commuter Train-Pulling; 4. Work Train; 5. Single Car; 6. Cut of cars; 7. Yard/Switching; 8. Light loco(s); 9. Maint./inspect. car; A. Spec. MoW Equip.; B. Passenger Train-Pushing; C. Commuter Train-Pushing; D. EMU; E. DMU. Code: **1**

25. Track Type Used by Rail Equipment Involved 1. Main 2. Yard 3. Siding 4. Industry. Code: **1**

26. Track Number or Name: **EASTWARD**

27. FRA Track Class (1-9,X): **2**

28. Number of Locomotive Units: **1**

29. Number of Cars: **13**

30. Consist Speed *(Recorded speed if available)* R. Recorded E. Estimated: **20** mph. Code: **E**

31. Time Table Direction 1. North 2. South 3. East 4. West. Code: **2**

32. Type of Crossing Warning — 1. Gates; 2. Cantilever FLS; 3. Standard FLS; 4. Wig wags; 5. Hwy. traffic signals; 6. Audible; 7. Crossbucks; 8. Stop signs; 9. Watchman; 10. Flagged by crew; 11. Other *(specify)*; 12. None. Code(s): **05**

33. Signaled Crossing Warning (See reverse side for instructions and codes). Code: **1**

34. Roadway Conditions — A. Dry; B. Wet; C.Snow/Slush; D.Ice; E. Sand,Mud,Dirt,Oil,Gravel; F.Water (Standing, Moving). Code:

35. Location of Warning 1. Both Sides 2. Side of Vehicle Approach 3. Opposite Side of Vehicle Approach. Code: **1**

36. Crossing Warning Interconnected with Highway Signals 1. Yes 2. No 3. Unknown. Code: **3**

37. Crossing Illuminated by Street Lights or Special Lights 1. Yes 2. No 3. Unknown. Code: **1**

38. Highway User's Age

39. Highway User's Gender 1. Male 2. Female. Code:

40. Highway User Went Behind or in Front of Train and Struck or was Struck by Second Train 1. Yes 2. No 3. Unknown. Code: **2**

41. Highway User 1. Went around the gate; 2. Stopped and then proceeded; 3. Did not stop; 4. Stopped on crossing; 5. Other *(specify)*; 6. Went around/thru temporary barricade (if yes, see instructions); 7. Went thru the gate; 8. Suicide/Attempted suicide. Code: **3**

42. Driver Passed Standing Highway Vehicle 1. Yes 2. No 3. Unknown. Code: **2**

43. View of Track Obscured by *(primary obstruction)* 1. Permanent Structure; 2. Standing railroad equipment; 3. Passing Train; 4. Topography; 5. Vegetation; 6. Highway Vehicles; 7. Other (specify); 8. Not Obstructed. Code: **8**

Casualties to:	Killed	Injured
46. Highway-Rail Crossing Users	**0**	**0**
49. Railroad Employees	**0**	**0**
52. Passengers on Train	**0**	**0**

44. Driver was 1. Killed 2. Injured 3. Uninjured: **3**

45. Was Driver in the Vehicle? 1. Yes 2. No. Code: **1**

47. Highway Vehicle Property Damage *(est. dollar damage)*: **$2,500**

48. Total Number of Vehicle Occupants *(including driver)*: **1**

50. Total Number of People on Train *(include passengers and train crew)*

51. Is a Rail Equipment Accident / Incident Report Being Filed 1. Yes 2. No. Code: **2**

53a. Special Study Block — Video Taken? ☐ Yes ☐ No; Video Used? ☐ Yes ☐ No

53b. Special Study Block

54. Narrative Description *(Be specific, and continue on separate sheet if necessary)*

55. Typed Name and Title | 56. Signature | 57. Date

NOTE: This report is part of the reporting railroad's accident report pursuant to the accident reports statute and, as such shall not "be admitted as evidence or used for any purpose in any suit or action for damages growing out of any matter mentioned in said report...." 49 U.S.C. 20903. See 49 C.F.R. 225.7 (b).

* NOTE THAT ALL CASUALTIES MUST BE REPORTED ON FORM FRA F 6180.55A

OMB Approval expires 6/30/2021

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION (FRA)

HIGHWAY-RAIL GRADE CROSSING ACCIDENT/INCIDENT REPORT

OMB Approval No. 2130-0500

1.Name of Reporting Railroad: **Burlington Northern Railroad Company [BN]**	1a. Alphabetic Code: **BN**	1b. Railroad Accident/Incident No.: **PA672**
2.Name of Other Railroad or Other Entity Filling for Equipment Involved in Train Accident/Incident	2a. Alphabetic Code	2b. Railroad Accident/Incident No.
3. Name of Railroad or Other Entity Responsible for Track Maintenance *(single entry)*: **Burlington Northern Railroad Company [BN]**	3a. Alphabetic Code: **BN**	3b. Railroad Accident/Incident No.: **PA672**
4. U.S. DOT Grade Crossing ID No.: **085586U**	5. Date of Accident/Incident (month/day/year): **0 4 / 2 6 / 1989**	6. Time of Accident/Incident: **6:15** AM ☑ PM ☐
7. Nearest Railroad Station: **SEATTLE**	8. Subdivision	9. County: **KING**
10. State Abbr.: **WA** Code: **53**		
11. City *(if in a city)*: **SEATTLE**	12. Highway Name or No.: **SPOKANE ST.** Public ☑ Private ☐	

Highway User Involved

13. Type — C. Truck-trailer; F. Bus; J. Other Motor Vehicle; A. Auto; D. Pick-up truck; G. School Bus; K. Pedestrian; B. Truck; E. Van; H. Motorcycle; M. Other *(specify)*. Code: **A**

14. Vehicle Speed *(est. mph at impact)*: **0**

15. Direction *(geographical)* 1. North 2. South 3. East 4. West. Code: **4**

16. Position — 1. Stalled or stuck on crossing; 2. Stopped on Crossing; 3. Moving over crossing; 4. Trapped on crossing by traffic; 5. Blocked on crossing by gates. Code: **2**

20a. Was the highway user and/or rail equipment involved in the impact transporting hazardous materials? 1. Highway User 2. Rail Equipment 3. Both 4. Neither. Code: **4**

Rail Equipment Involved

17. Equipment — 1. Train *(units pulling)*; 2. Train *(units pushing)*; 3. Train *(standing)*; 4. Car(s) *(moving)*; 5. Car(s) *(standing)*; 6. Light loco(s) *(moving)*; 7. Light loco(s) *(standing)*; 8. Other *(specify)*; A. Train pulling- RCL; B. Train pushing- RCL; C. Train standing- RCL; D. EMU Locomotive(s); E. DMU Locomotive(s). Code: **6**

18. Position of Car Unit in Train: **1**

19. Circumstance — 1. Rail equipment struck highway user 2. Rail equipment struck by highway user. Code: **1**

20b. Was there a hazardous materials release by 1. Highway User 2. Rail Equipment 3. Both 4. Neither. Code:

20c. State here the name and quantity of the hazardous material released, if any

21. Temperature *(specify if minus)*: **45** °F

22. Visibility *(single entry)* 1. Dawn 2. Day 3. Dusk 4. Dark. Code: **1**

23. Weather *(single entry)* 1. Clear 2. Cloudy 3. Rain 4. Fog 5. Sleet 6. Snow. Code: **2**

24. Type of Equipment Consist *(single entry)* — 1. Freight Train; 2. Passenger Train-Pulling; 3. Commuter Train-Pulling; 4. Work Train; 5. Single Car; 6. Cut of cars; 7. Yard/Switching; 8. Light loco(s); 9. Maint./inspect. car; A. Spec. MoW Equip.; B. Passenger Train-Pushing; C. Commuter Train-Pushing; D. EMU; E. DMU. Code: **8**

25. Track Type Used by Rail Equipment Involved 1. Main 2. Yard 3. Siding 4. Industry. Code: **1**

26. Track Number or Name: **EASTWARD**

27. FRA Track Class (1-9,X): **2**

28. Number of Locomotive Units: **1**

29. Number of Cars: **0**

30. Consist Speed *(Recorded speed if available)* R. Recorded E. Estimated: **18** mph. Code: **E**

31. Time Table Direction 1. North 2. South 3. East 4. West. Code: **1**

32. Type of Crossing Warning — 1. Gates; 2. Cantilever FLS; 3. Standard FLS; 4. Wig wags; 5. Hwy. traffic signals; 6. Audible; 7. Crossbucks; 8. Stop signs; 9. Watchman; 10. Flagged by crew; 11. Other *(specify)*; 12. None. Code(s): **03**

33. Signaled Crossing Warning (See reverse side for instructions and codes). Code: **1**

34. Roadway Conditions — A. Dry; B. Wet; C.Snow/Slush; D.Ice; E. Sand,Mud,Dirt,Oil,Gravel; F.Water (Standing, Moving). Code:

35. Location of Warning 1. Both Sides 2. Side of Vehicle Approach 3. Opposite Side of Vehicle Approach. Code: **1**

36. Crossing Warning Interconnected with Highway Signals 1. Yes 2. No 3. Unknown. Code: **2**

37. Crossing Illuminated by Street Lights or Special Lights 1. Yes 2. No 3. Unknown. Code: **1**

38. Highway User's Age:

39. Highway User's Gender 1. Male 2. Female. Code:

40. Highway User Went Behind or in Front of Train and Struck or was Struck by Second Train 1. Yes 2. No 3. Unknown. Code: **2**

41. Highway User 1. Went around the gate; 2. Stopped and then proceeded; 3. Did not stop; 4. Stopped on crossing; 5. Other *(specify)*; 6. Went around/thru temporary barricade (if yes, see instructions); 7. Went thru the gate; 8. Suicide/Attempted suicide. Code: **5**

42. Driver Passed Standing Highway Vehicle 1. Yes 2. No 3. Unknown. Code: **3**

43. View of Track Obscured by *(primary obstruction)* 1. Permanent Structure; 2. Standing railroad equipment; 3. Passing Train; 4. Topography; 5. Vegetation; 6. Highway Vehicles; 7. Other (specify); 8. Not Obstructed. Code: **1**

Casualties to:	Killed	Injured
46. Highway-Rail Crossing Users	**0**	**0**
49. Railroad Employees	**0**	**0**
52. Passengers on Train	**0**	**0**

44. Driver was 1. Killed 2. Injured 3. Uninjured: **3**

45. Was Driver in the Vehicle? 1. Yes 2. No. Code: **1**

47. Highway Vehicle Property Damage *(est. dollar damage)*: **$500**

48. Total Number of Vehicle Occupants *(including driver)*: **1**

50. Total Number of People on Train *(include passengers and train crew)*:

51. Is a Rail Equipment Accident / Incident Report Being Filed 1. Yes 2. No. Code: **2**

53a. Special Study Block — Video Taken? ☐ Yes ☐ No; Video Used? ☐ Yes ☐ No

53b. Special Study Block

54. Narrative Description *(Be specific, and continue on separate sheet if necessary)*

55. Typed Name and Title | 56. Signature | 57. Date

NOTE: This report is part of the reporting railroad's accident report pursuant to the accident reports statute and, as such shall not "be admitted as evidence or used for any purpose in any suit or action for damages growing out of any matter mentioned in said report...." 49 U.S.C. 20903. See 49 C.F.R. 225.7 (b).

FORM FRA F 6180.57 (Rev. 08/10)

* NOTE THAT ALL CASUALTIES MUST BE REPORTED ON FORM FRA F 6180.55A

OMB Approval expires 6/30/2021

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION (FRA)

HIGHWAY-RAIL GRADE CROSSING ACCIDENT/INCIDENT REPORT

OMB Approval No. 2130-0500

1. Name of Reporting Railroad: **Amtrak (National Railroad Passenger Corporation) [ATK]**	1a. Alphabetic Code: **ATK**	1b. Railroad Accident/Incident No.: **121488A**
2. Name of Other Railroad or Other Entity Filling for Equipment Involved in Train Accident/Incident	2a. Alphabetic Code	2b. Railroad Accident/Incident No.
3. Name of Railroad or Other Entity Responsible for Track Maintenance *(single entry)*: **Burlington Northern Railroad Company [BN]**	3a. Alphabetic Code: **BN**	3b. Railroad Accident/Incident No.: **XXX**
4. U.S. DOT Grade Crossing ID No.: **085586U**	5. Date of Accident/Incident (month/day/year): **1 / 2 / 1 / 4 / 1988**	6. Time of Accident/Incident: **10:45** AM ☑ PM ☐
7. Nearest Railroad Station: **SEATTLE**	8. Subdivision	9. County: **KING**
10. State Abbr.: **WA** Code: **53**		
11. City *(if in a city)*: **SEATTLE**	12. Highway Name or No.: **SPOKANE ST. (1.8)** Public ☑ Private ☐	

Highway User Involved

13. Type — C. Truck-trailer; F. Bus; J. Other Motor Vehicle; A. Auto; D. Pick-up truck; G. School Bus; K. Pedestrian; B. Truck; E. Van; H. Motorcycle; M. Other *(specify)*. Code: **A**

14. Vehicle Speed *(est. mph at impact)*: **10**

15. Direction *(geographical)* 1. North 2. South 3. East 4. West. Code: **4**

16. Position — 1. Stalled or stuck on crossing; 2. Stopped on Crossing; 3. Moving over crossing; 4. Trapped on crossing by traffic; 5. Blocked on crossing by gates. Code: **3**

20a. Was the highway user and/or rail equipment involved in the impact transporting hazardous materials? 1. Highway User 2. Rail Equipment 3. Both 4. Neither. Code: **4**

Rail Equipment Involved

17. Equipment — 1. Train *(units pulling)*; 2. Train *(units pushing)*; 3. Train *(standing)*; 4. Car(s) *(moving)*; 5. Car(s) *(standing)*; 6. Light loco(s) *(moving)*; 7. Light loco(s) *(standing)*; 8. Other *(specify)*; A. Train pulling- RCL; B. Train pushing- RCL; C. Train standing- RCL; D. EMU Locomotive(s); E. DMU Locomotive(s). Code: **1**

18. Position of Car Unit in Train: **1**

19. Circumstance — 1. Rail equipment struck highway user 2. Rail equipment struck by highway user. Code: **1**

20b. Was there a hazardous materials release by — 1. Highway User 2. Rail Equipment 3. Both 4. Neither. Code:

20c. State here the name and quantity of the hazardous material released, if any

21. Temperature *(specify if minus)*: **60** °F	22. Visibility *(single entry)* 1. Dawn 2. Day 3. Dusk 4. Dark. Code: **2**	23. Weather *(single entry)* 1. Clear 2. Cloudy 3. Rain 4. Fog 5. Sleet 6. Snow. Code: **2**	
24. Type of Equipment Consist *(single entry)* — 1. Freight Train; 2. Passenger Train-Pulling; 3. Commuter Train-Pulling; 4. Work Train; 5. Single Car; 6. Cut of cars; 7. Yard/Switching; 8. Light loco(s); 9. Maint./inspect. car; A. Spec. MoW Equip.; B. Passenger Train-Pushing; C. Commuter Train-Pushing; D. EMU; E. DMU. Code: **2**	25. Track Type Used by Rail Equipment Involved 1. Main 2. Yard 3. Siding 4. Industry. Code: **1**	26. Track Number or Name: **SINGLE MAIN TRACK**	
27. FRA Track Class (1-9,X): **2**	28. Number of Locomotive Units: **2**	29. Number of Cars: **12**	
30. Consist Speed *(Recorded speed if available)* R. Recorded E. Estimated: **20** mph. Code: **R**	31. Time Table Direction 1. North 2. South 3. East 4. West. Code: **3**		
32. Type of Crossing Warning — 1. Gates; 2. Cantilever FLS; 3. Standard FLS; 4. Wig wags; 5. Hwy. traffic signals; 6. Audible; 7. Crossbucks; 8. Stop signs; 9. Watchman; 10. Flagged by crew; 11. Other *(specify)*; 12. None. Code(s): **03** **07**	33. Signaled Crossing Warning (See reverse side for instructions and codes). Code: **1**	34. Roadway Conditions — A. Dry; B. Wet; C.Snow/Slush; D.Ice; E. Sand,Mud,Dirt,Oil,Gravel; F.Water (Standing, Moving)	
35. Location of Warning 1. Both Sides 2. Side of Vehicle Approach 3. Opposite Side of Vehicle Approach. Code: **1**	36. Crossing Warning Interconnected with Highway Signals 1. Yes 2. No 3. Unknown. Code: **1**	37. Crossing Illuminated by Street Lights or Special Lights 1. Yes 2. No 3. Unknown. Code: **3**	
38. Highway User's Age	39. Highway User's Gender 1. Male 2. Female. Code:	40. Highway User Went Behind or in Front of Train and Struck or was Struck by Second Train 1. Yes 2. No 3. Unknown. Code: **2**	41. Highway User 1. Went around the gate 2. Stopped and then proceeded 3. Did not stop 4. Stopped on crossing 5. Other *(specify)* 6. Went around/thru temporary barricade (if yes, see instructions) 7. Went thru the gate 8. Suicide/Attempted suicide. Code: **4**
42. Driver Passed Standing Highway Vehicle 1. Yes 2. No 3. Unknown. Code: **2**	43. View of Track Obscured by *(primary obstruction)* 1. Permanent Structure 2. Standing railroad equipment 3. Passing Train 4. Topography 5. Vegetation 6. Highway Vehicles 7. Other (specify) 8. Not Obstructed. Code: **8**		

Casualties to:	Killed	Injured
46. Highway-Rail Crossing Users	**0**	**0**
49. Railroad Employees	**0**	**0**
52. Passengers on Train	**0**	**0**

44. Driver was 1. Killed 2. Injured 3. Uninjured: **3**

45. Was Driver in the Vehicle? 1. Yes 2. No. Code: **1**

47. Highway Vehicle Property Damage *(est. dollar damage)*: **$1,000**

48. Total Number of Vehicle Occupants *(including driver)*: **1**

50. Total Number of People on Train *(include passengers and train crew)*:

51. Is a Rail Equipment Accident / Incident Report Being Filed 1. Yes 2. No. Code: **2**

53a. Special Study Block — Video Taken? ☐ Yes ☐ No; Video Used? ☐ Yes ☐ No

53b. Special Study Block

54. Narrative Description *(Be specific, and continue on separate sheet if necessary)*

55. Typed Name and Title	56. Signature	57. Date

NOTE: This report is part of the reporting railroad's accident report pursuant to the accident reports statute and, as such shall not "be admitted as evidence or used for any purpose in any suit or action for damages growing out of any matter mentioned in said report...." 49 U.S.C. 20903. See 49 C.F.R. 225.7 (b).

FORM FRA F 6180.57 (Rev. 08/10)

* NOTE THAT ALL CASUALTIES MUST BE REPORTED ON FORM FRA F 6180.55A

OMB Approval expires 6/30/2021

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION (FRA)

HIGHWAY-RAIL GRADE CROSSING ACCIDENT/INCIDENT REPORT

OMB Approval No. 2130-0500

1. Name of Reporting Railroad: **Amtrak (National Railroad Passenger Corporation) [ATK]**	1a. Alphabetic Code: **ATK**	1b. Railroad Accident/Incident No.: **71025WSD01**
2. Name of Other Railroad or Other Entity Filling for Equipment Involved in Train Accident/Incident	2a. Alphabetic Code	2b. Railroad Accident/Incident No.
3. Name of Railroad or Other Entity Responsible for Track Maintenance *(single entry)*: **Burlington Northern Railroad Company [BN]**	3a. Alphabetic Code: **BN**	3b. Railroad Accident/Incident No.: **XXX**
4. U.S. DOT Grade Crossing ID No.: **085586U**	5. Date of Accident/Incident (month/day/year): **1 / 0 / 2 / 5 / 1987**	6. Time of Accident/Incident: **7:42** AM ☐ PM ☑
7. Nearest Railroad Station: **SEATTLE**	8. Subdivision	9. County: **KING**
10. State Abbr.: **WA** Code: **53**		
11. City *(if in a city)*: **SEATTLE**	12. Highway Name or No.: **SPOKANE ST** Public ☑ Private ☐	

Highway User Involved

13. Type — C. Truck-trailer; F. Bus; J. Other Motor Vehicle; A. Auto; D. Pick-up truck; G. School Bus; K. Pedestrian; B. Truck; E. Van; H. Motorcycle; M. Other *(specify)*. Code: **A**

14. Vehicle Speed *(est. mph at impact)*: **5**

15. Direction *(geographical)* 1. North 2. South 3. East 4. West. Code: **4**

16. Position — 1. Stalled or stuck on crossing; 2. Stopped on Crossing; 3. Moving over crossing; 4. Trapped on crossing by traffic; 5. Blocked on crossing by gates. Code: **3**

20a. Was the highway user and/or rail equipment involved in the impact transporting hazardous materials? 1. Highway User 2. Rail Equipment 3. Both 4. Neither. Code: **4**

Rail Equipment Involved

17. Equipment — 1. Train *(units pulling)*; 2. Train *(units pushing)*; 3. Train *(standing)*; 4. Car(s) *(moving)*; 5. Car(s) *(standing)*; 6. Light loco(s) *(moving)*; 7. Light loco(s) *(standing)*; 8. Other *(specify)*; A. Train pulling- RCL; B. Train pushing- RCL; C. Train standing- RCL; D. EMU Locomotive(s); E. DMU Locomotive(s). Code: **1**

18. Position of Car Unit in Train: **1**

19. Circumstance — 1. Rail equipment struck highway user 2. Rail equipment struck by highway user. Code: **2**

20b. Was there a hazardous materials release by — 1. Highway User 2. Rail Equipment 3. Both 4. Neither. Code:

20c. State here the name and quantity of the hazardous material released, if any

21. Temperature *(specify if minus)*: **50** °F	22. Visibility *(single entry)* 1. Dawn 2. Day 3. Dusk 4. Dark. Code: **4**	23. Weather *(single entry)* 1. Clear 2. Cloudy 3. Rain 4. Fog 5. Sleet 6. Snow. Code: **1**	
24. Type of Equipment Consist *(single entry)* — 1. Freight Train; 2. Passenger Train-Pulling; 3. Commuter Train-Pulling; 4. Work Train; 5. Single Car; 6. Cut of cars; 7. Yard/Switching; 8. Light loco(s); 9. Maint./inspect. car; A. Spec. MoW Equip.; B. Passenger Train-Pushing; C. Commuter Train-Pushing; D. EMU; E. DMU. Code: **2**	25. Track Type Used by Rail Equipment Involved 1. Main 2. Yard 3. Siding 4. Industry. Code: **2**	26. Track Number or Name: **MAIN**	
27. FRA Track Class (1-9,X): **1**	28. Number of Locomotive Units: **1**	29. Number of Cars: **14**	30. Consist Speed *(Recorded speed if available)* R. Recorded E. Estimated: **6** mph. Code: **E**
31. Time Table Direction 1. North 2. South 3. East 4. West. Code: **3**			

32. Type of Crossing Warning — 1. Gates; 2. Cantilever FLS; 3. Standard FLS; 4. Wig wags; 5. Hwy. traffic signals; 6. Audible; 7. Crossbucks; 8. Stop signs; 9. Watchman; 10. Flagged by crew; 11. Other *(specify)*; 12. None. Code(s): **07**

33. Signaled Crossing Warning (See reverse side for instructions and codes). Code:

34. Roadway Conditions — A. Dry; B. Wet; C.Snow/Slush; D.Ice; E. Sand,Mud,Dirt,Oil,Gravel; F.Water (Standing, Moving). Code:

35. Location of Warning — 1. Both Sides; 2. Side of Vehicle Approach; 3. Opposite Side of Vehicle Approach. Code: **1**

36. Crossing Warning Interconnected with Highway Signals — 1. Yes 2. No 3. Unknown. Code: **2**

37. Crossing Illuminated by Street Lights or Special Lights — 1. Yes 2. No 3. Unknown. Code: **3**

38. Highway User's Age:

39. Highway User's Gender — 1. Male; 2. Female. Code:

40. Highway User Went Behind or in Front of Train and Struck or was Struck by Second Train — 1. Yes 2. No 3. Unknown. Code: **1**

41. Highway User — 1. Went around the gate; 2. Stopped and then proceeded; 3. Did not stop; 4. Stopped on crossing; 5. Other *(specify)*; 6. Went around/thru temporary barricade (if yes, see instructions); 7. Went thru the gate; 8. Suicide/Attempted suicide. Code: **3**

42. Driver Passed Standing Highway Vehicle — 1. Yes 2. No 3. Unknown. Code: **2**

43. View of Track Obscured by *(primary obstruction)* — 1. Permanent Structure; 2. Standing railroad equipment; 3. Passing Train; 4. Topography; 5. Vegetation; 6. Highway Vehicles; 7. Other (specify); 8. Not Obstructed. Code: **3**

Casualties to:	Killed	Injured
46. Highway-Rail Crossing Users	**0**	**1**
49. Railroad Employees	**0**	**0**
52. Passengers on Train	**0**	**0**

44. Driver was — 1. Killed 2. Injured 3. Uninjured: **2**

45. Was Driver in the Vehicle? 1. Yes 2. No. Code: **1**

47. Highway Vehicle Property Damage *(est. dollar damage)*: **$10,000**

48. Total Number of Vehicle Occupants *(including driver)*: **2**

50. Total Number of People on Train *(include passengers and train crew)*:

51. Is a Rail Equipment Accident / Incident Report Being Filed 1. Yes 2. No. Code: **2**

53a. Special Study Block — Video Taken? ☐ Yes ☐ No; Video Used? ☐ Yes ☐ No

53b. Special Study Block

54. Narrative Description *(Be specific, and continue on separate sheet if necessary)*

55. Typed Name and Title | 56. Signature | 57. Date

NOTE: This report is part of the reporting railroad's accident report pursuant to the accident reports statute and, as such shall not "be admitted as evidence or used for any purpose in any suit or action for damages growing out of any matter mentioned in said report...." 49 U.S.C. 20903. See 49 C.F.R. 225.7 (b).

* NOTE THAT ALL CASUALTIES MUST BE REPORTED ON FORM FRA F 6180.55A

OMB Approval expires 6/30/2021

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION (FRA)

HIGHWAY-RAIL GRADE CROSSING ACCIDENT/INCIDENT REPORT

OMB Approval No. 2130-0500

1.Name of Reporting Railroad: **Burlington Northern Railroad Company [BN]**	1a. Alphabetic Code: **BN**	1b. Railroad Accident/Incident No.: **PA184**
2.Name of Other Railroad or Other Entity Filling for Equipment Involved in Train Accident/Incident: **Amtrak (National Railroad Passenger Corporation) [ATK]**	2a. Alphabetic Code: **ATK**	2b. Railroad Accident/Incident No.: **030582A**
3. Name of Railroad or Other Entity Responsible for Track Maintenance *(single entry)*: **Burlington Northern Railroad Company [BN]**	3a. Alphabetic Code: **BN**	3b. Railroad Accident/Incident No.: **PA184**
4. U.S. DOT Grade Crossing ID No.: **085586U**	5. Date of Accident/Incident (month/day/year): **0 3 / 0 5 / 1982**	6. Time of Accident/Incident: **1:09** AM ☐ PM ☑
7. Nearest Railroad Station: **ARGO**	8. Subdivision:	9. County: **KING**
10. State Abbr.: **WA** Code: **53**		
11. City *(if in a city)*: **ARGO**	12. Highway Name or No.: **SPOKANE ST** Public ☑ Private ☐	

Highway User Involved

13. Type: C. Truck-trailer; F. Bus; J. Other Motor Vehicle; A. Auto; D. Pick-up truck; G. School Bus; K. Pedestrian; B. Truck; E. Van; H. Motorcycle; M. Other *(specify)* — Code: **A**

14. Vehicle Speed *(est. mph at impact)*: **0**

15. Direction *(geographical)*: 1. North 2. South 3. East 4. West — Code: **4**

16. Position: 1. Stalled or stuck on crossing; 2. Stopped on Crossing; 3. Moving over crossing; 4. Trapped on crossing by traffic; 5. Blocked on crossing by gates — Code: **2**

20a. Was the highway user and/or rail equipment involved in the impact transporting hazardous materials? 1. Highway User 2. Rail Equipment 3. Both 4. Neither — Code: **4**

Rail Equipment Involved

17. Equipment: 1. Train *(units pulling)*; 2. Train *(units pushing)*; 3. Train *(standing)*; 4. Car(s) *(moving)*; 5. Car(s) *(standing)*; 6. Light loco(s) *(moving)*; 7. Light loco(s) *(standing)*; 8. Other *(specify)*; A. Train pulling- RCL; B. Train pushing- RCL; C. Train standing- RCL; D. EMU Locomotive(s); E. DMU Locomotive(s) — Code: **1**

18. Position of Car Unit in Train: **1**

19. Circumstance: 1. Rail equipment struck highway user 2. Rail equipment struck by highway user — Code: **1**

20b. Was there a hazardous materials release by: 1. Highway User 2. Rail Equipment 3. Both 4. Neither — Code:

20c. State here the name and quantity of the hazardous material released, if any

21. Temperature *(specify if minus)*: **50** °F

22. Visibility *(single entry)*: 1. Dawn 2. Day 3. Dusk 4. Dark — Code: **2**

23. Weather *(single entry)*: 1. Clear 2. Cloudy 3. Rain 4. Fog 5. Sleet 6. Snow — Code: **2**

24. Type of Equipment Consist *(single entry)*: 1. Freight Train; 2. Passenger Train-Pulling; 3. Commuter Train-Pulling; 4. Work Train; 5. Single Car; 6. Cut of cars; 7. Yard/Switching; 8. Light loco(s); 9. Maint./inspect. car; A. Spec. MoW Equip.; B. Passenger Train-Pushing; C. Commuter Train-Pushing; D. EMU; E. DMU — Code: **2**

25. Track Type Used by Rail Equipment Involved: 1. Main 2. Yard 3. Siding 4. Industry — Code: **1**

26. Track Number or Name: **EASTWARD**

27. FRA Track Class (1-9,X): **4**

28. Number of Locomotive Units: **1**

29. Number of Cars: **3**

30. Consist Speed *(Recorded speed if available)*: R. Recorded; E. Estimated — **18** mph — Code: **E**

31. Time Table Direction: 1. North 3. East 2. South 4. West — Code: **3**

32. Type of Crossing Warning: 1. Gates; 2. Cantilever FLS; 3. Standard FLS; 4. Wig wags; 5. Hwy. traffic signals; 6. Audible; 7. Crossbucks; 8. Stop signs; 9. Watchman; 10. Flagged by crew; 11. Other *(specify)*; 12. None — Code(s): **03**

33. Signaled Crossing Warning (See reverse side for instructions and codes) — Code: **1**

34. Roadway Conditions: A. Dry; B. Wet; C.Snow/Slush; D.Ice; E. Sand,Mud,Dirt,Oil,Gravel; F.Water (Standing, Moving) — Code:

35. Location of Warning: 1. Both Sides; 2. Side of Vehicle Approach; 3. Opposite Side of Vehicle Approach — Code: **1**

36. Crossing Warning Interconnected with Highway Signals: 1. Yes 2. No 3. Unknown — Code: **3**

37. Crossing Illuminated by Street Lights or Special Lights: 1. Yes 2. No 3. Unknown — Code: **3**

38. Highway User's Age:

39. Highway User's Gender: 1. Male; 2. Female — Code:

40. Highway User Went Behind or in Front of Train and Struck or was Struck by Second Train: 1. Yes 2. No 3. Unknown — Code: **2**

41. Highway User: 1. Went around the gate; 2. Stopped and then proceeded; 3. Did not stop; 4. Stopped on crossing; 5. Other *(specify)*; 6. Went around/thru temporary barricade (if yes, see instructions); 7. Went thru the gate; 8. Suicide/Attempted suicide — Code: **4**

42. Driver Passed Standing Highway Vehicle: 1. Yes 2. No 3. Unknown — Code: **2**

43. View of Track Obscured by *(primary obstruction)*: 1. Permanent Structure; 2. Standing railroad equipment; 3. Passing Train; 4. Topography; 5. Vegetation; 6. Highway Vehicles; 7. Other (specify); 8. Not Obstructed — Code: **8**

Casualties to:	Killed	Injured
46. Highway-Rail Crossing Users	**0**	**0**
49. Railroad Employees	**0**	**0**
52. Passengers on Train	**0**	**0**

44. Driver was: 1. Killed 2. Injured 3. Uninjured — **3**

45. Was Driver in the Vehicle? 1. Yes 2. No — Code: **1**

47. Highway Vehicle Property Damage *(est. dollar damage)*: **$700**

48. Total Number of Vehicle Occupants *(including driver)*: **1**

50. Total Number of People on Train *(include passengers and train crew)*:

51. Is a Rail Equipment Accident / Incident Report Being Filed? 1. Yes 2. No — Code: **2**

53a. Special Study Block — Video Taken? ☐ Yes ☐ No; Video Used? ☐ Yes ☐ No

53b. Special Study Block

54. Narrative Description *(Be specific, and continue on separate sheet if necessary)*

55. Typed Name and Title | 56. Signature | 57. Date

NOTE: This report is part of the reporting railroad's accident report pursuant to the accident reports statute and, as such shall not "be admitted as evidence or used for any purpose in any suit or action for damages growing out of any matter mentioned in said report...." 49 U.S.C. 20903. See 49 C.F.R. 225.7 (b).

* NOTE THAT ALL CASUALTIES MUST BE REPORTED ON FORM FRA F 6180.55A

OMB Approval expires 6/30/2021

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION (FRA)

HIGHWAY-RAIL GRADE CROSSING ACCIDENT/INCIDENT REPORT

OMB Approval No. 2130-0500

1.Name of Reporting Railroad: **Amtrak (National Railroad Passenger Corporation) [ATK]**	1a. Alphabetic Code: **ATK**	1b. Railroad Accident/Incident No.: **030582A**
2.Name of Other Railroad or Other Entity Filling for Equipment Involved in Train Accident/Incident: **Burlington Northern Railroad Company [BN]**	2a. Alphabetic Code: **BN**	2b. Railroad Accident/Incident No.: **PA184**
3. Name of Railroad or Other Entity Responsible for Track Maintenance *(single entry)*: **Burlington Northern Railroad Company [BN]**	3a. Alphabetic Code: **BN**	3b. Railroad Accident/Incident No.: **PA184**
4. U.S. DOT Grade Crossing ID No.: **085586U**	5. Date of Accident/Incident (month/day/year): **0 3 / 0 5 / 1982**	6. Time of Accident/Incident: **1:09** AM ☐ PM ☑
7. Nearest Railroad Station: **ARGO**	8. Subdivision:	9. County: **KING**
10. State Abbr.: **WA** Code: **53**		
11. City *(if in a city)*: **ARGO**	12. Highway Name or No.: **SPOKANE ST**	Public ☑ Private ☐

Highway User Involved

13. Type — C. Truck-trailer; F. Bus; J. Other Motor Vehicle; A. Auto; D. Pick-up truck; G. School Bus; K. Pedestrian; B. Truck; E. Van; H. Motorcycle; M. Other *(specify)*. Code: **A**

14. Vehicle Speed *(est. mph at impact)*: **0**

15. Direction *(geographical)* 1. North 2. South 3. East 4. West. Code: **4**

16. Position 1. Stalled or stuck on crossing 2. Stopped on Crossing 3. Moving over crossing 4. Trapped on crossing by traffic 5. Blocked on crossing by gates. Code: **2**

20a. Was the highway user and/or rail equipment involved in the impact transporting hazardous materials? 1. Highway User 2. Rail Equipment 3. Both 4. Neither. Code: **4**

Rail Equipment Involved

17. Equipment — 1. Train *(units pulling)*; 2. Train *(units pushing)*; 3. Train *(standing)*; 4. Car(s) *(moving)*; 5. Car(s) *(standing)*; 6. Light loco(s) *(moving)*; 7. Light loco(s) *(standing)*; 8. Other *(specify)*; A. Train pulling- RCL; B. Train pushing- RCL; C. Train standing- RCL; D. EMU Locomotive(s); E. DMU Locomotive(s). Code: **1**

18. Position of Car Unit in Train: **1**

19. Circumstance 1. Rail equipment struck highway user 2. Rail equipment struck by highway user. Code: **1**

20b. Was there a hazardous materials release by 1. Highway User 2. Rail Equipment 3. Both 4. Neither. Code:

20c. State here the name and quantity of the hazardous material released, if any

21. Temperature *(specify if minus)*: **50** °F

22. Visibility *(single entry)* 1. Dawn 2. Day 3. Dusk 4. Dark. Code: **2**

23. Weather *(single entry)* 1. Clear 2. Cloudy 3. Rain 4. Fog 5. Sleet 6. Snow. Code: **2**

24. Type of Equipment Consist *(single entry)* — 1. Freight Train; 2. Passenger Train-Pulling; 3. Commuter Train-Pulling; 4. Work Train; 5. Single Car; 6. Cut of cars; 7. Yard/Switching; 8. Light loco(s); 9. Maint./inspect. car; A. Spec. MoW Equip.; B. Passenger Train-Pushing; C. Commuter Train-Pushing; D. EMU; E. DMU. Code: **2**

25. Track Type Used by Rail Equipment Involved 1. Main 2. Yard 3. Siding 4. Industry. Code: **1**

26. Track Number or Name: **EASTWARD**

27. FRA Track Class (1-9,X): **4**

28. Number of Locomotive Units: **1**

29. Number of Cars: **3**

30. Consist Speed *(Recorded speed if available)* R. Recorded E. Estimated: **18** mph. Code: **E**

31. Time Table Direction 1. North 2. South 3. East 4. West. Code: **3**

32. Type of Crossing Warning — 1. Gates; 2. Cantilever FLS; 3. Standard FLS; 4. Wig wags; 5. Hwy. traffic signals; 6. Audible; 7. Crossbucks; 8. Stop signs; 9. Watchman; 10. Flagged by crew; 11. Other *(specify)*; 12. None. Code(s): **03**

33. Signaled Crossing Warning (See reverse side for instructions and codes). Code: **1**

34. Roadway Conditions — A. Dry; B. Wet; C.Snow/Slush; D.Ice; E. Sand,Mud,Dirt,Oil,Gravel; F.Water (Standing, Moving). Code:

35. Location of Warning 1. Both Sides 2. Side of Vehicle Approach 3. Opposite Side of Vehicle Approach. Code: **1**

36. Crossing Warning Interconnected with Highway Signals 1. Yes 2. No 3. Unknown. Code: **3**

37. Crossing Illuminated by Street Lights or Special Lights 1. Yes 2. No 3. Unknown. Code: **3**

38. Highway User's Age

39. Highway User's Gender 1. Male 2. Female. Code:

40. Highway User Went Behind or in Front of Train and Struck or was Struck by Second Train 1. Yes 2. No 3. Unknown. Code: **2**

41. Highway User 1. Went around the gate 2. Stopped and then proceeded 3. Did not stop 4. Stopped on crossing 5. Other *(specify)* 6. Went around/thru temporary barricade (if yes, see instructions) 7. Went thru the gate 8. Suicide/Attempted suicide. Code: **4**

42. Driver Passed Standing Highway Vehicle 1. Yes 2. No 3. Unknown. Code: **2**

43. View of Track Obscured by *(primary obstruction)* 1. Permanent Structure 2. Standing railroad equipment 3. Passing Train 4. Topography 5. Vegetation 6. Highway Vehicles 7. Other (specify) 8. Not Obstructed. Code: **8**

Casualties to:	Killed	Injured
46. Highway-Rail Crossing Users	**0**	**0**
49. Railroad Employees	**0**	**0**
52. Passengers on Train	**0**	**0**

44. Driver was 1. Killed 2. Injured 3. Uninjured: **3**

45. Was Driver in the Vehicle? 1. Yes 2. No. Code: **1**

47. Highway Vehicle Property Damage *(est. dollar damage)*: **$700**

48. Total Number of Vehicle Occupants *(including driver)*: **0**

50. Total Number of People on Train *(include passengers and train crew)*:

51. Is a Rail Equipment Accident / Incident Report Being Filed 1. Yes 2. No. Code: **2**

53a. Special Study Block — Video Taken? ☐ Yes ☐ No; Video Used? ☐ Yes ☐ No

53b. Special Study Block

54. Narrative Description *(Be specific, and continue on separate sheet if necessary)*

55. Typed Name and Title | 56. Signature | 57. Date

NOTE: This report is part of the reporting railroad's accident report pursuant to the accident reports statute and, as such shall not "be admitted as evidence or used for any purpose in any suit or action for damages growing out of any matter mentioned in said report...." 49 U.S.C. 20903. See 49 C.F.R. 225.7 (b).

* NOTE THAT ALL CASUALTIES MUST BE REPORTED ON FORM FRA F 6180.55A

OMB Approval expires 6/30/2021

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION (FRA)

HIGHWAY-RAIL GRADE CROSSING ACCIDENT/INCIDENT REPORT

OMB Approval No. 2130-0500

1.Name of Reporting Railroad: **Burlington Northern Railroad Company [BN]**	1a. Alphabetic Code: **BN**	1b. Railroad Accident/Incident No.: **PA2021**
2.Name of Other Railroad or Other Entity Filling for Equipment Involved in Train Accident/Incident	2a. Alphabetic Code	2b. Railroad Accident/Incident No.
3. Name of Railroad or Other Entity Responsible for Track Maintenance *(single entry)*: **Burlington Northern Railroad Company [BN]**	3a. Alphabetic Code: **BN**	3b. Railroad Accident/Incident No.: **PA2021**
4. U.S. DOT Grade Crossing ID No.: **085586U**	5. Date of Accident/Incident (month/day/year): **1 2 / 2 5 / 1978**	6. Time of Accident/Incident: **8:20** AM ☐ PM ☑
7. Nearest Railroad Station: **SEATTLE - KING ST ST**	8. Subdivision	9. County: **KING**
10. State Abbr.: **WA** Code: **53**		
11. City *(if in a city)*: **SEATTLE - KING ST ST**	12. Highway Name or No.: **SPOKANE STREET** Public ☑ Private ☐	

Highway User Involved

13. Type — C. Truck-trailer; F. Bus; J. Other Motor Vehicle; A. Auto; D. Pick-up truck; G. School Bus; K. Pedestrian; B. Truck; E. Van; H. Motorcycle; M. Other *(specify)*. Code: **F**

14. Vehicle Speed *(est. mph at impact)*: **5**

15. Direction *(geographical)* 1. North 2. South 3. East 4. West. Code: **4**

16. Position — 1. Stalled or stuck on crossing; 2. Stopped on Crossing; 3. Moving over crossing; 4. Trapped on crossing by traffic; 5. Blocked on crossing by gates. Code: **3**

20a. Was the highway user and/or rail equipment involved in the impact transporting hazardous materials? 1. Highway User 2. Rail Equipment 3. Both 4. Neither. Code: **4**

Rail Equipment Involved

17. Equipment — 1. Train *(units pulling)*; 2. Train *(units pushing)*; 3. Train *(standing)*; 4. Car(s) *(moving)*; 5. Car(s) *(standing)*; 6. Light loco(s) *(moving)*; 7. Light loco(s) *(standing)*; 8. Other *(specify)*; A. Train pulling- RCL; B. Train pushing- RCL; C. Train standing- RCL; D. EMU Locomotive(s); E. DMU Locomotive(s). Code: **1**

18. Position of Car Unit in Train: **1**

19. Circumstance — 1. Rail equipment struck highway user 2. Rail equipment struck by highway user. Code: **1**

20b. Was there a hazardous materials release by — 1. Highway User 2. Rail Equipment 3. Both 4. Neither. Code:

20c. State here the name and quantity of the hazardous material released, if any

21. Temperature *(specify if minus)*: **35** °F

22. Visibility *(single entry)* 1. Dawn 2. Day 3. Dusk 4. Dark. Code: **4**

23. Weather *(single entry)* 1. Clear 2. Cloudy 3. Rain 4. Fog 5. Sleet 6. Snow. Code: **1**

24. Type of Equipment Consist *(single entry)* — 1. Freight Train; 2. Passenger Train-Pulling; 3. Commuter Train-Pulling; 4. Work Train; 5. Single Car; 6. Cut of cars; 7. Yard/Switching; 8. Light loco(s); 9. Maint./inspect. car; A. Spec. MoW Equip.; B. Passenger Train-Pushing; C. Commuter Train-Pushing; D. EMU; E. DMU. Code: **1**

25. Track Type Used by Rail Equipment Involved — 1. Main 2. Yard 3. Siding 4. Industry. Code: **1**

26. Track Number or Name: **WESTWARD**

27. FRA Track Class (1-9,X): **4**

28. Number of Locomotive Units: **5**

29. Number of Cars: **50**

30. Consist Speed *(Recorded speed if available)* R. Recorded E. Estimated: **18** mph. Code: **E**

31. Time Table Direction 1. North 2. South 3. East 4. West. Code: **4**

32. Type of Crossing Warning — 1. Gates; 2. Cantilever FLS; 3. Standard FLS; 4. Wig wags; 5. Hwy. traffic signals; 6. Audible; 7. Crossbucks; 8. Stop signs; 9. Watchman; 10. Flagged by crew; 11. Other *(specify)*; 12. None. Code(s): **03**

33. Signaled Crossing Warning (See reverse side for instructions and codes). Code: **1**

34. Roadway Conditions — A. Dry; B. Wet; C.Snow/Slush; D.Ice; E. Sand,Mud,Dirt,Oil,Gravel; F.Water (Standing, Moving). Code:

35. Location of Warning — 1. Both Sides; 2. Side of Vehicle Approach; 3. Opposite Side of Vehicle Approach. Code: **1**

36. Crossing Warning Interconnected with Highway Signals 1. Yes 2. No 3. Unknown. Code: **2**

37. Crossing Illuminated by Street Lights or Special Lights 1. Yes 2. No 3. Unknown. Code: **1**

38. Highway User's Age:

39. Highway User's Gender 1. Male 2. Female. Code:

40. Highway User Went Behind or in Front of Train and Struck or was Struck by Second Train 1. Yes 2. No 3. Unknown. Code: **1**

41. Highway User — 1. Went around the gate; 2. Stopped and then proceeded; 3. Did not stop; 4. Stopped on crossing; 5. Other *(specify)*; 6. Went around/thru temporary barricade (if yes, see instructions); 7. Went thru the gate; 8. Suicide/Attempted suicide. Code: **2**

42. Driver Passed Standing Highway Vehicle 1. Yes 2. No 3. Unknown. Code: **2**

43. View of Track Obscured by *(primary obstruction)* — 1. Permanent Structure; 2. Standing railroad equipment; 3. Passing Train; 4. Topography; 5. Vegetation; 6. Highway Vehicles; 7. Other (specify); 8. Not Obstructed. Code: **8**

Casualties to:	Killed	Injured
46. Highway-Rail Crossing Users	**0**	**0**
49. Railroad Employees	**0**	**0**
52. Passengers on Train	**0**	**0**

44. Driver was 1. Killed 2. Injured 3. Uninjured: **3**

45. Was Driver in the Vehicle? 1. Yes 2. No. Code: **1**

47. Highway Vehicle Property Damage *(est. dollar damage)*: **$1,500**

48. Total Number of Vehicle Occupants *(including driver)*: **1**

50. Total Number of People on Train *(include passengers and train crew)*:

51. Is a Rail Equipment Accident / Incident Report Being Filed 1. Yes 2. No. Code: **2**

53a. Special Study Block — Video Taken? ☐ Yes ☐ No; Video Used? ☐ Yes ☐ No

53b. Special Study Block

54. Narrative Description *(Be specific, and continue on separate sheet if necessary)*

55. Typed Name and Title | 56. Signature | 57. Date

NOTE: This report is part of the reporting railroad's accident report pursuant to the accident reports statute and, as such shall not "be admitted as evidence or used for any purpose in any suit or action for damages growing out of any matter mentioned in said report...." 49 U.S.C. 20903. See 49 C.F.R. 225.7 (b).

* NOTE THAT ALL CASUALTIES MUST BE REPORTED ON FORM FRA F 6180.55A

OMB Approval expires 6/30/2021

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION (FRA)

HIGHWAY-RAIL GRADE CROSSING ACCIDENT/INCIDENT REPORT

OMB Approval No. 2130-0500

1. Name of Reporting Railroad: **Sounder Commuter Rail [SCR]**	1a. Alphabetic Code: **SCR**	1b. Railroad Accident/Incident No.: **SCR230815**
2. Name of Other Railroad or Other Entity Filling for Equipment Involved in Train Accident/Incident	2a. Alphabetic Code	2b. Railroad Accident/Incident No.
3. Name of Railroad or Other Entity Responsible for Track Maintenance *(single entry)*: **BNSF Railway Company [BNSF]**	3a. Alphabetic Code: **BNSF**	3b. Railroad Accident/Incident No.: **XXX**
4. U.S. DOT Grade Crossing ID No.: **085587B**	5. Date of Accident/Incident (month/day/year): **0 8 / 1 5 / 2023**	6. Time of Accident/Incident: **4:19** AM ☐ PM ☑
7. Nearest Railroad Station: **KING STREET STATION**	8. Subdivision: **SEATTLE**	9. County: **KING**
10. State Abbr.: **WA** Code: **53**		
11. City *(if in a city)*: **SEATTLE**	12. Highway Name or No.: **SPOKANE STREET** Public ☑ Private ☐	

Highway User Involved

13. Type — C. Truck-trailer; F. Bus; J. Other Motor Vehicle; A. Auto; D. Pick-up truck; G. School Bus; K. Pedestrian; B. Truck; E. Van; H. Motorcycle; M. Other *(specify)*. Code: **C**

14. Vehicle Speed *(est. mph at impact)*:

15. Direction *(geographical)* 1. North 2. South 3. East 4. West. Code: **3**

16. Position — 1. Stalled or stuck on crossing; 2. Stopped on Crossing; 3. Moving over crossing; 4. Trapped on crossing by traffic; 5. Blocked on crossing by gates. Code: **4**

20a. Was the highway user and/or rail equipment involved in the impact transporting hazardous materials? 1. Highway User 2. Rail Equipment 3. Both 4. Neither. Code: **4**

Rail Equipment Involved

17. Equipment — 1. Train *(units pulling)*; 2. Train *(units pushing)*; 3. Train *(standing)*; 4. Car(s) *(moving)*; 5. Car(s) *(standing)*; 6. Light loco(s) *(moving)*; 7. Light loco(s) *(standing)*; 8. Other *(specify)*; A. Train pulling- RCL; B. Train pushing- RCL; C. Train standing- RCL; D. EMU Locomotive(s); E. DMU Locomotive(s). Code: **1**

18. Position of Car Unit in Train: **1**

19. Circumstance — 1. Rail equipment struck highway user 2. Rail equipment struck by highway user. Code: **1**

20b. Was there a hazardous materials release by 1. Highway User 2. Rail Equipment 3. Both 4. Neither. Code: **4**

20c. State here the name and quantity of the hazardous material released, if any

21. Temperature *(specify if minus)*: **90** °F	22. Visibility *(single entry)* 1. Dawn 2. Day 3. Dusk 4. Dark. Code: **2**	23. Weather *(single entry)* 1. Clear 2. Cloudy 3. Rain 4. Fog 5. Sleet 6. Snow. Code: **1**	
24. Type of Equipment Consist *(single entry)*: 1. Freight Train; 2. Passenger Train-Pulling; 3. Commuter Train-Pulling; 4. Work Train; 5. Single Car; 6. Cut of cars; 7. Yard/Switching; 8. Light loco(s); 9. Maint./inspect. car; A. Spec. MoW Equip.; B. Passenger Train-Pushing; C. Commuter Train-Pushing; D. EMU; E. DMU. Code: **3**	25. Track Type Used by Rail Equipment Involved 1. Main 2. Yard 3. Siding 4. Industry. Code: **1**	26. Track Number or Name: **MAIN 2**	
27. FRA Track Class (1-9,X): **3**	28. Number of Locomotive Units: **1**	29. Number of Cars: **7**	30. Consist Speed *(Recorded speed if available)* R. Recorded E. Estimated: **27** mph. Code: **R**
31. Time Table Direction 1. North 2. East 3. South 4. West. Code: **2**			

32. Type of Crossing Warning — 1. Gates; 2. Cantilever FLS; 3. Standard FLS; 4. Wig wags; 5. Hwy. traffic signals; 6. Audible; 7. Crossbucks; 8. Stop signs; 9. Watchman; 10. Flagged by crew; 11. Other *(specify)*; 12. None. Code(s): **01 02 06 07**

33. Signaled Crossing Warning (See reverse side for instructions and codes). Code: **1**

34. Roadway Conditions — A. Dry; B. Wet; C.Snow/Slush; D.Ice; E. Sand,Mud,Dirt,Oil,Gravel; F.Water (Standing, Moving). Code: **A**

35. Location of Warning 1. Both Sides 2. Side of Vehicle Approach 3. Opposite Side of Vehicle Approach. Code: **1**	36. Crossing Warning Interconnected with Highway Signals 1. Yes 2. No 3. Unknown. Code: **2**	37. Crossing Illuminated by Street Lights or Special Lights 1. Yes 2. No 3. Unknown. Code: **1**

38. Highway User's Age:	39. Highway User's Gender 1. Male 2. Female. Code: **1**	40. Highway User Went Behind or in Front of Train and Struck or was Struck by Second Train 1. Yes 2. No 3. Unknown. Code: **2**	41. Highway User 1. Went around the gate 2. Stopped and then proceeded 3. Did not stop 4. Stopped on crossing 5. Other *(specify)* 6. Went around/thru temporary barricade (if yes, see instructions) 7. Went thru the gate 8. Suicide/Attempted suicide. Code: **4**

42. Driver Passed Standing Highway Vehicle 1. Yes 2. No 3. Unknown. Code: **2**	43. View of Track Obscured by *(primary obstruction)* 1. Permanent Structure 2. Standing railroad equipment 3. Passing Train 4. Topography 5. Vegetation 6. Highway Vehicles 7. Other (specify) 8. Not Obstructed. Code: **8**			
Casualties to:	**Killed**	**Injured**	44. Driver was 1. Killed 2. Injured 3. Uninjured: **3**	45. Was Driver in the Vehicle? 1. Yes 2. No. Code: **2**
46. Highway-Rail Crossing Users	**0**	**0**	47. Highway Vehicle Property Damage *(est. dollar damage)*: **$500**	48. Total Number of Vehicle Occupants *(including driver)*: **0**
49. Railroad Employees	**0**	**0**	50. Total Number of People on Train *(include passengers and train crew)*: **400**	51. Is a Rail Equipment Accident / Incident Report Being Filed 1. Yes 2. No. Code: **2**
52. Passengers on Train	**0**	**0**		

53a. Special Study Block — Video Taken? ☑ Yes ☐ No; Video Used? ☑ Yes ☐ No

53b. Special Study Block

54. Narrative Description *(Be specific, and continue on separate sheet if necessary)*

SEMI TRAILER STOPPED ON CROSSING DUE TO HEAVY TRAFFIC BACKUP. TRAIN STRUCK UNOCUPIED TRAILER END AND PUSHED IT. MINIMAL DAMAGE.

55. Typed Name and Title	56. Signature	57. Date

NOTE: This report is part of the reporting railroad's accident report pursuant to the accident reports statute and, as such shall not "be admitted as evidence or used for any purpose in any suit or action for damages growing out of any matter mentioned in said report...." 49 U.S.C. 20903. See 49 C.F.R. 225.7 (b).

FORM FRA F 6180.57 (Rev. 08/10)

* NOTE THAT ALL CASUALTIES MUST BE REPORTED ON FORM FRA F 6180.55A

OMB Approval expires 7/31/2023

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION (FRA)

HIGHWAY-RAIL GRADE CROSSING ACCIDENT/INCIDENT REPORT

OMB Approval No. 2130-0500

1.Name of Reporting Railroad: **BNSF Railway Company [BNSF]**	1a. Alphabetic Code: **BNSF**	1b. Railroad Accident/Incident No.: **NW1219205**
2.Name of Other Railroad or Other Entity Filling for Equipment Involved in Train Accident/Incident	2a. Alphabetic Code	2b. Railroad Accident/Incident No.
3. Name of Railroad or Other Entity Responsible for Track Maintenance *(single entry)*: **BNSF Railway Company [BNSF]**	3a. Alphabetic Code: **BNSF**	3b. Railroad Accident/Incident No.: **NW1219205**
4. U.S. DOT Grade Crossing ID No.: **085587B**	5. Date of Accident/Incident (month/day/year): **1 2 / 2 2 / 2019**	6. Time of Accident/Incident: **7:31** AM ☐ PM ☑
7. Nearest Railroad Station: **INTERBAY**	8. Subdivision: **SEATTLE**	9. County: **KING**
10. State Abbr.: **WA** Code: **53**		
11. City *(if in a city)*: **SEATTLE**	12. Highway Name or No.: **EB SPOKANE ST**	Public ☑ Private ☐

Highway User Involved

13. Type: C. Truck-trailer; F. Bus; J. Other Motor Vehicle; A. Auto; D. Pick-up truck; G. School Bus; K. Pedestrian; B. Truck; E. Van; H. Motorcycle; M. Other *(specify)* — Code: **D**

14. Vehicle Speed *(est. mph at impact)*: **0**

15. Direction *(geographical)*: 1. North 2. South 3. East 4. West — Code: **3**

16. Position: 1. Stalled or stuck on crossing; 2. Stopped on Crossing; 3. Moving over crossing; 4. Trapped on crossing by traffic; 5. Blocked on crossing by gates — Code: **2**

20a. Was the highway user and/or rail equipment involved in the impact transporting hazardous materials? 1. Highway User 2. Rail Equipment 3. Both 4. Neither — Code: **2**

Rail Equipment Involved

17. Equipment: 1. Train *(units pulling)*; 2. Train *(units pushing)*; 3. Train *(standing)*; 4. Car(s) *(moving)*; 5. Car(s) *(standing)*; 6. Light loco(s) *(moving)*; 7. Light loco(s) *(standing)*; 8. Other *(specify)*; A. Train pulling- RCL; B. Train pushing- RCL; C. Train standing- RCL; D. EMU Locomotive(s); E. DMU Locomotive(s) — Code: **1**

18. Position of Car Unit in Train: **1**

19. Circumstance: 1. Rail equipment struck highway user 2. Rail equipment struck by highway user — Code: **1**

20b. Was there a hazardous materials release by: 1. Highway User 2. Rail Equipment 3. Both 4. Neither — Code: **4**

20c. State here the name and quantity of the hazardous material released, if any

21. Temperature *(specify if minus)*: **40** °F

22. Visibility *(single entry)*: 1. Dawn 2. Day 3. Dusk 4. Dark — Code: **3**

23. Weather *(single entry)*: 1. Clear 2. Cloudy 3. Rain 4. Fog 5. Sleet 6. Snow — Code: **3**

24. Type of Equipment Consist *(single entry)*: 1. Freight Train; 2. Passenger Train-Pulling; 3. Commuter Train-Pulling; 4. Work Train; 5. Single Car; 6. Cut of cars; 7. Yard/Switching; 8. Light loco(s); 9. Maint./inspect. car; A. Spec. MoW Equip.; B. Passenger Train-Pushing; C. Commuter Train-Pushing; D. EMU; E. DMU — Code: **1**

25. Track Type Used by Rail Equipment Involved: 1. Main 2. Yard 3. Siding 4. Industry — Code: **1**

26. Track Number or Name: **MAIN 3 TRACK**

27. FRA Track Class (1-9,X): **3**

28. Number of Locomotive Units: **2**

29. Number of Cars: **35**

30. Consist Speed *(Recorded speed if available)*: R. Recorded; E. Estimated: **30** mph — Code: **E**

31. Time Table Direction: 1. North 3. East 2. South 4. West — Code: **2**

32. Type of Crossing Warning: 1. Gates; 2. Cantilever FLS; 3. Standard FLS; 4. Wig wags; 5. Hwy. traffic signals; 6. Audible; 7. Crossbucks; 8. Stop signs; 9. Watchman; 10. Flagged by crew; 11. Other *(specify)*; 12. None

Code(s): **01** **02** **03** **05** **06** **07**

33. Signaled Crossing Warning (See reverse side for instructions and codes) — Code: **1**

34. Roadway Conditions: A. Dry; B. Wet; C.Snow/Slush; D.Ice; E. Sand,Mud,Dirt,Oil,Gravel; F.Water (Standing, Moving) — Code: **B**

35. Location of Warning: 1. Both Sides; 2. Side of Vehicle Approach; 3. Opposite Side of Vehicle Approach — Code: **1**

36. Crossing Warning Interconnected with Highway Signals: 1. Yes 2. No 3. Unknown — Code: **1**

37. Crossing Illuminated by Street Lights or Special Lights: 1. Yes 2. No 3. Unknown — Code: **1**

38. Highway User's Age:

39. Highway User's Gender: 1. Male; 2. Female — Code: **1**

40. Highway User Went Behind or in Front of Train and Struck or was Struck by Second Train: 1. Yes 2. No 3. Unknown — Code: **2**

41. Highway User: 1. Went around the gate; 2. Stopped and then proceeded; 3. Did not stop; 4. Stopped on crossing; 5. Other *(specify)*; 6. Went around/thru temporary barricade (if yes, see instructions); 7. Went thru the gate; 8. Suicide/Attempted suicide — Code: **5**

42. Driver Passed Standing Highway Vehicle: 1. Yes 2. No 3. Unknown — Code: **2**

43. View of Track Obscured by *(primary obstruction)*: 1. Permanent Structure; 2. Standing railroad equipment; 3. Passing Train; 4. Topography; 5. Vegetation; 6. Highway Vehicles; 7. Other (specify); 8. Not Obstructed — Code: **8**

Casualties to:	Killed	Injured
46. Highway-Rail Crossing Users	**0**	**0**
49. Railroad Employees	**0**	**0**
52. Passengers on Train	**0**	**0**

44. Driver was: 1. Killed 2. Injured 3. Uninjured: **3**

45. Was Driver in the Vehicle? 1. Yes 2. No — Code: **1**

47. Highway Vehicle Property Damage *(est. dollar damage)*: **$2,000**

48. Total Number of Vehicle Occupants *(including driver)*: **2**

50. Total Number of People on Train *(include passengers and train crew)*: **2**

51. Is a Rail Equipment Accident / Incident Report Being Filed? 1. Yes 2. No — Code: **2**

53a. Special Study Block — Video Taken? ☑ Yes ☐ No; Video Used? ☑ Yes ☐ No

53b. Special Study Block

54. Narrative Description *(Be specific, and continue on separate sheet if necessary)*

USER'S AGE UNKNOWN. H VBTVAW9 22 REORTS STRIKING A VEHICLE ON GRADE CROSSING. 41: PRECEDED GATES

55. Typed Name and Title | 56. Signature | 57. Date

NOTE: This report is part of the reporting railroad's accident report pursuant to the accident reports statute and, as such shall not "be admitted as evidence or used for any purpose in any suit or action for damages growing out of any matter mentioned in said report...." 49 U.S.C. 20903. See 49 C.F.R. 225.7 (b).

* NOTE THAT ALL CASUALTIES MUST BE REPORTED ON FORM FRA F 6180.55A

OMB Approval expires 6/30/2021

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION (FRA)

HIGHWAY-RAIL GRADE CROSSING ACCIDENT/INCIDENT REPORT

OMB Approval No. 2130-0500

1.Name of Reporting Railroad: **BNSF Railway Company [BNSF]**	1a. Alphabetic Code: **BNSF**	1b. Railroad Accident/Incident No.: **NW0918201**
2.Name of Other Railroad or Other Entity Filling for Equipment Involved in Train Accident/Incident	2a. Alphabetic Code	2b. Railroad Accident/Incident No.
3. Name of Railroad or Other Entity Responsible for Track Maintenance *(single entry)*: **BNSF Railway Company [BNSF]**	3a. Alphabetic Code: **BNSF**	3b. Railroad Accident/Incident No.: **NW0918201**
4. U.S. DOT Grade Crossing ID No.: **085587B**	5. Date of Accident/Incident (month/day/year): **09/10/2018**	6. Time of Accident/Incident: **3:07** AM ☐ PM ☑
7. Nearest Railroad Station: **SEATTLE**	8. Subdivision: **SEATTLE**	9. County: **KING**
10. State Abbr.: **WA** Code: **53**		
11. City *(if in a city)*: **SEATTLE**	12. Highway Name or No.: **EB SPOKANE ST**	Public ☑ Private ☐

Highway User Involved

13. Type — Code: **K**
C. Truck-trailer; F. Bus; J. Other Motor Vehicle; A. Auto; D. Pick-up truck; G. School Bus; K. Pedestrian; B. Truck; E. Van; H. Motorcycle; M. Other *(specify)*

14. Vehicle Speed *(est. mph at impact)*:

15. Direction *(geographical)* — Code: **3**
1. North 2. South 3. East 4. West

16. Position — Code: **3**
1. Stalled or stuck on crossing; 2. Stopped on Crossing; 3. Moving over crossing; 4. Trapped on crossing by traffic; 5. Blocked on crossing by gates

20a. Was the highway user and/or rail equipment involved in the impact transporting hazardous materials? — Code: **2**
1. Highway User 2. Rail Equipment 3. Both 4. Neither

Rail Equipment Involved

17. Equipment — Code: **1**
1. Train *(units pulling)*; 2. Train *(units pushing)*; 3. Train *(standing)*; 4. Car(s) *(moving)*; 5. Car(s) *(standing)*; 6. Light loco(s) *(moving)*; 7. Light loco(s) *(standing)*; 8. Other *(specify)*; A. Train pulling- RCL; B. Train pushing- RCL; C. Train standing- RCL; D. EMU Locomotive(s); E. DMU Locomotive(s)

18. Position of Car Unit in Train: **1**

19. Circumstance — Code: **1**
1. Rail equipment struck highway user 2. Rail equipment struck by highway user

20b. Was there a hazardous materials release by — Code: **4**
1. Highway User 2. Rail Equipment 3. Both 4. Neither

20c. State here the name and quantity of the hazardous material released, if any

21. Temperature *(specify if minus)*: **67** °F	22. Visibility *(single entry)* — Code: **2** (1. Dawn 2. Day 3. Dusk 4. Dark)	23. Weather *(single entry)* — Code: **1** (1. Clear 2. Cloudy 3. Rain 4. Fog 5. Sleet 6. Snow)		
24. Type of Equipment Consist *(single entry)*: 1. Freight Train; 2. Passenger Train-Pulling; 3. Commuter Train-Pulling; 4. Work Train; 5. Single Car; 6. Cut of cars; 7. Yard/Switching; 8. Light loco(s); 9. Maint./inspect. car; A. Spec. MoW Equip.; B. Passenger Train-Pushing; C. Commuter Train-Pushing; D. EMU; E. DMU — Code: **1**	25. Track Type Used by Rail Equipment Involved — Code: **1** (1. Main 2. Yard 3. Siding 4. Industry)	26. Track Number or Name: **MAIN 1 TRACK**		
27. FRA Track Class (1-9,X): **2**	28. Number of Locomotive Units: **5**	29. Number of Cars: **68**	30. Consist Speed *(Recorded speed if available)* R. Recorded E. Estimated: **15** mph — Code: **E**	31. Time Table Direction — Code: **2** (1. North 2. South 3. East 4. West)
32. Type of Crossing Warning: 1. Gates; 2. Cantilever FLS; 3. Standard FLS; 4. Wig wags; 5. Hwy. traffic signals; 6. Audible; 7. Crossbucks; 8. Stop signs; 9. Watchman; 10. Flagged by crew; 11. Other *(specify)*; 12. None — Code(s): **01 02 03 06 07**	33. Signaled Crossing Warning (See reverse side for instructions and codes) — Code: **1**	34. Roadway Conditions: A. Dry; B. Wet; C.Snow/Slush; D.Ice; E. Sand,Mud,Dirt,Oil,Gravel; F.Water (Standing, Moving) — Code: **A**		
35. Location of Warning: 1. Both Sides; 2. Side of Vehicle Approach; 3. Opposite Side of Vehicle Approach — Code: **1**	36. Crossing Warning Interconnected with Highway Signals — Code: **2** (1. Yes 2. No 3. Unknown)	37. Crossing Illuminated by Street Lights or Special Lights — Code: **1** (1. Yes 2. No 3. Unknown)		
38.Highway User's Age: **63**	39.Highway User's Gender: 1. Male 2. Female — Code: **1**	40. Highway User Went Behind or in Front of Train and Struck or was Struck by Second Train — Code: **2** (1. Yes 2. No 3. Unknown)	41. Highway User: 1. Went around the gate; 2. Stopped and then proceeded; 3. Did not stop; 4. Stopped on crossing; 5. Other *(specify)*; 6. Went around/thru temporary barricade (if yes, see instructions); 7. Went thru the gate; 8. Suicide/Attempted suicide — Code: **1**	
42. Driver Passed Standing Highway Vehicle — Code: (1. Yes 2. No 3. Unknown)	43. View of Track Obscured by *(primary obstruction)*: 1. Permanent Structure; 2. Standing railroad equipment; 3. Passing Train; 4. Topography; 5. Vegetation; 6. Highway Vehicles; 7. Other (specify); 8. Not Obstructed — Code: **8**			

Casualties to:	Killed	Injured
46. Highway-Rail Crossing Users	**1**	**0**
49. Railroad Employees	**0**	**0**
52. Passengers on Train	**0**	**0**

44. Driver was (1. Killed 2. Injured 3. Uninjured)	45. Was Driver in the Vehicle? (1. Yes 2. No) — Code:
47. Highway Vehicle Property Damage *(est. dollar damage)*	48. Total Number of Vehicle Occupants *(including driver)*: **0**
50. Total Number of People on Train *(include passengers and train crew)*: **2**	51. Is a Rail Equipment Accident / Incident Report Being Filed (1. Yes 2. No) — Code: **2**

53a. Special Study Block — Video Taken? ☐ Yes ☑ No; Video Used? ☐ Yes ☑ No

53b. Special Study Block

54. Narrative Description *(Be specific, and continue on separate sheet if necessary)*

Z-CHCSSE7-08 WAS MOVING ON MAIN 1 WHEN IT WAS REPORTED THAT THE TRESPASSER TRIED CRAWLING THROUGH THE TRAIN AS IT WENT BY, AND WAS STRUCK BY TRAIN AT THE 19TH POSITION. CREW WAS NOT DRUG/ALCOHOL TESTED.

55. Typed Name and Title	56. Signature	57. Date

NOTE: This report is part of the reporting railroad's accident report pursuant to the accident reports statute and, as such shall not "be admitted as evidence or used for any purpose in any suit or action for damages growing out of any matter mentioned in said report...." 49 U.S.C. 20903. See 49 C.F.R. 225.7 (b).

* NOTE THAT ALL CASUALTIES MUST BE REPORTED ON FORM FRA F 6180.55A

OMB Approval expires 6/30/2021

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION (FRA)

HIGHWAY-RAIL GRADE CROSSING ACCIDENT/INCIDENT REPORT

OMB Approval No. 2130-0500

1.Name of Reporting Railroad: **Amtrak (National Railroad Passenger Corporation) [ATK]**	1a. Alphabetic Code: **ATK**	1b. Railroad Accident/Incident No.: **152140**
2.Name of Other Railroad or Other Entity Filling for Equipment Involved in Train Accident/Incident	2a. Alphabetic Code	2b. Railroad Accident/Incident No.
3. Name of Railroad or Other Entity Responsible for Track Maintenance *(single entry)*: **BNSF Railway Company [BNSF]**	3a. Alphabetic Code: **BNSF**	3b. Railroad Accident/Incident No.: **NW0218203**
4. U.S. DOT Grade Crossing ID No.: **085587B**	5. Date of Accident/Incident (month/day/year): **02/27/2018**	6. Time of Accident/Incident: **9:38** AM ☐ PM ☑
7. Nearest Railroad Station: **SEATTLE**	8. Subdivision: **SEATTLE**	9. County: **KING**
10. State Abbr.: **WA** Code: **53**		
11. City *(if in a city)*: **SEATTLE**	12. Highway Name or No.: **EB SPOKANE ST**	Public ☑ Private ☐

Highway User Involved

13. Type: C. Truck-trailer; F. Bus; J. Other Motor Vehicle; A. Auto; D. Pick-up truck; G. School Bus; K. Pedestrian; B. Truck; E. Van; H. Motorcycle; M. Other *(specify)* — Code: **J**

14. Vehicle Speed *(est. mph at impact)*: **0**

15. Direction *(geographical)* 1. North 2. South 3. East 4. West — Code: **4**

16. Position: 1. Stalled or stuck on crossing; 2. Stopped on Crossing; 3. Moving over crossing; 4. Trapped on crossing by traffic; 5. Blocked on crossing by gates — Code: **2**

20a. Was the highway user and/or rail equipment involved in the impact transporting hazardous materials? 1. Highway User 2. Rail Equipment 3. Both 4. Neither — Code: **4**

Rail Equipment Involved

17. Equipment: 1. Train *(units pulling)*; 2. Train *(units pushing)*; 3. Train *(standing)*; 4. Car(s) *(moving)*; 5. Car(s) *(standing)*; 6. Light loco(s) *(moving)*; 7. Light loco(s) *(standing)*; 8. Other *(specify)*; A. Train pulling- RCL; B. Train pushing- RCL; C. Train standing- RCL; D. EMU Locomotive(s); E. DMU Locomotive(s) — Code: **2**

18. Position of Car Unit in Train: **1**

19. Circumstance: 1. Rail equipment struck highway user 2. Rail equipment struck by highway user — Code: **1**

20b. Was there a hazardous materials release by 1. Highway User 2. Rail Equipment 3. Both 4. Neither — Code: **4**

20c. State here the name and quantity of the hazardous material released, if any

21. Temperature *(specify if minus)*: **40** °F

22. Visibility *(single entry)*: 1. Dawn 2. Day 3. Dusk 4. Dark — Code: **4**

23. Weather *(single entry)*: 1. Clear 2. Cloudy 3. Rain 4. Fog 5. Sleet 6. Snow — Code: **3**

24. Type of Equipment Consist *(single entry)*: 1. Freight Train; 2. Passenger Train-Pulling; 3. Commuter Train-Pulling; 4. Work Train; 5. Single Car; 6. Cut of cars; 7. Yard/Switching; 8. Light loco(s); 9. Maint./inspect. car; A. Spec. MoW Equip.; B. Passenger Train-Pushing; C. Commuter Train-Pushing; D. EMU; E. DMU — Code: **B**

25. Track Type Used by Rail Equipment Involved: 1. Main 2. Yard 3. Siding 4. Industry — Code: **1**

26. Track Number or Name: **MAIN # 2**

27. FRA Track Class (1-9,X): **3**

28. Number of Locomotive Units: **1**

29. Number of Cars: **13**

30. Consist Speed *(Recorded speed if available)*: R. Recorded; E. Estimated — **32** mph — Code: **R**

31. Time Table Direction: 1. North 2. East 3. South 4. West — Code: **2**

32. Type of Crossing Warning: 1. Gates; 2. Cantilever FLS; 3. Standard FLS; 4. Wig wags; 5. Hwy. traffic signals; 6. Audible; 7. Crossbucks; 8. Stop signs; 9. Watchman; 10. Flagged by crew; 11. Other *(specify)*; 12. None

Code(s): **01** **02** **03** **06** **07**

33. Signaled Crossing Warning (See reverse side for instructions and codes) — Code: **1**

34. Roadway Conditions: A. Dry; B. Wet; C.Snow/Slush; D.Ice; E. Sand,Mud,Dirt,Oil,Gravel; F.Water (Standing, Moving) — Code: **B**

35. Location of Warning: 1. Both Sides; 2. Side of Vehicle Approach; 3. Opposite Side of Vehicle Approach — Code: **1**

36. Crossing Warning Interconnected with Highway Signals: 1. Yes 2. No 3. Unknown — Code: **1**

37. Crossing Illuminated by Street Lights or Special Lights: 1. Yes 2. No 3. Unknown — Code: **2**

38. Highway User's Age

39. Highway User's Gender: 1. Male; 2. Female — Code:

40. Highway User Went Behind or in Front of Train and Struck or was Struck by Second Train: 1. Yes 2. No 3. Unknown — Code: **2**

41. Highway User: 1. Went around the gate; 2. Stopped and then proceeded; 3. Did not stop; 4. Stopped on crossing; 5. Other *(specify)*; 6. Went around/thru temporary barricade (if yes, see instructions); 7. Went thru the gate; 8. Suicide/Attempted suicide — Code: **4**

42. Driver Passed Standing Highway Vehicle: 1. Yes 2. No 3. Unknown — Code: **2**

43. View of Track Obscured by *(primary obstruction)*: 1. Permanent Structure; 2. Standing railroad equipment; 3. Passing Train; 4. Topography; 5. Vegetation; 6. Highway Vehicles; 7. Other (specify); 8. Not Obstructed — Code: **8**

Casualties to:	Killed	Injured
46. Highway-Rail Crossing Users	**0**	**0**
49. Railroad Employees	**0**	**0**
52. Passengers on Train	**0**	**0**

44. Driver was 1. Killed 2. Injured 3. Uninjured: **3**

45. Was Driver in the Vehicle? 1. Yes 2. No — Code: **2**

47. Highway Vehicle Property Damage *(est. dollar damage)*: **$7,500**

48. Total Number of Vehicle Occupants *(including driver)*: **0**

50. Total Number of People on Train *(include passengers and train crew)*: **79**

51. Is a Rail Equipment Accident / Incident Report Being Filed 1. Yes 2. No — Code: **2**

53a. Special Study Block — Video Taken? ☑ Yes ☐ No; Video Used? ☐ Yes ☑ No

53b. Special Study Block

54. Narrative Description *(Be specific, and continue on separate sheet if necessary)*

TRAIN 507 OPERATING WITH CAB CAR 7911 IN THE LEAD, 12 CARS AND LOCOMOTIVE E/465 STRUCK AN UNOCCUPIED VEHICLE AT MP 1.86, EB SPOKANE ST CROSSING.

55. Typed Name and Title | 56. Signature | 57. Date

NOTE: This report is part of the reporting railroad's accident report pursuant to the accident reports statute and, as such shall not "be admitted as evidence or used for any purpose in any suit or action for damages growing out of any matter mentioned in said report...." 49 U.S.C. 20903. See 49 C.F.R. 225.7 (b).

* NOTE THAT ALL CASUALTIES MUST BE REPORTED ON FORM FRA F 6180.55A

OMB Approval expires 6/30/2021

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION (FRA)

HIGHWAY-RAIL GRADE CROSSING ACCIDENT/INCIDENT REPORT

OMB Approval No. 2130-0500

1.Name of Reporting Railroad: **Amtrak (National Railroad Passenger Corporation) [ATK]**	1a. Alphabetic Code: **ATK**	1b. Railroad Accident/Incident No.: **101190**
2.Name of Other Railroad or Other Entity Filling for Equipment Involved in Train Accident/Incident	2a. Alphabetic Code	2b. Railroad Accident/Incident No.
3. Name of Railroad or Other Entity Responsible for Track Maintenance *(single entry)*: **BNSF Railway Company [BNSF]**	3a. Alphabetic Code: **BNSF**	3b. Railroad Accident/Incident No.: **XXX**
4. U.S. DOT Grade Crossing ID No.: **085587B**	5. Date of Accident/Incident (month/day/year): **0 6 / 2 5 / 2006**	6. Time of Accident/Incident: **4:05** AM ☐ PM ☑
7. Nearest Railroad Station: **SEATTLE**	8. Subdivision	9. County: **KING**
10. State Abbr.: **WA** Code: **53**		
11. City *(if in a city)*: **SEATTLE**	12. Highway Name or No.: **CITY ST; SPOKANE ST** Public ☑ Private ☐	

Highway User Involved

13. Type — C. Truck-trailer; F. Bus; J. Other Motor Vehicle; A. Auto; D. Pick-up truck; G. School Bus; K. Pedestrian; B. Truck; E. Van; H. Motorcycle; M. Other *(specify)*. Code: **K**

14. Vehicle Speed *(est. mph at impact)*:

15. Direction *(geographical)* 1. North 2. South 3. East 4. West. Code: **3**

16. Position — 1. Stalled or stuck on crossing; 2. Stopped on Crossing; 3. Moving over crossing; 4. Trapped on crossing by traffic; 5. Blocked on crossing by gates. Code: **3**

20a. Was the highway user and/or rail equipment involved in the impact transporting hazardous materials? 1. Highway User 2. Rail Equipment 3. Both 4. Neither. Code: **4**

Rail Equipment Involved

17. Equipment — 1. Train *(units pulling)*; 2. Train *(units pushing)*; 3. Train *(standing)*; 4. Car(s) *(moving)*; 5. Car(s) *(standing)*; 6. Light loco(s) *(moving)*; 7. Light loco(s) *(standing)*; 8. Other *(specify)*; A. Train pulling- RCL; B. Train pushing- RCL; C. Train standing- RCL; D. EMU Locomotive(s); E. DMU Locomotive(s). Code: **2**

18. Position of Car Unit in Train: **1**

19. Circumstance — 1. Rail equipment struck highway user 2. Rail equipment struck by highway user. Code: **1**

20b. Was there a hazardous materials release by 1. Highway User 2. Rail Equipment 3. Both 4. Neither. Code: **4**

20c. State here the name and quantity of the hazardous material released, if any

21. Temperature *(specify if minus)*: **75** °F	22. Visibility *(single entry)* 1. Dawn 2. Day 3. Dusk 4. Dark. Code: **2**	23. Weather *(single entry)* 1. Clear 2. Cloudy 3. Rain 4. Fog 5. Sleet 6. Snow. Code: **1**	
24. Type of Equipment Consist *(single entry)*: 1. Freight Train; 2. Passenger Train-Pulling; 3. Commuter Train-Pulling; 4. Work Train; 5. Single Car; 6. Cut of cars; 7. Yard/Switching; 8. Light loco(s); 9. Maint./inspect. car; A. Spec. MoW Equip.; B. Passenger Train-Pushing; C. Commuter Train-Pushing; D. EMU; E. DMU. Code: **2**	25. Track Type Used by Rail Equipment Involved 1. Main 2. Yard 3. Siding 4. Industry. Code: **1**	26. Track Number or Name: **MAIN NO.#2**	
27. FRA Track Class (1-9,X): **3**	28. Number of Locomotive Units: **2**	29. Number of Cars: **13**	30. Consist Speed *(Recorded speed if available)* R. Recorded E. Estimated: **19** mph. Code: **R**
31. Time Table Direction 1. North 2. South 3. East 4. West. Code: **1**			

32. Type of Crossing Warning — 1. Gates; 2. Cantilever FLS; 3. Standard FLS; 4. Wig wags; 5. Hwy. traffic signals; 6. Audible; 7. Crossbucks; 8. Stop signs; 9. Watchman; 10. Flagged by crew; 11. Other *(specify)*; 12. None. Code(s): **01 02 05 06**

33. Signaled Crossing Warning (See reverse side for instructions and codes). Code: **2**

34. Roadway Conditions — A. Dry; B. Wet; C.Snow/Slush; D.Ice; E. Sand,Mud,Dirt,Oil,Gravel; F.Water (Standing, Moving). Code:

35. Location of Warning 1. Both Sides 2. Side of Vehicle Approach 3. Opposite Side of Vehicle Approach. Code: **1**	36. Crossing Warning Interconnected with Highway Signals 1. Yes 2. No 3. Unknown. Code: **2**	37. Crossing Illuminated by Street Lights or Special Lights 1. Yes 2. No 3. Unknown. Code: **3**

38.Highway User's Age: **40**	39.Highway User's Gender 1. Male 2. Female. Code: **2**	40. Highway User Went Behind or in Front of Train and Struck or was Struck by Second Train 1. Yes 2. No 3. Unknown. Code:	41. Highway User 1. Went around the gate 2. Stopped and then proceeded 3. Did not stop 4. Stopped on crossing 5. Other *(specify)* 6. Went around/thru temporary barricade (if yes, see instructions) 7. Went thru the gate 8. Suicide/Attempted suicide. Code:

42. Driver Passed Standing Highway Vehicle 1. Yes 2. No 3. Unknown. Code:	43. View of Track Obscured by *(primary obstruction)* 1. Permanent Structure 2. Standing railroad equipment 3. Passing Train 4. Topography 5. Vegetation 6. Highway Vehicles 7. Other (specify) 8. Not Obstructed. Code: **3**		

Casualties to:	Killed	Injured	
			44. Driver was 1. Killed 2. Injured 3. Uninjured:
46. Highway-Rail Crossing Users	**0**	**1**	47. Highway Vehicle Property Damage *(est. dollar damage)*: **$0**
49. Railroad Employees	**0**	**0**	50. Total Number of People on Train *(include passengers and train crew)*: **225**
52. Passengers on Train	**0**	**0**	

45. Was Driver in the Vehicle? 1. Yes 2. No. Code:		
48. Total Number of Vehicle Occupants *(including driver)*: **1**		
51. Is a Rail Equipment Accident / Incident Report Being Filed 1. Yes 2. No. Code: **2**		

53a. Special Study Block — Video Taken? ☐ Yes ☐ No; Video Used? ☐ Yes ☐ No

53b. Special Study Block

54. Narrative Description *(Be specific, and continue on separate sheet if necessary)*
TRAIN NO.#506 STRUCK A PEDESTRIAN AT MP1.86, SPOKANE ST CROSSING.

55. Typed Name and Title	56. Signature	57. Date

NOTE: This report is part of the reporting railroad's accident report pursuant to the accident reports statute and, as such shall not "be admitted as evidence or used for any purpose in any suit or action for damages growing out of any matter mentioned in said report...." 49 U.S.C. 20903. See 49 C.F.R. 225.7 (b).

FORM FRA F 6180.57 (Rev. 08/10) * NOTE THAT ALL CASUALTIES MUST BE REPORTED ON FORM FRA F 6180.55A

OMB Approval expires 6/30/2021

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION (FRA)

HIGHWAY-RAIL GRADE CROSSING ACCIDENT/INCIDENT REPORT

OMB Approval No. 2130-0500

1.Name of Reporting Railroad: **Burlington Northern Railroad Company [BN]**	1a. Alphabetic Code: **BN**	1b. Railroad Accident/Incident No.: **PA2330**
2.Name of Other Railroad or Other Entity Filling for Equipment Involved in Train Accident/Incident	2a. Alphabetic Code	2b. Railroad Accident/Incident No.
3. Name of Railroad or Other Entity Responsible for Track Maintenance *(single entry)*: **Burlington Northern Railroad Company [BN]**	3a. Alphabetic Code: **BN**	3b. Railroad Accident/Incident No.: **PA2330**
4. U.S. DOT Grade Crossing ID No.: **085587B**	5. Date of Accident/Incident (month/day/year): **1 2 / 0 2 / 1989**	6. Time of Accident/Incident: **4:59** AM ☐ PM ☑
7. Nearest Railroad Station: **SEATTLE**	8. Subdivision	9. County: **KING**
10. State Abbr.: **WA** Code: **53**		
11. City *(if in a city)*: **SEATTLE**	12. Highway Name or No.: **SO SPOKANE ST**	Public ☑ Private ☐

Highway User Involved

13. Type — Code: **A**
C. Truck-trailer; F. Bus; J. Other Motor Vehicle; A. Auto; D. Pick-up truck; G. School Bus; K. Pedestrian; B. Truck; E. Van; H. Motorcycle; M. Other *(specify)*

14. Vehicle Speed *(est. mph at impact)*: **5**

15. Direction *(geographical)* — Code: **2**
1. North 2. South 3. East 4. West

16. Position — Code: **3**
1. Stalled or stuck on crossing; 2. Stopped on Crossing; 3. Moving over crossing; 4. Trapped on crossing by traffic; 5. Blocked on crossing by gates

20a. Was the highway user and/or rail equipment involved in the impact transporting hazardous materials? — Code: **4**
1. Highway User 2. Rail Equipment 3. Both 4. Neither

Rail Equipment Involved

17. Equipment — Code: **6**
1. Train *(units pulling)*; 2. Train *(units pushing)*; 3. Train *(standing)*; 4. Car(s) *(moving)*; 5. Car(s) *(standing)*; 6. Light loco(s) *(moving)*; 7. Light loco(s) *(standing)*; 8. Other *(specify)*; A. Train pulling- RCL; B. Train pushing- RCL; C. Train standing- RCL; D. EMU Locomotive(s); E. DMU Locomotive(s)

18. Position of Car Unit in Train: **1**

19. Circumstance — Code: **1**
1. Rail equipment struck highway user 2. Rail equipment struck by highway user

20b. Was there a hazardous materials release by — Code:
1. Highway User 2. Rail Equipment 3. Both 4. Neither

20c. State here the name and quantity of the hazardous material released, if any

21. Temperature *(specify if minus)*: **58** °F

22. Visibility *(single entry)* — Code: **2**
1. Dawn 2. Day 3. Dusk 4. Dark

23. Weather *(single entry)* — Code: **3**
1. Clear 2. Cloudy 3. Rain 4. Fog 5. Sleet 6. Snow

24. Type of Equipment Consist *(single entry)* — Code: **8**
1. Freight Train; 2. Passenger Train-Pulling; 3. Commuter Train-Pulling; 4. Work Train; 5. Single Car; 6. Cut of cars; 7. Yard/Switching; 8. Light loco(s); 9. Maint./inspect. car; A. Spec. MoW Equip.; B. Passenger Train-Pushing; C. Commuter Train-Pushing; D. EMU; E. DMU

25. Track Type Used by Rail Equipment Involved — Code: **1**
1. Main 2. Yard 3. Siding 4. Industry

26. Track Number or Name: **EASTWARD**

27. FRA Track Class (1-9,X): **1**

28. Number of Locomotive Units: **2**

29. Number of Cars: **0**

30. Consist Speed *(Recorded speed if available)* — Code: **E**
R. Recorded; E. Estimated: **5** mph

31. Time Table Direction — Code: **1**
1. North 3. East 2. South 4. West

32. Type of Crossing Warning — Code(s): **03**
1. Gates; 2. Cantilever FLS; 3. Standard FLS; 4. Wig wags; 5. Hwy. traffic signals; 6. Audible; 7. Crossbucks; 8. Stop signs; 9. Watchman; 10. Flagged by crew; 11. Other *(specify)*; 12. None

33. Signaled Crossing Warning *(See reverse side for instructions and codes)* — Code: **1**

34. Roadway Conditions — Code:
A. Dry; B. Wet; C.Snow/Slush; D.Ice; E. Sand,Mud,Dirt,Oil,Gravel; F.Water (Standing, Moving)

35. Location of Warning — Code: **2**
1. Both Sides; 2. Side of Vehicle Approach; 3. Opposite Side of Vehicle Approach

36. Crossing Warning Interconnected with Highway Signals — Code: **3**
1. Yes 2. No 3. Unknown

37. Crossing Illuminated by Street Lights or Special Lights — Code: **1**
1. Yes 2. No 3. Unknown

38. Highway User's Age

39. Highway User's Gender — Code:
1. Male; 2. Female

40. Highway User Went Behind or in Front of Train and Struck or was Struck by Second Train — Code: **2**
1. Yes 2. No 3. Unknown

41. Highway User — Code: **3**
1. Went around the gate; 2. Stopped and then proceeded; 3. Did not stop; 4. Stopped on crossing; 5. Other *(specify)*; 6. Went around/thru temporary barricade (if yes, see instructions); 7. Went thru the gate; 8. Suicide/Attempted suicide

42. Driver Passed Standing Highway Vehicle — Code: **1**
1. Yes 2. No 3. Unknown

43. View of Track Obscured by *(primary obstruction)* — Code: **3**
1. Permanent Structure; 2. Standing railroad equipment; 3. Passing Train; 4. Topography; 5. Vegetation; 6. Highway Vehicles; 7. Other (specify); 8. Not Obstructed

Casualties to:	Killed	Injured
46. Highway-Rail Crossing Users	0	0
49. Railroad Employees	0	0
52. Passengers on Train	0	0

44. Driver was: **3**
1. Killed 2. Injured 3. Uninjured

45. Was Driver in the Vehicle? — Code: **1**
1. Yes 2. No

47. Highway Vehicle Property Damage *(est. dollar damage)*: **$1,000**

48. Total Number of Vehicle Occupants *(including driver)*: **2**

50. Total Number of People on Train *(include passengers and train crew)*

51. Is a Rail Equipment Accident / Incident Report Being Filed — Code: **2**
1. Yes 2. No

53a. Special Study Block — Video Taken? ☐ Yes ☐ No; Video Used? ☐ Yes ☐ No

53b. Special Study Block

54. Narrative Description *(Be specific, and continue on separate sheet if necessary)*

55. Typed Name and Title | 56. Signature | 57. Date

NOTE: This report is part of the reporting railroad's accident report pursuant to the accident reports statute and, as such shall not "be admitted as evidence or used for any purpose in any suit or action for damages growing out of any matter mentioned in said report...." 49 U.S.C. 20903. See 49 C.F.R. 225.7 (b).

FORM FRA F 6180.57 (Rev. 08/10)

* NOTE THAT ALL CASUALTIES MUST BE REPORTED ON FORM FRA F 6180.55A

OMB Approval expires 6/30/2021

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION (FRA)

HIGHWAY-RAIL GRADE CROSSING ACCIDENT/INCIDENT REPORT

OMB Approval No. 2130-0500

1.Name of Reporting Railroad: **Burlington Northern Railroad Company [BN]**	1a. Alphabetic Code: **BN**	1b. Railroad Accident/Incident No.: **PA55**
2.Name of Other Railroad or Other Entity Filling for Equipment Involved in Train Accident/Incident	2a. Alphabetic Code	2b. Railroad Accident/Incident No.
3. Name of Railroad or Other Entity Responsible for Track Maintenance *(single entry)*: **Burlington Northern Railroad Company [BN]**	3a. Alphabetic Code: **BN**	3b. Railroad Accident/Incident No.: **PA55**
4. U.S. DOT Grade Crossing ID No.: **085587B**	5. Date of Accident/Incident (month/day/year): **0 1 / 2 3 / 1987**	6. Time of Accident/Incident: **7:00** AM ☑ PM ☐
7. Nearest Railroad Station: **SEATTLE KING ST**	8. Subdivision	9. County: **KING**
10. State Abbr.: **WA** Code: **53**		
11. City *(if in a city)*: **SEATTLE**	12. Highway Name or No.: **SPOKANE ST** Public ☑ Private ☐	

Highway User Involved

13. Type — C. Truck-trailer; F. Bus; J. Other Motor Vehicle; A. Auto; D. Pick-up truck; G. School Bus; K. Pedestrian; B. Truck; E. Van; H. Motorcycle; M. Other *(specify)*. Code: **K**

14. Vehicle Speed *(est. mph at impact)*:

15. Direction *(geographical)* 1. North 2. South 3. East 4. West. Code: **4**

16. Position — 1. Stalled or stuck on crossing; 2. Stopped on Crossing; 3. Moving over crossing; 4. Trapped on crossing by traffic; 5. Blocked on crossing by gates. Code: **3**

20a. Was the highway user and/or rail equipment involved in the impact transporting hazardous materials? 1. Highway User 2. Rail Equipment 3. Both 4. Neither. Code: **4**

Rail Equipment Involved

17. Equipment — 1. Train *(units pulling)*; 2. Train *(units pushing)*; 3. Train *(standing)*; 4. Car(s) *(moving)*; 5. Car(s) *(standing)*; 6. Light loco(s) *(moving)*; 7. Light loco(s) *(standing)*; 8. Other *(specify)*; A. Train pulling- RCL; B. Train pushing- RCL; C. Train standing- RCL; D. EMU Locomotive(s); E. DMU Locomotive(s). Code: **1**

18. Position of Car Unit in Train: **1**

19. Circumstance — 1. Rail equipment struck highway user 2. Rail equipment struck by highway user. Code: **1**

20b. Was there a hazardous materials release by 1. Highway User 2. Rail Equipment 3. Both 4. Neither. Code:

20c. State here the name and quantity of the hazardous material released, if any

21. Temperature *(specify if minus)*: **45** °F	22. Visibility *(single entry)* 1. Dawn 2. Day 3. Dusk 4. Dark. Code: **1**	23. Weather *(single entry)* 1. Clear 2. Cloudy 3. Rain 4. Fog 5. Sleet 6. Snow. Code: **3**	
24. Type of Equipment Consist *(single entry)*: 1. Freight Train; 2. Passenger Train-Pulling; 3. Commuter Train-Pulling; 4. Work Train; 5. Single Car; 6. Cut of cars; 7. Yard/Switching; 8. Light loco(s); 9. Maint./inspect. car; A. Spec. MoW Equip.; B. Passenger Train-Pushing; C. Commuter Train-Pushing; D. EMU; E. DMU. Code: **1**	25. Track Type Used by Rail Equipment Involved 1. Main 2. Yard 3. Siding 4. Industry. Code: **1**	26. Track Number or Name: **EASTWARD**	
27. FRA Track Class (1-9,X): **2**	28. Number of Locomotive Units: **2**	29. Number of Cars: **41**	30. Consist Speed *(Recorded speed if available)* R. Recorded E. Estimated: **18** mph. Code: **E**
31. Time Table Direction 1. North 2. East 2. South 4. West. Code: **1**			

32. Type of Crossing Warning — 1. Gates; 2. Cantilever FLS; 3. Standard FLS; 4. Wig wags; 5. Hwy. traffic signals; 6. Audible; 7. Crossbucks; 8. Stop signs; 9. Watchman; 10. Flagged by crew; 11. Other *(specify)*; 12. None. Code(s): **03**

33. Signaled Crossing Warning (See reverse side for instructions and codes). Code: **1**

34. Roadway Conditions — A. Dry; B. Wet; C.Snow/Slush; D.Ice; E. Sand,Mud,Dirt,Oil,Gravel; F.Water (Standing, Moving). Code:

35. Location of Warning — 1. Both Sides; 2. Side of Vehicle Approach; 3. Opposite Side of Vehicle Approach. Code: **2**

36. Crossing Warning Interconnected with Highway Signals 1. Yes 2. No 3. Unknown. Code: **3**

37. Crossing Illuminated by Street Lights or Special Lights 1. Yes 2. No 3. Unknown. Code: **1**

38. Highway User's Age:

39. Highway User's Gender 1. Male 2. Female. Code:

40. Highway User Went Behind or in Front of Train and Struck or was Struck by Second Train 1. Yes 2. No 3. Unknown. Code: **3**

41. Highway User — 1. Went around the gate; 2. Stopped and then proceeded; 3. Did not stop; 4. Stopped on crossing; 5. Other *(specify)*; 6. Went around/thru temporary barricade (if yes, see instructions); 7. Went thru the gate; 8. Suicide/Attempted suicide. Code: **3**

42. Driver Passed Standing Highway Vehicle 1. Yes 2. No 3. Unknown. Code: **3**

43. View of Track Obscured by *(primary obstruction)* — 1. Permanent Structure; 2. Standing railroad equipment; 3. Passing Train; 4. Topography; 5. Vegetation; 6. Highway Vehicles; 7. Other (specify); 8. Not Obstructed. Code: **8**

Casualties to:	Killed	Injured
46. Highway-Rail Crossing Users	**0**	**1**
49. Railroad Employees	**0**	**0**
52. Passengers on Train	**0**	**0**

44. Driver was 1. Killed 2. Injured 3. Uninjured

45. Was Driver in the Vehicle? 1. Yes 2. No

47. Highway Vehicle Property Damage *(est. dollar damage)*: **$0**

48. Total Number of Vehicle Occupants *(including driver)*: **0**

50. Total Number of People on Train *(include passengers and train crew)*

51. Is a Rail Equipment Accident / Incident Report Being Filed 1. Yes 2. No. Code: **2**

53a. Special Study Block — Video Taken? ☐ Yes ☐ No; Video Used? ☐ Yes ☐ No

53b. Special Study Block

54. Narrative Description *(Be specific, and continue on separate sheet if necessary)*

55. Typed Name and Title | 56. Signature | 57. Date

NOTE: This report is part of the reporting railroad's accident report pursuant to the accident reports statute and, as such shall not "be admitted as evidence or used for any purpose in any suit or action for damages growing out of any matter mentioned in said report...." 49 U.S.C. 20903. See 49 C.F.R. 225.7 (b).

FORM FRA F 6180.57 (Rev. 08/10)

* NOTE THAT ALL CASUALTIES MUST BE REPORTED ON FORM FRA F 6180.55A

OMB Approval expires 6/30/2021

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION (FRA)

HIGHWAY-RAIL GRADE CROSSING ACCIDENT/INCIDENT REPORT

OMB Approval No. 2130-0500

1.Name of Reporting Railroad: **Burlington Northern Railroad Company [BN]**	1a. Alphabetic Code: **BN**	1b. Railroad Accident/Incident No.: **PA162**
2.Name of Other Railroad or Other Entity Filling for Equipment Involved in Train Accident/Incident	2a. Alphabetic Code	2b. Railroad Accident/Incident No.
3. Name of Railroad or Other Entity Responsible for Track Maintenance *(single entry)*: **Burlington Northern Railroad Company [BN]**	3a. Alphabetic Code: **BN**	3b. Railroad Accident/Incident No.: **PA162**
4. U.S. DOT Grade Crossing ID No.: **085587B**	5. Date of Accident/Incident (month/day/year): **0 2 / 2 5 / 1985**	6. Time of Accident/Incident: **12:35** AM ☐ PM ☑
7. Nearest Railroad Station: **SEATTLE**	8. Subdivision	9. County: **KING**
10. State Abbr.: **WA** Code: **53**		
11. City *(if in a city)*: **SEATTLE**	12. Highway Name or No.: **SPOKANE** Public ☑ Private ☐	

Highway User Involved

13. Type — C. Truck-trailer; F. Bus; J. Other Motor Vehicle; A. Auto; D. Pick-up truck; G. School Bus; K. Pedestrian; B. Truck; E. Van; H. Motorcycle; M. Other *(specify)*. Code: **C**

14. Vehicle Speed *(est. mph at impact)*: **2**

15. Direction *(geographical)* 1. North 2. South 3. East 4. West. Code: **3**

16. Position — 1. Stalled or stuck on crossing; 2. Stopped on Crossing; 3. Moving over crossing; 4. Trapped on crossing by traffic; 5. Blocked on crossing by gates. Code: **3**

20a. Was the highway user and/or rail equipment involved in the impact transporting hazardous materials? 1. Highway User 2. Rail Equipment 3. Both 4. Neither. Code: **2**

Rail Equipment Involved

17. Equipment — 1. Train *(units pulling)*; 2. Train *(units pushing)*; 3. Train *(standing)*; 4. Car(s) *(moving)*; 5. Car(s) *(standing)*; 6. Light loco(s) *(moving)*; 7. Light loco(s) *(standing)*; 8. Other *(specify)*; A. Train pulling- RCL; B. Train pushing- RCL; C. Train standing- RCL; D. EMU Locomotive(s); E. DMU Locomotive(s). Code: **1**

18. Position of Car Unit in Train: **1**

19. Circumstance — 1. Rail equipment struck highway user 2. Rail equipment struck by highway user. Code: **1**

20b. Was there a hazardous materials release by — 1. Highway User 2. Rail Equipment 3. Both 4. Neither. Code:

20c. State here the name and quantity of the hazardous material released, if any

21. Temperature *(specify if minus)*: **50** °F

22. Visibility *(single entry)* 1. Dawn 2. Day 3. Dusk 4. Dark. Code: **2**

23. Weather *(single entry)* 1. Clear 2. Cloudy 3. Rain 4. Fog 5. Sleet 6. Snow. Code: **1**

24. Type of Equipment Consist *(single entry)* — 1. Freight Train; 2. Passenger Train-Pulling; 3. Commuter Train-Pulling; 4. Work Train; 5. Single Car; 6. Cut of cars; 7. Yard/Switching; 8. Light loco(s); 9. Maint./inspect. car; A. Spec. MoW Equip.; B. Passenger Train-Pushing; C. Commuter Train-Pushing; D. EMU; E. DMU. Code: **7**

25. Track Type Used by Rail Equipment Involved — 1. Main 2. Yard 3. Siding 4. Industry. Code: **1**

26. Track Number or Name: **SINGLE MAIN TRACK**

27. FRA Track Class (1-9,X): **3**

28. Number of Locomotive Units: **1**

29. Number of Cars: **17**

30. Consist Speed *(Recorded speed if available)* R. Recorded E. Estimated: **15** mph. Code: **E**

31. Time Table Direction 1. North 2. South 3. East 4. West. Code: **2**

32. Type of Crossing Warning — 1. Gates; 2. Cantilever FLS; 3. Standard FLS; 4. Wig wags; 5. Hwy. traffic signals; 6. Audible; 7. Crossbucks; 8. Stop signs; 9. Watchman; 10. Flagged by crew; 11. Other *(specify)*; 12. None. Code(s): **05**

33. Signaled Crossing Warning (See reverse side for instructions and codes). Code: **1**

34. Roadway Conditions — A. Dry; B. Wet; C.Snow/Slush; D.Ice; E. Sand,Mud,Dirt,Oil,Gravel; F.Water (Standing, Moving). Code:

35. Location of Warning — 1. Both Sides; 2. Side of Vehicle Approach; 3. Opposite Side of Vehicle Approach. Code: **1**

36. Crossing Warning Interconnected with Highway Signals — 1. Yes 2. No 3. Unknown. Code: **3**

37. Crossing Illuminated by Street Lights or Special Lights — 1. Yes 2. No 3. Unknown. Code: **1**

38. Highway User's Age:

39. Highway User's Gender — 1. Male; 2. Female. Code:

40. Highway User Went Behind or in Front of Train and Struck or was Struck by Second Train — 1. Yes 2. No 3. Unknown. Code: **2**

41. Highway User — 1. Went around the gate; 2. Stopped and then proceeded; 3. Did not stop; 4. Stopped on crossing; 5. Other *(specify)*; 6. Went around/thru temporary barricade (if yes, see instructions); 7. Went thru the gate; 8. Suicide/Attempted suicide. Code: **4**

42. Driver Passed Standing Highway Vehicle — 1. Yes 2. No 3. Unknown. Code: **2**

43. View of Track Obscured by *(primary obstruction)* — 1. Permanent Structure; 2. Standing railroad equipment; 3. Passing Train; 4. Topography; 5. Vegetation; 6. Highway Vehicles; 7. Other (specify); 8. Not Obstructed. Code: **1**

Casualties to:	Killed	Injured
46. Highway-Rail Crossing Users	**0**	**0**
49. Railroad Employees	**0**	**0**
52. Passengers on Train	**0**	**0**

44. Driver was 1. Killed 2. Injured 3. Uninjured: **3**

45. Was Driver in the Vehicle? 1. Yes 2. No. Code: **1**

47. Highway Vehicle Property Damage *(est. dollar damage)*: **$1,000**

48. Total Number of Vehicle Occupants *(including driver)*: **1**

50. Total Number of People on Train *(include passengers and train crew)*:

51. Is a Rail Equipment Accident / Incident Report Being Filed 1. Yes 2. No. Code: **2**

53a. Special Study Block — Video Taken? ☐ Yes ☐ No; Video Used? ☐ Yes ☐ No

53b. Special Study Block

54. Narrative Description *(Be specific, and continue on separate sheet if necessary)*

55. Typed Name and Title | 56. Signature | 57. Date

NOTE: This report is part of the reporting railroad's accident report pursuant to the accident reports statute and, as such shall not "be admitted as evidence or used for any purpose in any suit or action for damages growing out of any matter mentioned in said report...." 49 U.S.C. 20903. See 49 C.F.R. 225.7 (b).

* NOTE THAT ALL CASUALTIES MUST BE REPORTED ON FORM FRA F 6180.55A

OMB Approval expires 6/30/2021

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION (FRA)

HIGHWAY-RAIL GRADE CROSSING ACCIDENT/INCIDENT REPORT

OMB Approval No. 2130-0500

1.Name of Reporting Railroad: **Burlington Northern Railroad Company [BN]**	1a. Alphabetic Code: **BN**	1b. Railroad Accident/Incident No.: **PA859**
2.Name of Other Railroad or Other Entity Filling for Equipment Involved in Train Accident/Incident	2a. Alphabetic Code	2b. Railroad Accident/Incident No.
3. Name of Railroad or Other Entity Responsible for Track Maintenance *(single entry)*: **Burlington Northern Railroad Company [BN]**	3a. Alphabetic Code: **BN**	3b. Railroad Accident/Incident No.: **PA859**
4. U.S. DOT Grade Crossing ID No.: **085587B**	5. Date of Accident/Incident (month/day/year): **1 1 / 1 2 / 1983**	6. Time of Accident/Incident: **11:15** AM ☑ PM ☐
7. Nearest Railroad Station: **SEATTLE**	8. Subdivision	9. County: **KING**
10. State Abbr.: **WA** Code: **53**		
11. City *(if in a city)*: **SEATTLE**	12. Highway Name or No.: **SPOKANE ST** Public ☑ Private ☐	

Highway User Involved

13. Type — C. Truck-trailer; F. Bus; J. Other Motor Vehicle; A. Auto; D. Pick-up truck; G. School Bus; K. Pedestrian; B. Truck; E. Van; H. Motorcycle; M. Other *(specify)*. Code: **M**

14. Vehicle Speed *(est. mph at impact)*: **2**

15. Direction *(geographical)* 1. North 2. South 3. East 4. West. Code: **3**

16. Position — 1. Stalled or stuck on crossing; 2. Stopped on Crossing; 3. Moving over crossing; 4. Trapped on crossing by traffic; 5. Blocked on crossing by gates. Code: **3**

20a. Was the highway user and/or rail equipment involved in the impact transporting hazardous materials? 1. Highway User 2. Rail Equipment 3. Both 4. Neither. Code: **4**

Rail Equipment Involved

17. Equipment — 1. Train *(units pulling)*; 2. Train *(units pushing)*; 3. Train *(standing)*; 4. Car(s) *(moving)*; 5. Car(s) *(standing)*; 6. Light loco(s) *(moving)*; 7. Light loco(s) *(standing)*; 8. Other *(specify)*; A. Train pulling- RCL; B. Train pushing- RCL; C. Train standing- RCL; D. EMU Locomotive(s); E. DMU Locomotive(s). Code: **1**

18. Position of Car Unit in Train: **1**

19. Circumstance — 1. Rail equipment struck highway user 2. Rail equipment struck by highway user. Code: **2**

20b. Was there a hazardous materials release by — 1. Highway User 2. Rail Equipment 3. Both 4. Neither. Code:

20c. State here the name and quantity of the hazardous material released, if any

21. Temperature *(specify if minus)*: **59** °F

22. Visibility *(single entry)* 1. Dawn 2. Day 3. Dusk 4. Dark. Code: **2**

23. Weather *(single entry)* 1. Clear 2. Cloudy 3. Rain 4. Fog 5. Sleet 6. Snow. Code: **3**

24. Type of Equipment Consist *(single entry)* — 1. Freight Train; 2. Passenger Train-Pulling; 3. Commuter Train-Pulling; 4. Work Train; 5. Single Car; 6. Cut of cars; 7. Yard/Switching; 8. Light loco(s); 9. Maint./inspect. car; A. Spec. MoW Equip.; B. Passenger Train-Pushing; C. Commuter Train-Pushing; D. EMU; E. DMU. Code: **1**

25. Track Type Used by Rail Equipment Involved — 1. Main 2. Yard 3. Siding 4. Industry. Code: **1**

26. Track Number or Name: **SINGLE MAIN**

27. FRA Track Class (1-9,X): **1**

28. Number of Locomotive Units: **3**

29. Number of Cars: **87**

30. Consist Speed *(Recorded speed if available)* R. Recorded E. Estimated: **10** mph. Code: **E**

31. Time Table Direction 1. North 2. South 3. East 4. West. Code: **2**

32. Type of Crossing Warning — 1. Gates; 2. Cantilever FLS; 3. Standard FLS; 4. Wig wags; 5. Hwy. traffic signals; 6. Audible; 7. Crossbucks; 8. Stop signs; 9. Watchman; 10. Flagged by crew; 11. Other *(specify)*; 12. None. Code(s): **04**

33. Signaled Crossing Warning (See reverse side for instructions and codes). Code: **1**

34. Roadway Conditions — A. Dry; B. Wet; C.Snow/Slush; D.Ice; E. Sand,Mud,Dirt,Oil,Gravel; F.Water (Standing, Moving). Code:

35. Location of Warning — 1. Both Sides; 2. Side of Vehicle Approach; 3. Opposite Side of Vehicle Approach. Code: **2**

36. Crossing Warning Interconnected with Highway Signals — 1. Yes 2. No 3. Unknown. Code: **2**

37. Crossing Illuminated by Street Lights or Special Lights — 1. Yes 2. No 3. Unknown. Code: **1**

38. Highway User's Age:

39. Highway User's Gender — 1. Male; 2. Female. Code:

40. Highway User Went Behind or in Front of Train and Struck or was Struck by Second Train — 1. Yes 2. No 3. Unknown. Code: **2**

41. Highway User — 1. Went around the gate; 2. Stopped and then proceeded; 3. Did not stop; 4. Stopped on crossing; 5. Other *(specify)*; 6. Went around/thru temporary barricade (if yes, see instructions); 7. Went thru the gate; 8. Suicide/Attempted suicide. Code: **3**

42. Driver Passed Standing Highway Vehicle — 1. Yes 2. No 3. Unknown. Code: **2**

43. View of Track Obscured by *(primary obstruction)* — 1. Permanent Structure; 2. Standing railroad equipment; 3. Passing Train; 4. Topography; 5. Vegetation; 6. Highway Vehicles; 7. Other (specify); 8. Not Obstructed. Code: **3**

Casualties to:	Killed	Injured
46. Highway-Rail Crossing Users	**0**	**0**
49. Railroad Employees	**0**	**0**
52. Passengers on Train	**0**	**0**

44. Driver was 1. Killed 2. Injured 3. Uninjured: **3**

45. Was Driver in the Vehicle? 1. Yes 2. No. Code: **1**

47. Highway Vehicle Property Damage *(est. dollar damage)*: **$2,000**

48. Total Number of Vehicle Occupants *(including driver)*: **1**

50. Total Number of People on Train *(include passengers and train crew)*:

51. Is a Rail Equipment Accident / Incident Report Being Filed 1. Yes 2. No. Code: **2**

53a. Special Study Block — Video Taken? ☐ Yes ☐ No; Video Used? ☐ Yes ☐ No

53b. Special Study Block

54. Narrative Description *(Be specific, and continue on separate sheet if necessary)*

55. Typed Name and Title | 56. Signature | 57. Date

NOTE: This report is part of the reporting railroad's accident report pursuant to the accident reports statute and, as such shall not "be admitted as evidence or used for any purpose in any suit or action for damages growing out of any matter mentioned in said report...." 49 U.S.C. 20903. See 49 C.F.R. 225.7 (b).

FORM FRA F 6180.57 (Rev. 08/10)

* NOTE THAT ALL CASUALTIES MUST BE REPORTED ON FORM FRA F 6180.55A

OMB Approval expires 6/30/2021

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION (FRA)

HIGHWAY-RAIL GRADE CROSSING ACCIDENT/INCIDENT REPORT

OMB Approval No. 2130-0500

1.Name of Reporting Railroad: **Burlington Northern Railroad Company [BN]**	1a. Alphabetic Code: **BN**	1b. Railroad Accident/Incident No.: **PA937**
2.Name of Other Railroad or Other Entity Filling for Equipment Involved in Train Accident/Incident	2a. Alphabetic Code	2b. Railroad Accident/Incident No.
3. Name of Railroad or Other Entity Responsible for Track Maintenance *(single entry)*: **Burlington Northern Railroad Company [BN]**	3a. Alphabetic Code: **BN**	3b. Railroad Accident/Incident No.: **PA937**
4. U.S. DOT Grade Crossing ID No.: **085587B**	5. Date of Accident/Incident (month/day/year): **0 6 / 2 6 / 1980**	6. Time of Accident/Incident: **12:30** AM ☐ PM ☑
7. Nearest Railroad Station: **SEATLLE**	8. Subdivision	9. County: **KING**
10. State Abbr. **WA** Code **53**		
11. City *(if in a city)*: **SEATTLE**	12. Highway Name or No.: **SPOKANE ST E B**	Public ☑ Private ☐

Highway User Involved

13. Type — C. Truck-trailer; F. Bus; J. Other Motor Vehicle; A. Auto; D. Pick-up truck; G. School Bus; K. Pedestrian; B. Truck; E. Van; H. Motorcycle; M. Other *(specify)*. Code: **A**

14. Vehicle Speed *(est. mph at impact)*: **10**

15. Direction *(geographical)* 1. North 2. South 3. East 4. West. Code: **2**

16. Position — 1. Stalled or stuck on crossing; 2. Stopped on Crossing; 3. Moving over crossing; 4. Trapped on crossing by traffic; 5. Blocked on crossing by gates. Code: **3**

20a. Was the highway user and/or rail equipment involved in the impact transporting hazardous materials? 1. Highway User 2. Rail Equipment 3. Both 4. Neither. Code: **4**

Rail Equipment Involved

17. Equipment — 1. Train *(units pulling)*; 2. Train *(units pushing)*; 3. Train *(standing)*; 4. Car(s) *(moving)*; 5. Car(s) *(standing)*; 6. Light loco(s) *(moving)*; 7. Light loco(s) *(standing)*; 8. Other *(specify)*; A. Train pulling- RCL; B. Train pushing- RCL; C. Train standing- RCL; D. EMU Locomotive(s); E. DMU Locomotive(s). Code: **1**

18. Position of Car Unit in Train: **1**

19. Circumstance — 1. Rail equipment struck highway user 2. Rail equipment struck by highway user. Code: **1**

20b. Was there a hazardous materials release by 1. Highway User 2. Rail Equipment 3. Both 4. Neither. Code:

20c. State here the name and quantity of the hazardous material released, if any

21. Temperature *(specify if minus)*: **60** °F

22. Visibility *(single entry)* 1. Dawn 2. Day 3. Dusk 4. Dark. Code: **2**

23. Weather *(single entry)* 1. Clear 2. Cloudy 3. Rain 4. Fog 5. Sleet 6. Snow. Code: **2**

24. Type of Equipment Consist *(single entry)* — 1. Freight Train; 2. Passenger Train-Pulling; 3. Commuter Train-Pulling; 4. Work Train; 5. Single Car; 6. Cut of cars; 7. Yard/Switching; 8. Light loco(s); 9. Maint./inspect. car; A. Spec. MoW Equip.; B. Passenger Train-Pushing; C. Commuter Train-Pushing; D. EMU; E. DMU. Code: **7**

25. Track Type Used by Rail Equipment Involved 1. Main 2. Yard 3. Siding 4. Industry. Code: **2**

26. Track Number or Name: **W SEAT RUNNING**

27. FRA Track Class (1-9,X): **1**

28. Number of Locomotive Units: **1**

29. Number of Cars: **32**

30. Consist Speed *(Recorded speed if available)* R. Recorded E. Estimated: **4** mph. Code: **E**

31. Time Table Direction 1. North 2. South 3. East 4. West. Code: **4**

32. Type of Crossing Warning — 1. Gates; 2. Cantilever FLS; 3. Standard FLS; 4. Wig wags; 5. Hwy. traffic signals; 6. Audible; 7. Crossbucks; 8. Stop signs; 9. Watchman; 10. Flagged by crew; 11. Other *(specify)*; 12. None. Code(s): **03**

33. Signaled Crossing Warning (See reverse side for instructions and codes). Code: **1**

34. Roadway Conditions — A. Dry; B. Wet; C.Snow/Slush; D.Ice; E. Sand,Mud,Dirt,Oil,Gravel; F.Water (Standing, Moving)

35. Location of Warning 1. Both Sides 2. Side of Vehicle Approach 3. Opposite Side of Vehicle Approach. Code: **1**

36. Crossing Warning Interconnected with Highway Signals 1. Yes 2. No 3. Unknown. Code: **3**

37. Crossing Illuminated by Street Lights or Special Lights 1. Yes 2. No 3. Unknown. Code: **3**

38. Highway User's Age

39. Highway User's Gender 1. Male 2. Female. Code:

40. Highway User Went Behind or in Front of Train and Struck or was Struck by Second Train 1. Yes 2. No 3. Unknown. Code: **2**

41. Highway User 1. Went around the gate; 2. Stopped and then proceeded; 3. Did not stop; 4. Stopped on crossing; 5. Other *(specify)*; 6. Went around/thru temporary barricade (if yes, see instructions); 7. Went thru the gate; 8. Suicide/Attempted suicide. Code: **3**

42. Driver Passed Standing Highway Vehicle 1. Yes 2. No 3. Unknown. Code: **2**

43. View of Track Obscured by *(primary obstruction)* 1. Permanent Structure; 2. Standing railroad equipment; 3. Passing Train; 4. Topography; 5. Vegetation; 6. Highway Vehicles; 7. Other (specify); 8. Not Obstructed. Code: **8**

Casualties to:	Killed	Injured
46. Highway-Rail Crossing Users	0	0
49. Railroad Employees	0	0
52. Passengers on Train	0	0

44. Driver was 1. Killed 2. Injured 3. Uninjured: **3**

45. Was Driver in the Vehicle? 1. Yes 2. No. Code: **1**

47. Highway Vehicle Property Damage *(est. dollar damage)*: **$300**

48. Total Number of Vehicle Occupants *(including driver)*: **1**

50. Total Number of People on Train *(include passengers and train crew)*

51. Is a Rail Equipment Accident / Incident Report Being Filed 1. Yes 2. No. Code: **2**

53a. Special Study Block — Video Taken? ☐ Yes ☐ No; Video Used? ☐ Yes ☐ No

53b. Special Study Block

54. Narrative Description *(Be specific, and continue on separate sheet if necessary)*

55. Typed Name and Title | 56. Signature | 57. Date

NOTE: This report is part of the reporting railroad's accident report pursuant to the accident reports statute and, as such shall not "be admitted as evidence or used for any purpose in any suit or action for damages growing out of any matter mentioned in said report...." 49 U.S.C. 20903. See 49 C.F.R. 225.7 (b).

* NOTE THAT ALL CASUALTIES MUST BE REPORTED ON FORM FRA F 6180.55A

OMB Approval expires 6/30/2021

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION (FRA)

HIGHWAY-RAIL GRADE CROSSING ACCIDENT/INCIDENT REPORT

OMB Approval No. 2130-0500

1.Name of Reporting Railroad: **Burlington Northern Railroad Company [BN]**	1a. Alphabetic Code: **BN**	1b. Railroad Accident/Incident No.: **PA460**
2.Name of Other Railroad or Other Entity Filling for Equipment Involved in Train Accident/Incident	2a. Alphabetic Code	2b. Railroad Accident/Incident No.
3. Name of Railroad or Other Entity Responsible for Track Maintenance *(single entry)*: **Burlington Northern Railroad Company [BN]**	3a. Alphabetic Code: **BN**	3b. Railroad Accident/Incident No.: **PA460**
4. U.S. DOT Grade Crossing ID No.: **085587B**	5. Date of Accident/Incident (month/day/year): **0 3 / 3 0 / 1978**	6. Time of Accident/Incident: **7:40** AM ☐ PM ☑
7. Nearest Railroad Station: **SEATTLE**	8. Subdivision	9. County: **KING**
10. State Abbr.: **WA** Code: **53**		
11. City *(if in a city)*: **SEATTLE**	12. Highway Name or No.: **SPOKANE STREET** Public ☑ Private ☐	

Highway User Involved

13. Type — C. Truck-trailer; F. Bus; J. Other Motor Vehicle; A. Auto; D. Pick-up truck; G. School Bus; K. Pedestrian; B. Truck; E. Van; H. Motorcycle; M. Other *(specify)*. Code: **B**

14. Vehicle Speed *(est. mph at impact)*: **3**

15. Direction *(geographical)* 1. North 2. South 3. East 4. West. Code: **3**

16. Position — 1. Stalled or stuck on crossing; 2. Stopped on Crossing; 3. Moving over crossing; 4. Trapped on crossing by traffic; 5. Blocked on crossing by gates. Code: **3**

20a. Was the highway user and/or rail equipment involved in the impact transporting hazardous materials? 1. Highway User 2. Rail Equipment 3. Both 4. Neither. Code: **4**

Rail Equipment Involved

17. Equipment — 1. Train *(units pulling)*; 2. Train *(units pushing)*; 3. Train *(standing)*; 4. Car(s) *(moving)*; 5. Car(s) *(standing)*; 6. Light loco(s) *(moving)*; 7. Light loco(s) *(standing)*; 8. Other *(specify)*; A. Train pulling- RCL; B. Train pushing- RCL; C. Train standing- RCL; D. EMU Locomotive(s); E. DMU Locomotive(s). Code: **1**

18. Position of Car Unit in Train: **1**

19. Circumstance — 1. Rail equipment struck highway user 2. Rail equipment struck by highway user. Code: **1**

20b. Was there a hazardous materials release by — 1. Highway User 2. Rail Equipment 3. Both 4. Neither. Code:

20c. State here the name and quantity of the hazardous material released, if any

21. Temperature *(specify if minus)*: **50** °F

22. Visibility *(single entry)* 1. Dawn 2. Day 3. Dusk 4. Dark. Code: **4**

23. Weather *(single entry)* 1. Clear 2. Cloudy 3. Rain 4. Fog 5. Sleet 6. Snow. Code: **1**

24. Type of Equipment Consist *(single entry)* — 1. Freight Train; 2. Passenger Train-Pulling; 3. Commuter Train-Pulling; 4. Work Train; 5. Single Car; 6. Cut of cars; 7. Yard/Switching; 8. Light loco(s); 9. Maint./inspect. car; A. Spec. MoW Equip.; B. Passenger Train-Pushing; C. Commuter Train-Pushing; D. EMU; E. DMU. Code: **7**

25. Track Type Used by Rail Equipment Involved 1. Main 2. Yard 3. Siding 4. Industry. Code: **1**

26. Track Number or Name: **WESTWARD**

27. FRA Track Class (1-9,X): **4**

28. Number of Locomotive Units: **1**

29. Number of Cars: **11**

30. Consist Speed *(Recorded speed if available)* R. Recorded E. Estimated: **10** mph. Code: **E**

31. Time Table Direction 1. North 2. South 3. East 4. West. Code: **4**

32. Type of Crossing Warning — 1. Gates; 2. Cantilever FLS; 3. Standard FLS; 4. Wig wags; 5. Hwy. traffic signals; 6. Audible; 7. Crossbucks; 8. Stop signs; 9. Watchman; 10. Flagged by crew; 11. Other *(specify)*; 12. None. Code(s): **03**

33. Signaled Crossing Warning (See reverse side for instructions and codes). Code: **1**

34. Roadway Conditions — A. Dry; B. Wet; C.Snow/Slush; D.Ice; E. Sand,Mud,Dirt,Oil,Gravel; F.Water (Standing, Moving). Code:

35. Location of Warning 1. Both Sides 2. Side of Vehicle Approach 3. Opposite Side of Vehicle Approach. Code: **1**

36. Crossing Warning Interconnected with Highway Signals 1. Yes 2. No 3. Unknown. Code: **2**

37. Crossing Illuminated by Street Lights or Special Lights 1. Yes 2. No 3. Unknown. Code: **1**

38. Highway User's Age:

39. Highway User's Gender 1. Male 2. Female. Code:

40. Highway User Went Behind or in Front of Train and Struck or was Struck by Second Train 1. Yes 2. No 3. Unknown. Code: **2**

41. Highway User — 1. Went around the gate; 2. Stopped and then proceeded; 3. Did not stop; 4. Stopped on crossing; 5. Other *(specify)*; 6. Went around/thru temporary barricade (if yes, see instructions); 7. Went thru the gate; 8. Suicide/Attempted suicide. Code: **3**

42. Driver Passed Standing Highway Vehicle 1. Yes 2. No 3. Unknown. Code: **2**

43. View of Track Obscured by *(primary obstruction)* — 1. Permanent Structure; 2. Standing railroad equipment; 3. Passing Train; 4. Topography; 5. Vegetation; 6. Highway Vehicles; 7. Other (specify); 8. Not Obstructed. Code: **8**

Casualties to:	Killed	Injured
46. Highway-Rail Crossing Users	**0**	**0**
49. Railroad Employees	**0**	**0**
52. Passengers on Train	**0**	**0**

44. Driver was 1. Killed 2. Injured 3. Uninjured: **3**

45. Was Driver in the Vehicle? 1. Yes 2. No. Code: **1**

47. Highway Vehicle Property Damage *(est. dollar damage)*: **$1,000**

48. Total Number of Vehicle Occupants *(including driver)*: **1**

50. Total Number of People on Train *(include passengers and train crew)*:

51. Is a Rail Equipment Accident / Incident Report Being Filed 1. Yes 2. No. Code: **2**

53a. Special Study Block — Video Taken? ☐ Yes ☐ No; Video Used? ☐ Yes ☐ No

53b. Special Study Block

54. Narrative Description *(Be specific, and continue on separate sheet if necessary)*

55. Typed Name and Title | 56. Signature | 57. Date

NOTE: This report is part of the reporting railroad's accident report pursuant to the accident reports statute and, as such shall not "be admitted as evidence or used for any purpose in any suit or action for damages growing out of any matter mentioned in said report...." 49 U.S.C. 20903. See 49 C.F.R. 225.7 (b).

* NOTE THAT ALL CASUALTIES MUST BE REPORTED ON FORM FRA F 6180.55A

OMB Approval expires 6/30/2021

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION (FRA)

HIGHWAY-RAIL GRADE CROSSING ACCIDENT/INCIDENT REPORT

OMB Approval No. 2130-0500

1.Name of Reporting Railroad: **Burlington Northern Railroad Company [BN]**	1a. Alphabetic Code: **BN**	1b. Railroad Accident/Incident No.: **PA0824**
2.Name of Other Railroad or Other Entity Filling for Equipment Involved in Train Accident/Incident	2a. Alphabetic Code	2b. Railroad Accident/Incident No.
3. Name of Railroad or Other Entity Responsible for Track Maintenance *(single entry)*: **Burlington Northern Railroad Company [BN]**	3a. Alphabetic Code: **BN**	3b. Railroad Accident/Incident No.: **PA0824**
4. U.S. DOT Grade Crossing ID No.: **085587B**	5. Date of Accident/Incident (month/day/year): **0 6 / 2 3 / 1977**	6. Time of Accident/Incident: **11:25** AM ☑ PM ☐
7. Nearest Railroad Station: **SEATTLE**	8. Subdivision	9. County: **KING**
10. State Abbr.: **WA** Code: **53**		
11. City *(if in a city)*: **SEATTLE**	12. Highway Name or No.: **2ND AVE AND SPOKANE** Public ☑ Private ☐	

Highway User Involved

13. Type: C. Truck-trailer; F. Bus; J. Other Motor Vehicle; A. Auto; D. Pick-up truck; G. School Bus; K. Pedestrian; B. Truck; E. Van; H. Motorcycle; M. Other *(specify)* — Code: **A**

14. Vehicle Speed *(est. mph at impact)*: **10**

15. Direction *(geographical)*: 1. North 2. South 3. East 4. West — Code: **3**

16. Position: 1. Stalled or stuck on crossing; 2. Stopped on Crossing; 3. Moving over crossing; 4. Trapped on crossing by traffic; 5. Blocked on crossing by gates — Code: **3**

20a. Was the highway user and/or rail equipment involved in the impact transporting hazardous materials? 1. Highway User 2. Rail Equipment 3. Both 4. Neither — Code: **4**

Rail Equipment Involved

17. Equipment: 1. Train *(units pulling)*; 2. Train *(units pushing)*; 3. Train *(standing)*; 4. Car(s) *(moving)*; 5. Car(s) *(standing)*; 6. Light loco(s) *(moving)*; 7. Light loco(s) *(standing)*; 8. Other *(specify)*; A. Train pulling- RCL; B. Train pushing- RCL; C. Train standing- RCL; D. EMU Locomotive(s); E. DMU Locomotive(s) — Code: **2**

18. Position of Car Unit in Train: **3**

19. Circumstance: 1. Rail equipment struck highway user 2. Rail equipment struck by highway user — Code: **1**

20b. Was there a hazardous materials release by: 1. Highway User 2. Rail Equipment 3. Both 4. Neither — Code:

20c. State here the name and quantity of the hazardous material released, if any

21. Temperature *(specify if minus)*: **70** °F

22. Visibility *(single entry)*: 1. Dawn 2. Day 3. Dusk 4. Dark — Code: **2**

23. Weather *(single entry)*: 1. Clear 2. Cloudy 3. Rain 4. Fog 5. Sleet 6. Snow — Code: **1**

24. Type of Equipment Consist *(single entry)*: 1. Freight Train; 2. Passenger Train-Pulling; 3. Commuter Train-Pulling; 4. Work Train; 5. Single Car; 6. Cut of cars; 7. Yard/Switching; 8. Light loco(s); 9. Maint./inspect. car; A. Spec. MoW Equip.; B. Passenger Train-Pushing; C. Commuter Train-Pushing; D. EMU; E. DMU — Code: **7**

25. Track Type Used by Rail Equipment Involved: 1. Main 2. Yard 3. Siding 4. Industry — Code: **1**

26. Track Number or Name: **WESTWARD MAIN TRACK**

27. FRA Track Class (1-9,X): **4**

28. Number of Locomotive Units: **1**

29. Number of Cars: **2**

30. Consist Speed *(Recorded speed if available)*: R. Recorded; E. Estimated — **3** mph — Code: **E**

31. Time Table Direction: 1. North 2. South 3. East 4. West — Code: **3**

32. Type of Crossing Warning: 1. Gates; 2. Cantilever FLS; 3. Standard FLS; 4. Wig wags; 5. Hwy. traffic signals; 6. Audible; 7. Crossbucks; 8. Stop signs; 9. Watchman; 10. Flagged by crew; 11. Other *(specify)*; 12. None

Code(s): **03** **05** **10**

33. Signaled Crossing Warning (See reverse side for instructions and codes) — Code: **1**

34. Roadway Conditions: A. Dry; B. Wet; C.Snow/Slush; D.Ice; E. Sand,Mud,Dirt,Oil,Gravel; F.Water (Standing, Moving) — Code:

35. Location of Warning: 1. Both Sides; 2. Side of Vehicle Approach; 3. Opposite Side of Vehicle Approach — Code: **2**

36. Crossing Warning Interconnected with Highway Signals: 1. Yes 2. No 3. Unknown — Code: **2**

37. Crossing Illuminated by Street Lights or Special Lights: 1. Yes 2. No 3. Unknown — Code: **1**

38. Highway User's Age:

39. Highway User's Gender: 1. Male 2. Female — Code:

40. Highway User Went Behind or in Front of Train and Struck or was Struck by Second Train: 1. Yes 2. No 3. Unknown — Code: **2**

41. Highway User: 1. Went around the gate; 2. Stopped and then proceeded; 3. Did not stop; 4. Stopped on crossing; 5. Other *(specify)*; 6. Went around/thru temporary barricade (if yes, see instructions); 7. Went thru the gate; 8. Suicide/Attempted suicide — Code: **3**

42. Driver Passed Standing Highway Vehicle: 1. Yes 2. No 3. Unknown — Code: **1**

43. View of Track Obscured by *(primary obstruction)*: 1. Permanent Structure; 2. Standing railroad equipment; 3. Passing Train; 4. Topography; 5. Vegetation; 6. Highway Vehicles; 7. Other (specify); 8. Not Obstructed — Code: **8**

Casualties to:	Killed	Injured
46. Highway-Rail Crossing Users	**0**	**0**
49. Railroad Employees	**0**	**0**
52. Passengers on Train	**0**	**0**

44. Driver was: 1. Killed 2. Injured 3. Uninjured — **3**

45. Was Driver in the Vehicle? 1. Yes 2. No — Code: **1**

47. Highway Vehicle Property Damage *(est. dollar damage)*: **$2,000**

48. Total Number of Vehicle Occupants *(including driver)*: **1**

50. Total Number of People on Train *(include passengers and train crew)*:

51. Is a Rail Equipment Accident / Incident Report Being Filed? 1. Yes 2. No — Code: **2**

53a. Special Study Block — Video Taken? ☐ Yes ☐ No; Video Used? ☐ Yes ☐ No

53b. Special Study Block

54. Narrative Description *(Be specific, and continue on separate sheet if necessary)*

55. Typed Name and Title | 56. Signature | 57. Date

NOTE: This report is part of the reporting railroad's accident report pursuant to the accident reports statute and, as such shall not "be admitted as evidence or used for any purpose in any suit or action for damages growing out of any matter mentioned in said report...." 49 U.S.C. 20903. See 49 C.F.R. 225.7 (b).

* NOTE THAT ALL CASUALTIES MUST BE REPORTED ON FORM FRA F 6180.55A

OMB Approval expires 6/30/2021

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION (FRA)

HIGHWAY-RAIL GRADE CROSSING ACCIDENT/INCIDENT REPORT

OMB Approval No. 2130-0500

1.Name of Reporting Railroad: **Burlington Northern Railroad Company [BN]**	1a. Alphabetic Code: **BN**	1b. Railroad Accident/Incident No.: **PA0027**
2.Name of Other Railroad or Other Entity Filling for Equipment Involved in Train Accident/Incident	2a. Alphabetic Code	2b. Railroad Accident/Incident No.
3. Name of Railroad or Other Entity Responsible for Track Maintenance *(single entry)*: **Burlington Northern Railroad Company [BN]**	3a. Alphabetic Code: **BN**	3b. Railroad Accident/Incident No.: **PA0027**
4. U.S. DOT Grade Crossing ID No.: **085587B**	5. Date of Accident/Incident (month/day/year): **0 1 / 0 7 / 1977**	6. Time of Accident/Incident: **11:00** AM ☐ PM ☑
7. Nearest Railroad Station: **SEATTLE**	8. Subdivision	9. County: **KING**
10. State Abbr.: **WA** Code: **53**		
11. City *(if in a city)*: **SEATTLE**	12. Highway Name or No.: **SPOKANE ST** Public ☑ Private ☐	

Highway User Involved

13. Type — C. Truck-trailer; F. Bus; J. Other Motor Vehicle; A. Auto; D. Pick-up truck; G. School Bus; K. Pedestrian; B. Truck; E. Van; H. Motorcycle; M. Other *(specify)*. Code: **A**

14. Vehicle Speed *(est. mph at impact)*:

15. Direction *(geographical)* 1. North 2. South 3. East 4. West. Code: **3**

16. Position — 1. Stalled or stuck on crossing; 2. Stopped on Crossing; 3. Moving over crossing; 4. Trapped on crossing by traffic; 5. Blocked on crossing by gates. Code: **2**

20a. Was the highway user and/or rail equipment involved in the impact transporting hazardous materials? 1. Highway User 2. Rail Equipment 3. Both 4. Neither. Code: **4**

Rail Equipment Involved

17. Equipment — 1. Train *(units pulling)*; 2. Train *(units pushing)*; 3. Train *(standing)*; 4. Car(s) *(moving)*; 5. Car(s) *(standing)*; 6. Light loco(s) *(moving)*; 7. Light loco(s) *(standing)*; 8. Other *(specify)*; A. Train pulling- RCL; B. Train pushing- RCL; C. Train standing- RCL; D. EMU Locomotive(s); E. DMU Locomotive(s). Code: **1**

18. Position of Car Unit in Train: **1**

19. Circumstance — 1. Rail equipment struck highway user 2. Rail equipment struck by highway user. Code: **1**

20b. Was there a hazardous materials release by 1. Highway User 2. Rail Equipment 3. Both 4. Neither. Code:

20c. State here the name and quantity of the hazardous material released, if any

21. Temperature *(specify if minus)*: **32** °F

22. Visibility *(single entry)* 1. Dawn 2. Day 3. Dusk 4. Dark. Code: **4**

23. Weather *(single entry)* 1. Clear 2. Cloudy 3. Rain 4. Fog 5. Sleet 6. Snow. Code: **1**

24. Type of Equipment Consist *(single entry)* — 1. Freight Train; 2. Passenger Train-Pulling; 3. Commuter Train-Pulling; 4. Work Train; 5. Single Car; 6. Cut of cars; 7. Yard/Switching; 8. Light loco(s); 9. Maint./inspect. car; A. Spec. MoW Equip.; B. Passenger Train-Pushing; C. Commuter Train-Pushing; D. EMU; E. DMU. Code: **1**

25. Track Type Used by Rail Equipment Involved 1. Main 2. Yard 3. Siding 4. Industry. Code: **1**

26. Track Number or Name: **WESTWARD MAIN TRACK**

27. FRA Track Class (1-9,X): **4**

28. Number of Locomotive Units: **3**

29. Number of Cars: **48**

30. Consist Speed *(Recorded speed if available)* R. Recorded E. Estimated: **18** mph. Code: **E**

31. Time Table Direction 1. North 2. South 3. East 4. West. Code: **4**

32. Type of Crossing Warning — 1. Gates; 2. Cantilever FLS; 3. Standard FLS; 4. Wig wags; 5. Hwy. traffic signals; 6. Audible; 7. Crossbucks; 8. Stop signs; 9. Watchman; 10. Flagged by crew; 11. Other *(specify)*; 12. None. Code(s): **03**

33. Signaled Crossing Warning (See reverse side for instructions and codes). Code: **1**

34. Roadway Conditions — A. Dry; B. Wet; C.Snow/Slush; D.Ice; E. Sand,Mud,Dirt,Oil,Gravel; F.Water (Standing, Moving)

35. Location of Warning 1. Both Sides 2. Side of Vehicle Approach 3. Opposite Side of Vehicle Approach. Code: **1**

36. Crossing Warning Interconnected with Highway Signals 1. Yes 2. No 3. Unknown. Code: **1**

37. Crossing Illuminated by Street Lights or Special Lights 1. Yes 2. No 3. Unknown. Code: **1**

38. Highway User's Age:

39. Highway User's Gender 1. Male 2. Female. Code:

40. Highway User Went Behind or in Front of Train and Struck or was Struck by Second Train 1. Yes 2. No 3. Unknown. Code: **2**

41. Highway User 1. Went around the gate; 2. Stopped and then proceeded; 3. Did not stop; 4. Stopped on crossing; 5. Other *(specify)*; 6. Went around/thru temporary barricade (if yes, see instructions); 7. Went thru the gate; 8. Suicide/Attempted suicide. Code: **4**

42. Driver Passed Standing Highway Vehicle 1. Yes 2. No 3. Unknown. Code: **2**

43. View of Track Obscured by *(primary obstruction)* 1. Permanent Structure; 2. Standing railroad equipment; 3. Passing Train; 4. Topography; 5. Vegetation; 6. Highway Vehicles; 7. Other (specify); 8. Not Obstructed. Code: **8**

Casualties to:	Killed	Injured
46. Highway-Rail Crossing Users	**0**	**0**
49. Railroad Employees	**0**	**0**
52. Passengers on Train	**0**	**0**

44. Driver was 1. Killed 2. Injured 3. Uninjured: **3**

45. Was Driver in the Vehicle? 1. Yes 2. No. Code: **1**

47. Highway Vehicle Property Damage *(est. dollar damage)*: **$50**

48. Total Number of Vehicle Occupants *(including driver)*: **1**

50. Total Number of People on Train *(include passengers and train crew)*:

51. Is a Rail Equipment Accident / Incident Report Being Filed 1. Yes 2. No. Code: **2**

53a. Special Study Block — Video Taken? ☐ Yes ☐ No; Video Used? ☐ Yes ☐ No

53b. Special Study Block

54. Narrative Description *(Be specific, and continue on separate sheet if necessary)*

55. Typed Name and Title | 56. Signature | 57. Date

NOTE: This report is part of the reporting railroad's accident report pursuant to the accident reports statute and, as such shall not "be admitted as evidence or used for any purpose in any suit or action for damages growing out of any matter mentioned in said report...." 49 U.S.C. 20903. See 49 C.F.R. 225.7 (b).

* NOTE THAT ALL CASUALTIES MUST BE REPORTED ON FORM FRA F 6180.55A

OMB Approval expires 6/30/2021

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION (FRA)

HIGHWAY-RAIL GRADE CROSSING ACCIDENT/INCIDENT REPORT

OMB Approval No. 2130-0500

1. Name of Reporting Railroad: **Burlington Northern Railroad Company [BN]**	1a. Alphabetic Code: **BN**	1b. Railroad Accident/Incident No.: **PA1570**
2. Name of Other Railroad or Other Entity Filling for Equipment Involved in Train Accident/Incident	2a. Alphabetic Code	2b. Railroad Accident/Incident No.
3. Name of Railroad or Other Entity Responsible for Track Maintenance *(single entry)*	3a. Alphabetic Code	3b. Railroad Accident/Incident No.
4. U.S. DOT Grade Crossing ID No.: **085587B**	5. Date of Accident/Incident (month/day/year): **1 / 1 / 2 8 / 1976**	6. Time of Accident/Incident: **3:07** AM ☑ PM ☐
7. Nearest Railroad Station: **SEATTLE**	8. Subdivision	9. County: **KING**
10. State Abbr.: **WA** Code: **53**		
11. City *(if in a city)*: **SEATTLE**	12. Highway Name or No.: **SPOKANE STREET**	Public ☑ Private ☐

Highway User Involved

13. Type — C. Truck-trailer; F. Bus; J. Other Motor Vehicle; A. Auto; D. Pick-up truck; G. School Bus; K. Pedestrian; B. Truck; E. Van; H. Motorcycle; M. Other *(specify)*. Code: **A**

14. Vehicle Speed *(est. mph at impact)*: **3**

15. Direction *(geographical)* 1. North 2. South 3. East 4. West. Code: **3**

16. Position — 1. Stalled or stuck on crossing; 2. Stopped on Crossing; 3. Moving over crossing; 4. Trapped on crossing by traffic; 5. Blocked on crossing by gates. Code: **3**

20a. Was the highway user and/or rail equipment involved in the impact transporting hazardous materials? 1. Highway User 2. Rail Equipment 3. Both 4. Neither. Code: **4**

Rail Equipment Involved

17. Equipment — 1. Train *(units pulling)*; 2. Train *(units pushing)*; 3. Train *(standing)*; 4. Car(s) *(moving)*; 5. Car(s) *(standing)*; 6. Light loco(s) *(moving)*; 7. Light loco(s) *(standing)*; 8. Other *(specify)*; A. Train pulling- RCL; B. Train pushing- RCL; C. Train standing- RCL; D. EMU Locomotive(s); E. DMU Locomotive(s). Code: **1**

18. Position of Car Unit in Train: **1**

19. Circumstance — 1. Rail equipment struck highway user 2. Rail equipment struck by highway user. Code: **1**

20b. Was there a hazardous materials release by — 1. Highway User 2. Rail Equipment 3. Both 4. Neither. Code:

20c. State here the name and quantity of the hazardous material released, if any

21. Temperature *(specify if minus)*: **31** °F

22. Visibility *(single entry)* 1. Dawn 2. Day 3. Dusk 4. Dark. Code: **4**

23. Weather *(single entry)* 1. Clear 2. Cloudy 3. Rain 4. Fog 5. Sleet 6. Snow. Code: **1**

24. Type of Equipment Consist *(single entry)* — 1. Freight Train; 2. Passenger Train-Pulling; 3. Commuter Train-Pulling; 4. Work Train; 5. Single Car; 6. Cut of cars; 7. Yard/Switching; 8. Light loco(s); 9. Maint./inspect. car; A. Spec. MoW Equip.; B. Passenger Train-Pushing; C. Commuter Train-Pushing; D. EMU; E. DMU. Code: **1**

25. Track Type Used by Rail Equipment Involved — 1. Main 2. Yard 3. Siding 4. Industry. Code: **1**

26. Track Number or Name: **EASTWARD MAIN TRACK**

27. FRA Track Class (1-9,X): **4**

28. Number of Locomotive Units: **2**

29. Number of Cars: **19**

30. Consist Speed *(Recorded speed if available)* R. Recorded E. Estimated: **5** mph. Code: **E**

31. Time Table Direction 1. North 2. South 3. East 4. West. Code: **3**

32. Type of Crossing Warning — 1. Gates; 2. Cantilever FLS; 3. Standard FLS; 4. Wig wags; 5. Hwy. traffic signals; 6. Audible; 7. Crossbucks; 8. Stop signs; 9. Watchman; 10. Flagged by crew; 11. Other *(specify)*; 12. None. Code(s): **03** **06**

33. Signaled Crossing Warning (See reverse side for instructions and codes). Code: **1**

34. Roadway Conditions — A. Dry; B. Wet; C.Snow/Slush; D.Ice; E. Sand,Mud,Dirt,Oil,Gravel; F.Water (Standing, Moving). Code:

35. Location of Warning — 1. Both Sides; 2. Side of Vehicle Approach; 3. Opposite Side of Vehicle Approach. Code: **1**

36. Crossing Warning Interconnected with Highway Signals — 1. Yes 2. No 3. Unknown. Code: **2**

37. Crossing Illuminated by Street Lights or Special Lights — 1. Yes 2. No 3. Unknown. Code: **2**

38. Highway User's Age:

39. Highway User's Gender — 1. Male; 2. Female. Code:

40. Highway User Went Behind or in Front of Train and Struck or was Struck by Second Train — 1. Yes 2. No 3. Unknown. Code: **2**

41. Highway User — 1. Went around the gate; 2. Stopped and then proceeded; 3. Did not stop; 4. Stopped on crossing; 5. Other *(specify)*; 6. Went around/thru temporary barricade (if yes, see instructions); 7. Went thru the gate; 8. Suicide/Attempted suicide. Code: **2**

42. Driver Passed Standing Highway Vehicle — 1. Yes 2. No 3. Unknown. Code: **2**

43. View of Track Obscured by *(primary obstruction)* — 1. Permanent Structure; 2. Standing railroad equipment; 3. Passing Train; 4. Topography; 5. Vegetation; 6. Highway Vehicles; 7. Other (specify); 8. Not Obstructed. Code: **8**

Casualties to:	Killed	Injured
46. Highway-Rail Crossing Users	**0**	**0**
49. Railroad Employees	**0**	**0**
52. Passengers on Train	**0**	**0**

44. Driver was 1. Killed 2. Injured 3. Uninjured: **3**

45. Was Driver in the Vehicle? 1. Yes 2. No. Code: **1**

47. Highway Vehicle Property Damage *(est. dollar damage)*: **$50**

48. Total Number of Vehicle Occupants *(including driver)*: **1**

50. Total Number of People on Train *(include passengers and train crew)*:

51. Is a Rail Equipment Accident / Incident Report Being Filed 1. Yes 2. No. Code: **2**

53a. Special Study Block — Video Taken? ☐ Yes ☐ No; Video Used? ☐ Yes ☐ No

53b. Special Study Block

54. Narrative Description *(Be specific, and continue on separate sheet if necessary)*

55. Typed Name and Title | 56. Signature | 57. Date

NOTE: This report is part of the reporting railroad's accident report pursuant to the accident reports statute and, as such shall not "be admitted as evidence or used for any purpose in any suit or action for damages growing out of any matter mentioned in said report...." 49 U.S.C. 20903. See 49 C.F.R. 225.7 (b).

FORM FRA F 6180.57 (Rev. 08/10)

* NOTE THAT ALL CASUALTIES MUST BE REPORTED ON FORM FRA F 6180.55A

OMB Approval expires 6/30/2021

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION (FRA)

HIGHWAY-RAIL GRADE CROSSING ACCIDENT/INCIDENT REPORT

OMB Approval No. 2130-0500

1.Name of Reporting Railroad: **Burlington Northern Railroad Company [BN]**	1a. Alphabetic Code: **BN**	1b. Railroad Accident/Incident No.: **PA519**
2.Name of Other Railroad or Other Entity Filling for Equipment Involved in Train Accident/Incident	2a. Alphabetic Code	2b. Railroad Accident/Incident No.
3. Name of Railroad or Other Entity Responsible for Track Maintenance *(single entry)*	3a. Alphabetic Code	3b. Railroad Accident/Incident No.
4. U.S. DOT Grade Crossing ID No.: **085587B**	5. Date of Accident/Incident (month/day/year): **0 4 / 1 9 / 1976**	6. Time of Accident/Incident: **1:50** AM ☑ PM ☐
7. Nearest Railroad Station: **SEATTLE**	8. Subdivision	9. County: **KING**
10. State Abbr. **WA** Code **53**		
11. City *(if in a city)*: **SEATTLE**	12. Highway Name or No.: **SPOKANE ST**	Public ☑ Private ☐

Highway User Involved

13. Type — C. Truck-trailer; F. Bus; J. Other Motor Vehicle; A. Auto; D. Pick-up truck; G. School Bus; K. Pedestrian; B. Truck; E. Van; H. Motorcycle; M. Other *(specify)*. Code: **A**

14. Vehicle Speed *(est. mph at impact)*:

15. Direction *(geographical)* 1. North 2. South 3. East 4. West. Code: **3**

16. Position — 1. Stalled or stuck on crossing; 2. Stopped on Crossing; 3. Moving over crossing; 4. Trapped on crossing by traffic; 5. Blocked on crossing by gates. Code: **3**

20a. Was the highway user and/or rail equipment involved in the impact transporting hazardous materials? 1. Highway User 2. Rail Equipment 3. Both 4. Neither. Code: **4**

Rail Equipment Involved

17. Equipment — 1. Train *(units pulling)*; 2. Train *(units pushing)*; 3. Train *(standing)*; 4. Car(s) *(moving)*; 5. Car(s) *(standing)*; 6. Light loco(s) *(moving)*; 7. Light loco(s) *(standing)*; 8. Other *(specify)*; A. Train pulling- RCL; B. Train pushing- RCL; C. Train standing- RCL; D. EMU Locomotive(s); E. DMU Locomotive(s). Code: **1**

18. Position of Car Unit in Train: **2**

19. Circumstance — 1. Rail equipment struck highway user 2. Rail equipment struck by highway user. Code: **2**

20b. Was there a hazardous materials release by 1. Highway User 2. Rail Equipment 3. Both 4. Neither. Code:

20c. State here the name and quantity of the hazardous material released, if any

21. Temperature *(specify if minus)*: **46** °F

22. Visibility *(single entry)* 1. Dawn 2. Day 3. Dusk 4. Dark. Code: **4**

23. Weather *(single entry)* 1. Clear 2. Cloudy 3. Rain 4. Fog 5. Sleet 6. Snow. Code: **3**

24. Type of Equipment Consist *(single entry)* — 1. Freight Train; 2. Passenger Train-Pulling; 3. Commuter Train-Pulling; 4. Work Train; 5. Single Car; 6. Cut of cars; 7. Yard/Switching; 8. Light loco(s); 9. Maint./inspect. car; A. Spec. MoW Equip.; B. Passenger Train-Pushing; C. Commuter Train-Pushing; D. EMU; E. DMU. Code: **1**

25. Track Type Used by Rail Equipment Involved 1. Main 2. Yard 3. Siding 4. Industry. Code: **1**

26. Track Number or Name: **WESTWARD MAIN TRACK**

27. FRA Track Class (1-9,X): **4**

28. Number of Locomotive Units: **4**

29. Number of Cars: **1**

30. Consist Speed *(Recorded speed if available)* R. Recorded E. Estimated: **20** mph. Code: **E**

31. Time Table Direction 1. North 2. South 3. East 4. West. Code: **4**

32. Type of Crossing Warning — 1. Gates; 2. Cantilever FLS; 3. Standard FLS; 4. Wig wags; 5. Hwy. traffic signals; 6. Audible; 7. Crossbucks; 8. Stop signs; 9. Watchman; 10. Flagged by crew; 11. Other *(specify)*; 12. None. Code(s): **03**

33. Signaled Crossing Warning (See reverse side for instructions and codes). Code: **1**

34. Roadway Conditions — A. Dry; B. Wet; C.Snow/Slush; D.Ice; E. Sand,Mud,Dirt,Oil,Gravel; F.Water (Standing, Moving). Code:

35. Location of Warning 1. Both Sides 2. Side of Vehicle Approach 3. Opposite Side of Vehicle Approach. Code: **1**

36. Crossing Warning Interconnected with Highway Signals 1. Yes 2. No 3. Unknown. Code: **2**

37. Crossing Illuminated by Street Lights or Special Lights 1. Yes 2. No 3. Unknown. Code: **1**

38. Highway User's Age:

39. Highway User's Gender 1. Male 2. Female. Code:

40. Highway User Went Behind or in Front of Train and Struck or was Struck by Second Train 1. Yes 2. No 3. Unknown. Code: **2**

41. Highway User 1. Went around the gate; 2. Stopped and then proceeded; 3. Did not stop; 4. Stopped on crossing; 5. Other *(specify)*; 6. Went around/thru temporary barricade (if yes, see instructions); 7. Went thru the gate; 8. Suicide/Attempted suicide. Code: **3**

42. Driver Passed Standing Highway Vehicle 1. Yes 2. No 3. Unknown. Code: **2**

43. View of Track Obscured by *(primary obstruction)* 1. Permanent Structure; 2. Standing railroad equipment; 3. Passing Train; 4. Topography; 5. Vegetation; 6. Highway Vehicles; 7. Other (specify); 8. Not Obstructed. Code: **8**

Casualties to:	Killed	Injured
46. Highway-Rail Crossing Users	**0**	**1**
49. Railroad Employees	**0**	**0**
52. Passengers on Train	**0**	**0**

44. Driver was 1. Killed 2. Injured 3. Uninjured: **2**

45. Was Driver in the Vehicle? 1. Yes 2. No. Code: **1**

47. Highway Vehicle Property Damage *(est. dollar damage)*: **$1,500**

48. Total Number of Vehicle Occupants *(including driver)*: **0**

50. Total Number of People on Train *(include passengers and train crew)*:

51. Is a Rail Equipment Accident / Incident Report Being Filed 1. Yes 2. No. Code: **2**

53a. Special Study Block — Video Taken? ☐ Yes ☐ No; Video Used? ☐ Yes ☐ No

53b. Special Study Block

54. Narrative Description *(Be specific, and continue on separate sheet if necessary)*

55. Typed Name and Title | 56. Signature | 57. Date

NOTE: This report is part of the reporting railroad's accident report pursuant to the accident reports statute and, as such shall not "be admitted as evidence or used for any purpose in any suit or action for damages growing out of any matter mentioned in said report...." 49 U.S.C. 20903. See 49 C.F.R. 225.7 (b).

* NOTE THAT ALL CASUALTIES MUST BE REPORTED ON FORM FRA F 6180.55A

OMB Approval expires 6/30/2021

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION (FRA)

HIGHWAY-RAIL GRADE CROSSING ACCIDENT/INCIDENT REPORT

OMB Approval No. 2130-0500

1.Name of Reporting Railroad: **Burlington Northern Railroad Company [BN]**	1a. Alphabetic Code: **BN**	1b. Railroad Accident/Incident No.: **PA311**
2.Name of Other Railroad or Other Entity Filling for Equipment Involved in Train Accident/Incident	2a. Alphabetic Code	2b. Railroad Accident/Incident No.
3. Name of Railroad or Other Entity Responsible for Track Maintenance *(single entry)*	3a. Alphabetic Code	3b. Railroad Accident/Incident No.
4. U.S. DOT Grade Crossing ID No.: **085587B**	5. Date of Accident/Incident (month/day/year): **0 4 / 0 1 / 1975**	6. Time of Accident/Incident: **9:55** AM ☑ PM ☐
7. Nearest Railroad Station: **SEATTLE**	8. Subdivision	9. County: **KING**
10. State Abbr. **WA** Code **53**		
11. City *(if in a city)*: **SEATTLE**	12. Highway Name or No.: **2ND SO AND SPOKANE S**	Public ☑ Private ☐

Highway User Involved

13. Type — C. Truck-trailer; F. Bus; J. Other Motor Vehicle; A. Auto; D. Pick-up truck; G. School Bus; K. Pedestrian; B. Truck; E. Van; H. Motorcycle; M. Other *(specify)* — Code: **A**

14. Vehicle Speed *(est. mph at impact)*:

15. Direction *(geographical)* 1. North 2. South 3. East 4. West — Code: **3**

16. Position — 1. Stalled or stuck on crossing; 2. Stopped on Crossing; 3. Moving over crossing; 4. Trapped on crossing by traffic; 5. Blocked on crossing by gates — Code: **2**

20a. Was the highway user and/or rail equipment involved in the impact transporting hazardous materials? 1. Highway User 2. Rail Equipment 3. Both 4. Neither — Code: **4**

Rail Equipment Involved

17. Equipment — 1. Train *(units pulling)*; 2. Train *(units pushing)*; 3. Train *(standing)*; 4. Car(s) *(moving)*; 5. Car(s) *(standing)*; 6. Light loco(s) *(moving)*; 7. Light loco(s) *(standing)*; 8. Other *(specify)*; A. Train pulling- RCL; B. Train pushing- RCL; C. Train standing- RCL; D. EMU Locomotive(s); E. DMU Locomotive(s) — Code: **1**

18. Position of Car Unit in Train: **1**

19. Circumstance — 1. Rail equipment struck highway user 2. Rail equipment struck by highway user — Code: **1**

20b. Was there a hazardous materials release by 1. Highway User 2. Rail Equipment 3. Both 4. Neither — Code:

20c. State here the name and quantity of the hazardous material released, if any

21. Temperature *(specify if minus)*: **40** °F

22. Visibility *(single entry)* 1. Dawn 2. Day 3. Dusk 4. Dark — Code: **2**

23. Weather *(single entry)* 1. Clear 2. Cloudy 3. Rain 4. Fog 5. Sleet 6. Snow — Code: **1**

24. Type of Equipment Consist *(single entry)* — 1. Freight Train; 2. Passenger Train-Pulling; 3. Commuter Train-Pulling; 4. Work Train; 5. Single Car; 6. Cut of cars; 7. Yard/Switching; 8. Light loco(s); 9. Maint./inspect. car; A. Spec. MoW Equip.; B. Passenger Train-Pushing; C. Commuter Train-Pushing; D. EMU; E. DMU — Code: **7**

25. Track Type Used by Rail Equipment Involved 1. Main 2. Yard 3. Siding 4. Industry — Code: **4**

26. Track Number or Name: **INDUSTRY TRACK**

27. FRA Track Class (1-9,X): **2**

28. Number of Locomotive Units: **1**

29. Number of Cars: **2**

30. Consist Speed *(Recorded speed if available)* R. Recorded E. Estimated: **2** mph — Code: **E**

31. Time Table Direction 1. North 2. South 3. East 4. West — Code: **2**

32. Type of Crossing Warning — 1. Gates; 2. Cantilever FLS; 3. Standard FLS; 4. Wig wags; 5. Hwy. traffic signals; 6. Audible; 7. Crossbucks; 8. Stop signs; 9. Watchman; 10. Flagged by crew; 11. Other *(specify)*; 12. None — Code(s): **03**

33. Signaled Crossing Warning (See reverse side for instructions and codes) — Code: **1**

34. Roadway Conditions — A. Dry; B. Wet; C.Snow/Slush; D.Ice; E. Sand,Mud,Dirt,Oil,Gravel; F.Water (Standing, Moving) — Code:

35. Location of Warning — 1. Both Sides; 2. Side of Vehicle Approach; 3. Opposite Side of Vehicle Approach — Code: **1**

36. Crossing Warning Interconnected with Highway Signals 1. Yes 2. No 3. Unknown — Code: **2**

37. Crossing Illuminated by Street Lights or Special Lights 1. Yes 2. No 3. Unknown — Code: **1**

38. Highway User's Age:

39. Highway User's Gender 1. Male 2. Female — Code:

40. Highway User Went Behind or in Front of Train and Struck or was Struck by Second Train 1. Yes 2. No 3. Unknown — Code: **2**

41. Highway User — 1. Went around the gate; 2. Stopped and then proceeded; 3. Did not stop; 4. Stopped on crossing; 5. Other *(specify)*; 6. Went around/thru temporary barricade (if yes, see instructions); 7. Went thru the gate; 8. Suicide/Attempted suicide — Code: **4**

42. Driver Passed Standing Highway Vehicle 1. Yes 2. No 3. Unknown — Code: **2**

43. View of Track Obscured by *(primary obstruction)* — 1. Permanent Structure; 2. Standing railroad equipment; 3. Passing Train; 4. Topography; 5. Vegetation; 6. Highway Vehicles; 7. Other (specify); 8. Not Obstructed — Code: **8**

Casualties to:	Killed	Injured
46. Highway-Rail Crossing Users	**0**	**0**
49. Railroad Employees	**0**	**0**
52. Passengers on Train	**0**	**0**

44. Driver was 1. Killed 2. Injured 3. Uninjured: **3**

45. Was Driver in the Vehicle? 1. Yes 2. No — Code: **1**

47. Highway Vehicle Property Damage *(est. dollar damage)*: **$300**

48. Total Number of Vehicle Occupants *(including driver)*: **3**

50. Total Number of People on Train *(include passengers and train crew)*:

51. Is a Rail Equipment Accident / Incident Report Being Filed 1. Yes 2. No — Code: **2**

53a. Special Study Block — Video Taken? ☐ Yes ☐ No; Video Used? ☐ Yes ☐ No

53b. Special Study Block

54. Narrative Description *(Be specific, and continue on separate sheet if necessary)*

55. Typed Name and Title | 56. Signature | 57. Date

NOTE: This report is part of the reporting railroad's accident report pursuant to the accident reports statute and, as such shall not "be admitted as evidence or used for any purpose in any suit or action for damages growing out of any matter mentioned in said report...." 49 U.S.C. 20903. See 49 C.F.R. 225.7 (b).

* NOTE THAT ALL CASUALTIES MUST BE REPORTED ON FORM FRA F 6180.55A

OMB Approval expires 6/30/2021

APPENDIX D. METHODS AND ASSUMPTIONS REPORT

S HOLGATE ST CROSSING STUDY

METHODS AND ASSUMPTIONS FOR TRAFFIC OPERATIONS

AUGUST 2025

PREPARED FOR:

SEATTLE DEPARTMENT OF TRANSPORTATION

DKS

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DOCUMENT DESCRIPTION

CLIENT	Seattle Department of Transportation
DKS Project	24798-000
Project Name	S Holgate St Crossing Study
Document Name	Methods and Assumptions for Traffic Operations
Date Document Issued	August 8, 2025

VERSION CONTROL

VERSION NUMBER	DATE	DESCRIPTION OF CHANGE	AUTHOR
0-1	02/14/2025	Initial Document	JR, WAM, BK
0-2	2/25/25	Draft comments	SZ
1-0	03/06/2025	Revised per SDOT comments	WAM, BK
1-1	03/19/2025	Updated naming conventions	WAM
2-0	08/08/2025	Revised per TWG comments	NPE, WAM

PREPARED FOR THE SEATTLE DEPARTMENT OF TRANSPORTATION

Seattle Department of Transportation

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PREPARED BY DKS ASSOCIATES

DKS

Wintana Miller, PE, PTOE
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Brian Kellogg, PE, PTP, PTOE
Nathan Edelmann, PE

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INTRODUCTION

The purpose of this document is to compile the methods and assumptions to be used in some of the technical tasks to be conducted for the Seattle Department of Transportation (SDOT) S Holgate St Crossing Study (the Project), and to be used as a guide while conducting these tasks. While the project is multi-disciplinary in scope, including public outreach, structural and geotechnical analyses, and traffic and safety analyses, this document focuses on the methods and assumptions around the traffic operations and modeling, safety, freight access, access for people walking and biking, and equity analysis tasks for the project.

This introduction section provides a project overview, notes the main project stakeholders, and illustrates the study area for the full SODO district and the intersections to be included in the traffic operations analysis. The rest of the document explains the detailed methodology for conducting the traffic operations analysis, the plan for data collection and validation, the assumptions to be used in each modeling tool used, and the methodology for conducting the freight path analysis, bicycle and pedestrian level of stress analysis, safety and near-miss analytics, and equity analysis.

PROJECT OVERVIEW

The S Holgate St Crossing Study is a feasibility study to evaluate options to mitigate a potential closure of S Holgate St, enhance safety, and support vehicle and freight movements in SODO in the context of a future railroad expansion project at S Holgate St. The study will focus on the at-grade rail crossings across S Holgate St between Occidental Ave S and 3rd Ave S (DOT 085583Y and DOT 927461X). The study will also assess impacts on three nearby at-grade rail crossings to the south across S Horton St (DOT 085585M) and S Spokane St (DOT 085586U, DOT 085587B), impacts to the surrounding traffic network, and safety enhancements for rail, freight, and people walking, biking or driving. Based on these impacts, the study will recommend a preferred alternative for the S Holgate St crossings, as well as further mitigation and safety improvements as needed.

An existing conditions assessment will include the following tasks:

- A traffic operations analysis, including simulation of the S Holgate St corridor
- An overview of how large events affect the movement of people walking, biking or driving along S Holgate St
- Determining the main origins, destinations, and routes used by freight trucks on S Holgate St
- An evaluation of existing level of traffic stress (LTS) for people walking and biking in the SODO study area
- An assessment of existing crash data (all modes including rail), FRA-reportable railroad incidents and near-miss analytics (provided by StreetSimplified)
- A review of existing pavement and subsurface conditions
- At-grade railroad crossing diagnostics at DOT#’s 927461X (S Holgate St), 085586U (S Spokane St, westbound), 085587B (S Spokane St, eastbound), and 085585M (S Horton St), including coordination with the FRA, BNSF, Amtrak and SDOT
- An equity analysis, considering demographics of the people using the subject rail crossings of S Holgate St

From the data and insights gained from the existing conditions assessment and future plans for the SODO study area, a set of initial concepts will be developed for mitigating a potential closure of S Holgate St and offer solutions to enhance safety at the at-grade rail crossings on S Holgate St, S Spokane St and S Horton St. The project team, in collaboration with project stakeholders, will develop a set of screening criteria to narrow down this initial set to choose three alternatives for a more detailed evaluation. The more detailed evaluation will include a quantitative assessment of each alternative's impact on traffic operations, freight mobility, safety and access for people walking and biking, and constructability. Based on the detailed assessment of the three alternatives, the project team, in collaboration with project stakeholders, will select a preferred alternative, along with further refinements to mitigate any noted impacts to operations, access, safety or constructability/cost.

During the course of this study, a community outreach and stakeholder engagement task will be conducted to gain input on existing and future conditions and guide the selection of the initial set of alternatives, selection of the preferred alternative, and further refinement of that alternative.

STUDY AREA

The full study area for this project covers most of the SODO neighborhood of Seattle, roughly bounded by S Royal Brougham Way and S Spokane St from north to south, and between East Marginal Way S and I-5 from west to east. This area will be considered for parts of the study that warrant a broader look at SODO in general, including the analysis of affected freight paths, travel patterns respective to the area including Port, rail, supporting industries, and event patterns, public outreach and engagement, and the equity analysis. The study area and the location of the at-grade crossings on S Holgate St that are the focus of this study are shown in Figure 1.

The traffic operations analysis and modeling tasks focus on a smaller subset of the full study area and include intersections and roadway segments that would most likely be impacted by trip diversions due to a S Holgate St closure. The study area to be used in the Synchro traffic analysis and Vissim traffic micro-simulation is shown in Figure 2 and listed in Table 1. The modeling tools Synchro and Vissim are discussed in further detail in the Traffic Operations Analysis Methodology section of this report.

FIGURE 1: STUDY AREA

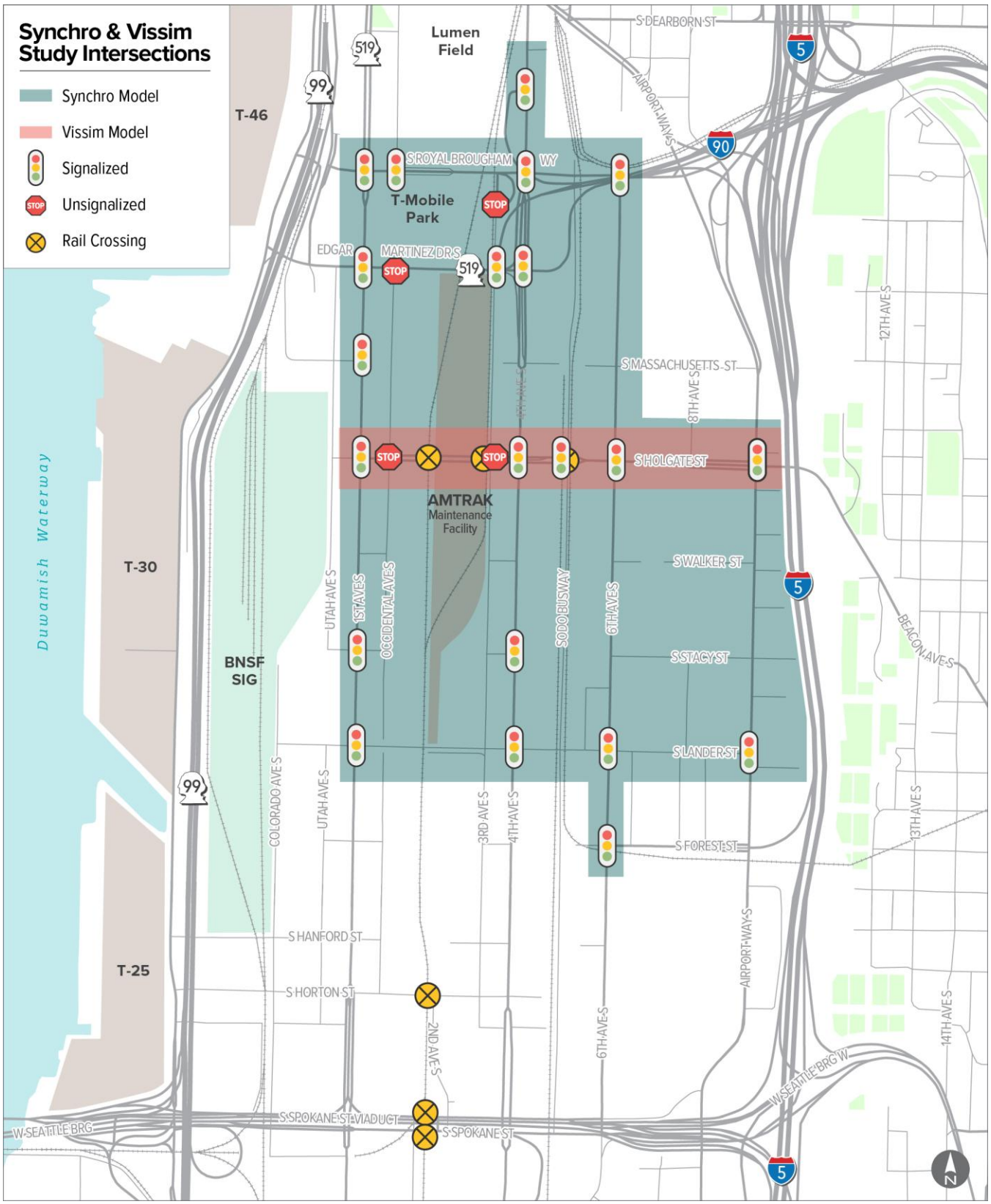


FIGURE 2: INTERSECTIONS FOR TRAFFIC OPERATIONS ANALYSIS (MAP)

TABLE 1: INTERSECTIONS FOR TRAFFIC OPERATIONS ANALYSIS (LIST)

INTERSECTION	TRAFFIC CONTROL	SYNCHRO STUDY AREA	VISSIM STUDY AREA
1ST AVE S & S ROYAL BROUGHAM WAY	Signal	X	
1ST AVE S & S ATLANTIC ST / EDGAR MARTINEZ DR S	Signal	X	
1ST AVE S & S MASSACHUSETTS ST	Signal	X	
1ST AVE S & S HOLGATE ST	Signal	X	X
1ST AVE S & S STACY ST	Signal	X	
1ST AVE S & S LANDER ST	Signal	X	
OCCIDENTAL AVE S & S ROYAL BROUGHAM WAY	Signal	X	
OCCIDENTAL AVE S & EDGAR MARTINEZ DR S	Side-Street Stop	X	
OCCIDENTAL AVE S & S HOLGATE ST	Side-Street Stop	X	X
S HOLGATE ST RAIL CROSSING E/O OCCIDENTAL AVE S (DOT 085583Y)	Rail Crossing		X
S HOLGATE ST RAIL CROSSING W/O 3RD AVE S (DOT 927461X)	Rail Crossing		X
3RD AVE S & S ROYAL BROUGHAM WAY	All-Way Stop	X	
I-5/I-90 OFF-RAMP & EDGAR MARTINEZ DR S	Signal	X	
3RD AVE S & S HOLGATE ST	Side-Street Stop	X	X
4TH AVE S & I-5/I-90 OFF-RAMP	Signal	X	
4TH AVE S & S ROYAL BROUGHAM WAY	Signal	X	
4TH AVE S & EDGAR MARTINEZ DR S / I-5/I-90 ON-RAMP	Signal	X	
4TH AVE S & S HOLGATE ST	Signal	X	X
4TH AVE S & S STACY ST	Signal	X	
4TH AVE S & S LANDER ST	Signal	X	
SODO BUSWAY / LINK LIGHT RAIL CROSSING & S HOLGATE ST	Rail Crossing + Signal	X[1]	X
6TH AVE S & S ROYAL BROUGHAM WAY	Signal	X	
6TH AVE S & S HOLGATE ST	Signal	X	X
6TH AVE S & S LANDER ST	Signal	X	

INTERSECTION	TRAFFIC CONTROL	SYNCHRO STUDY AREA	VISSIM STUDY AREA
6TH AVE S & S FOREST ST	Signal	X	
AIRPORT WAY S & S HOLGATE ST	Signal	X	X
AIRPORT WAY S & S LANDER ST	Signal	X	
TOTAL INTERSECTIONS IN TRAFFIC ANALYSIS STUDY AREA		**25**	**9**

[1]Synchro does not account for the effects of rail pre-emption. This intersection will include a capacity analysis based on the number of rail crossing arrivals per hour.

GUIDING REGULATIONS AND PLANS

Policy direction included in various plans and policy documents guides this study. These plans and policies include, but are not limited to, the following:

- City of Seattle's Complete Streets policy
- Seattle Streets Illustrated
- SDOT Transportation Equity Framework
- SDOT Climate Change Response Framework
- Vision Zero Program
- Seattle Transportation Plan (encompasses all modes: freight, vehicle, bicycles, people walking, etc.)

AGENCY COORDINATION

The traffic operations analysis process involves local jurisdictions, state agencies, federal agencies, and other interested parties. SDOT is seeking broad stakeholder and community engagement to consider all possible solutions for the S Holgate St corridor. As part of this project, a Technical Work Group (TWG) will be engaged to participate in and review technical analysis throughout the project. The TWG members will include but not be limited to:

- Amtrak
- BNSF Railway Company
- Port of Seattle
- Northwest Seaport Alliance (NWSA)
- South of Downtown (SODO) Business Improvement Area (BIA)
- Sound Transit
- Washington Department of Transportation (WSDOT)
- Sports Teams and Ballpark/Stadium organizations
- Tribal Representatives

TRAFFIC OPERATIONS ANALYSIS METHODOLOGY

To assess project-related impacts, the industry standard approach is to apply analytical tools to quantitatively analyze traffic conditions under all future Baseline and Build conditions. The methodology for this traffic operations analysis follows two guiding principles:

- The traffic analysis is intended to inform key decision-making for the project study area by identifying the difference between a future Baseline and Build condition, hereafter referred to as traffic impact.
- The application of analytical tools is based on WSDOT and industry best practices.

The following sections summarize the traffic operations analytical tools and methods used for this analysis.

TRAFFIC OPERATIONS ANALYTICAL TOOLS

The application of analytical tools will be based on WSDOT and industry best practices to conduct the traffic operations analysis efficiently and effectively. For this project, the following modeling tools will be used for a detailed simulation along the S Holgate St corridor and a high-level capacity analysis in the area surrounding S Holgate St:

- **Vissim** will be used to simulate traffic along the S Holgate St corridor. This model will replicate individual traffic, freight, transit, rail crossings, and pedestrian interactions at a detailed level. It will also include pre-emption and transit signal priority (TSP) as applicable.
- **Synchro** will be used to model a wider network area. As a deterministic model, it will be used to calculate delay, capacity, and queue lengths at study-area intersections using Highway Capacity Manual (HCM) methodologies. Synchro will also be used to generate and optimize signal timings to be imported into the Vissim simulation model.

For both tools, the latest software edition and latest HCM methodologies[1] will be used. The application of the analytical tools follows the WSDOT Traffic Analysis Guide.[2]

ANALYSIS YEARS AND PEAK HOURS

The traffic operations analysis for the project includes two analysis years:

- **Existing Year 2025**
- **Future Year 2045**

Existing Condition Year 2025 is primarily intended for model calibration. Year 2045 is the primary analysis year in which project traffic operation effects will be assessed.

The traffic operations analysis focuses on the following peak periods:

- **AM Peak**: one peak hour reflecting a typical morning commute on a workday, chosen between 7:00-9:00 a.m.

[1] Transportation Research Board. Highway Capacity Manual 7th Edition. January 2022.

[2] WSDOT, *WSDOT Traffic Analysis Guide, February 2019*.

- **PM Peak**: one peak hour reflecting a typical afternoon commute on a workday, chosen between 4:00-6:00 p.m.

DATA COLLECTION

The following data will be used to build and calibrate the existing year model and help describe existing conditions in the study area:

- Roadway geometry data: number of lanes, roadway length and width, parking, transit facilities, and turn restrictions (access management) per project mapping and field review.
- Traffic control data: posted speed limits, traffic restrictions, signs, traffic signal timing, and detection.
- Traffic volume data: intersection turning movement counts for vehicles, heavy vehicles, and people biking and walking, to support the traffic analysis described below.
- Transit data: routes, headways, stop locations, and dwell times. Existing transit routes and headways are coded into the Vissim models based on information from King County Metro and Sound Transit.
- Rail data: Gate-down information, including frequency of rail crossing events, time-of-day, and duration of gate-down events.
- Field observations: major queuing locations, bottlenecks, saturation flow rate, and lane utilization. Data will be collected by DKS Associates through on-site intersection surveys at individual intersections. Field observation notes are used for model validation to ensure the calibrated existing year models reflect the traffic congestion in the field condition.

DATA VALIDATION

With multiple sources of data and multiple analysis tools used in this Project, several methodologies will be applied to validate and verify data:

- **Cross-checking data sources** – When multiple data sources provide similar data, comparisons will be made to identify discrepancies.
- **Internal consistency checks** – Different data sets will be reviewed to ensure logical alignment and to identify any contradictions.
- **Model calibration** – Field-observed data (e.g., queues, travel times) will be used to validate traffic operations models and ensure reasonable outputs that reflect real-world conditions. Further details on calibration and validation of the Vissim model are provided in the Vissim modeling assumptions section.
- **Peer review and stakeholder input –** Internal quality assurance measures, including independent reviews by technical experts, will be conducted. SDOT and the TWG will provide and review data as appropriate, particularly in cases of conflicting or overlapping data sets.

ANTICIPATED BACKGROUND PROJECTS

Between the existing 2025 and future 2045 analysis years, the following background projects are expected to be completed in the vicinity of the study area and will be included in all of the future baseline and build conditions scenarios (final list will be coordinated/confirmed with the TWG):

- Completion of the E Marginal Way Corridor Improvement Project – North Segment, anticipated in 2026.
- Sound Transit's West Seattle and Ballard Link extensions and their preferred alternative configurations, which will assume separated-grade crossings at S Lander St and at S Holgate St, as well as channelization changes to 4th Ave S with curb bulbs at 4th Ave S and S Holgate St. This will also include the closure of the SODO Busway and moving transit routes to 4th Ave S.
- Amtrak's maintenance facility expansion project.
- Safety improvements (through the Safe Streets and Roads for All program) along S Holgate St between 1st Ave S and 8th Ave S, planned for 2026.
- Safety improvements (through the Safe Streets and Roads for All program) along 1st Ave S between S Royal Brougham Way and S Spokane St, planned for 2026.

EXISTING TRAFFIC VOLUME BALANCING AND FUTURE FORECASTED VOLUME

This section explains how traffic volumes will be developed for each modeling scenario.

EXISTING CONDITIONS

Previously-collected traffic counts (provided by SDOT) will be supplemented with counts collected in 2025 at each study intersection (see Table 1 on page 5). Engineering judgement will be used to balance counts, accounting for the current closure of East Marginal Way S which is expected to cause some diversion of traffic in the SODO area. Large changes in traffic volumes between the years 2024 and 2025 are not anticipated.

Table 2 explains how each transportation mode will be coded and balanced in the existing conditions model, in Synchro (deterministic analysis) and in Vissim (micro-simulation).

TABLE 2: EXISTING CONDITIONS TRAFFIC VOLUME METHODOLOGY BY MODE

TRANSPORTATION MODE	SYNCHRO (DETERMINISTIC ANALYSIS)	VISSIM (SIMULATION)
GENERAL-PURPOSE VEHICLES	Exact balanced volumes not required. Balancing to be done as determined by WSDOT protocols.	Volumes to be balanced between intersections along simulated network, according to WSDOT protocols.
HEAVY VEHICLES / FREIGHT TRUCKS	Truck volumes will be included as a percentage of total general-purpose volume, based on historical/new counts.	Truck volumes to be input and balanced separately from other general-purpose vehicles. Volumes will be based on historical/new counts and stakeholder input (as applicable).
TRANSIT	Not directly coded but considered similarly to a heavy vehicle for purposes of capacity analysis.	Transit routes to be coded with actual headways, routes, and stop locations.

TRANSPORTATION MODE	SYNCHRO (DETERMINISTIC ANALYSIS)	VISSIM (SIMULATION)
RAIL TRAFFIC (FREIGHT + PASSENGER)	Not modeled. Along the SODO Busway, Link Light Rail traffic will be considered alongside bus volumes for purposes of developing signal timings.	Passenger and freight rail lines will be modeled as accurately as possible, based on video footage (provided by SDOT) and stakeholder input.
PEDESTRIANS AND BICYCLISTS	Coded (not balanced) based on count data. Considered for crossings and pedestrian signal actuation (where applicable).	Coded (not balanced) at each intersection to model interactions with other vehicles and rail/bus transit. Full pedestrian paths or passengers alighting at transit stops will not be coded.

FUTURE BASELINE

For 2045 Baseline conditions, the following will be assumed:

- General-purpose traffic will be increased by 2% to reflect some additional residential traffic growth anticipated in the Maker's District[3] but to limit proposed improvements which would focus on increasing general vehicle capacity.
- Pedestrian and bicyclist volumes will be grown by a nominal 1% per year (grown linearly from 2025) at each intersection
- Freight truck and freight rail traffic growth will be determined based on projections from the Port of Seattle and other stakeholders, coordinated through the TWG, and incorporated in both the Synchro and Vissim models as applicable. Additional rail traffic will consider Amtrak's plans for its maintenance facility improvements and plans for additional Intercity Passenger Rail Service.
- The future horizon scenarios will include the background projects identified above and confirmed with the TWG.

FUTURE BUILD

For future year 2045 Build conditions, three alternatives will be evaluated over the AM and PM peak hours. The three alternatives for which operational analysis will be conducted will be determined through coordination with the TWG. For each scenario, vehicular, freight, pedestrian and bicycle traffic will be re-routed based on the results of analyzing origin-destination routes using Replica[4], input from stakeholders, and engineering judgement.

[3] Reference Alternative 4 land use and growth assumptions in the Seattle Industrial & Maritime Strategy Final Environmental Impact Statement, September 2022.

[4] Replica is a mobility data platform that models travel behavior using anonymized GPS, mobile device, and other data sources to estimate transportation patterns.

MODELING SCENARIOS

The following scenarios will be analyzed in Synchro and in Vissim for a comparative evaluation of the project's traffic performance:

- **Existing Conditions (2025):** calibrated to represent existing traffic conditions and provide a foundation for building the future baseline and build models.
- **Future Year (2045) Baseline:** representing future projections in general-purpose traffic, freight truck, freight rail and passenger rail growth, and including expected background projects. This scenario would reflect S Holgate St remaining open to all modes and include improvements to traffic operations and safety as applicable.
- **Future Year (2045) Build:** including three scenarios chosen for more detailed evaluation in coordination with the TWG.

EVENT SCENARIO

Turning movement counts will be collected on S Holgate St before, during and after an event and compared to non-event days to identify any traffic pattern and volume differences. This data will be combined with information on the annual events at T-Mobile Park and Lumen Field to provide a qualitative overview of how people walking, biking and driving use S Holgate St after a large event and how each Build alternative could affect mobility on event days at either of the facilities.

MODELING ASSUMPTIONS

Vissim and Synchro software packages will be used in the traffic operations modelling, as shown in **Figure 2**. Traffic analysis for S Holgate St will be completed using Vissim, while other study area intersections will be analyzed in Synchro. This section documents the key coding assumptions for each software program and other relevant geometric and traffic control assumptions for the traffic operations analysis.

VISSIM CODING ASSUMPTIONS

The Vissim model development process follows the WSDOT Vissim Protocol[5] as a guideline. This section describes the steps and assumptions to be made in coding the Vissim model over each scenario and outlines the model calibration process to be used.

MODEL ELEMENTS

Network Coding

This step involved coding the geometry of the entire network. Network objects and attributes added in this step include the following:

- Physical roadway (links and connectors)
- Intersection geometry (links and connectors)
- Pedestrian crosswalk links
- Traffic control (speed distributions and decisions, reduced speed areas, automatic speed limitation in curves, conflict areas, priority rules, stop signs, signal heads, detectors, and signal timing)

Traffic control data will be obtained from SDOT, aerial photos, Google Street View, and field observations. The data will include posted speeds, stop bar and stop sign locations, traffic signal timing data, and detector plans.

Traffic Demand and Routing

The pedestrian counts collected will be used as pedestrian inputs for each crossing location in the model. Bicycles will also be modeled based on collected counts by movement.

The Vissim model demand will be set up by balancing collected traffic counts separately for general-purpose cars and heavy trucks. Demand will be input in 15-minute intervals at each network entry point in the study area. Vehicle routes through the study area will be static (i.e. they will not dynamically update based on traffic conditions) and will be consistent throughout the one-hour peak period.

[5] WSDOT, *Protocol for Vissim Simulation, September 2014*.

Simulation and Seeding Period

The FHWA's Traffic Analysis Toolbox[6] recommends a seeding period equal to or greater than twice the estimated travel time at free-flow conditions to traverse the entire network. To be conservative and allow for the congestion levels and queues to develop to peak conditions, a seeding period of 15 minutes will be used.

The Vissim simulation period will include a 15-minute seeding period (initialization period) followed by the peak one hour.

Traffic Volume Peaking Profile

Peak hour volume inputs in Vissim will include a "peaking profile" with volumes in 15-minute increments. The peaking profiles at all roads in Vissim will be developed and applied individually based on count data.

Vehicle Speed Profiles

Due to the close spacing of intersections and rail crossings along S Holgate St, collecting field data for free flow speed (desired speed) is not achievable. Therefore, the speed distributions will be based on research from the *National Cooperative Highway Research Program (NCHRP) Report 504 – Design Speed, Operating Speed, and Posted Speed practices*, Transportation Research Board (TRB), 2003, based on the posted speeds for the roadways in the Vissim model.

Vehicle Compositions

The volume inputs will include heavy vehicle percentages based on the traffic count data. The heavy vehicle percentages will be rounded to the nearest one percent from the existing count peak hours and the percentages applied to the corresponding vehicle inputs in the model network. The North American fleet default from Vissim will be used for this modeling, as is consistent with the Vissim protocol.

Transit, Rail (heavy and passenger), and LRT

While there are no transit routes specifically along S Holgate St, existing transit routes (including LRT) crossing S Holgate St, stops, and headways will be coded into the Vissim model based on information from the King County Metro and Sound Transit websites. If available from King County Metro, individual bus stop dwell time will be coded. In the absence of dwell time information, an average dwell time distribution will be coded.

Gate-down information will be coded in the Vissim model including frequency of rail crossing events, time-of-day, and duration of gate-down events for the maintenance yard rail crossing (DOT 085583Y), the BNSF mainline crossing (DOT 927461X), and the Sound Transit LRT crossing.

[6] Traffic Analysis Toolbox Volume III: Guidelines for Applying Traffic Microsimulation Modeling Software. Federal Highway Administration (FHWA). August 2003.

ERROR CHECKING

The error checking portion of the model development will focus on identifying and resolving coding errors before the calibration process begins. Error checking is a process that includes a review of the coded data and a review of the animation. All coded data (geometry, speeds, signal timing data, stop and yield controls, transit data, and traffic volumes) will be reviewed by the model developer and quality control reviewer.

A review of the animation will be conducted to determine locations where conflict areas or priority rules might be missing, where signal timing may not be operating correctly or any other locations where generally coded parameters may have been overlooked.

CALIBRATION / VALIDATION

Simulation results will be based on an average of at least 10 validated simulation runs.

Turning movement counts (TMCs) in Vissim will be validated using the GEH statistic,[7] a formula used to provide tolerances for a comparison between field data and simulation outputs. These statistics are used as part of the WSDOT's Vissim protocol for calibration.

The simulation model will be used to measure motor vehicle delay relative to desired speed as an indicator of congestion. This will be validated to field observations and Google congestion maps (ideally on the day TMCs are collected, but at a minimum a day that represents typical operation).

FUTURE YEAR MODEL ASSUMPTIONS

The Future Baseline Vissim model will use the Existing calibrated model as a starting point. In addition to the existing roadway and traffic conditions, the Baseline model will include:

- Signal timing optimization (Synchro will be used to optimize timings)
- Adjusting left-turn and side-street movement split to balance their delay with other movements, based on engineering judgment.
- Updating TSP timing based on changes to signal timing while reflecting existing TSP levels.
- Anticipated background projects including Amtrak's maintenance facility expansion project.

SYNCHRO CODING ASSUMPTIONS

The following assumptions will apply to the Synchro models for all modeling scenarios:

- Roadway geometry data will be obtained from aerial photos, Google Street View, and field observations. The data will include roadway segment lengths, number of lanes, lengths of storage bays and tapers, and pedestrian crossing locations and widths.
- Traffic control data will be obtained from SDOT, aerial photos, Google Street View, and field observations. The data will include posted speeds, stop bar and stop sign locations, traffic signal timing data, and detector plans.

[7] Geoffrey E. Havers Statistic is a formula used in traffic engineering, traffic forecasting, and traffic modeling to compare two sets of traffic volumes.

- The ideal saturation flow rate is set to 1750, following WSDOT's Synchro and SimTraffic Protocol for urban areas.
- Parking interactions are not modeled.
- Heavy vehicle percentages are based on existing TMCs and entered by approach. If future truck volumes are anticipated to significantly increase, heavy vehicle percentages will be adjusted accordingly.
- Anticipated signal and pedestrian crossing timings after the construction of curb and bus bulb-outs at 4th Ave S and S Holgate St
- Leading pedestrian intervals (LPIs) will be included in timing plans
- Flashing "Don't Walk" settings for pedestrian crossings are updated based either on existing signal timings or on the designed crossing distance.
- Transit Signal Priority (TSP) is not modeled.

The Future Baseline Synchro model will use the Existing model as a starting point. In addition to the existing roadway and traffic conditions, the Baseline model will include:

- Signal timing split time optimization
  - Cycle lengths will not be changed unless necessary and then will be considered an improvement and noted as such.
- Adjusting left-turn and side-street movement split to balance their delay with other movements, based on engineering judgment.
- Anticipated background projects as identified by SDOT and TWG

MEASURES OF EFFECTIVENESS

Measures of Effectiveness (MOEs) will be output from the Synchro and Vissim models over each scenario as shown in Table 3.

TABLE 3: SYNCHRO AND VISSIM OUTPUT MEASURES OF EFFECTIVENESS

MEASURE OF EFFECTIVENESS	SYNCHRO MODEL	VISSIM MODEL
DELAY AND LEVEL OF SERVICE	Calculated by vehicle movement at each study intersection. The peak 15-minute period will be analyzed in each scenario	Measured by vehicle movement at each study intersection and rail crossing, in 15-minute intervals
QUEUES	50th- and 95th-percentile queues calculated by movement, using the peak 15-minute period	Average and 95th-percentile queues measured by movement or approach, measured in 120-second intervals.
TRAVEL TIME	Travel time will be computed for up to five routes by considering the intersection control delay and the	Measured for selected routes along S Holgate St, in 15-minute intervals

MEASURE OF EFFECTIVENESS	SYNCHRO MODEL	VISSIM MODEL
	travel time at free-flow speed between intersections	
NETWORK-WIDE LATENT DEMAND	n/a	Measured as an overall number of vehicles not able to enter the network over the peak period
INTERSECTION CAPACITY	Calculated volume-to-capacity (v/c) ratio by intersection (an intersection is considered overcapacity with v/c > 1.0)	n/a

OTHER TRANSPORTATION SYSTEM CONSIDERATIONS

Beyond the operational analysis methods and assumptions discussed in the preceding sections, the project will also identify project impacts considering freight, pedestrians and bicyclists, and safety performance. The consideration of these impacts will be considered in the evaluation of alternatives for mitigating a potential closure of S Holgate St.

FREIGHT CONSIDERATIONS

Freight truck data for each entry and exit point managed by the Port of Seattle within the SODO study area will be requested from Northwest Seaport Alliance through the TWG. Freight data, including time-of-day ingress and egress volumes, will be collected at Terminal 46, Terminal 30, and Terminal 25 within the Port of Seattle, and (as available) at the BNSF SIG Yard. Additional freight truck operations data will also be requested from local industrial and commercial businesses through the SODO BIA and the TWG, and input will be incorporated from Northwest Seaport Alliance and the Port of Seattle on private sector origin and destination assets and facilities.

StreetLight data[8] will be used to analyze truck origin-destination data within the SODO study area and into/out of the area. The analysis results from StreetLight will be used to assess general routes for freight trucks and comparative proportions of truck trips traveling to/from various zones within SODO or along corridors in the district. It is understood that freight trucks operate differently than general vehicles and StreetLight's methodology for reporting freight data may have varying levels of accuracy. Where StreetLight data reports low/zero freight volume, stakeholder coordination will be required to fill in data gaps and make reasonable assumptions about freight travel patterns. Overall, regional trip patterns are assumed not to be included in this data. Data to be collected in this way includes freight trips, analyzed over a typical weekday.

The work done in this task is expected to be used in determining alternate freight routes with a potential S Holgate St closure and for use in communicating impacts of a closure with stakeholders.

PEDESTRIAN AND BICYCLE CONSIDERATIONS

An Existing Conditions Pedestrian and Bicycle Level of Traffic Stress (LTS) analysis for the SODO study area will be completed as part of this study, north-south from roughly S Royal Brougham Way to S Lander St and east-west from 1st Ave S to 6th Ave S. Data for this analysis will come from the City of Seattle GeoData portal to map existing pedestrian and bicycle facilities, speed limit data, and obtain existing characteristics of those facilities. Collected traffic count data will also be used in determining LTS along each segment. Project elements that impact pedestrians and bicycles, including specific safety countermeasures, will be identified. These project elements include geometric, channelization, and operational improvements.

The roadways to be studied for pedestrian and bicycle LTS are as follows:

[8] StreetLight Data is a transportation analytics platform that derives mobility insights from GPS and location-based services data.

- 1st Ave S, from S Royal Brougham Way to S Lander St
- Occidental Ave S, from Edgar Martinez Drive S to S Lander St
- 3rd Ave S, from S Royal Brougham Way to S Lander St
- 4th Ave S, from S Royal Brougham Way to S Lander St
- 6th Ave S, from S Royal Brougham Way to S Lander St
- S Royal Brougham Way, from 1st Ave S to 6th Ave S
- Edgar Martinez Drive S, from 1st Ave S to 4th Ave S (incl. staircase to 4th Ave S)
- S Holgate St, from 1st Ave S to 8th Ave S
- S Lander St, from 1st Ave S to 6th Ave S

EQUITY ANALYSIS

Replica analyzes trip origins and destinations and their associated characteristics and the demographics of people taking those trips. Origin and destination zones can be divided according to areas as small as Census Block Groups. Trip patterns will be filtered to only those using S Holgate St at the rail crossings between Occidental Ave S and 3rd Ave S. Demographic information analyzed with Replica will include the following:

- Race & Ethnicity
- Private Auto Availability
- Income levels (poverty data)
- Age
- Employment Status
- Language
- Education
- Tenure (homeowner vs. renter)

SAFETY PERFORMANCE ANALYSIS

The crash analysis for the study area will be conducted to discover crash trends, identify safety priority locations, and propose safety countermeasures for vehicles as well as people walking and rolling.

The previous five years of crash data will be obtained from WSDOT within the SODO study area, as well as crash reports from SDOT as available. Any available, relevant safety, injury and incident data related to the at-grade light rail crossings at S Lander St and S Holgate St will be requested from Sound Transit and/or the Federal Transit Administration (FTA). Additionally, the following FRA Accident/Incident reports will be obtained:

- 927461X: S Holgate St west of 3rd Ave S (6x tracks)
- 085583Y: S Holgate St east of Occidental Ave S (2x tracks)
- 101007C: S Holgate St east of 6th Ave S
- 101004G: S Lander St east of 6th Ave S

- 085585M: S Horton St west of 4th Ave S
- 085886U: S Spokane St (westbound) west of 4th Ave S
- 085587B: S Spokane St (eastbound) west of 4th Ave S

Near-miss video analytics will be used to identify incidents which do not result in a crash but represent a high risk of crash occurrence. Video analytics will be collected over a seven-day period focused on the primary rail crossing on S Holgate St west of 3rd Ave S, including during a large stadium event (dates to be confirmed with SDOT).

At-grade railroad crossing diagnostics at 927461X (S Holgate St), 085586U (S Spokane St, westbound), 085587B (S Spokane St, eastbound), and 085585M (S Horton St) will be completed in coordination with SDOT, FRA, BNSF, and Amtrak. The diagnostics process includes a comprehensive safety evaluation to identify potential hazards and ensure compliance with federal regulations. This assessment examines track conditions, signaling systems, and operational practices ultimately providing recommendations for potential enhancements to improve rail safety.

APPENDIX E. VISSIM CALIBRATION MEMORANDUM

DKS 719 SECOND AVENUE, SUITE 1250, SEATTLE, WA 98104 • 206.382.9800 • DKSASSOCIATES.COM

S HOLGATE ST CROSSING STUDY

DATE: August 15, 2025

TO: Sara Zora | Seattle Department of Transportation

FROM: Wintana Miller, PE, PTOE | DKS Associates
Connor Wolff, AICP | DKS Associates
Joel Rabinovitz | DKS Associates

SUBJECT: Vissim Calibration Project #24798-000

INTRODUCTION

The S Holgate St Crossing Study is a planning effort led by the Seattle Department of Transportation (SDOT) to evaluate transportation conditions along S Holgate St and the broader multimodal network in the South of Downtown (SODO) neighborhood. Supported by a $2 million Federal Railroad Administration (FRA) grant through the Railroad Crossing Elimination Program, the study aims to address safety, mobility, and access challenges in a dynamic freight and rail corridor. This memo outlines the Vissim model methods, assumptions, and calibration results for the existing conditions on S Holgate St.

PROJECT BACKGROUND

S Holgate St is a key east-west arterial located in the heart of Seattle's SODO neighborhood, within the Duwamish Manufacturing/Industrial Center, the largest freight hub in the Pacific Northwest and a critical link in Washington State's freight, commuter rail, and Amtrak systems. It plays an essential role in connecting freight traffic to I-5, providing event access to major stadiums, and facilitating daily operations for the Port of Seattle, BNSF, and Amtrak. S Holgate St also supports general-purpose travel, connecting the Beacon Hill neighborhood to SODO and downtown Seattle. The corridor currently features multiple at-grade rail crossings, used by BNSF Railway, Amtrak, and Sound Transit, that are among the highest-risk in the state due to the convergence of high rail activity, significant freight truck movement, and vulnerable road users in a constrained urban environment.

Amtrak is planning to expand its maintenance and layover facility in SODO. In anticipation of this project, BNSF and Amtrak have requested that the City explore the potential permanent closure of S Holgate St between Occidental Ave S and 3rd Ave S. Such a closure would facilitate rail yard

operations and improve facility security but would also require evaluation of impacts to the transportation network and adjacent corridors. The analysis supports SDOT's goal of ensuring that future changes to the rail network do not compromise safety, freight mobility, or access for people walking, rolling, biking, or driving. The study supports SDOT's Vision Zero commitment to eliminate traffic fatalities and serious injuries by identifying existing safety issues and evaluating the impacts of potential changes, particularly for vulnerable road users. It will also assess what infrastructure or operational improvements may be needed to maintain east-west connectivity in SODO, especially for freight and goods movement.

DATA COLLECTION

Study Area

The Vissim model extents for this study were along S Holgate St between 1st Ave S and Airport Way S as shown in Figure 1. All intersections are signalized except for S Holgate St and Occidental Ave S and S Holgate St and 3rd Ave S which are stop-controlled. Additionally, three active at-grade railway crossings were modeled which include the Sound Transit LRT tracks east of 4th Ave S (adjacent to the SODO Busway), BNSF mainline tracks west of 3rd Ave S (DOT#927461X), and Amtrak maintenance facility tracks east of Occidental Ave S (DOT#085583Y).

FIGURE 1. VISSIM STUDY AREA

Traffic Counts

Traffic counts were conducted by IDAX on Tuesday, April 22nd, 2025. Counts were collected during the PM peak period from 4-6 PM and during the AM peak period from 7-9 AM at each study intersection.

TABLE 1. STUDY INTERSECTIONS

#	INTERSECTION	TRAFFIC CONTROL
4	1st Ave S & S Holgate St	Signal
7	Occidental Ave S & S Royal Brougham Way	Signal
8	Occidental Ave S & Edgar Martinez Dr S	Side-Street Stop

9	Occidental Ave S & S Holgate St	Side-Street Stop
10	S Holgate St Rail Crossing e/o Occidental Ave S (**DOT 085583Y**)	Rail Crossing
11	S Holgate St Rail Crossing w/o 3rd Ave S (**DOT 927461X**)	Rail Crossing
14	3rd Ave S & S Holgate St	Side-Street Stop
18	4th Ave S & S Holgate St	Signal
21	SODO Busway / Link Light Rail Crossing & S Holgate St	Rail Crossing + Signal
23	6th Ave S & S Holgate St	Signal
27	Airport Way S & S Holgate St	Signal

Train Surveys

Train surveys were conducted over 24-hour periods. The following rail crossings were surveyed over the days outlined below:

- East of SODO Busway: Tuesday, April 22nd, 2025
- West of 3rd Ave S: Sunday, April 20th – Saturday, April 26th, 2025
- East of Occidental Ave S: Sunday, April 20th – Saturday, April 26th, 2025

The train survey summary and a detailed analysis of gate down and train arrival times is provided in the Calibration Summary section (see page 7).

Corridor Travel Time

Travel time data was retrieved from the Google Travel Time API. This method scrapes estimated travel time streamed throughout specified days from Google Maps in 5-minute increments. Travel time data was collected from Monday, June 9th to Thursday, June 12th, 2025, to represent typical weekday peak periods. Two travel time segments shown in Figure 2 were utilized to compare the Google Travel Time data to the Vissim Model:

- Westbound S Holgate St: From the Airport Way S Overpass to west of Occidental Ave S
- Eastbound S Holgate St: From west of Occidental Ave S to Airport Way S Overpass.

FIGURE 2. TRAVEL TIME SEGMENT EXTENT

MODEL DEVELOPMENT METHODOLOGY

Network Coding

Coding of the study area Vissim network included the following roadway attributes:

- Physical roadway (links and connectors)
- Intersection geometry (links and connectors)
- Pedestrian crosswalk links
- Traffic control (speed distributions and decisions, reduced speed areas, priority rules, stop signs, signal heads, detectors, signal timing)

Free flow speed (desired speed) distributions were developed using the WSDOT Vissim Protocol[1] methods for links without measured speed data and based on posted speed limits.

Traffic Demand and Routing

The pedestrian counts were used as pedestrian inputs for crossing locations in the Vissim model.

For vehicular volumes (cars and heavy vehicles), the peak hour volumes for AM and PM were first balanced throughout the study area network based on the collected turning movement counts. With a balanced set of peak hour volumes, Origin-Destination Matrix Estimation (ODME) tools in Visum were used to produce an origin/destination (OD) matrix, which was then assigned to generate route and volume data. These vehicle routes and demand were exported from Visum to Vissim to generate vehicle inputs and routing decisions for cars and heavy vehicles throughout the Vissim network.

Traffic Volume Peaking Profile

A peaking profile describes the variability in traffic flow throughout a defined period. For this study, a peaking profile was developed from the count data for each peak hour at 15-minute increments to show the varying throughput along the S Holgate St corridor. The AM peak hour is from 7:30 – 8:30 AM and the PM peak hour is from 4:00 – 5:00 PM. The volume inputs in Vissim were set as 15-minute increments to reflect the study period's peaking profile. These were based on the April 22nd, 2025 count data. Figure 3 and Figure 4 show the peaking profiles for the AM and PM periods respectively.

[1] WSDOT Protocol for Vissim Simulation

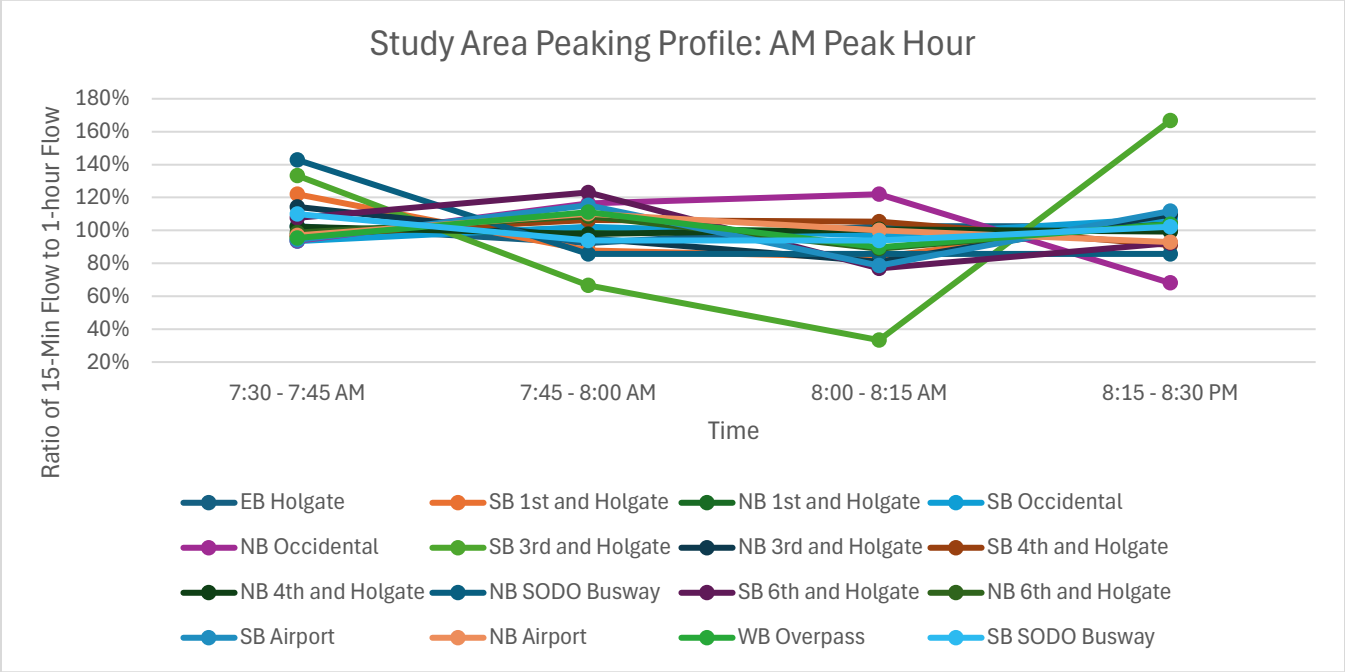


FIGURE 3. AM PEAK HOUR PEAKING PROFILE

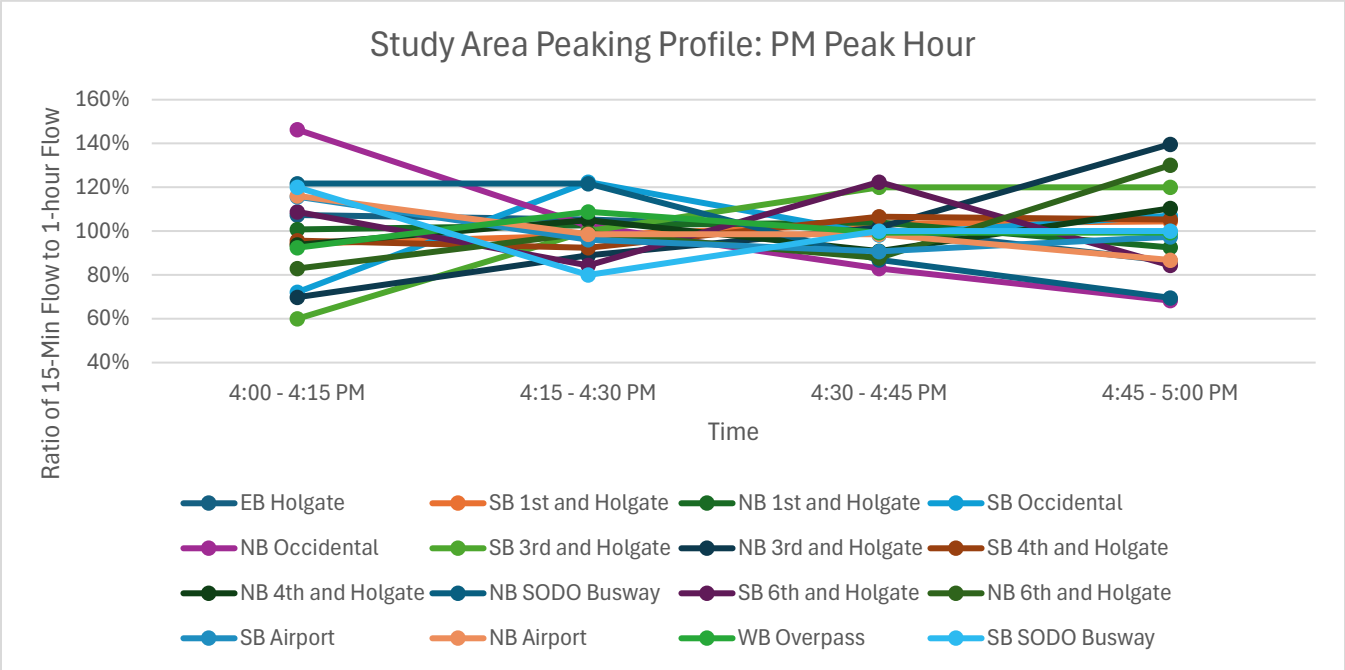


FIGURE 4. PM PEAK HOUR PEAKING PROFILE

Vehicle Speed Profiles

Posted speed limits were used to develop the speed profiles for the roadways in the Vissim model. Desired speed decisions were coded at the entrance to each roadway link to ensure vehicles attempt to travel at posted speed limits in uncongested conditions.

Simulation Period and Seeding Period

The FHWA's Traffic Analysis Toolbox recommends a seeding period equal to or greater than twice the estimated travel time at free-flow conditions to traverse the entire network. Based on the size of the network and to allow for congestion levels and queues to develop to peak conditions, a seeding period of 15 minutes was chosen.

The Vissim simulation period includes a 15-minute seeding period (initialization period) followed by a one-hour simulation period.

Error Checking

The error checking portion of the model development focused on fixing coding errors before the calibration process began. Error checking is a process that includes a review of the coded data and a visual review of the simulation runs. All coded data (geometry, speeds, signal timing data, stop and yield controls, transit data, and traffic volumes) was reviewed by the model developer and quality control reviewer.

A review of the animation was conducted to determine locations where conflict areas or priority rules might be missing, where signal timing may not be operating correctly or any other locations where generally coded parameters may have been overlooked.

Calibration

Upon the completion of the error checking, DKS calibrated the simulation models following the "Traffic Throughput and Queuing Calibration Criteria" in the WSDOT Protocol for Vissim Simulation. The model validation was based on 11 simulation runs to account for variation, based on guidance in the WSDOT Vissim Protocol.

The following calibration targets were used for the existing year Vissim models:

- A quantitative comparison between real-world data and model output results for traffic volumes.
- A qualitative comparison (visual inspection) of queuing and general operations along the entire study area based on comparison of collected data and field observation.
- Vehicle travel time along multiple corridors in some models.

The initial calibration target set was for traffic volume throughput compared to input. Per the WSDOT Vissim Protocol guidelines, individual turn movements at all intersections within the calibration area were calibrated within an acceptable GEH Statistic (<5). The GEH statistic was calculated for all study intersections for each peak hour model period.

The travel time segments used in calibration were as follows:

- Westbound S Holgate St: From the Airport Way S Overpass to west of Occidental Ave S

- Eastbound S Holgate St: From west of Occidental Ave S to Airport Way S Overpass.

To best replicate field conditions, the Vissim model calibration process implemented a variety of standard techniques where appropriate to match the congestion and queuing observed. These included:

- Lane change distance on turning movement connectors to capture upstream lane utilization and vehicle positioning.
- Intersection "keep clear" zones through congested intersections.
- Gate down and train arrival times that follow the observed distributions from the train surveys

CALIBRATION SUMMARY

This section summarizes model alignment with measures used to calibrate the model to existing conditions. The variables used in the calibration process include the GEH statistics, Travel Time, and visual queuing assessments.

GEH

The GEH statistic is a formula used to compare two sets of traffic volumes and indicate goodness-of-fit between observed and modeled traffic throughput[2]. A GEH statistic check at all count locations indicates that the initial calibration target of traffic volumes was met per WSDOT Vissim Protocol guidelines. All movements meet the criteria of <5 and most movements have a GEH < 1 in the AM and PM periods. See Attachment 1 for full results.

TRAVEL TIME

The vehicle travel time outputs from the Vissim model were compared to travel time collected from the Google Travel Time API. Table 2 shows the travel time calibration results. In both the AM and PM period, the travel time calibration passes the WSDOT criteria. Due to the highly variable number and length of freight train crossings on the corridor, the minimum and maximum travel times within the model diverge from those estimated with Google data. However, the average travel time for each period meets the calibration criteria and the modeled freight crossings reflect the train surveys conducted.

[2] See WSDOT's Protocol for Vissim Simulation (section 6.2.4.1 starting on pg. 58) for a definition of and guidance around using a GEH statistic to validate traffic demand

TABLE 2. TRAVEL TIME CALIBRATION RESULTS

TRAVEL TIME SEGMENT	PERIOD	TRAVEL TIMES FROM GOOGLE (MINUTES)			MODELED TRAVEL TIMES (MINUTES)			DIFF. (SEC)	CONFIDENCE[3] INTERVAL (SEC)	STATUS
		Avg	Min	Max	Avg	Min	Max			
WESTBOUND	AM	3:19	2:44	8:03	3:58	1:18	13:48	39	+/-52 s	Pass
EASTBOUND		2:57	2:30	3:40	2:52	1:12	7:21	-5	+/- 41s	Pass
WESTBOUND	PM	3:03	2:38	3:56	3:23	1:25	8:20	20	+/- 43s	Pass
EASTBOUND		2:54	2:27	3:35	2:38	1:16	5:48	-17	+/- 39s	Pass

TRAIN SURVEYS

To accurately model the existing corridor operations train surveys were conducted at three locations along S Holgate St:

- East of SODO Busway: Tuesday, April 22nd, 2025
- West of 3rd Ave S: Sunday, April 20th – Saturday, April 26th, 2025
- East of Occidental Ave S: Sunday, April 20th – Saturday, April 26th, 2025

The train surveys were analyzed to determine an average distribution of gate down time and crossing occurrences throughout the AM and PM periods as shown in the following tables. The east of Occidental Ave S crossing had limited crossing events and did not require this level of analysis.

TABLE 3. TRAIN SURVEY SUMMARY FOR HOLGATE W-O 3RD

SUMMARY FOR HOLGATE W-O 3RD	AM	PM
AVERAGE GATE DOWN TIME (S)	117.00	152.00
# OF TIMES	7.67	5.33
MAX GATE DOWN TIME	0:05:39	0:02:37
MIN GATE DOWN TIME	0:00:16	0:00:50
MAX TIME BETWEEN GATE DOWNS	0:15:07	0:19:29
MIN TIME BETWEEN GATE DOWNS	0:00:25	0:00:08

TABLE 4. TRAIN SURVEY SUMMARY FOR SODO BUSWAY

SUMMARY FOR SODO BUSWAY	AM	PM
AVERAGE GATE DOWN TIME (S)	0:00:45	0:00:47
# OF TIMES	9.00	10.00
MAX GATE DOWN TIME	0:00:51	0:01:07
MIN GATE DOWN TIME	0:00:39	0:00:38

[3] See WSDOT's Protocol for Vissim Simulation (section 6.2.4.3 starting on pg. 65) for a definition of the confidence interval calculation.

SUMMARY FOR SODO BUSWAY	AM	PM
MAX TIME BETWEEN GATE DOWNS	0:10:45	0:09:36
MIN TIME BETWEEN GATE DOWNS	0:00:42	0:01:01

The summary statistics were used to inform the frequency of crossings and the limits for gate down time and spacing. Histograms were used to analyze the frequency distributions for gate down time and spacing to determine the appropriate number of specific gate down durations and their allocation across the analysis periods. The histograms developed are shown in full in Attachment 2. The resulting gate down durations and time during each simulation period are shown in Table 5 - Table 10.

TABLE 5. SODO BUSWAY CROSSING AM PEAK

DEPARTURE TIME	GATEDOWN TIME
7:45:00 AM	45 seconds
7:47:40 AM	45 seconds
7:55:40 AM	45 seconds
7:58:40 AM	45 seconds
8:06:00 AM	45 seconds
8:16:45 AM	45 seconds
8:21:05 AM	45 seconds
8:21:45 AM	45 seconds
8:26:45 AM	45 seconds

TABLE 6. WEST OF 3RD AVE S CROSSING AM PEAK

DEPARTURE TIME	GATEDOWN TIME
7:45:00 AM	40 seconds
7:56:40 AM	40 seconds
8:00:00 AM	300 seconds
8:05:00 AM	40 seconds
8:06:40 AM	120 seconds
8:10:00 AM	120 seconds
8:23:00 AM	40 seconds

TABLE 7. EAST OF OCCIDENTAL AVE S AM PEAK

DEPARTURE TIME	GATEDOWN TIME
7:45:00 AM	120 seconds

TABLE 8. SODO BUSWAY CROSSING PM PEAK

DEPARTURE TIME	GATEDOWN TIME
4:05:00 PM	45 seconds
4:15:00 PM	60 seconds
4:23:00 PM	45 seconds
4:31:20 PM	45 seconds
4:33:20 PM	45 seconds
4:40:40 PM	60 seconds
4:42:10 PM	60 seconds
4:44:40 PM	45 seconds
4:45:40 PM	45 seconds

TABLE 9. WEST OF 3RD AVE S CROSSING PM PEAK

DEPARTURE TIME	GATEDOWN TIME
4:01:30 PM	60 seconds
4:05:00 PM	60 seconds
4:18:40 PM	60 seconds
4:20:40 PM	60 seconds
4:35:00 PM	150 seconds

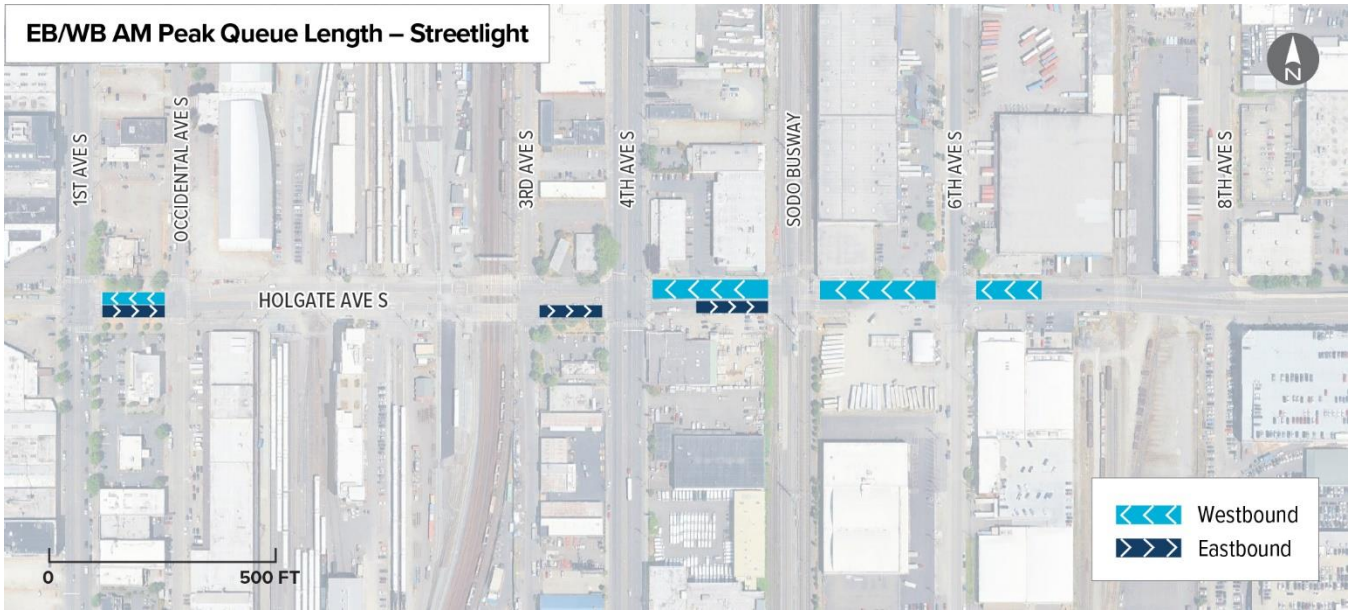
TABLE 10. EAST OF OCCIDENTAL AVE S PM PEAK

DEPARTURE TIME	GATEDOWN TIME
4:15:00 PM	60 seconds
4:30:00 PM	150 seconds

QUEUE LENGTHS

Queue lengths were compared to typical traffic data streamed from Google Maps API and a StreetLight Data Congested Segments analysis. The StreetLight Data analysis showed congestion associated with rail crossings in eastbound and westbound directions as shown Figure 5.

AM Peak



PM Peak

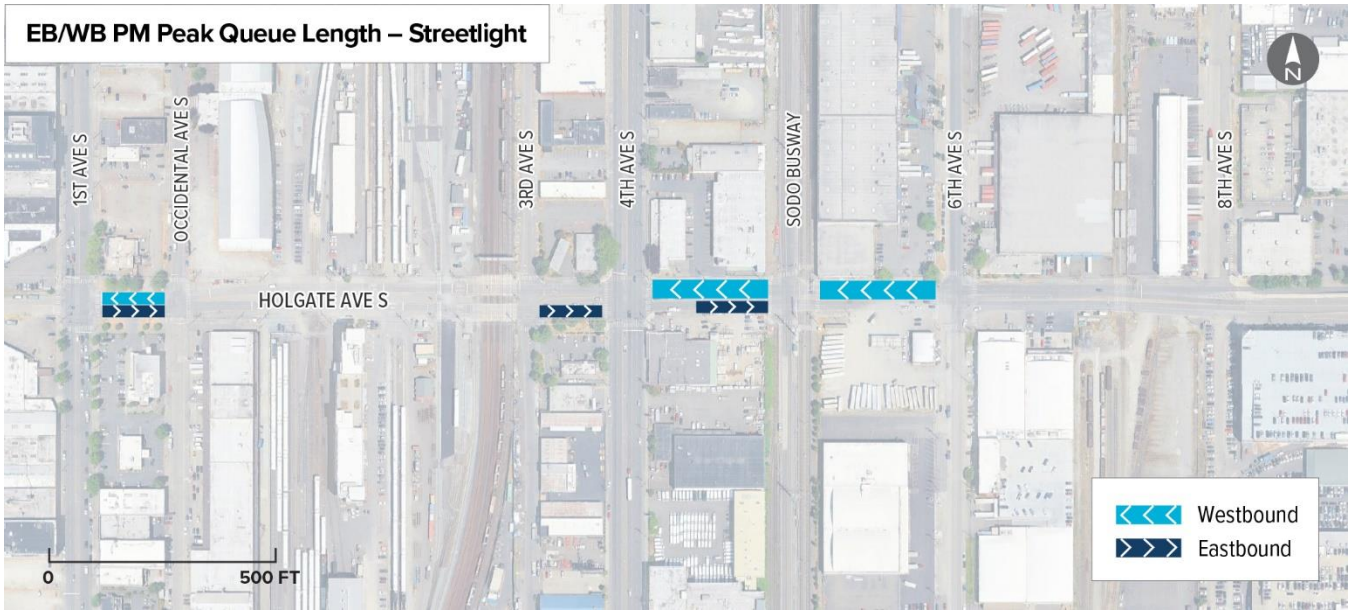
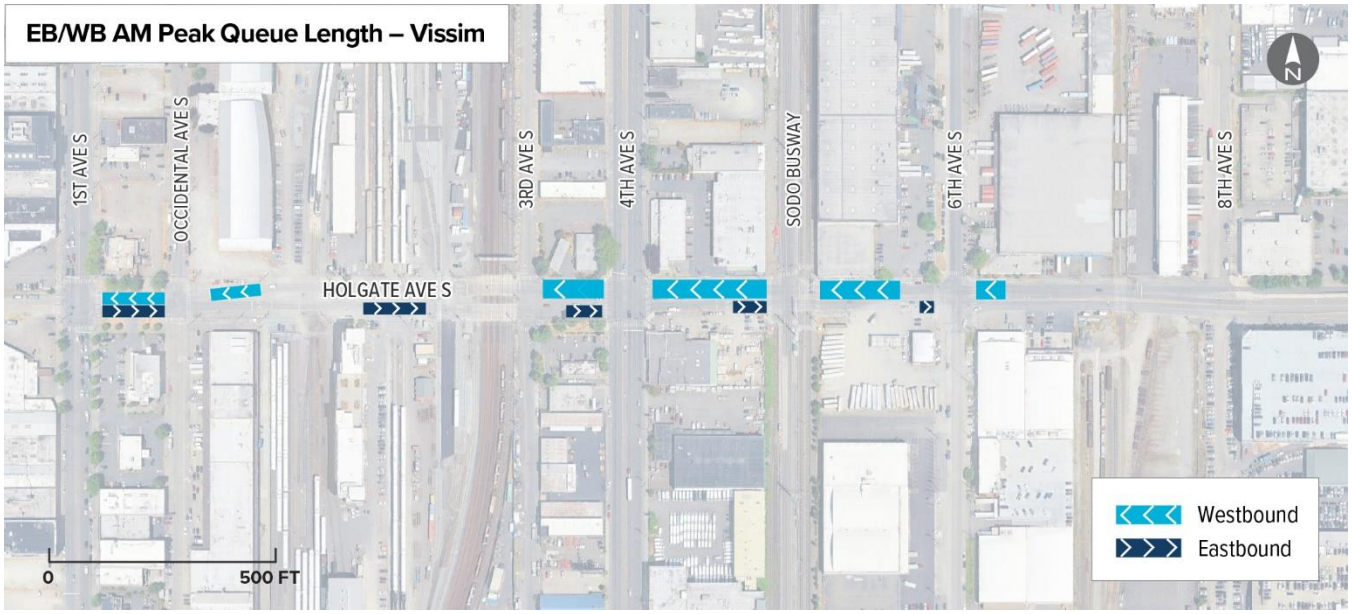


FIGURE 5: STREETLIGHT DATA PEAK PERIOD QUEUE LENGTHS

95th percentile and maximum queue lengths are reported for the AM and PM periods. In both periods, significant queuing occurred in the westbound direction caused by rail crossing events and matched the StreetLight Data analysis. Starting from the Sound Transit LRT rail crossing east of S Holgate St and 4th Ave S and ending at 6th Ave S, 95th percentile queue lengths exceeded storage capacity in the westbound direction, extending through and influencing queueing at the closely spaced upstream intersections. The Vissim queueing results showed longer westbound queues in the AM due to the distribution of gate down time and frequency. Eastbound queue lengths in the

AM and PM periods are also closely related to rail crossing events and show patterns of queuing at rail crossing gates that were found in StreetLight. Figure 6 shows the average maximum queue lengths at each intersection across the simulation.

AM Peak



PM Peak

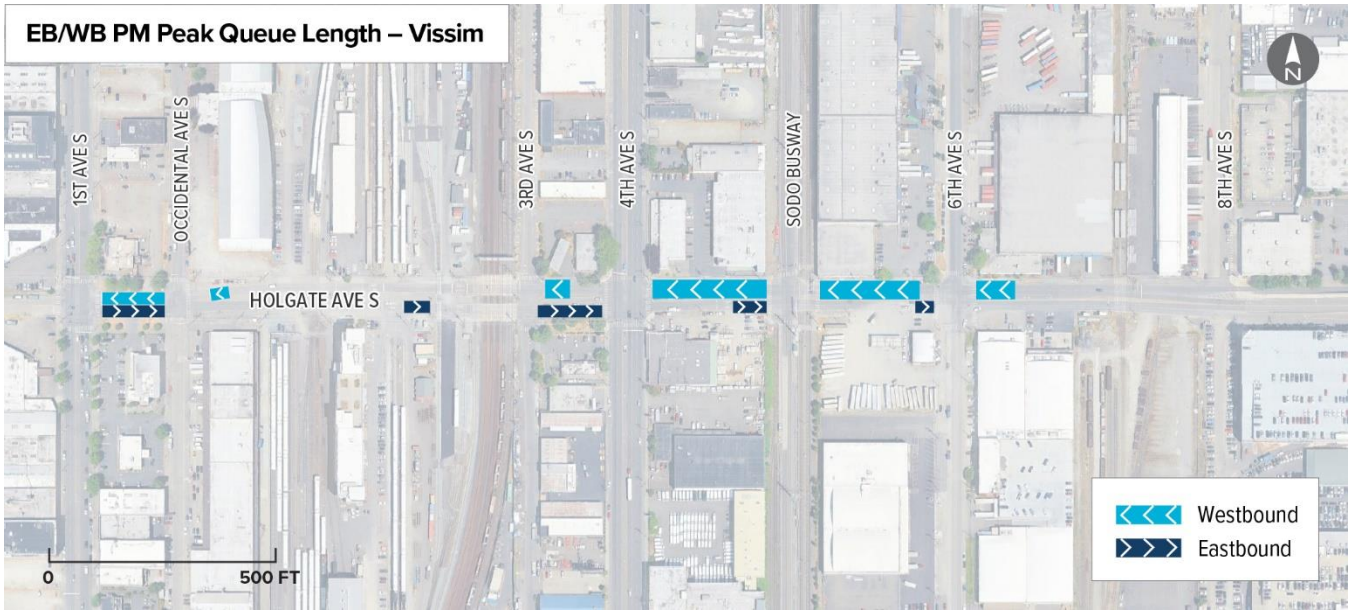


FIGURE 6: SIMULATED PEAK PERIOD MAXIMUM QUEUE LENGTHS

95th percentile queues are reported in Table 11 and Table 12 for the AM and PM periods, respectively.

TABLE 11: 95TH PERCENTILE QUEUE LENGTHS AM PEAK PERIOD

APPROACH	MOVEMENT	HOLGATE AND 1ST	HOLGATE AND OCCIDENTAL	HOLGATE AND 3RD	HOLGATE AND 4TH	SODO BUSWAY AND HOLGATE	HOLGATE AND 6TH	HOLGATE AND AIRPORT
NB	LEFT	25	-	-	85	-	-	70
	THRU	265	85	80	775	130	245	160
	RIGHT	-	-	-	-	-	-	-
SB	LEFT	50	-	-	135	-	-	-
	THRU	135	215	60	260	80	155	120
	RIGHT	-	-	-	-	-	-	-
EB	LEFT	-	-	-	**150**	-	35	80
	THRU	70	0	180	105	110	85	-
	RIGHT	-	-	-	-	-	-	60
WB	LEFT	-	-	-	**285**	-	60	-
	THRU	**255**	130	**270**	**315**	250	150	-
	RIGHT	-	-	-	-	-	-	-

Bold = Exceeds Storage Capacity

TABLE 12: 95TH PERCENTILE QUEUE LENGTHS PM PEAK PERIOD

APPROACH	MOVEMENT	HOLGATE AND 1ST	HOLGATE AND OCCIDENTAL	HOLGATE AND 3RD	HOLGATE AND 4TH	SODO BUSWAY AND HOLGATE	HOLGATE AND 6TH	HOLGATE AND AIRPORT
NB	LEFT	60	-	-	50	-	-	125
	THRU	265	65	45	390	120	260	50
	RIGHT	-	-	-	-	-	-	-
SB	LEFT	85	-	-	**280**	-	-	-
	THRU	305	135	35	470	120	220	255
	RIGHT	-	-	-	-	-	-	-
EB	LEFT	-	-	-	**240**	-	25	80
	THRU	**205**	0	105	**190**	160	140	-
	RIGHT	-	-	-	-	-	-	65
WB	LEFT	-	-	-	**365**	-	90	-
	THRU	**235**	35	90	**365**	**330**	180	-
	RIGHT	-	-	-	-	-	-	-

Bold = Exceeds Storage Capacity

CONCLUSION

The Vissim Model met all calibrations metrics analyzed including GEH, travel time, and queuing. Consistent with existing conditions in the field, the westbound direction experiences higher delay and longer queues, compared to the eastbound direction, which spillback through upstream intersections from 4th Ave S to 6th Ave S. The eastbound direction experiences delay and queuing associated with the rail crossing gates. The queues do not spill back to upstream intersections. Side street operations were found to be affected by congestion on S Holgate St and rail crossing events with movements crossing and turning on to S Holgate St experiencing high delay and long queues.

ATTACHMENTS

ATTACHMENT 1. GEH RESULTS

ATTACHMENT 2. GATE DOWN DISTRIBUTION

ATTACHMENT 1. GEH RESULTS

AM PEAK

PM PEAK

TABLE: GEH

Intersection Name	Movement	Input Volume	VISSIM Output Volume	GEH
Holgate and 1st	NBL	25.026587	23	0.4
Holgate and 1st	NBT	699.98497	695	0.2
Holgate and 1st	NBR	79.554173	80	0.0
Holgate and 1st	SBL	41.766664	45	0.5
Holgate and 1st	SBT	297.99599	295	0.2
Holgate and 1st	SBR	49.998932	48	0.3
Holgate and 1st	EBL	13.000261	15	0.5
Holgate and 1st	EBT	17.898501	17	0.2
Holgate and 1st	EBR	13.000261	12	0.3
Holgate and 1st	WBL	105.52459	109	0.3
Holgate and 1st	WBT	116.48144	119	0.2
Holgate and 1st	WBR	79.643444	74	0.6
Holgate and Occidental	NBL	6.075838	6	0.0
Holgate and Occidental	NBT	104.99936	105	0.0
Holgate and Occidental	NBR	29	26	0.6
Holgate and Occidental	SBL	10.803128	10	0.2
Holgate and Occidental	SBT	69.026917	69	0.0
Holgate and Occidental	SBR	153.67236	151	0.2
Holgate and Occidental	EBL	45.248438	45	0.0
Holgate and Occidental	EBT	84.920027	86	0.1
Holgate and Occidental	EBR	9.050874	11	0.6
Holgate and Occidental	WBL	28.555476	25	0.7
Holgate and Occidental	WBT	141.90127	145	0.3
Holgate and Occidental	WBR	30.258018	29	0.2
Holgate and 3rd	NBL	6.322562	6	0.1
Holgate and 3rd	NBT	25.026587	23	0.4
Holgate and 3rd	NBR	50.823778	52	0.2
Holgate and 3rd	SBL	0.819316	1	0.2
Holgate and 3rd	SBT	7.000138	6	0.4
Holgate and 3rd	SBR	8.358529	7	0.5
Holgate and 3rd	EBL	3.090654	2	0.7
Holgate and 3rd	EBT	105.73068	106	0.0
Holgate and 3rd	EBR	16.286736	15	0.3
Holgate and 3rd	WBL	14.453058	14	0.1
Holgate and 3rd	WBT	186.03367	186	0.0
Holgate and 3rd	WBR	44.388082	44	0.1
Holgate and 4th	NBL	25.87406	25	0.2
Holgate and 4th	NBT	1447.9604	1445	0.1
Holgate and 4th	NBR	73.236924	75	0.2
Holgate and 4th	SBL	51.691406	48	0.5
Holgate and 4th	SBT	333.99335	331	0.2
Holgate and 4th	SBR	34.121287	38	0.6
Holgate and 4th	EBL	56.117165	57	0.1
Holgate and 4th	EBT	81.534309	86	0.5
Holgate and 4th	EBR	19.901115	16	0.9
Holgate and 4th	WBL	73.649278	68	0.7
Holgate and 4th	WBT	185.05828	179	0.4
Holgate and 4th	WBR	215.82856	207	0.6
SODO Busway and Holgate	NBL	0	0	
SODO Busway and Holgate	NBT	23.996526	24	0.0
SODO Busway and Holgate	NBR	1.658808	2	0.3
SODO Busway and Holgate	SBL	0.929228	0	1.4
SODO Busway and Holgate	SBT	12.042873	11	0.3
SODO Busway and Holgate	SBR	4.337391	3	0.7
SODO Busway and Holgate	EBL	1.593149	4	1.4
SODO Busway and Holgate	EBT	204.69067	206	0.1
SODO Busway and Holgate	EBR	0	0	
SODO Busway and Holgate	WBL	0	0	
SODO Busway and Holgate	WBT	470.19873	459	0.5
SODO Busway and Holgate	WBR	11.51049	11	0.2
Holgate and 6th	NBL	66.321931	64	0.3
Holgate and 6th	NBT	90.999523	89	0.2
Holgate and 6th	NBR	52.190601	53	0.1
Holgate and 6th	SBL	14.349377	14	0.1
Holgate and 6th	SBT	22.999036	24	0.2
Holgate and 6th	SBR	43.45537	42	0.2
Holgate and 6th	EBL	24.459148	25	0.1
Holgate and 6th	EBT	148.07259	149	0.1
Holgate and 6th	EBR	31.639486	34	0.4
Holgate and 6th	WBL	44.547788	44	0.1
Holgate and 6th	WBT	372.16695	369	0.2
Holgate and 6th	WBR	48.692206	44	0.7
Holgate and Aiport	NBL	74.84169	74	0.1
Holgate and Aiport	NBT	793.98185	790	0.1
Holgate and Aiport	SBT	397.99361	399	0.1
Holgate and Aiport	SBR	90.083882	89	0.1
Holgate and Aiport	EBL	41.905809	36	0.9
Holgate and Aiport	EBR	94.248193	98	0.4

TABLE: GEH

Intersection Name	Movement	Input Volume	VISSIM Output Volume	GEH
Holgate and 1st	NBL	19.998312	19	0.2
Holgate and 1st	NBT	544.99136	537	0.3
Holgate and 1st	NBR	80.958699	81	0.0
Holgate and 1st	SBL	71.92447	72	0.0
Holgate and 1st	SBT	673.98809	666	0.3
Holgate and 1st	SBR	8.030702	8	0.0
Holgate and 1st	EBL	107.0002	110	0.3
Holgate and 1st	EBT	55.895204	54	0.3
Holgate and 1st	EBR	8.00005	8	0.0
Holgate and 1st	WBL	179.99652	184	0.3
Holgate and 1st	WBT	15.977066	15	0.2
Holgate and 1st	WBR	69.040604	69	0.0
Holgate and Occidental	NBL	7.00004	8	0.4
Holgate and Occidental	NBT	44.056631	45	0.1
Holgate and Occidental	NBR	36	34	0.4
Holgate and Occidental	SBL	35.836315	32	0.7
Holgate and Occidental	SBT	38.000153	36	0.3
Holgate and Occidental	SBR	117.0151	119	0.2
Holgate and Occidental	EBL	42.931611	41	0.3
Holgate and Occidental	EBT	158.84975	160	0.1
Holgate and Occidental	EBR	6.997008	7	0.0
Holgate and Occidental	WBL	16.999946	18	0.2
Holgate and Occidental	WBT	140.99906	140	0.1
Holgate and Occidental	WBR	5.999985	5	0.4
Holgate and 3rd	NBL	7.000085	6	0.4
Holgate and 3rd	NBT	9.000055	8	0.3
Holgate and 3rd	NBR	51.548973	51	0.1
Holgate and 3rd	SBL	22.800532	23	0.0
Holgate and 3rd	SBT	8.00005	7	0.4
Holgate and 3rd	SBR	12.000139	10	0.6
Holgate and 3rd	EBL	5.873538	1	2.6
Holgate and 3rd	EBT	208.09602	206	0.1
Holgate and 3rd	EBR	18.445771	18	0.1
Holgate and 3rd	WBL	10.999879	12	0.3
Holgate and 3rd	WBT	145.36211	147	0.1
Holgate and 3rd	WBR	37.999538	40	0.3
Holgate and 4th	NBL	17.000314	16	0.2
Holgate and 4th	NBT	1073.9896	1073	0.0
Holgate and 4th	NBR	152.40582	153	0.0
Holgate and 4th	SBL	131.90128	130	0.2
Holgate and 4th	SBT	860.97983	856	0.2
Holgate and 4th	SBR	44.000753	46	0.3
Holgate and 4th	EBL	91.595074	88	0.4
Holgate and 4th	EBT	149.57854	150	0.0
Holgate and 4th	EBR	43.167029	43	0.0
Holgate and 4th	WBL	105.54209	106	0.0
Holgate and 4th	WBT	132.99711	137	0.3
Holgate and 4th	WBR	210.35516	209	0.1
SODO Busway and Holgate	NBL	0	3	2.4
SODO Busway and Holgate	NBT	14.998164	13	0.5
SODO Busway and Holgate	NBR	3.47972	1	1.7
SODO Busway and Holgate	SBL	0	0	
SODO Busway and Holgate	SBT	18.995332	18	0.2
SODO Busway and Holgate	SBR	2.212742	2	0.1
SODO Busway and Holgate	EBL	0	0	
SODO Busway and Holgate	EBT	432.16927	430	0.1
SODO Busway and Holgate	EBR	1.716365	3	0.8
SODO Busway and Holgate	WBL	0	0	
SODO Busway and Holgate	WBT	446.68162	446	0.0
SODO Busway and Holgate	WBR	13.060905	13	0.0
Holgate and 6th	NBL	65.031831	63	0.3
Holgate and 6th	NBT	74.000199	73	0.1
Holgate and 6th	NBR	109.14628	106	0.3
Holgate and 6th	SBL	56.157813	57	0.1
Holgate and 6th	SBT	65.010731	63	0.3
Holgate and 6th	SBR	27.940179	28	0.0
Holgate and 6th	EBL	15.134514	15	0.0
Holgate and 6th	EBT	388.17405	388	0.0
Holgate and 6th	EBR	25.193544	29	0.7
Holgate and 6th	WBL	98.003651	92	0.6
Holgate and 6th	WBT	363.98868	367	0.2
Holgate and 6th	WBR	28.36448	31	0.5
Holgate and Aiport	NBL	77.000618	77	0.0
Holgate and Aiport	NBT	377.99796	377	0.1
Holgate and Aiport	SBT	1214.9782	1214	0.0
Holgate and Aiport	SBR	74.998924	74	0.1
Holgate and Aiport	EBL	30.188616	28	0.4
Holgate and Aiport	EBR	97.893982	100	0.2

ATTACHMENT 2. GATE DOWN DISTRIBUTION

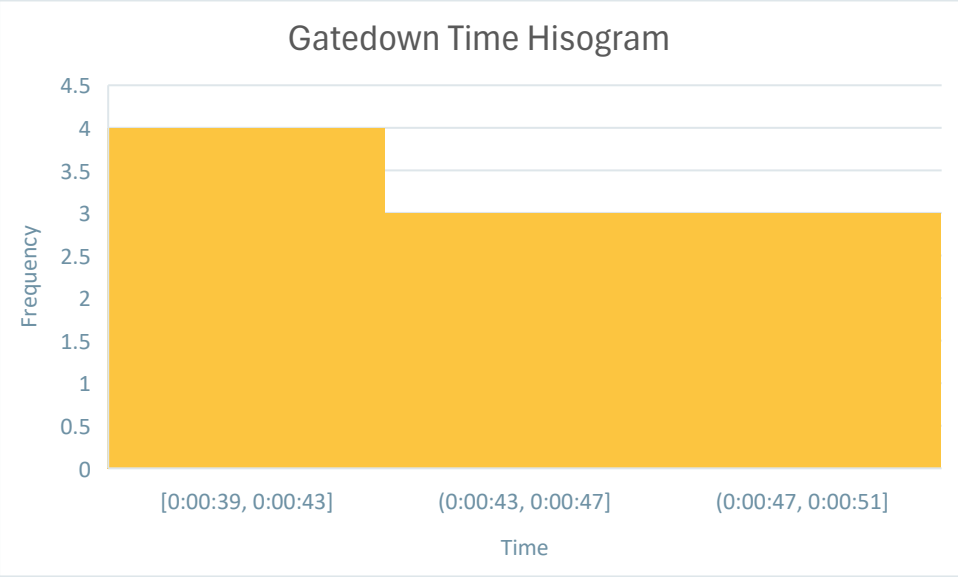
SODO BUSWAY CROSSING

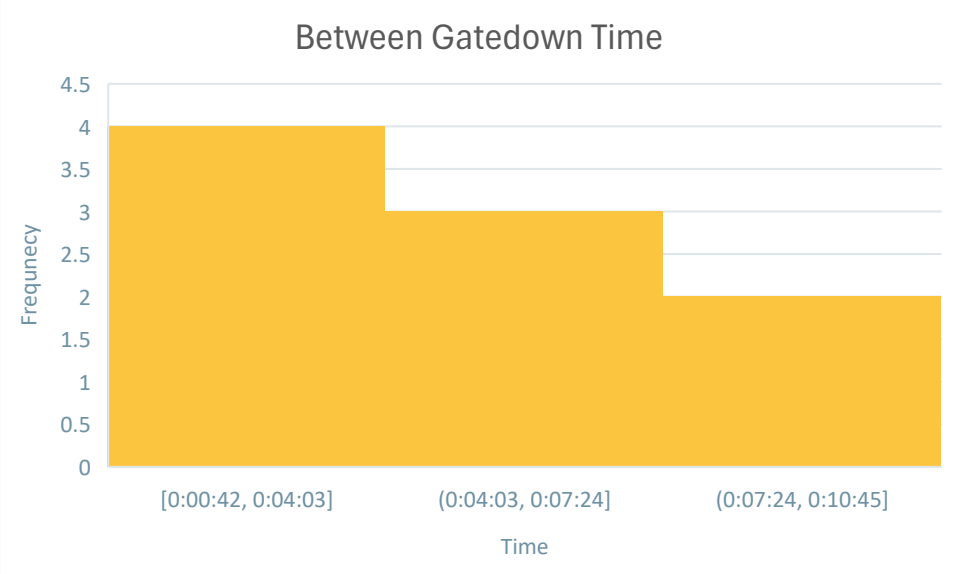
WEST OF 3RD AVE S

RAIL CROSSING GATEDOWN DISTRIBUTIONS

SODO BUSWAY CROSSING

AM





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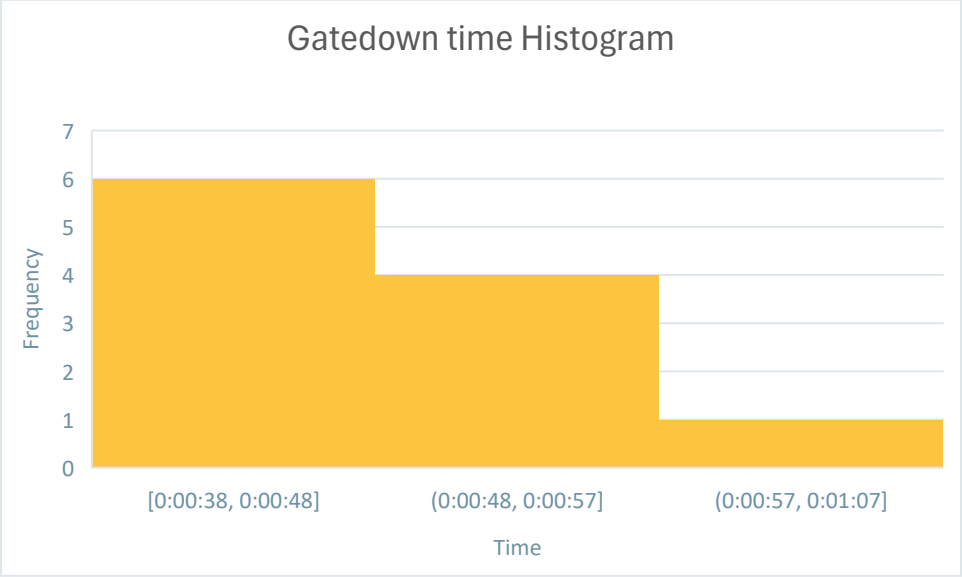
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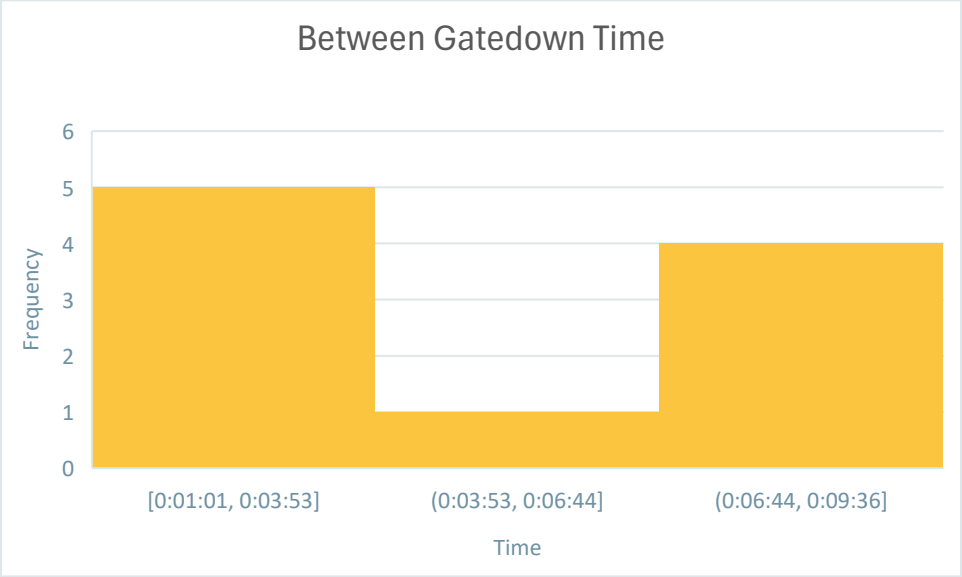
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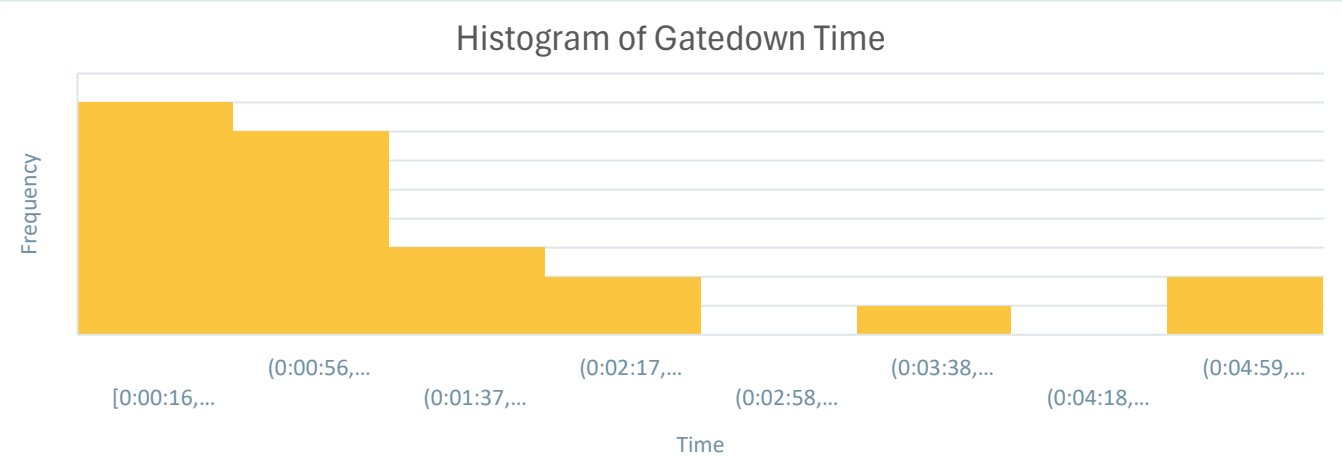
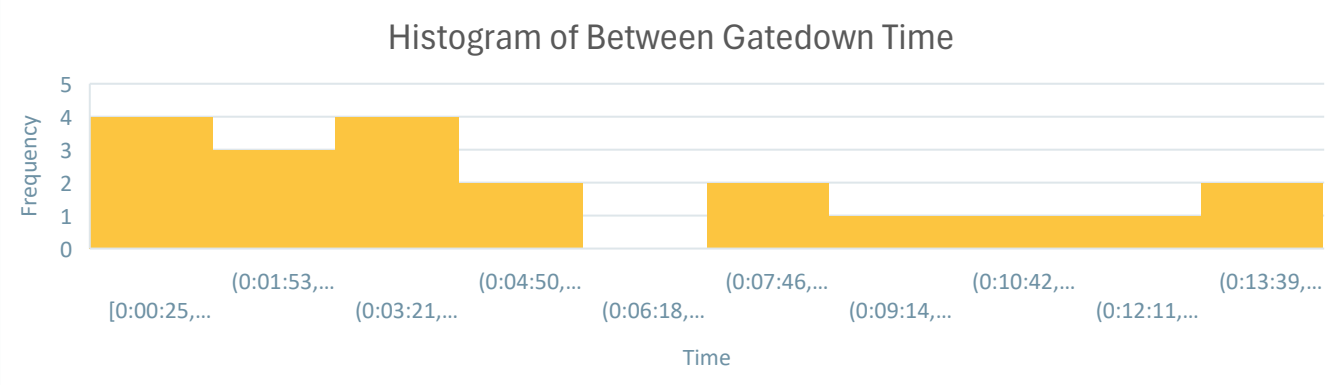
(0:03:53, 0:06:44]
(0:06:44, 0:09:36]
Time

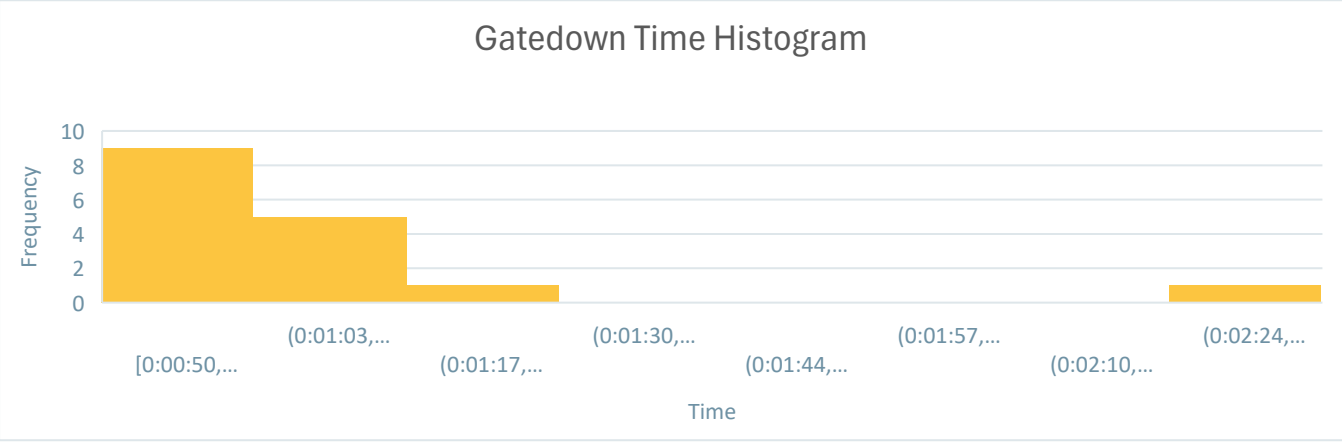
WEST OF HOLGATE & 4TH STREET

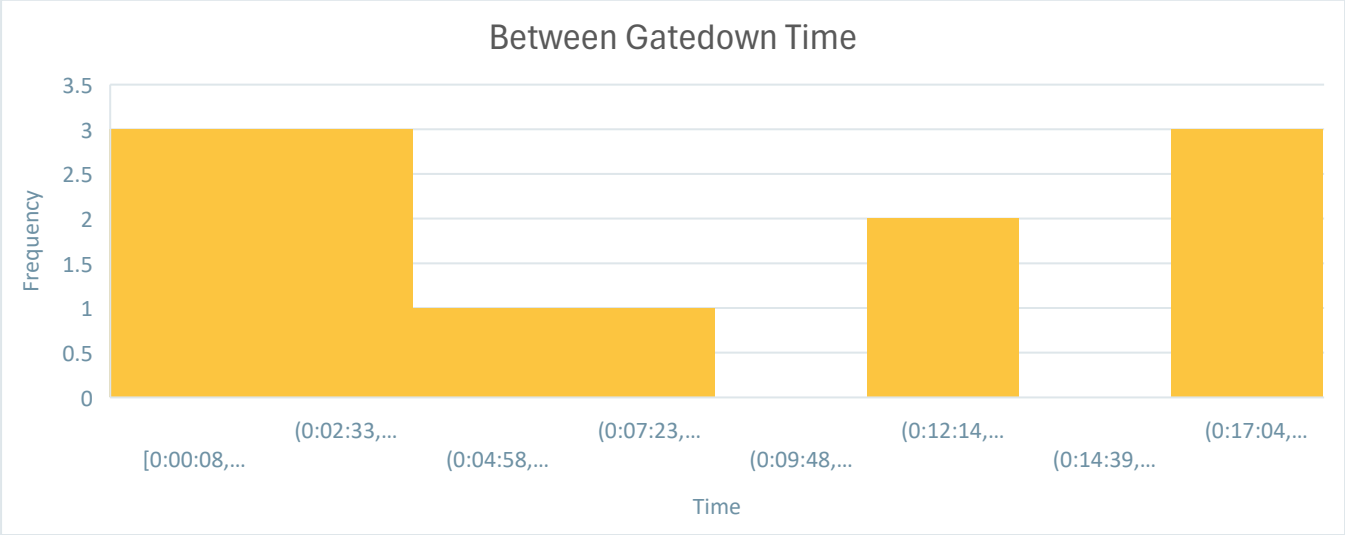
AM





PM




Between Gatedown Time
3.5
3
2.5
2
1.5
1
0.5
0
Frequency
[0:00:08,...
(0:02:33,...
(0:04:58,...
(0:07:23,...
(0:09:48,...
(0:12:14,...
(0:14:39,...
(0:17:04,...
Time