

MILLENNIUM BULK TERMINALS—LONGVIEW SEPA ENVIRONMENTAL IMPACT STATEMENT SEPA VEHICLE TRANSPORTATION TECHNICAL REPORT

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Acronyms and Abbreviations

AADT	annual average daily traffic
ADT	average daily traffic
AMR	American Medical Response
Applicant	Millennium Bulk Terminals—Longview, LLC
BNSF	BNSF Railway Company
CFR	Code of Federal Regulations
Corps	U.S. Army Corps of Engineers
County	Cowlitz County
EMS	emergency medical services
EMT	emergency medical technician
FHWA	Federal Highway Administration
FRA	Federal Railroad Administration
LOS	level of service
LVSW	Longview Switching Company
mph	miles per hour
NEPA	National Environmental Policy Act
NORPAC	North Pacific Paper Corporation
RCW	Revised Code of Washington
Reynolds facility	Reynolds Metal Company facility
SEPA	Washington State Environmental Policy Act
SR	State Route
UP	Union Pacific Railroad
USC	United States Code
USDOT	U.S. Department of Transportation
WAC	Washington Administrative Code
WSDOT	Washington State Department of Transportation
WUTC	Washington Utilities and Transportation Commission

This technical report assesses the potential vehicle transportation impacts of the proposed Millennium Bulk Terminals—Longview project (Proposed Action) and No-Action Alternative. This report describes the regulatory setting, establishes the method for assessing potential vehicle transportation impacts, presents the historical and current vehicle transportation conditions in the study area, and assesses potential impacts.

1.1 Project Description

Millennium Bulk Terminals—Longview, LLC (Applicant) proposes to construct and operate a coal export terminal in Cowlitz County, Washington, along the Columbia River (Figure 1). The coal export terminal would receive coal from the Powder River Basin in Montana and Wyoming and the Uinta Basin in Utah and Colorado via rail, then load and transport the coal by ocean-going ships via the Columbia River and Pacific Ocean to overseas markets in Asia. The coal export terminal would be capable of receiving, stockpiling, blending, and loading coal by conveyor onto ships for export. Construction of the coal export terminal would begin in 2018. For the purpose of this analysis, it is assumed the coal export terminal would operate at full capacity in 2028.

The following subsections present a summary of the Proposed Action and No-Action Alternative. For detailed information on these alternatives, see the Washington State Environmental Policy Act (SEPA) Alternatives Technical Report (ICF International 2016).

1.1.1 Proposed Action

The Proposed Action would develop a coal export terminal on 190 acres (project area). The project area is located within an existing 540-acre area currently leased by the Applicant at the former Reynolds Metals Company facility (Reynolds facility), and land currently owned by Bonneville Power Administration. The project area is adjacent to the Columbia River in unincorporated Cowlitz County, Washington near Longview city limits (Figure 2).

The Applicant currently and separately operates, and would continue to separately operate, a bulk product terminal on land leased by the Applicant. Industrial Way (State Route [SR] 432) provides vehicular access to the Applicant's leased land. The Reynolds Lead and the BNSF Spur, both operated by Longview Switching Company (LVSW),¹ provide rail access to the Applicant's leased area from a point on the BNSF Railway Company (BNSF) main line (Longview Junction, Washington) located to the east in Kelso, Washington. Ships access the Applicant's leased area via the Columbia River and berth at an existing dock (Dock 1) operated by the Applicant in the Columbia River.

¹ LVSW is jointly owned by BNSF Railway Company (BNSF) and Union Pacific Railroad (UP).

Figure 1. Project Vicinity

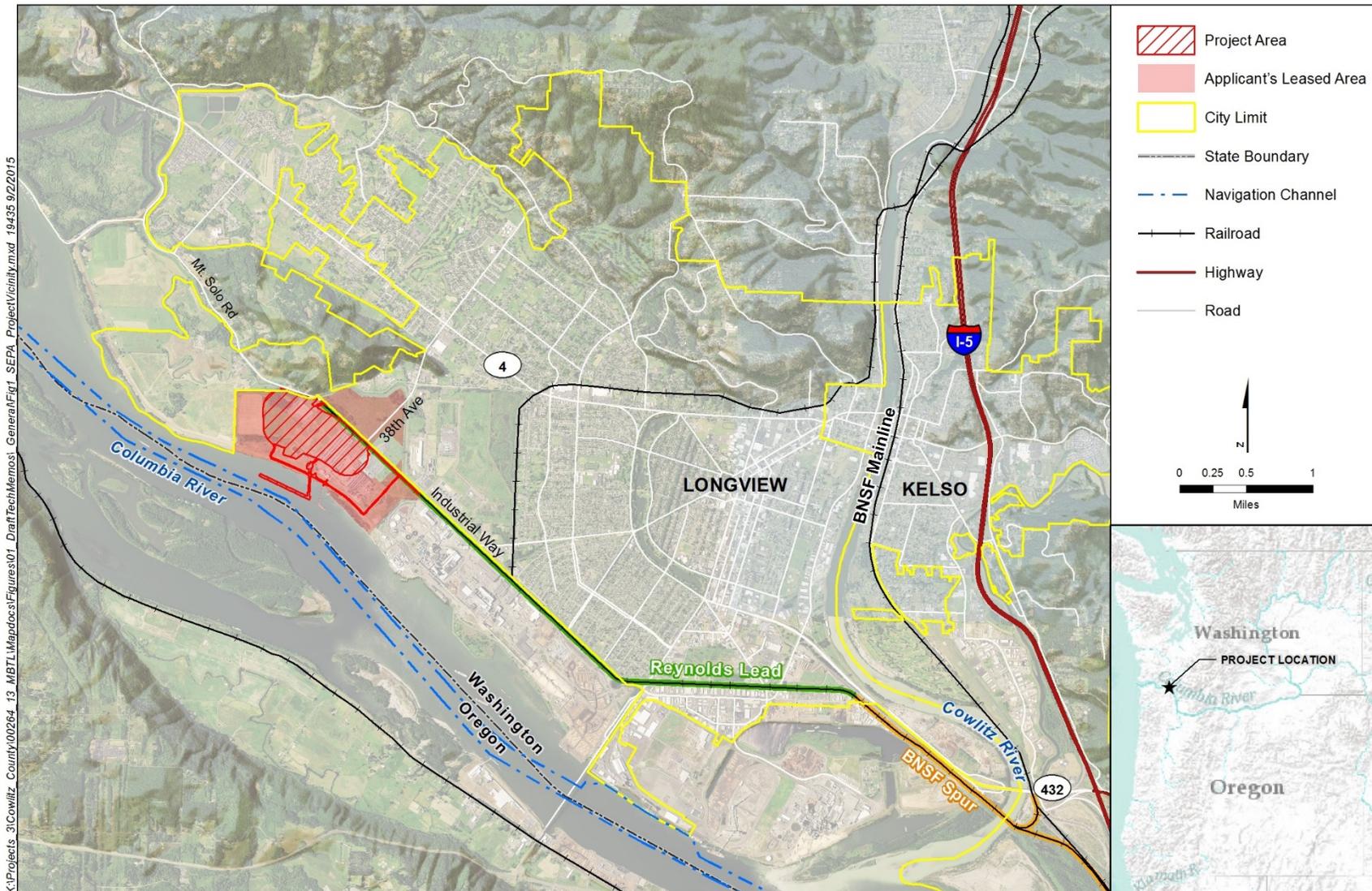
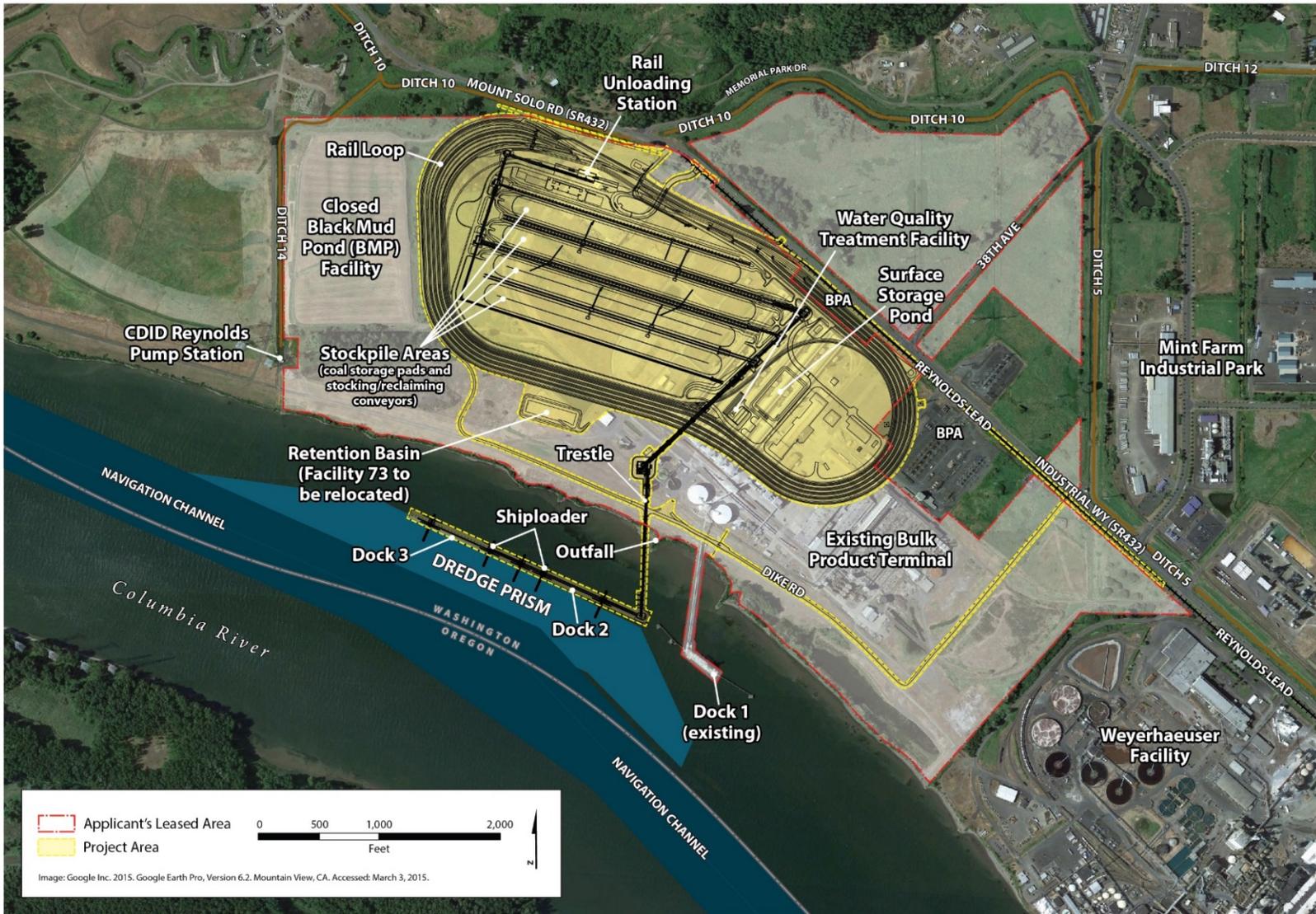


Figure 2. Proposed Action



Under the Proposed Action, BNSF or Union Pacific Railroad (UP) trains would transport coal in rail cars from the BNSF main line at Longview Junction, Washington, to the project area via the BNSF Spur and Reynolds Lead. Coal would be unloaded from rail cars, stockpiled and blended, and loaded by conveyor onto ocean-going ships at two new docks (Docks 2 and 3) on the Columbia River for export.

Once construction is complete, the Proposed Action would have an annual throughput capacity of up to 44 million metric tons.² The coal export terminal would consist of one operating rail track, eight rail tracks for the storage of rail cars, rail car unloading facilities, stockpile areas for coal storage, conveyor and reclaiming facilities, two new docks in the Columbia River (Docks 2 and 3), and ship-loading facilities on the two docks. Dredging of the Columbia River would be required to provide access to and from the Columbia River navigation channel and for berthing at the two new docks.

Vehicles would access the project area from Industrial Way (SR 432). Ships would access the project area via the Columbia River and berth at one of the two new docks. Terminal operations would occur 24 hours per day, 7 days per week. The coal export terminal would be designed for a minimum 30-year period of operation.

1.1.2 No-Action Alternative

Under the No-Action Alternative, the proposed export terminal would not be constructed. Current operations of the bulk product terminal, which include the storage and transport of alumina and up to 150,000 metric tons per year of coal. Importing of alumina would continue and increase in the project area using Dock 1. The Applicant could expand the existing bulk product terminal onto the 190-acre project area, developing storage and shipment facilities to bulk product terminal operations. Coal and alumina would continue to be stored, transferred, and shipped. Additional bulk product transfers activities involving products such as calcine pet coke, coal tar pitch, cement, fly ash, and sand or gravel could also be pursued, and new or revised permits could be required. These operations would involve storage and upland transfer of bulk products, which would use existing or new buildings. Construction of new buildings could involve demolition and replacement of existing buildings and new or modified permits. Any new construction would be limited to uses allowed under existing Cowlitz County development regulations and federal and state permits.

1.2 Regulatory Setting

Different jurisdictions are responsible for the regulation of highway/rail grade crossings. These jurisdictions and their regulations, statutes, and guidance that apply to grade crossings are summarized in Table 1.

² A metric ton is the U.S. equivalent to a tonne per the International System of Units, or 1,000 kilograms or approximately 2,204.6 pounds.

Table 1. Regulations, Statutes, and Guidelines for Highway/Rail Grade Crossings

Regulation, Statute, Guideline	Description
Federal	
National Environmental Policy Act (42 USC 4321 <i>et seq.</i>)	Requires the consideration of potential environmental effects. NEPA implementation procedures are set forth in the President's Council on Environmental Quality's Regulations for Implementing NEPA (49 CFR 1105).
Federal Railroad Safety Act of 1970	Gives FRA rulemaking authority over all areas of rail line safety. FRA has designated that state and local law enforcement agencies have jurisdiction over most aspects of highway/rail grade crossings, including warning devices and traffic law enforcement.
Highway Safety Act and the Federal Railroad Safety Act	Gives FHWA and FRA regulatory jurisdiction over safety at federal highway/rail grade crossings. USDOT has promulgated rules addressing grade-crossing safety and provides funding for installation and improvement of warning devices. All traffic control devices installed at railroad facilities involving federal aid projects must comply with 23 CFR 655F. On certain projects where federal funds are used for the installation of warning devices, those devices must include automatic gates and flashing light signals. FRA has issued rules that impose minimum maintenance, inspection, and testing standards for at-grade crossing warning devices for highway/rail grade crossings on federal highways and state and local roads (49 CFR 234–236).
<i>Railroad-Highway Grade Crossing Handbook</i> (Federal Highway Administration 2007); <i>Manual on Uniform Traffic Control Devices</i> (23 USC 109(d))	Guidance document on grade-crossing safety issues, including the selection and placement of warning devices and enforcement of traffic laws. Provides guidelines for traffic control devices that consider delay, roadway classification, average daily traffic, number of trains per day, and train speed at grade crossings.
State	
Washington State Environmental Policy Act (197-11 WAC, RCW 43.21C)	Requires state and local agencies in Washington to identify potential environmental impacts that could result from governmental decisions.
Washington State Department of Transportation, Design Manual M 22.01.10, November 2015, Chapter 1350, Railroad Grade Crossings	Sets forth requirements and guidance on the design and treatment of state highway-rail grade crossings.
Motor Vehicles, Rules of the Road (RCW 46.61.340)	Sets forth that train traffic has the right-of-way at grade crossings.
Washington Utilities and Transportation Commission	Inspects and issues violations for hazardous materials shipments; track, signal, and train control; and rail operations. WUTC also regulates the construction, closure, or modification of public railroad crossings. In addition, WUTC inspects and issues defect notices if a crossing does not meet minimum standards. However, WUTC has no jurisdiction over public crossings in first-class cities. ^a

Regulation, Statute, Guideline	Description
Local	
Cowlitz County SEPA Regulations (CCC 19.11)	Provide for the implementation of SEPA in Cowlitz County.
Railroad Trains Not to Block Streets (LMC 11.40.080)	Prohibits trains from using any street or highway for a period of time longer than five minutes, except trains or cars in motion other than those engaged in switching activities.
Notes:	
^a Per RCW 35.01.01, a first-class city is a city with a population of 10,000 or more at the time of organization or reorganization that has adopted a charter. USC = United States Code; NEPA = National Environmental Policy Act; CFR = Code of Federal Regulations; Corps = U.S. Army Corps of Engineers; FRA = Federal Railroad Administration; FHWA = Federal Highway Administration; USDOT = U.S. Department of Transportation; WAC = Washington Administrative Code; RCW = Revised Code of Washington; WUTC = Washington Utilities and Transportation Commission; SEPA = Washington State Environmental Policy Act; CCC = Cowlitz County Code; LMC = Longview Municipal Code	

1.3 Study Area

The study area for direct impacts is the project area. The study area for indirect impacts is active public and private at-grade crossings within Cowlitz County on the Reynolds Lead and BNSF Spur, and all at-grade public crossings on the BNSF main line. A review of selected at-grade crossings along the BNSF main line in Washington State is also considered.

1.3.1 Study Crossings

The analysis focused on 17 at-grade railroad crossings along the Reynolds Lead, BNSF Spur, and BNSF main line in Cowlitz County.

1.3.1.1 Reynolds Lead and BNSF Spur Study Crossings

The following identifies the study crossings along the Reynolds Lead and BNSF Spur in the study area. Although the project area is in Cowlitz County, all of the at-grade crossings are in the City of Longview.

- Project area access at 38th Avenue, just south of Industrial Way (SR 432), milepost 3.30.
- Weyerhaeuser Access at Washington Way, just south of SR 432 milepost 4.43.
- Weyerhaeuser North Pacific Paper Corporation (NORPAC) Access, just south of SR 432 milepost 4.76.
- Industrial Way (SR 432), milepost 5.90, just west of Oregon Way (SR 433).
- Oregon Way, 300 feet north of the Industrial Way/Oregon Way intersection.
- California Way, 460 feet north of Industrial Way.
- 3rd Avenue (SR 432), milepost 7.19, just north of the 3rd Avenue/Industrial Way intersection.
- Dike Road, just south of Tennant Way (SR 432).

1.3.1.2 BNSF Main Line Study Crossings

The following identifies the study crossings along the BNSF main line in Cowlitz County (all public road/rail at-grade crossings along the BNSF main line in Cowlitz County).

- Taylor Crane Road, 50 feet west of Barnes Drive in Castle Rock.
- Cowlitz Street, 350 feet west of Pioneer Avenue in Castle Rock.
- Cowlitz Gardens Road, west of Pacific Avenue in Kelso.
- Mill Street, west of 1st Avenue in Kelso.
- S River Road, west of Pacific Avenue in Kelso.
- Toteff Road/Port Road in Kalama.
- W Scott Avenue, 650 feet east of Pekin Road in Woodland.
- Davidson Avenue, east of Pekin Road in Woodland.
- Whalen Road, east of Kuhn Road in Woodland.

1.3.1.3 Statewide Crossings

A review of selected at-grade crossings identified by the Washington State Department of Transportation (WSDOT) on the BNSF main line beyond Cowlitz County was also conducted. These statewide study crossings are at-grade state highway crossings or at-grade crossings near state highways.

This chapter describes the methods for assessing the existing conditions and determining impacts in the study area as they pertain to vehicle transportation.

2.1 Methods

This section describes the sources of information and methods used to characterize the existing conditions and assess the potential impacts of the Proposed Action and No-Action Alternative on vehicle transportation.

2.1.1 Data Sources

The following sources of information were used to evaluate the vehicle transportation characteristics of the study area.

- U.S. Department of Transportation (USDOT) Grade Crossing Inventory, Federal Railroad Administration (FRA)
- Data provided by the Washington Utilities and Transportation Commission (WUTC)
- *SR 432 Highway Improvements and Rail Realignment Study* (Cowlitz-Wahkiakum Council of Governments 2014)
- *Traffic and Transportation Resource Report* (URS Corporation 2014) provided by the Applicant
- Data and information provided by the Applicant

2.1.2 Impact Analysis

The following methods were used to evaluate the potential impacts of the Proposed Action and No-Action Alternative on vehicle transportation. For the purposes of this analysis, construction impacts are based on the peak construction period and operations impacts are based on maximum throughput capacity (44 million metric tons per year).

2.1.2.1 No-Action Alternative Analysis

Regardless of whether the coal export terminal is built, the Applicant would continue to operate approximately 350 acres of the project area as a bulk product terminal, and increase commodity storage and shipment as described in Section 1.1.3, *No-Action Alternative*. The Applicant could expand the existing bulk product terminal onto the 190-acre project area, developing storage and shipment facilities to increase existing coal and alumina operations under current permits.

By 2018, the planned bulk product terminal activities would increase the average length of trains up to 575 feet along the Reynolds Lead and the BNSF Spur. By 2028, potential bulk product terminal activities would add 1.71 daily train trips to the Reynolds Lead (each trip approximately 2,068 feet long).

2.1.2.2 Construction Impact Analysis

The Applicant has identified three construction scenarios.

- **Truck.** If material is delivered by truck, it is assumed that approximately 88,000 truck trips would be required over the construction period. Approximately 56,000 loaded trucks would be needed during the peak construction year.
- **Rail.** If material is delivered by rail, it is assumed that approximately 35,000 loaded rail cars would be required over the construction period. Approximately two-thirds of the rail trips would occur during the peak construction year.
- **Barge.** If material is delivered by barge, it is assumed that approximately 1,130 barge trips would be required over the construction period. Approximately two-thirds of the barge trips would occur during the peak construction year. Because the project area does not have an existing barge dock, the material would be off-loaded at an existing dock elsewhere on the Columbia River and transported to the project area by truck.

The analysis analyzed all three scenarios.³ Potential impacts on vehicle transportation during construction could occur because of construction-worker vehicle traffic and additional trucks or trains bringing preload materials to the project area. This analysis of potential impacts assumes the following, based primarily on information provided by the Applicant.

- Approximately 1.4 million cubic yards of material would be imported to the project area during the first year of construction.⁴ No exporting of material would occur during the first year of construction.
- Approximately 200 construction workers would be on site daily in 2018, with the work shift ending at 5:00 p.m., and approximately 90% of the construction workers traveling in a single-occupancy vehicle. This would result in 180 outbound trips during the PM peak hour (AECOM 2015).
- If construction materials are delivered by truck (truck or barge construction scenario), approximately 56,000 trucks, or a maximum of 330 per day, would be required to deliver the preload material to the site during the first year of construction, which is assumed to be 2018. This estimate is based on a combination of the amount of space likely available on site for unloading material and the anticipated number of trucks available in the area capable of hauling preload material. Given that 56,000 trucks would be required to deliver the preload material in 2018, it would take approximately 170 working days for delivery. This would result in 42 inbound and 42 outbound trucks per hour (assuming deliveries occur evenly over an 8-hour workday) (AECOM 2015).
- If construction material is delivered by rail (rail construction scenario), approximately 23,333 loaded rail cars would be required to deliver the preload material to the site in 2018. Assuming 100-car rail trains, this would result in approximately 233 inbound and 233 outbound trains or an average of 1.3 trains per day (each approximately 6,219 feet long), in 2018 (URS Corporation 2014).

³ The barge scenario includes the same assumptions as the truck scenario because materials would be transferred from barge to truck and delivered to the project area.

⁴ A total of 2.1 million cubic yards of rock is expected to be imported over the duration of the construction period. For the purposes of the vehicle transportation analysis, the first year of construction was used because two-thirds of the volume is expected to be transported during the first year and represents the peak year.

2.1.2.3 Operations Impact Analysis

It is assumed that the coal export terminal would be operating in 2028 at the planned capacity of 44 million metric tons per year of coal throughput. Full operations of the coal export terminal would add 16 new daily train trips (8 loaded and 8 empty), each an average of 6,844 feet (approximately 1.3 miles) long. Based primarily on estimates provided by the Applicant, approximately 135 employees would be needed to operate the coal export terminal. Operations would occur 24 hours per day, 7 days per week, and 50% of the employees would exit and 30% would enter the site during the PM peak hour. This would result in 41 inbound and 68 outbound trips during the PM peak hour (URS Corporation 2014).

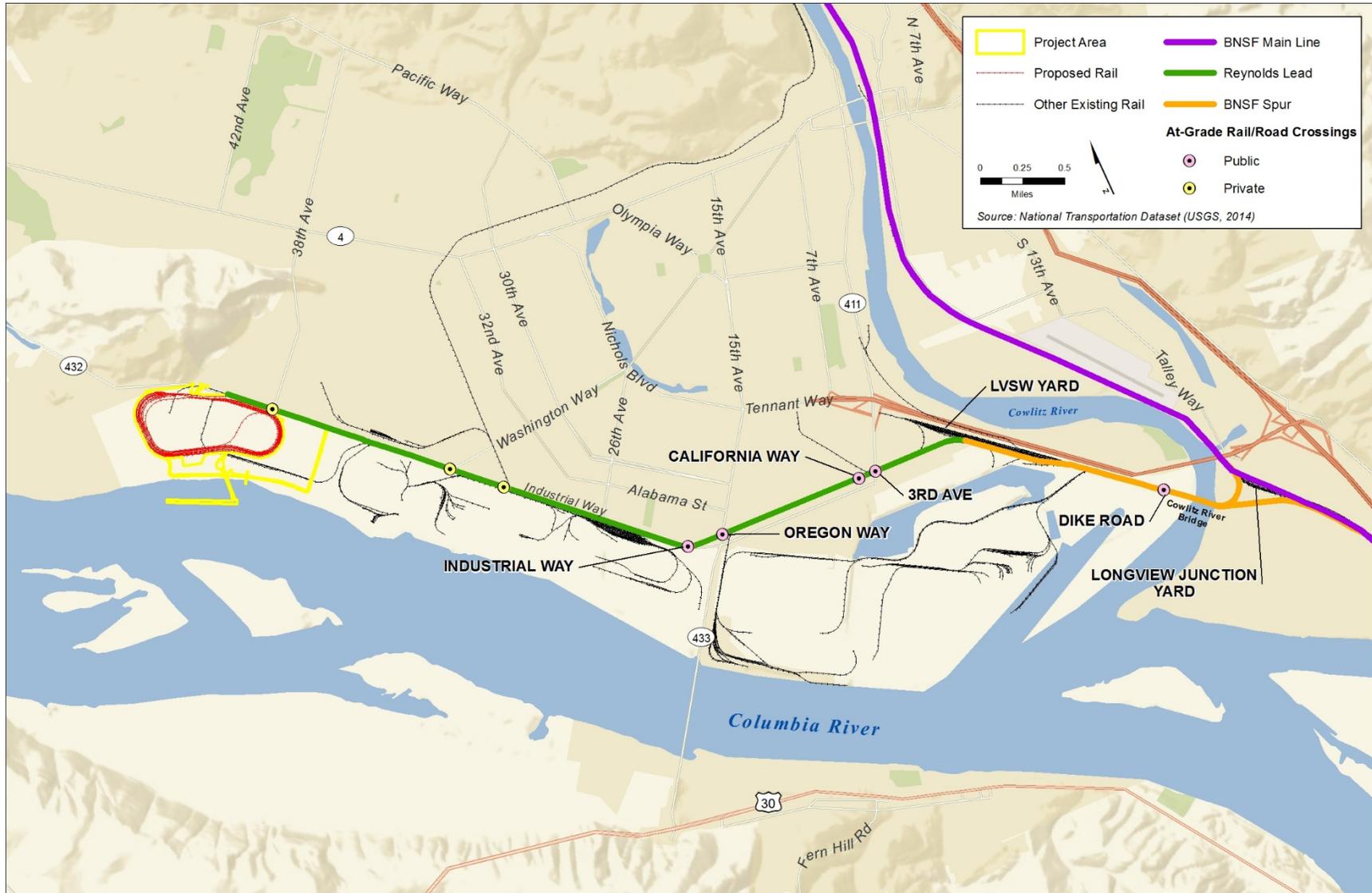
Reynolds Lead and BNSF Spur

The types and number of trains from Longview Junction to the project area for existing year and 2028 were developed from meetings with LVSU and the Port of Longview.

As described in the SEPA Rail Transportation Technical Report (ICF International and Hellerworx 2016), LVSU plans to upgrade the Reynolds Lead and part of the BNSF Spur as a separate action should it be warranted by increased rail traffic resulting from existing and future customers. Upgrades to the track would include adding ballast, replacing ties, and upgrading rail. These improvements would provide for safer operations and increased speed over the BNSF Spur and Reynolds Lead. LVSU would also install signals and upgrade the traffic control system to Centralized Traffic Control and add an electric, remotely operated switch from the BNSF Spur to the Reynolds Lead. Construction of these improvements would take approximately 6 months. Because these improvements are not certain, the vehicle transportation impact analysis analyzes current track infrastructure and with these planned track improvements. However, without planned track improvements to increase capacity, neither of the BNSF Spur or Reynolds Lead would have the capacity to handle all Proposed Action-related trains and the growth in baseline traffic. Proposed Action-related trains would add 16 trains per day on the Reynolds Lead and BNSF Spur for a total of approximately 23 trains on the BNSF Spur and 20 trains on the Reynolds Lead. Figure 3 illustrates the Reynolds Lead and BNSF Spur, and the study crossings along the Reynolds Lead and BNSF Spur.

The vehicle transportation analysis does not include the improvements identified in the *SR 432 Highway Improvements and Rail Realignment Study* completed in September 2014 (Cowlitz-Wahkiakum Council of Governments 2014). This study identified various design concepts to address safety, traffic congestion, system mobility and freight capacity issues where the rail and roadway systems overlap along the SR 432 industrial corridor. Various design concepts were developed and evaluated for rail and highway improvements to improve safety, mobility, congestion, and freight capacity. The top concept that emerged from this study was a grade-separated intersection at SR 432/SR 433. This project, called the Industrial Way/Oregon Way Intersection Project and led by Cowlitz County Public Works, is currently in the preliminary design and National Environmental Policy Act (NEPA) and Washington State Environmental Policy Act (SEPA) environmental compliance phase to address traffic congestion, freight mobility and safety issues at this intersection. The 2015 transportation package passed by the Washington State Senate includes \$85 million to construct the preferred alternative identified after the conclusion of the NEPA and SEPA processes. This project was not included in the vehicle transportation analysis because a preferred alternative for the intersection has not been identified. The other concepts identified in the *Highway Improvements and Rail Realignment Study* were not included in the vehicle transportation analysis because funding for implementation has not been secured.

Figure 3. Reynolds Lead and BNSF Spur Study Crossings



BNSF Main Line in Cowlitz County

The types and number of baseline train traffic beyond Longview Junction were developed from the *Washington State Rail Plan* (WSDOT Rail Plan) (Washington State Department of Transportation 2014a) using linear extrapolation of 2010 and 2035 projected train traffic to 2018 and 2028. The analysis assumes 8 full inbound trains arrive at Longview Junction from the south on the BNSF main line and 8 empty trains travel north from Longview Junction on the BNSF main line. Other potential options could include all trains traveling to the north and all trains traveling to the south. Figure 4 illustrates the study crossings along the BNSF main line in Cowlitz County.

The analysis assumed that up to 2 Proposed Action-related trains could arrive during the PM peak hour by 2028 on the BNSF main line in Cowlitz County, meaning no more than 2 trains would be expected at the study crossings, regardless of the route. Therefore, to account for motor vehicle impacts associated with each of the train route, the analysis assumes 2 Proposed Action-related trains at each crossing along the BNSF main line during the PM peak hour. If all 16 daily train trips were routed to arrive and leave from the same direction, it would increase the weighted average train length by about 120 feet and increase the overall daily gate downtime between 14 and 20 minutes at BNSF main line study crossings.

Washington State

For the Washington State study area analysis, it was assumed that the rail routes would be the same as current BNSF and UP routes and as documented in WSDOT publications, including the WSDOT Rail Plan (Washington State Department of Transportation 2014a) and *Washington State Freight Mobility Plan* (Washington State Department of Transportation 2014b). In 2012, BNSF changed its train operations protocol to enhance use of existing capacity using directional running. This strategy routes all westbound-loaded unit trains (including coal) from Pasco via the Columbia River Gorge to Vancouver, Washington, where it continues on the BNSF north-south main line to its final destination. Empty unit bulk trains from north of Vancouver, including Cowlitz County, return to Pasco and to points east via Stampede Pass. The types and number of baseline train traffic were developed from the WSDOT Rail Plan using linear extrapolation of 2010 and 2035 projected train traffic.

2.1.2.4 Years and Scenarios

The years selected for analysis are 2018 and 2028, which allows the identification of potential impacts at rail-crossings associated with construction and operation of the Proposed Action, and helps determine if improvements would be necessary at study crossings. The following scenarios were analyzed.

- **2018 No-Action.** Assumes that the coal export terminal would not be constructed and that activities currently ongoing and planned for the existing bulk materials terminal within the Applicant's leased area would occur (summarized in Section 2.1.2.1, *No-Action Alternative Analysis*). It includes the motor vehicle and train volumes in Table 2.
- **2018 Proposed Action (Construction).** Represents conditions during the construction of the coal export terminal. It assumes the motor vehicle and train volumes from the 2018 No-Action scenario, but with the added traffic and rail growth related to construction of the Proposed Action discussed in Section 2.1.2.2, *Construction Impact Analysis*.

Figure 4. BNSF Main Line Study Crossings



It also assumes the planned project area activities included in the 2018 No-Action scenario. As discussed in Section 2.1.2.2, *Construction Impact Analysis*, this analysis includes two scenarios: that construction materials would be delivered by truck, and construction materials would be delivered by rail.

- **2028 No-Action.** Assumes that the coal export terminal would not be constructed, and includes the motor vehicle and train volumes from the 2018 No-Action scenario, but with 10 years of added vehicle traffic growth. It also assumes the planned bulk product terminal activities included in the 2018 No-Action scenario, and the potential future activities for the existing bulk product terminal discussed in Section 2.1.2.1, *No-Action Alternative Analysis*.
- **2028 Proposed Action.** Represents conditions during full operation of the Proposed Action. It includes the motor vehicle and train volumes from the 2028 No-Action scenario, but with the added traffic and train growth related to full operation of the coal export terminal discussed in Section 2.1.2.3, *Operations Impact Analysis*. It also assumes the planned and potential bulk product terminal activities included in the 2028 No-Action scenario. This analysis includes two scenarios: 1) current track infrastructure improvements along the Reynolds Lead, and 2) planned track infrastructure improvements along the Reynolds Lead that would increase the average train speed from 8 miles per hour (mph) to 10 mph at the Weyerhaeuser access crossing—opposite Washington Way, from 10 mph to 15 mph at the Weyerhaeuser NORPAC access crossing, from 10 mph to 20 mph at the Industrial Way and Oregon Way crossings, and from 8 mph to 15 mph at the California Way and 3rd Avenue crossings. No changes in train speed would be expected at the existing site access—opposite 38th Avenue, and at the Dike Road crossings.

2.1.2.5 Trip Distribution Analysis

The construction- and employee-related traffic was distributed onto the transportation network based on current traffic patterns near the project area. For the construction workers and full operation employees (Section 2.1.2.2, *Construction Impact Analysis*, and 2.1.2.3, *Operations Impact Analysis*), it is assumed that 60% of the traffic would arrive from the north using Washington Way (35%) and Oregon Way (25%), 15% from the south along Oregon Way, 20% from the east along 3rd Avenue, and 5% from the west along Industrial Way. For the construction materials delivered to the project area by truck (Section 2.1.2.2, *Construction Impact Analysis*) it is assumed that 75% of the trucks would arrive from the east using 3rd Avenue, and 25% from the south along Oregon Way.

2.1.2.6 Analysis of Baseline and Future Volumes at Railroad Crossings

Motor Vehicles

Table 2 includes the average daily traffic (ADT) and PM peak hour count data for all study crossings. Hourly traffic volumes over the course of 3 days were compared at select locations⁵ to identify a peak hour. The analysis identified a peak hour between 4:00 and 5:00 p.m., with evening peak period traffic volumes more than 25% higher than those in the morning and afternoon.

⁵ The hourly traffic volumes were based on volumes collected between March 5, 2013 and Marcy 7, 2013, at the following locations: 1) Industrial Way, west of Oregon Way; 2) Industrial Way, between Oregon Way and California Way; 3) 3rd Avenue, north of Industrial Way; and 4) Oregon Way, north of Industrial Way.

Table 2. Motor Vehicle and Train Volumes at Study Crossings

Crossing Name (USDOT Crossing ID)	Time Period	2018 No-Action Scenario		2018 Proposed Action (Construction - Truck Delivery) Scenario		2018 Proposed Action (Construction - Rail Delivery) Scenario		2028 No-Action Scenario		2028 Proposed Action (Operations) Scenario	
		Vehicle	Train	Vehicle	Train	Vehicle	Train	Vehicle	Train	Vehicle	Train
Study Crossings along the Reynolds Lead and BNSF Spur											
Project area at 38th Avenue	Per Day	200	2.3	2,850	2.3	2,000	3.6	250	4.0	1,340	20.0
	PM Peak	20	1	285	1	200	1	25	1	134	1 or 2
Weyerhaeuser access at Washington Way	Per Day	3,300	2.3	3,300	2.3	3,300	3.6	3,900	4.0	3,900	20.0
	PM Peak	330	1	330	1	330	1	390	1	390	1 or 2
Weyerhaeuser NORPAC access	Per Day	650	2.3	650	2.3	650	3.6	800	4.0	800	20.0
	PM Peak	65	1	65	1	65	1	80	1	80	1 or 2
Industrial Way-SR 432 (101806G)	Per Day	10,100	2.3	12,000	2.3	11,200	3.6	11,450	4.0	12,100	20.0
	PM Peak	1,010	1	1,200	1	1,120	1	1,145	1	1,210	1 or 2
Oregon Way-SR 433 (101805A)	Per Day	15,200	2.3	15,650	2.3	15,650	3.6	18,500	4.0	18,770	20.0
	PM Peak	1,520	1	1,565	1	1,565	1	1,850	1	1,877	1 or 2
California Way (101821J)	Per Day	4,050	2.3	4,050	2.3	4,050	3.6	4,800	4.0	4,800	20.0
	PM Peak	405	1	405	1	405	1	480	1	480	1 or 2
3rd Avenue-SR 432 (101826T)	Per Day	16,850	2.3	17,850	2.3	17,200	3.6	20,500	4.0	20,720	20.0
	PM Peak	1,685	1	1,785	1	1,720	1	2,050	1	2,072	1 or 2
Dike Road (101791U)	Per Day	950	7.1	950	7.1	950	8.4	1,100	7.1	1,100	23.1
	PM Peak	95	1	95	1	95	1	110	1	110	1 or 2
Public At-Grade Crossings along the BNSF Main Line in Cowlitz County											
Taylor Crane Road in Castle Rock (092481X)	Per Day	50	55.1	50	55.1	50	56.1	50	72.7	50	80.7
	PM Peak	5	3.9	5	3.9	5	4.9	5	4.6	5	6.6
Cowlitz Street in Castle Rock (092476B)	Per Day	1,200	55.1	1,200	55.1	1,200	56.1	1,450	72.7	1,450	80.7
	PM Peak	120	3.9	120	3.9	120	4.9	145	4.6	145	6.6

Crossing Name (USDOT Crossing ID)	Time Period	2018 No-Action Scenario		2018 Proposed Action (Construction - Truck Delivery) Scenario		2018 Proposed Action (Construction - Rail Delivery) Scenario		2028 No-Action Scenario		2028 Proposed Action (Operations) Scenario	
		Vehicle	Train	Vehicle	Train	Vehicle	Train	Vehicle	Train	Vehicle	Train
		Cowlitz Gardens Road in Kelso (092466V)	Per Day PM Peak	700 70	55.1 3.9	700 70	55.1 3.9	700 70	56.1 4.9	850 85	72.7 4.6
Mill Street in Kelso (092458D)	Per Day PM Peak	2,550 255	55.1 3.9	2,550 255	55.1 3.9	2,550 255	56.1 4.9	3,000 300	72.7 4.6	3,000 300	80.7 6.6
S River Road in Kelso (092457W)	Per Day PM Peak	1,850 185	55.1 3.9	1,850 185	55.1 3.9	1,850 185	56.1 4.9	2,200 220	72.7 4.6	2,200 220	80.7 6.6
Toteff Road/ Port Road in Kalama (092446J)	Per Day PM Peak	1,200 120	55.1 3.9	1,200 120	55.1 3.9	1,200 120	56.1 4.9	1,450 145	72.7 4.6	1,450 145	80.7 6.6
W Scott Avenue in Woodland (092437K)	Per Day PM Peak	2,650 265	55.1 3.9	2,650 265	55.1 3.9	2,650 265	56.1 4.9	3,100 310	72.7 4.6	3,100 310	80.7 6.6
Davidson Avenue in Woodland (092435W)	Per Day PM Peak	2,000 200	55.1 4	2,000 200	55.1 3.9	2,000 200	56.1 4.9	2,350 235	72.7 4.6	2,350 235	80.7 6.6
Whalen Road in Woodland (092434P)	Per Day PM Peak	1,550 155	55.1 3.9	1,550 155	55.1 3.9	1,550 155	56.1 4.9	1,800 180	72.7 4.6	1,800 180	80.7 6.6

The data also indicated that the PM peak hour represents approximately 10% of the daily traffic volumes at these locations. This factor was used to convert count data from peak hour to ADT or vice versa.

For the at-grade crossing analysis, PM peak hour vehicle traffic count data was obtained from recent studies for 12 of the study crossings (Cowlitz-Wahkiakum Council of Governments 2014; URS Corporation 2014; Washington State Department of Transportation 2014c; DKS Associates 2013). Where recent traffic count data were unavailable (at the Dike Road, Taylor Crane Road, Cowlitz Street, Cowlitz Gardens Road, and Whalen Road study crossings), average daily traffic volumes were obtained from the FRA or WUTC databases (as a conservative approach, the database with the higher volume was used for each study crossing), and converted to PM peak hour with the 10% factor.

Future traffic volumes for the analysis years included a combination of background traffic, as well as growth associated with the Proposed Action as discussed in Section 2.1.2.2, *Construction Impact Analysis*, and 2.1.2.3, *Operations Impact Analysis*. Background traffic was estimated by developing a linear growth rate between existing and forecast traffic volumes in the immediate area (Cowlitz-Wahkiakum Council of Governments 2014). These data suggest that traffic volumes are forecast to increase at a rate of 2% annually. For comparison purposes, a 2% annual growth rate was applied to expand older count data to reflect baseline traffic conditions in the *SR 432 Highway Improvements and Rail Realignment Study* (Cowlitz-Wahkiakum Council of Governments 2014). Therefore, the 2% annual growth rate was applied to the collected count data to develop 2018 No-Action scenario traffic volumes, and to the 2018 No-Action scenario traffic volumes for 10 years to develop year 2028 No-Action scenario traffic volumes.

Trains

Estimated freight train volume and operational information for the No-Action Alternative along the Reynolds Lead and BNSF Spur was provided by LVSU (Wolter pers. comm.). Freight train volumes along the BNSF main line for the No-Action Alternative were extrapolated linearly from the WSDOT Rail Plan (Washington State Department of Transportation 2014a), and evenly distributed throughout the day (daily freight train volume per 24 hours). Passenger rail volumes were from existing Amtrak schedules (10 trains per day, including 8 Cascades trains, and 2 Coast Starlight trains), with 2 trains passing during the PM peak hour (1 Cascades train, and 1 Coast Starlight train per existing schedules). No increase in passenger rail service was assumed in the future. Unlike passenger trains, freight trains do not run on a schedule. Railroad companies evaluate each situation and dispatch trains based on a number of criteria, including available crew, number of cars, cost of fuel, and overall revenue. Analysis and projection of rail impact operations requires analyzing the rail traffic and developing typical operations. To analyze the highest potential vehicle delay impacts that could occur related to the Proposed Action, an analysis of vehicle delay during the PM peak traffic hour was completed.

An average of 2 non-Proposed Action-related trains per day would be expected over study crossings on the Reynolds Lead, and 7 at the Dike Road study crossing (along the BNSF Spur) under the 2018 No-Action and 2018 Construction (truck delivery) scenarios. One non-Proposed Action-related train could travel along the BNSF Spur and Reynolds Lead during the PM peak hour. The BNSF main line would have around 55 non-Proposed Action-related trains per day by 2018. It was assumed that 4 non-Proposed Action-related trains would travel during the PM peak hour.

The 2018 Construction (rail delivery) scenario would add an average of 1.3 train trips per day, as documented in Section 2.1.2.2, *Construction Impact Analysis*. It was assumed that this train could travel during the PM peak hour.

The 2028 No-Action scenario would include approximately 2 additional non-Proposed Action-related trains per day on the Reynolds Lead, as documented in Section 2.1.2.1, *No-Action Alternative Analysis*. Overall, 4 trains per day would be expected along the Reynolds Lead, and 7 at the Dike Road study crossing (along the BNSF Spur) in the 2028 No-Action scenario. One non-Proposed Action-related train could travel along the BNSF Spur and Reynolds Lead during the PM peak hour. The BNSF main line would include approximately 18 additional non-Proposed Action-related trains per day in the 2028 No-Action scenario, with 73 non-Proposed Action-related trains expected per day in the 2028 No-Action scenario. It was assumed that 5 non-Proposed Action-related trains would travel during the PM peak hour.

The Proposed Action would add approximately 16 additional trains per day, as documented in Section 2.1.2.3, *Operations Impact Analysis*. Up to 2 Proposed Action-related trains could travel along the Reynolds Lead, BNSF Spur, and BNSF main line during the PM peak hour. Table 2 includes the daily and PM peak train crossings for 2018 and 2028.

2.1.2.7 Railroad Crossing Performance Measures

The following performance measures were used to identify impacts at the railroad crossings.

Level of Service

A vehicle level of service (LOS) impact was defined as a study crossing that operates below LOS D under the Proposed Action that would not otherwise operate below LOS D under the No-Action Alternative for the same year. LOS represents a “report card” rating (A through F) based on the delay experienced by vehicles at an intersection, or in this case, a railroad crossing, as shown in Table 3. LOS A, B, and C indicate conditions where traffic moves without significant delays. LOS D and E represent progressively worse operating conditions. LOS F represents conditions where average vehicle delay has become excessive and demand has exceeded capacity.

Table 3. Grade Crossing Level of Service

Level of Service (LOS)	Average Total Delay (seconds/vehicle)
A	<= 10
B	> 10 and <= 20
C	> 20 and <= 35
D	> 35 and <= 55
E	> 55 and <= 80
F	> 80

Notes:

Source: Transportation Resource Board 2000:Exhibit 16-2

The Cities of Kelso (2015), Longview, Woodland (2005), and the WSDOT (2010) use a peak hour standard of LOS D or better. The transportation element of the *City of Longview Comprehensive Plan* (December 2006) defines a capacity deficiency on arterial segments as a volume-to-capacity ratio of 0.85 or higher (representing a generalized LOS D or worse). As a conservative approach, the LOS D

standard was applied to all of the at-grade railroad crossings, regardless of the street functional classification or jurisdiction.

For the PM peak hour analysis, the traffic operating conditions at the study crossings were determined based on the *2000 Highway Capacity Manual* (Transportation Research Board 2000) methodology for signalized intersections (the railroad crossings were assumed to be pre-timed traffic signals). The conditions reported include the estimated average vehicle delay, and LOS of the study crossings. Available signal timing information for the intersections adjacent to the rail crossings were incorporated into this analysis. For the 24-hour analysis, similar delay thresholds, based on the LOS definitions found in the *2000 Highway Capacity Manual* methodology for signalized intersections, were used to assess the average delay experienced per vehicle at each rail crossing. The average delay per vehicle in a 24-hour period (in seconds) for a rail crossing was determined based on the average number of daily trains, average train length, train speed, and average daily traffic volumes in both directions.

Queue

A vehicle queuing impact was defined as a queue extending from a study crossing that exceeds available storage length (to an adjacent intersection) under the Proposed Action that would not otherwise exceed the available storage under the No-Action alternative from the same year. The available storage along the roadways approaching the study crossings and at nearby intersections is shown in Table 4.

Queuing analysis was conducted using SimTraffic 8, which estimates the 95th percentile vehicle queue lengths, or the queue length that would not be exceeded in 95% of the queues formed during the PM peak hour. Note that SimTraffic 8 was unable to be fully calibrated and verified based on field conditions because no trains were observed crossing during the PM peak hour. However, estimated queues were verified based on the relationship between observed queues during nonpeak conditions, and traffic volumes at that time. This relationship was compared to PM peak hour traffic volumes to help verify the estimated baseline queue lengths.

Accident Probability

An accident probability analysis was conducted for the study crossings in Cowlitz County and statewide crossings using the FRA GradeDec.Net web-based software, which estimates the predicted annual accident probability at a crossing in a year. The software uses the USDOT's Accident Prediction and Severity model. This module estimates accident probability-based grade-crossing features available in FRA's nationwide inventory of at-grade crossings, including the type of crossing protection in place, historical accident data at the crossing, vehicle traffic volumes, the number of roadway lanes and train tracks, the number of trains per day, and train speed. Other physical factors that affect the frequency of collisions at a crossing, such as available sight distance, or vehicle storage between adjacent intersections, are not direct inputs in this module. However, the accident history at these crossings would likely reflect these characteristics. Such characteristics would not be affected by the Proposed Action, which would only alter the number of trains per day and vehicle traffic volumes (at some grade crossings). This analysis provides a frame of reference for crossings by estimating accident probability, but does not identify these crossings as unsafe. A vehicle safety impact was defined as a study crossing that would have a predicted accident probability above 0.04 under the Proposed Action that would be at or below 0.04 under the No-Action scenario.

Table 4. Estimated Vehicle Storage Lengths

Crossing Name (USDOT Crossing ID)	Roadway Movement	Available Storage before Impacting nearby Intersection (feet)	Intersection Affected by Queue from Crossing	Intersection Movement	Available Storage (feet)
Project area access at 38th Avenue	NB	>1,000 (private driveway)	Industrial Way/ 38th Avenue	WBL	180
	SB	<20		EBR	180
Weyerhaeuser access at Washington Way	NB	>1,000 (private driveway)	Industrial Way/ Washington Way	WBL	180
	SB	<20		EBR	20
Weyerhaeuser NORPAC access	NB	>1,000 (private driveway)	Industrial Way/ NORPAC access	WBL	80
	SB	<20		EBR	200
Industrial Way-SR 432 (101806G)	NB	120	Industrial Way/ Weyerhaeuser	EBL	>1,000 (private driveway)
	SB	>1,000		NBT	730
Oregon Way-SR 433 (101805A)	NB	220	Industrial Way/ Oregon Way	NBT	>1,000
				EBL	85
	SB	700	Oregon Way/ Alabama Street	WBR	0
				EBR	N/A
				WBL	
				SBT	
California Way (101821J)	NB	400	Industrial Way/ California Way	N/A	N/A
	SB	>1,000			
3rd Avenue-SR 432 (101826T)	NB	400	3rd Avenue/ Industrial Way	WBR	170
				NBT	240
	SB	>1,000	Industrial Way/ California Way	SBL	130
				NBR	100
				EBT	>1,000
Dike Road (101791U)	NB	>1,000	None	N/A	N/A
	SB	200			

Crossing Name (USDOT Crossing ID)	Roadway Movement	Available Storage before Impacting nearby Intersection (feet)	Intersection Affected by Queue from Crossing	Intersection Movement	Available Storage (feet)
Public At-Grade Crossings along the BNSF Main Line in Cowlitz County					
Taylor Crane Road in Castle Rock (092481X)	EB	300	None	N/A	N/A
	WB	50			
Cowlitz Street in Castle Rock (092476B)	EB	440	None	N/A	N/A
	WB	260			
Cowlitz Gardens Road in Kelso (092466V)	EB	50	None	N/A	N/A
	WB	50			
Mill Street in Kelso (092458D)	EB	>1,000	None	N/A	N/A
	WB	250			
S River Road in Kelso (092457W)	EB	120	Pacific Avenue/ S River Road	SBR	0
	WB	60		NBL	0
Toteff Road/ Port Road in Kalama (092446J)	EB	>1,000	None	N/A	N/A
	WB	900			
W Scott Avenue in Woodland (092437K)	EB	580	None	N/A	N/A
	WB	720			
Davidson Avenue in Woodland (092435W)	EB	120	None	N/A	N/A
	WB	330			
Whalen Road in Woodland (092434P)	EB	180	None	N/A	N/A
	WB	800			

Notes:

USDOT = U.S. Department of Transportation; NB = northbound; SB = southbound; EB = eastbound; WB = westbound; WBT= westbound through; EBR= eastbound right; SBT = southbound through; EBL= eastbound left; NBT = northbound through; SBL = southbound left; NBR = northbound right; EBT= eastbound through; N/A = not applicable

2.2 Existing Conditions

The existing environmental conditions related to vehicle transportation in the study area are described below.

Table 5 provides vehicle and train traffic information at the five public at-grade crossings on the Reynolds Lead and BNSF Spur, and three private crossings on the Reynolds Lead, including the entrance to the project area and the traffic associated with these crossings. Table 5 also presents information for vehicle and train traffic at all nine public at-grade crossings on the BNSF main line in Cowlitz County that would be used by Proposed Action-related train traffic to and from the project area. Relevant roadway characteristics also are listed, including roadway functional classifications and number of lanes at the crossing. Information on at-grade crossing and roadway performance is presented in Chapter 3, *Impacts and Mitigation*.

Ten years of collision records (2003 to 2013) for the at-grade railroad crossings along the BNSF main line, Reynolds Lead, and BNSF Spur in Cowlitz County were obtained from FRA and WSDOT databases. The data identified one collision involving a train near the project area, at the Washington Way crossing, just south of the Industrial Way intersection. The crossing is ungated, and located less than 50 feet from Industrial Way. The collision involved a vehicle stopped at the traffic signal, beyond the stop bar and on the track, getting struck by a train. The collision resulted in property damage only.

A collision involving a train also occurred at the Cowlitz Gardens Road crossing on the BNSF main line. This crossing is gated, and located less than 75 feet from Pacific Avenue. The collision involved an inoperable vehicle stopped on the tracks, getting struck by a train. The collision resulted in property damage only.

2.2.1 Emergency Services

The Cowlitz 2 Fire & Rescue District, the Longview Fire Department, and American Medical Response (AMR) provide emergency medical services (EMS) and fire protection for the project area. Figure 5 illustrates the location of fire stations in the vicinity of the project area.

Cowlitz 2 Fire & Rescue

Cowlitz 2 Fire & Rescue serves approximately 34,000 citizens in the City of Kelso and unincorporated Cowlitz County and responds to approximately 4,100 calls per year (Cowlitz 2 Fire & Rescue 2015). The district is staffed by approximately 120 full-time and volunteer members in five active fire stations, two of which are staffed with full-time emergency medical technicians (EMTs) and paramedic firefighters. Volunteer firefighter EMTs also respond on an on-call basis.

Table 5. At-Grade Crossing and Roadway Characteristics

Crossing Name (USDOT Crossing ID)	Roadway			Railroad (Trains)		
	2018 ADT	Functional Classification ^a	Lanes	Protection ^b	2018 Crossings per day	Average Speed (mph) ^c
Study Crossings along the Reynolds Lead and BNSF Spur						
Project area access at 38th Avenue	200	Private	2	None	2.3	5 (freight)
Weyerhaeuser access at Washington Way	3,300	Private	4	None	2.3	8 (freight)
Weyerhaeuser NORPAC access	650	Private	2	None	2.3	10 (freight)
Industrial Way- SR 432 (101806G)	10,100	Principal Arterial	2	Overhead Lights	2.3	10 (freight)
Oregon Way- SR 433 (101805A)	15,200	Principal Arterial	4	Gates/ Overhead Lights	2.3	10 (freight)
California Way (101821J)	4,050	Minor Arterial	2	Overhead Lights	2.3	8 (freight)
3rd Avenue- SR 432 (101826T)	16,850	Principal Arterial	4	Gates/ Overhead Lights	2.3	8 (freight)
Dike Road (101791U)	950	Local	2	Overhead Lights	7.1	10 (freight)
Public At-Grade Crossings along the BNSF Main Line in Cowlitz County						
Taylor Crane Road in Castle Rock (092481X)	50	Local	2	None	55.1	50 (freight); 50 (passenger)
Cowlitz Street in Castle Rock (092476B)	1,200	Minor Collector	2	Gates/ Overhead Lights	55.1	50 (freight); 50 (passenger)
Cowlitz Gardens Road in Kelso (092466V)	700	Local	2	Gates	55.1	60 (freight); 75 (passenger)
Mill Street in Kelso (092458D)	2,550	Local	2	Gates	55.1	40 (freight); 40 (passenger)
S River Road in Kelso (092457W)	1,850	Local	2	Gates	55.1	40 (freight); 40 (passenger)
Toteff Road/ Port Road in Kalama (092446J)	1,200	Local	2	Gates/ Overhead Lights	55.1	60 (freight); 79 (passenger)
W Scott Avenue in Woodland (092437K)	2,650	Minor Arterial	2	Gates	55.1	60 (freight); 75 (passenger)

Crossing Name (USDOT Crossing ID)	Roadway			Railroad (Trains)		
	2018 ADT	Functional Classification^a	Lanes	Protection^b	2018 Crossings per day	Average Speed (mph)^c
Davidson Avenue in Woodland (092435W)	2,000	Minor Arterial	2	Gates	55.1	60 (freight); 75 (passenger)
Whalen Road in Woodland (092434P)	1,550	Minor Arterial	2	Gates	55.1	60 (freight); 75 (passenger)

Notes:

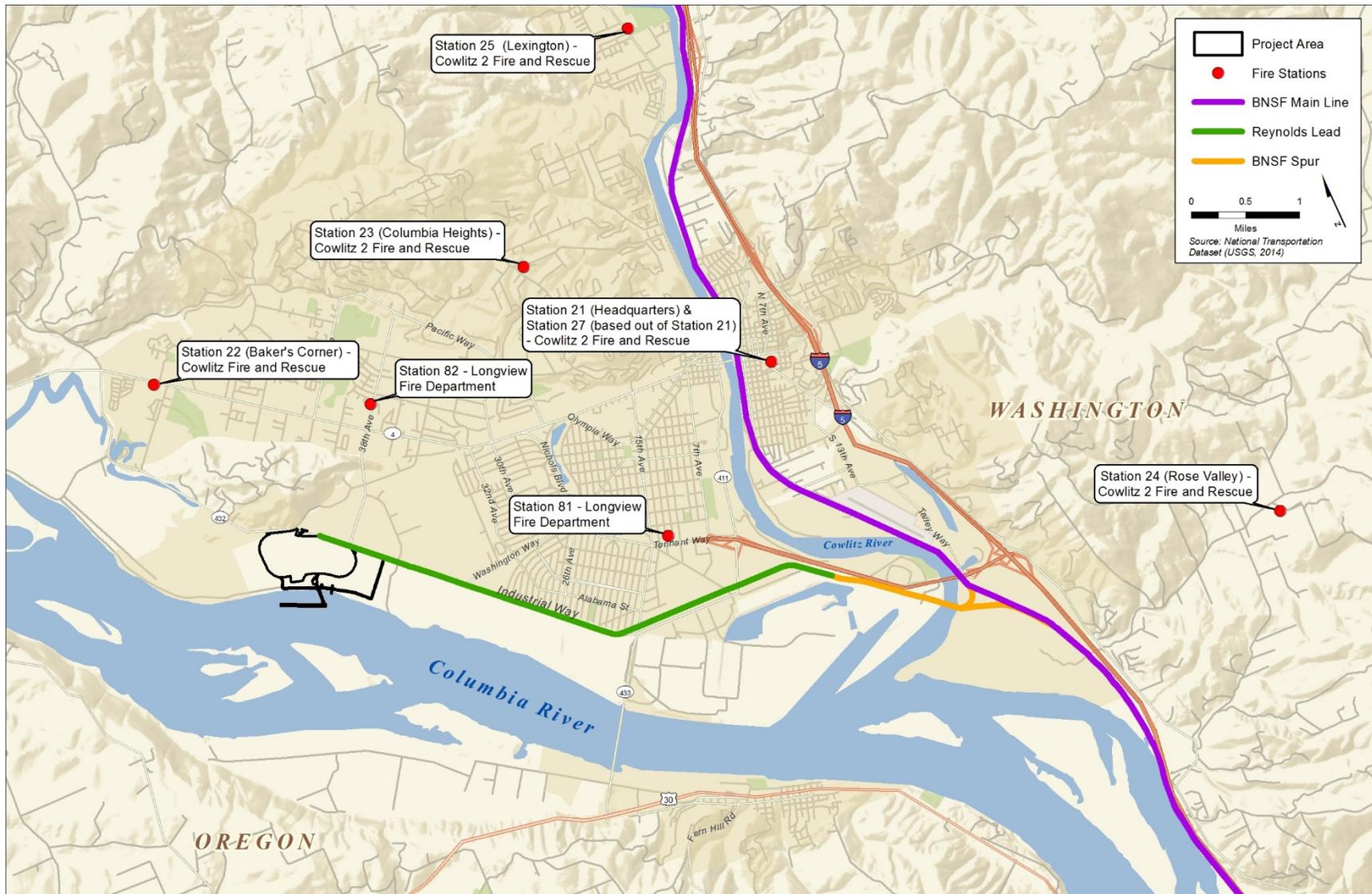
^a Source: City of Longview 2015; City of Kelso 2006; City of Castle Rock 2006; City of Woodland 2005

^b Source: Field observations

^c Source: SEPA Rail Transportation Technical Report (ICF International and Hellerworx 2016) and Washington Utilities and Transportation Commission 2015.

ADT = average daily traffic; mph = miles per hour

Figure 5. Emergency Services Providers



The district includes the following stations and equipment.

- Station 21 (Headquarters for Cowlitz 2 Fire & Rescue) is staffed with 27 full-time personnel and includes a main response fire engine, a volunteer/reserve-ready fire engine, an advanced life support ambulance, and a reserve-ready advanced life support ambulance. This station includes three rotating shifts 24 hours a day, 7 days a week, 365 days a year. During each shift, at least eight personnel staff a variety of equipment.
- Station 22 (Baker's Corner) is a volunteer station and includes a main response fire engine, a 3,000-gallon water supply, an EMS/wildland response vehicle, and an EMS response ambulance. This is an all-volunteer station that serves as crucial first response before additional help arrives.
- Station 23 (Columbia Heights) is staffed full time by firefighter/EMT, firefighter/paramedic, and volunteer personnel and includes a main response fire engine, an EMS/wildland response vehicle, an advanced life support ambulance, a basic life support ambulance, and a hazardous materials response apparatus.
- Station 24 (Rose Valley) is a volunteer station and includes a main response fire engine and an EMS/wildland response vehicle. This is an all-volunteer station that serves as crucial first response before additional help arrives.
- Station 25 (Lexington) Station 25 is a volunteer station and includes an initial response fire engine, a 2,000-gallon water supply, and an EMS/wildland response vehicle. This is an all-volunteer station that serves as crucial first response before additional help arrives.
- Station 27 (Kelso) is a volunteer station and includes a main response fire engine and a 3,000-gallon water supply. This is an all-volunteer station that backs up personnel at Station 21 (Headquarters) when they are on calls.

Longview Fire Department

The Longview Fire Department serves approximately 36,000 citizens spread over 14.7 square miles of urban/suburban development. The department is staffed with 39 full-time EMT/firefighters, and four paramedic/firefighters. Paramedic transport service is provided within the City of Longview by AMR, a private provider. The Longview Fire Department responds to approximately 4,500 calls per year from two fire stations (City of Longview 2015). The department includes the following stations and equipment.

- Station 81 is located at 740 Commerce Avenue in Longview. A minimum of six line firefighters and one battalion chief are on duty 24 hours a day. The station includes an aerial ladder truck and a fire engine.
- Station 82 is located at 2355 38th Avenue in Longview. This station has a minimum of three line firefighters on duty 24 hours a day, with a maximum of five firefighters. The station primarily responds to the west end of Longview; however, it responds as backup to Station 81, as needed. The station includes one fire engine.

American Medical Response

AMR is a private ambulance company that provides emergency and nonemergency medical transport service for the project area. AMR includes approximately 35 paramedics and EMTs, and handles an average of 7,500 calls annually (American Medical Response 2015). The medical transport vehicles are based out of the facility near the Cowlitz Highway intersection with Long Avenue.

2.2.2 Washington State

As described in Section 2.1.2.3, *Operations Impact Analysis*, Proposed Action-related BNSF trains from the Powder River Basin would cross Washington State from east of Spokane (Washington State–Idaho border) to the project area in Cowlitz County. Loaded and empty UP trains to and from the Powder River Basin and Uinta Basin would travel north from Vancouver, Washington. WSDOT provided a list of statewide crossings of interest during the project’s SEPA scoping process for crossings along the proposed rail routes. These study crossings are at-grade state highway crossings or at-grade crossings near state highways. Table 6 summarizes the existing conditions at these study crossings, including existing estimated annual average daily traffic (AADT), freight and passenger train speed at the crossings, and estimated number of trains per day.⁶

⁶ The geographic location of these crossings are illustrated in Chapter 3, *Impacts and Mitigation*, Figure 6.

Table 6. Existing Conditions at Selected Crossings Outside of Cowlitz County

# ^a	Road Crossing	USDOT/FRA Crossing ID ^b	Railroad Milepost ^b	Estimated 2015 AADT ^c	Freight Train Speed (mph) ^b	Passenger Train Speed (mph) ^b	Estimated 2015 Trains per Day ^d
Spokane County							
1	Idaho Road	066236B	53.4	2,650	60	70	70
2	McKinzey Road	066239W	56.2	2,600	60	79	70
3	Harvard Road	066240R	56.8	8,400	60	79	70
4	Barker Road	066244T	58.9	13,900	60	79	70
5	Flora Road	066245A	59.9	6,600	60	79	70
6	Pines Road-SR 27	066367E	62.9	29,700	60	79	70
7	University Road	066371U	64.0	2,450	60	79	70
8	Park Road	066377K	66.1	16,400	60	79	70
9	Pine Street	066315M	15.8	750	35	35	39
10	F Street/Cheney-Spangle	065970L	16.4	3,650	35	35	39
11	Cheney-Plaza Road	065971T	16.8	1,050	35	35	39
Adams County							
12	Paha Packard Road	089665U	74.2	100	60	79	39
13	Kahlotus Road	089670R	80.6	300	60	79	39
14	1st Street	089672E	81.8	500	50	60	39
15	Wilbur/City Road	089673L	82.1	550	50	60	39
Franklin County							
16	Eltopia Road W	089699N	129.1	350	60	79	39
17	Sagemoor Road	089700F	134.2	450	60	79	39
Benton County							
18	East 3rd Avenue	090031U	229.2	2,800	35	35	34
19	Dague Road-East 25th Avenue	090035W	227.5	800	60	60	34
20	Perkins Road	090036D	226.4	700	60	60	34
21	Bowles Road	090038S	225.7	2,450	60	60	34
22	Cochran Road	090039Y	225.0	100	60	60	34

# ^a	Road Crossing	USDOT/FRA Crossing ID ^b	Railroad Milepost ^b	Estimated 2015 AADT ^c	Freight Train Speed (mph) ^b	Passenger Train Speed (mph) ^b	Estimated 2015 Trains per Day ^d
23	Finley Road	090040T	224.5	3,100	60	60	34
24	Whitcomb Island	090061L	171.9	50	60	60	34
Klickitat County							
25	Maple Street	090169V	75.7	850	45	45	34
26	Walnut Street	090168N	75.5	1,400	45	45	34
27	South Dock Grade Road	090164L	74.2	100	55	60	34
Skamania County							
28	Indian Crossing	090159P	65.9	100	55	60	34
29	Home Valley Park	090155M	59.6	50	55	60	34
30	Cemetery Xing	090151K	54.7	50	N/A	N/A	34
31	Russell Avenue	090148C	53.9	350	20	20	34
32	Skamania Landing/Butler Road	090135B	43.3	100	60	60	34
33	Walker/Skamania Landing	090134U	42.6	150	60	60	34
34	St Cloud Road	090133M	39.7	N/A	N/A	N/A	34
Lewis County							
35	SR 506-7th Street	092484T	77.8	1,400	50	75	50
36	Walnut Street – SR 505/603	092493S	71.6	2,850	50	50	50
37	E Locust Street	092519S	54.2	2,800	40	40	50
38	Main Street	092520L	54.1	2,650	40	40	50
39	Maple Street	092521T	53.8	3,500	40	40	50
40	Big Hanaford Road	092524N	51.8	2,550	10	N/A	50

# ^a	Road Crossing	USDOT/FRA Crossing ID ^b	Railroad Milepost ^b	Estimated 2015 AADT ^c	Freight Train Speed (mph) ^b	Passenger Train Speed (mph) ^b	Estimated 2015 Trains per Day ^d
Yakima County							
41	Jones Road East	099178A	79.4	1,600	55	40	7
42	Indian Church	104523U	63.8	2,450	55	40	7
43	SR241/Reservation	104534G	52.2	2,850	55	40	7
44	Gulden Road	104536V	51.1	300	55	40	7

Notes:

^a See Chapter 3, *Impacts and Mitigation*, Figure 6, for crossing location.

^b Source: Washington Utilities Transportation Commission 2015.

^c Source: Washington Utilities Transportation Commission 2015; Federal Railroad Administration 2015. The data source with the most recent AADT was used and a 2% growth rate was applied to adjust to 2015.

^d Washington State Department of Transportation 2014b. Linear extrapolation of 2010 and 2035 projected train traffic to 2015 volumes.

USDOT = U.S. Department of Transportation; FRA = Federal Railroad Administration; AADT = annual average daily traffic; mph = miles per hour; N/A = data not available

This chapter describes the impacts on vehicle transportation that would result from construction and operation of the Proposed Action and the No-Action Alternative.

3.1 Impacts

This section describes the impacts on vehicle transportation that could result from the Proposed Action and No-Action Alternative.

As described previously, railroad companies evaluate each situation and dispatch trains based on various criteria. The analysis analyzes a 24-hour average delay to illustrate the delay for the average vehicle. To analyze the highest potential vehicle delay impacts that could occur related to the Proposed Action, an analysis of vehicle delay during the PM peak traffic hour was completed. The PM peak hour analysis assumes Proposed Action-related trains would pass during the peak hour, and represents a worst-case analysis and a scenario that would likely not occur daily. See Appendix A, Vehicle Transportation Technical Data, for the analysis data.

3.1.1 Proposed Action

Potential impacts on vehicle transportation from the Proposed Action are described below.

3.1.1.1 Construction: Direct and Indirect Impacts

An estimated 180 PM peak hour motor vehicle trips are estimated as a result of peak construction activities with the rail construction scenario, or an estimated 260 PM peak hour motor vehicle trips with the truck or barge construction scenario. These vehicles would access the project area via the private driveway opposite 38th Avenue or a new driveway on Industrial Way. Parking would be provided for construction workers in the Applicant's leased area. All vehicle transportation impacts during construction would occur outside the project area and, therefore, are considered indirect impacts. Construction of the Proposed Action would result in the following indirect impacts.

Cause Vehicle Delays from Rail Construction Traffic

An average of 2 non-Proposed Action-related trains per day would be expected over study crossings on the Reynolds Lead, and 7 at the Dike Road study crossing (along the BNSF Spur) in the 2018 No-Action and 2018 Construction (truck delivery) scenarios. One non-Proposed Action-related train could pass during the PM peak hour. The weighted average length of these trains would be approximately 2,000 feet along the Reynolds Lead, and 5,000 feet along the BNSF Spur. The BNSF main line would have around 55 non-Proposed Action-related trains per day by 2018, with a weighted average length of over 5,100 feet. It is assumed that 4 non-Proposed Action-related trains could pass during the PM peak hour. Table 7 shows the anticipated weighted average train lengths and total gate downtime at the study crossings for 2018.

Table 7. Study Crossing Characteristics—2018 Construction Scenario

Crossing Name (USDOT Crossing ID)	Time Period	2018 No-Action		2018 Proposed Action (Truck Delivery)		2018 Proposed Action (Rail Delivery)	
		Weighted Average Train Length (feet)	Total Gate Downtime (minutes)	Weighted Average Train Length (feet)	Total Gate Downtime (minutes)	Weighted Average Train Length (feet)	Total Gate Downtime (minutes)
Study Crossings along the Reynolds Lead and BNSF Spur							
Project area access at 38th Avenue	Per Day	2,024	11.6	2,024	11.6	3,530	30.3
	PM Peak		5.10		5.1	6,219	14.6
Weyerhaeuser access at Washington Way	Per Day	2,024	7.7	2,024	7.7	3,530	19.6
	PM Peak		3.4		3.4	6,219	9.3
Weyerhaeuser NORPAC access	Per Day	2,024	6.4	2,024	6.4	3,530	16.0
	PM Peak		2.8		2.8	6,219	7.6
Industrial Way-SR 432 (101806G)	Per Day	2,024	6.4	2,024	6.4	3,530	16.0
	PM Peak		2.8		2.8	6,219	7.6
Oregon Way-SR 433 (101805A)	Per Day	2,024	6.4	2,024	6.4	3,530	16.0
	PM Peak		2.8		2.8	6,219	7.6
California Way (101821J)	Per Day	2,041	7.8	2,041	7.8	3,541	19.7
	PM Peak		3.4		3.4	6,219	9.3
3rd Avenue-SR 432 (101826T)	Per Day	2,041	7.8	2,041	7.8	3,541	19.7
	PM Peak		3.4		3.4	6,219	9.3
Dike Road (101791U)	Per Day	4,919	43.4	4,919	43.4	5,116	53.0
	PM Peak		6.1		6.1	6,219	7.6
Public At-Grade Crossings along the BNSF Main Line in Cowlitz County							
Taylor Crane Road in Castle Rock (092481X)	Per Day	5,160	92.2	5,160	92.2	5,178	94.1
	PM Peak	3,425	5.0	3,425	5.0	3,995	6.9
Cowlitz Street in Castle Rock (092476B)	Per Day	5,160	92.2	5,160	92.2	5,178	94.1
	PM Peak	3,425	5.0	3,425	5.0	3,995	6.9
Cowlitz Gardens Road in Kelso (092466V)	Per Day	5,160	79.1	5,160	79.1	5,178	80.7
	PM Peak	3,425	4.4	3,425	4.4	3,995	6.1

Crossing Name (USDOT Crossing ID)	Time Period	2018 No-Action		2018 Proposed Action (Truck Delivery)		2018 Proposed Action (Rail Delivery)	
		Weighted Average Train Length (feet)	Total Gate Downtime (minutes)	Weighted Average Train Length (feet)	Total Gate Downtime (minutes)	Weighted Average Train Length (feet)	Total Gate Downtime (minutes)
Mill Street in Kelso (092458D)	Per Day	5,160	108.3	5,160	108.3	5,178	110.6
	PM Peak	3,425	5.7	3,425	5.7	3,995	8.0
S River Road in Kelso (092457W)	Per Day	5,160	108.3	5,160	108.3	5,178	110.6
	PM Peak	3,425	5.7	3,425	5.7	3,995	8.0
Toteff Road/ Port Road in Kalama (092446J)	Per Day	5,160	78.5	5,160	78.5	5,178	80.1
	PM Peak	3,425	4.4	3,425	4.4	3,995	6.1
W Scott Avenue in Woodland (092437K)	Per Day	5,160	79.1	5,160	79.1	5,178	80.7
	PM Peak	3,425	4.4	3,425	4.4	3,995	6.1
Davidson Avenue in Woodland (092435W)	Per Day	5,160	79.1	5,160	79.1	5,178	80.7
	PM Peak	3,425	4.4	3,425	4.4	3,995	6.1
Whalen Road in Woodland (092434P)	Per Day	5,160	79.1	5,160	79.1	5,178	80.7
	PM Peak	3,425	4.4	3,425	4.4	3,995	6.1

Total gate downtime would be up to 8 minutes per day (3 minutes during the PM peak hour) at public crossings along the Reynolds Lead, 12 minutes per day (5 minutes during the PM peak hour) at private crossings along the Reynolds Lead, 43 minutes per day (6 minutes during the PM peak hour) at the Dike Road crossing along the BNSF Spur, and up to 108 minutes per day (6 minutes during the PM peak hour) along the BNSF main line in the 2018 No-Action and 2018 Construction (truck delivery) scenarios.

The 2018 Construction (rail delivery) scenario would add approximately 1 additional train per day, as documented in Section 2.1.2.2, *Construction Impact Analysis*. This train could pass during the PM peak hour. The additional train would take between 8 and 9 minutes to pass through the public street study crossings along the Reynolds Lead and BNSF Spur, and around 2 minutes to pass through the study crossings along the BNSF main line. This would increase the total gate downtime up to 12 minutes during an average day for the public study crossings along the Reynolds Lead, up to 19 minutes during an average day for the private study crossings along the Reynolds Lead, and up to 2 minutes during an average day along the BNSF main line during the first year of construction of the Proposed Action.

Table 8 shows the estimated average delay per vehicle and LOS that would be experienced during the PM peak hour at each of the study crossings for the 2018 Construction scenario for preload material delivery by truck or by rail, with the estimated 2018 No-Action scenario conditions provided for reference.

As shown, construction activities would not result in any material change in vehicle delay at at-grade crossings on the Reynolds Lead, BNSF Spur, and BNSF main line if preload material is delivered by truck. Should delivery of preload material by rail occur during the PM peak hour, the average delay per vehicle would increase, with forecast LOS dropping below LOS D at three of the study crossings on the Reynolds Lead. The length of the construction preload material train, estimated at 6,419 feet, and the slow track speeds at the California Way, 3rd Avenue (SR 432) and project area access (opposite 38th Avenue) study crossings (between 5 and 8 mph), would contribute to the vehicle LOS impacts. No vehicle LOS impacts are forecast at study crossings along the BNSF main line.

Table 9 shows the estimated average delay per vehicle and LOS that would be experienced during a 24-hour period at each of the study crossings in 2018. As shown, the average delay per vehicle expected over a 24-hour period is very low under each of the 2018 scenarios, illustrating that most drivers over the course of a day would not be delayed by a train at the study crossings. However, if a train crosses during the PM peak hour, it could cause substantial delay to drivers, as indicated in Table 8.

Table 8. Estimated Vehicle Delay and LOS—2018 Construction Scenario (PM Peak Hour)

USDOT Crossing ID	Crossing Name	2018 No-Action		2018 Proposed Action (Truck Delivery)		2018 Proposed Action (Rail Delivery)	
		Delay (seconds)	LOS	Delay (seconds)	LOS	Delay (seconds)	LOS ^a
Study Crossings along the Reynolds Lead and BNSF Spur							
Private	Project area access at 38th Avenue	14.9	B	15.7	B	126.6	F
Private	Weyerhaeuser access at Washington Way	6.9	A	6.9	A	51.9	D
Private	Weyerhaeuser NORPAC access	4.8	A	4.8	A	33.7	C
101806G	Industrial Way (SR 432)	7.6	A	8.3	A	52.8	D
101805A	Oregon Way (SR 433)	6.3	A	6.5	A	45.2	D
101821J	California Way	7.6	A	7.6	A	56.4	E
101826T	3rd Avenue (SR 432)	10.6	B	11.2	B	79.7	E
101791U	Dike Road	22.3	C	22.3	C	33.6	C
Public At-Grade Crossings along the BNSF Main Line in Cowlitz County							
092481X	Taylor Crane Road in Castle Rock	7.3	A	7.3	A	20.6	C
092476B	Cowlitz Street in Castle Rock	7.7	A	7.7	A	21.6	C
092466V	Cowlitz Gardens Road in Kelso	5.9	A	5.9	A	16.4	B
092458D	Mill Street in Kelso	10.7	B	10.7	B	31.0	C
092457W	S River Road in Kelso	10.4	B	10.4	B	30.1	C
092446J	Toteff Road/Port Road in Kalama	5.9	A	5.9	A	16.8	B
092437K	W Scott Avenue in Woodland	6.6	A	6.6	A	18.3	B
092435W	Davidson Avenue in Woodland	6.2	A	6.2	A	17.4	B
092434P	Whalen Road in Woodland	6.1	A	6.1	A	17.0	B

Notes:

^a **Bolded, shaded gray** values indicate a vehicle LOS impact (a study crossing that operates below LOS D under the Proposed Action that would not otherwise operate below LOS D under the No-Action Alternative from the same year).

Delay = average delay per vehicle at worst roadway approach to the crossing; LOS = level of service of worst roadway approach to the crossing

Table 9. Estimated Vehicle Delay and LOS—2018 Construction Scenario (24-Hour Average)

USDOT Crossing ID	Crossing Name	2018 No-Action		2018 Proposed Action (Truck Delivery)		2018 Proposed Action (Rail Delivery)	
		Delay (seconds)	LOS	Delay (seconds)	LOS	Delay (seconds)	LOS
Study Crossings along the Reynolds Lead and BNSF Spur							
Private	Project area access at 38th Avenue	1.2	A	1.3	A	5.7	A
Private	Weyerhaeuser access at Washington Way	0.6	A	0.6	A	2.4	A
Private	Weyerhaeuser NORPAC access	0.4	A	0.4	A	1.5	A
101806G	Industrial Way (SR 432)	0.4	A	0.5	A	1.8	A
101805A	Oregon Way (SR 433)	0.4	A	0.4	A	1.7	A
101821J	California Way	0.6	A	0.6	A	2.5	A
101826T	3rd Avenue (SR 432)	0.6	A	0.6	A	2.6	A
101791U	Dike Road	5.7	A	5.7	A	7.2	A
Public At-Grade Crossings along the BNSF Main Line in Cowlitz County							
092481X	Taylor Crane Road in Castle Rock	3.2	A	3.2	A	3.3	A
092476B	Cowlitz Street in Castle Rock	3.3	A	3.3	A	3.4	A
092466V	Cowlitz Gardens Road in Kelso	2.4	A	2.4	A	2.5	A
092458D	Mill Street in Kelso	4.8	A	4.8	A	4.9	A
092457W	S River Road in Kelso	4.7	A	4.7	A	4.8	A
092446J	Toteff Road/ Port Road in Kalama	2.4	A	2.4	A	2.5	A
092437K	W Scott Avenue in Woodland	2.5	A	2.5	A	2.6	A
092435W	Davidson Avenue in Woodland	2.5	A	2.5	A	2.5	A
092434P	Whalen Road in Woodland	2.5	A	2.5	A	2.5	A
Notes:							
Delay = average delay per vehicle over 24-hour period, in seconds; LOS = level of service of railroad crossing							

Table 10 shows the estimated vehicle queue lengths that would be experienced during the PM peak hour at each of the study crossings during construction in 2018 for preload material delivery by truck or by rail, with the estimated 2018 No-Action scenario conditions provided for reference.

As shown, vehicle queues extending from six study crossings (all along the Reynolds Lead) could affect seven nearby intersections with 2018 No-Action scenario trains during the PM peak hour. The affected intersections include Industrial Way/38th Avenue, Industrial Way/Washington Way, Industrial Way/NORPAC access, Industrial Way/Weyerhaeuser Access, Industrial Way/Oregon Way, 3rd Avenue/Industrial Way, and Industrial Way/California Way. Vehicle queues at these intersections could exceed available storage at four approaches, including the eastbound right turn from Industrial Way to the Weyerhaeuser Access (opposite Washington Way), the eastbound left turn and westbound right turn from Industrial Way to Oregon Way, and the northbound through movement at the 3rd Avenue/Industrial Way intersection. These queues could potentially block other movements at these intersections that would otherwise not be affected by train crossing events.

Construction activities would not result in any material change in vehicle queue lengths if preload material is delivered by truck. Should delivery of preload material by rail occur during the PM peak hour, the estimated vehicle queue lengths would increase at rail crossings along high volume roadways, with queues extending nearly 1,000 feet beyond those expected with 2018 No-Action and 2018 Construction (via truck) scenario trains at the Industrial Way (SR 432), Oregon Way (SR 433), and 3rd Avenue (SR 432) study crossings. The length of the construction preload material train, estimated at 6,419 feet, and the slow track speeds at the Industrial Way (SR 432), Oregon Way (SR 433), 3rd Avenue (SR 432) study crossings (between 8 and 10 mph), would contribute to the increased vehicle queue lengths.

Two additional intersections would be affected by vehicle queues extending from rail crossings with 2018 Construction (via rail) scenario trains during the PM peak hour (beyond those affected by 2018 No-Action scenario trains), including Oregon Way/Alabama Street, and Pacific Avenue/S River Road. However, vehicle queues at the nine affected intersections would exceed available storage at only one additional approach beyond those affected by 2018 No-Action scenario trains, the southbound through movement at Industrial Way/Washington Way. This queue could potentially block the southbound left turn from Washington Way to Industrial Way, a movement that would otherwise not be affected by train-crossing events.

Table 10. Estimated Vehicle Queue Lengths—2018 Construction Scenario (PM Peak Hour)^a

Crossing Name (USDOT Crossing ID)	Road MVMT ^b	2018	2018	2018	Intersection Affected by Queue from Crossing	Intersection MVMT ^c	2018	2018	2018
		No-Action	Truck	Rail			No-Action	Truck	Rail
		Estimated Crossing Queue Length (feet)			Estimated Intersection Queue Length (feet)				
Study Crossings along the Reynolds Lead and BNSF Spur									
Project area access- opposite 38th Avenue	NB	40	1,960	2,480	Industrial Way/ 38th Avenue	WBL	20	20	20
	SB	20	20	20		EBR	20	20	20
Weyerhaeuser access- opposite Washington Way	NB	140	160	460	Industrial Way/ Washington Way	WBL	120	120	140
	SB	120	120	160		EBR	40	40	40
Weyerhaeuser NORPAC access	NB	60	60	140	Industrial Way/ NORPAC access	WBL	20	20	20
	SB	20	20	20		EBR	20	20	20
Industrial Way- SR 432 (101806G)	NB	360	360	420	Industrial Way/ Weyerhaeuser	EBL	140	140	240
	SB	280	360	1,220		NBT	240	240	300
Oregon Way- SR 433 (101805A)	NB	660	640	2,460	Industrial Way/ Oregon Way	NBT	440	420	2,240
						EBL	180	240	240
						WBR	100	100	100
	SB	200	220	960	Oregon Way/ Alabama Street	EBR	N/A	N/A	120
						WBL			100
						SBT			260
California Way (101821J)	NB	100	100	260	Industrial Way/ California Way	N/A	N/A	N/A	N/A
	SB	120	140	600					
3rd Avenue- SR 432 (101826T)	NB	1,040	1,060	1,640	3rd Avenue/ Industrial Way	WBR	60	60	80
						NBT	640	660	1,240
	SB	240	280	1,240	Industrial Way/ California Way	SBL	120	120	140
						NBR	60	60	60
						EBT	400	420	1,000
Dike Road (101791U)	NB	60	60	100	None	N/A	N/A	N/A	N/A
	SB	100	100	120					

Crossing Name (USDOT Crossing ID)	Road MVMTC ^b	2018	2018	2018	Intersection Affected by Queue from Crossing	Intersection MVMTC ^c	2018	2018	2018
		No-Action	Truck	Rail			No-Action	Truck	Rail
Public At-Grade Crossings along the BNSF Main Line in Cowlitz County									
		Estimated Crossing Queue Length (feet)			Estimated Intersection Queue Length (feet)				
Taylor Crane Road in Castle Rock (092481X)	EB	20	20	20	None	N/A	N/A	N/A	N/A
	WB	20	20	20					
Cowlitz Street in Castle Rock (092476B)	EB	40	40	40	None	N/A	N/A	N/A	N/A
	WB	40	40	60					
Cowlitz Gardens Road in Kelso (092466V)	EB	20	20	20	None	N/A	N/A	N/A	N/A
	WB	20	20	20					
Mill Street in Kelso (092458D)	EB	80	80	100	None	N/A	N/A	N/A	N/A
	WB	100	100	120					
S River Road in Kelso (092457W)	EB	40	40	80	Pacific Avenue/ S River Road	SBR	N/A	N/A	40
	WB	60	60	100					
Toteff Road/ Port Road in Kalama (092446J)	EB	40	40	40	None	N/A	N/A	N/A	N/A
	WB	40	40	60					
W Scott Avenue in Woodland (092437K)	EB	40	40	60	None	N/A	N/A	N/A	N/A
	WB	100	100	120					
Davidson Avenue in Woodland (092435W)	EB	60	60	60	None	N/A	N/A	N/A	N/A
	WB	40	40	40					
Whalen Road in Woodland (092434P)	EB	40	40	40	None	N/A	N/A	N/A	N/A
	WB	60	60	60					

Notes:

- ^a Shaded gray values indicate a study crossing or intersection queue that exceeds available storage. Shaded black values indicate a project impact.
- ^b MVMTC = roadway movement approaching the rail crossing; NB = northbound; SB = southbound; EB = eastbound; WB = westbound
- ^c MVMTC = movement at nearby intersection affected by queue from rail crossing; NBL = northbound left; NBR = northbound right; NBT = northbound through; SBL = southbound left; SBR = southbound right; SBT = southbound through; EBL = eastbound left; EBR = eastbound right; EBT = eastbound through; WBL = westbound left; WBR = westbound right; WBT = westbound through

3.1.1.2 Operations: Direct Impacts

Approximately 109 PM peak hour motor vehicle trips are estimated as a result of operation of the Proposed Action. These vehicles would access the project area via the private driveway opposite 38th Avenue or at the existing driveway on Industrial Way approximately 0.5 mile west of the 38th Avenue driveway. Access roads in the project area would be designed to allow two-way traffic for standard vehicles. All roadways and parking areas would be designed and constructed to the standards appropriate for loading and capacity requirements. All regularly used roads accessing the buildings and facilities in the project area would be sealed with asphalt pavement. Paving would be designed to accommodate mobile equipment loadings. Surfacing of unpaved areas would be used to control soil erosion by wind and water.

3.1.1.3 Operations: Indirect Impacts

All vehicle transportation impacts during operations would occur outside the project area and, therefore, are considered indirect impacts. Full operation of the Proposed Action would result in the following indirect impacts.

Cause Vehicle Delays from Rail Traffic

The Proposed Action would add approximately 16 additional trains per day (up to 2 during the PM peak hour) in 2028, as documented in Section 2.1.2.3, *Operations Impact Analysis*. Analysis of the study crossing in 2028 was estimated both with and without planned track infrastructure along the Reynolds Lead. Planned track improvements would increase the average train speed from 8 mph to 10 mph at the Weyerhaeuser access crossing opposite Washington Way, from 10 mph to 15 mph at the Weyerhaeuser NORPAC access crossing, from 10 mph to 20 mph at the Industrial Way and Oregon Way crossings, and from 8 mph to 15 mph at the California Way and 3rd Avenue crossings. No changes in train speed would occur at the existing site access opposite 38th Avenue and Dike Road crossings. Table 11 shows study crossing characteristics in 2028.

Table 11. Study Crossing Characteristics—2028 Operations

Crossing Name (USDOT Crossing ID)	Time Period	2028 No-Action		2028 Operations (with Current Track Infrastructure)		2028 Operations (with Planned Track Infrastructure)	
		Weighted Average Train Length (feet)	Total Gate Downtime (minutes)	Weighted Average Train Length (feet)	Total Gate Downtime (minutes)	Weighted Average Train Length (feet)	Total Gate Downtime (minutes)
Study Crossings along the Reynolds Lead and BNSF Spur							
Project area access at 38th Avenue	Per Day	2,043	20.5	5,886	277.4	5,886	277.4
	PM Peak		5.1	6,844	16.0	6,844	16.0
Weyerhaeuser access at Washington Way	Per Day	2,043	13.6	5,886	177.1	5,886	143.7
	PM Peak		3.4	6,844	10.2	6,844	8.3
Weyerhaeuser NORPAC access	Per Day	2,043	11.2	5,886	143.7	5,886	99.1
	PM Peak		2.8	6,844	8.3	6,844	5.7
Industrial Way- SR 432 (101806G)	Per Day	2,043	11.2	5,886	143.7	5,886	76.8
	PM Peak		2.8	6,844	8.3	6,844	4.4
Oregon Way- SR 433 (101805A)	Per Day	2,043	11.2	5,886	143.7	5,886	76.8
	PM Peak		2.8	6,844	8.3	6,844	4.4
California Way (101821J)	Per Day	2,053	13.6	5,888	177.2	5,888	99.2
	PM Peak		3.4	6,844	10.2	6,844	5.7
3rd Avenue- SR 432 (101826T)	Per Day	2,053	13.6	5,888	177.2	5,888	99.2
	PM Peak		3.4	6,844	10.22	6,844	5.7
Dike Road (101791U)	Per Day	4,919	43.4	6,251	175.8	6,251	175.8
	PM Peak		6.1	6,844	8.3	6,844	8.3
Public At-Grade Crossings along the BNSF Main Line in Cowlitz County							
Taylor Crane Road in Castle Rock (092481X)	Per Day	5,396	125.5	5,539	141.9	5,539	141.9
	PM Peak		3,837	6.3	4,748	10.4	4,748
Cowlitz Street in Castle Rock (092476B)	Per Day	5,396	125.5	5,539	141.9	5,539	141.9
	PM Peak		3,837	6.3	4,748	10.4	4,748
	Per Day	5,396	108.2	5,539	122.5	5,539	122.5

Crossing Name (USDOT Crossing ID)	Time Period	2028 No-Action		2028 Operations (with Current Track Infrastructure)		2028 Operations (with Planned Track Infrastructure)	
		Weighted Average Train Length (feet)	Total Gate Downtime (minutes)	Weighted Average Train Length (feet)	Total Gate Downtime (minutes)	Weighted Average Train Length (feet)	Total Gate Downtime (minutes)
		Cowlitz Gardens Road in Kelso (092466V)	PM Peak	3,837	5.6	4,748	9.2
Mill Street in Kelso (092458D)	Per Day	5,396	147.8	5,539	167.3	5,539	167.3
	PM Peak	3,837	7.3	4,748	12.2	4,748	12.2
S River Road in Kelso (092457W)	Per Day	5,396	147.8	5,539	167.3	5,539	167.3
	PM Peak	3,837	7.3	4,748	12.2	4,748	12.2
Toteff Road/ Port Road in Kalama (092446J)	Per Day	5,396	107.5	5,539	121.8	5,539	121.8
	PM Peak	3,837	5.6	4,748	9.2	4,748	9.2
W Scott Avenue in Woodland (092437K)	Per Day	5,396	108.2	5,539	122.5	5,539	122.5
	PM Peak	3,837	5.6	4,748	9.2	4,748	9.2
Davidson Avenue in Woodland (092435W)	Per Day	5,396	108.2	5,539	122.5	5,539	122.5
	PM Peak	3,837	5.6	4,748	9.2	4,748	9.2
Whalen Road in Woodland (092434P)	Per Day	5,396	108.2	5,539	122.5	5,539	122.5
	PM Peak	3,837	5.6	4,748	9.2	4,748	9.2

A Proposed Action-related train would take between 8 and 10 minutes to pass through the public study crossings along the Reynolds Lead with current track infrastructure, and between 4 and 6 minutes with planned track infrastructure. Trains under full operation of the Proposed Action would take about 8 minutes to cross Dike Road along the BNSF Spur, and around 2 minutes to pass through the study crossings along the BNSF main line. Overall, the 16 additional Proposed Action-related trains would increase the total gate downtime over 130 minutes during an average day for the public study crossings along the Reynolds Lead and BNSF Spur, up to 250 minutes during an average day for the private study crossings along the Reynolds Lead, and up to 20 minutes during an average day along the BNSF main line. The planned track infrastructure along the Reynolds Lead would reduce the total gate downtime at the Weyerhaeuser NORPAC access, Industrial Way-SR 432 (101806G), Oregon Way- SR 433 (101805A), California Way (101821J), and 3rd Avenue-SR 432 (101826T) study crossings.

Table 12 shows the estimated average delay per vehicle and LOS that would be experienced during the PM peak hour at each of the study crossings in 2028 with the Proposed Action, with the estimated 2028 No-Action scenario conditions provided for reference.

As shown, the increased rail activity associated with the Proposed Action would increase average delay per vehicle during the PM peak hour, with forecasted LOS dropping below D at six of the study crossings on the Reynolds Lead with existing track infrastructure. The length of the Proposed Action-related trains, estimated at 6,844 feet, and the slow track speeds (between 5 and 10 mph), would contribute to the vehicle LOS impacts.

The planned track infrastructure along the Reynolds Lead would address all of the vehicle LOS impacts at the public study crossings, assuming 1 Proposed Action-related train on the Reynolds Lead during the PM peak hour. Only the project area access (opposite 38th Avenue) study crossing would operate below LOS D. Vehicle LOS impacts are still forecasted at this study crossing since track speeds would not increase with the planned track infrastructure along the Reynolds Lead.

However, four of the study crossings would have vehicle LOS impacts with 2 Proposed Action-related trains on the Reynolds Lead during the PM peak hour, with planned track infrastructure. It should be noted that track speeds at two of these study crossings (project area access- opposite 38th Avenue, and Dike Road) would not be increased with the planned track infrastructure along the Reynolds Lead.

Vehicle LOS impacts are also forecasted at the Mill Street and S River Road study crossings in Kelso, along the BNSF main line. These crossings are forecast to be slightly over standard, mainly due to the slower track speeds for both freight and passenger trains (40 mph).

Table 13 shows the estimated average delay per vehicle and LOS that would be experienced during a 24-hour period at each of the study crossings in 2028. As shown, the average delay per vehicle expected over a 24-hour period is very low under the 2028 No-Action scenario and 2028 Proposed Action (with planned track infrastructure) scenario. However, the average delay per vehicle expected over a 24-hour period is higher under the 2028 Proposed Action (with existing track infrastructure) scenario, corresponding with the PM peak hour results.

Table 12. Estimated Vehicle Delay and LOS—2028 Operations (PM Peak Hour)^a

Crossing Name (USDOT Crossing ID)	2028 No-Action		2028 Operations (Current Track Infrastructure and 1 Peak Hour Proposed Action- Related Train)		2028 Operations (Planned Track Infrastructure ^b and 1 Peak Hour Proposed Action-Related Train)		2028 Operations (Planned Track Infrastructure ^b and 2 Peak Hour Proposed Action-Related Trains)	
	Delay	LOS	Delay (seconds)	LOS	Delay (seconds)	LOS	Delay (seconds)	LOS
Study Crossings along the Reynolds Lead and BNSF Spur								
Project area access at 38th Ave	14.9	B	149.2	F	149.2	F	265.3	F
Weyerhaeuser access at Washington Way	6.9	A	62.7	E	41.3	D	73.4	E
Weyerhaeuser NORPAC access	4.9	A	40.7	D	19.3	B	34.2	C
Industrial Way- SR 432 (101806G)	8.3	A	67.8	E	19.7	B	34.6	C
Oregon Way- SR 433 (101805A)	6.9	A	58.0	E	16.6	B	29.3	C
California Way (101821J)	7.8	A	69.4	E	21.7	C	38.5	D
3rd Avenue- SR 432 (101826T)	12.2	B	107.8	F	33.9	C	59.9	E
Dike Road (101791U)	22.4	C	40.5	D	40.5	D	72.0	E
Public At-Grade Crossings along the BNSF Main Line in Cowlitz County								
Taylor Crane Road in Castle Rock (092481X)	19.4	B	N/A	N/A	N/A	N/A	42.4	D
Cowlitz Street in Castle Rock (092476B)	20.5	C	N/A	N/A	N/A	N/A	44.7	D
Cowlitz Gardens Road in Kelso (092466V)	15.5	B	N/A	N/A	N/A	N/A	33.9	C
Mill Street in Kelso (092458D)	29.4	C	N/A	N/A	N/A	N/A	65.3	E
S River Road in Kelso (092457W)	28.4	C	N/A	N/A	N/A	N/A	63.3	E
Toteff Road/ Port Road in Kalama (092446J)	15.9	B	N/A	N/A	N/A	N/A	34.7	C
W Scott Avenue in Woodland (092437K)	17.6	B	N/A	N/A	N/A	N/A	38.8	D

Crossing Name (USDOT Crossing ID)	2028 No-Action		2028 Operations (Current Track Infrastructure and 1 Peak Hour Proposed Action- Related Train)		2028 Operations (Planned Track Infrastructure ^b and 1 Peak Hour Proposed Action-Related Train)		2028 Operations (Planned Track Infrastructure ^b and 2 Peak Hour Proposed Action-Related Trains)	
	Delay	LOS	Delay (seconds)	LOS	Delay (seconds)	LOS	Delay (seconds)	LOS
Davidson Avenue in Woodland (092435W)	16.6	B	N/A	N/A	N/A	N/A	36.7	D
Whalen Road in Woodland (092434P)	16.1	B	N/A	N/A	N/A	N/A	35.6	D

Notes:

^a **Bolded, shaded gray** values indicate a vehicle LOS impact (a study crossing that operates below LOS D under the Proposed Action that would not otherwise operate below LOS D under the No-Action Alternative from the same year).

^b Planned track infrastructure along the Reynolds Lead would increase the average train speed from 8 mph to 10 mph at the Weyerhaeuser access crossing—opposite Washington Way, from 10 mph to 15 mph at the Weyerhaeuser NORPAC access crossing, from 10 mph to 20 mph at the Industrial Way and Oregon Way crossings, and from 8 mph to 15 mph at the California Way and 3rd Avenue crossings. No changes in train speed would occur at the existing site access—opposite 38th Avenue and Dike Road crossings.

Delay = average delay per vehicle at worst approach; LOS = level of service of worst approach

Table 13. Estimated Vehicle Delay and LOS—2028 Operations (24-Hour Average)^a

USDOT Crossing ID	Crossing Name	2028 No-Action		2028 Operations (with Current Track Infrastructure)		2028 Operations (with Planned Track Infrastructure ^b)	
		Delay	LOS	Delay (seconds)	LOS	Delay (seconds)	LOS
Study Crossings along the Reynolds Lead and BNSF Spur							
Private	Project area access at 38th Ave	2.2	A	83.5	F	83.5	F
Private	Weyerhaeuser access at Washington Way	1.0	A	34.7	C	22.8	C
Private	Weyerhaeuser NORPAC access	0.7	A	22.0	C	10.5	B
101806G	Industrial Way (SR 432)	0.8	A	26.2	C	7.5	A
101805A	Oregon Way (SR 433)	0.8	A	25.0	C	7.2	A
101821J	California Way	1.1	A	36.8	D	11.5	B
101826T	3rd Avenue (SR 432)	1.1	A	38.7	D	12.1	B
101791U	Dike Road	5.7	A	28.8	C	28.8	C
Public At-Grade Crossings along the BNSF Main Line in Cowlitz County							
092481X	Taylor Crane Road in Castle Rock	4.5	A	5.2	A	5.2	A
092476B	Cowlitz Street in Castle Rock	4.7	A	5.4	A	5.4	A
092466V	Cowlitz Gardens Road in Kelso	3.4	A	4.0	A	4.0	A
092458D	Mill Street in Kelso	6.9	A	7.9	A	7.9	A
092457W	S River Road in Kelso	6.7	A	7.7	A	7.7	A
092446J	Toteff Road/ Port Road in Kalama	3.5	A	4.0	A	4.0	A
092437K	W Scott Avenue in Woodland	3.6	A	4.2	A	4.2	A
092435W	Davidson Avenue in Woodland	3.5	A	4.1	A	4.1	A
092434P	Whalen Road in Woodland	3.5	A	4.0	A	4.0	A

Notes:

^a **Bolded, shaded gray** values indicate a vehicle LOS impact (a study crossing that operates below LOS D under the Proposed Action that would not otherwise operate below LOS D under the No-Action Alternative from the same year).

^b Planned track infrastructure along the Reynolds Lead would increase the average train speed from 8 mph to 10 mph at the Weyerhaeuser access crossing—opposite Washington Way, from 10 mph to 15 mph at the Weyerhaeuser NORPAC access crossing, from 10 mph to 20 mph at the Industrial Way and Oregon Way crossings, and from 8 mph to 15 mph at the California Way and 3rd Avenue crossings. No changes in train speed would occur at the existing site access—opposite 38th Avenue and Dike Road crossings.

Delay = Average delay per vehicle over 24-hour period, in seconds; LOS = level of service of railroad crossing

Table 14 shows the estimated vehicle queue lengths that would be experienced during the PM peak hour at each of the study crossings in 2028. The increased rail activity associated with the Proposed Action (existing track infrastructure) would increase vehicle queues at rail crossings along high volume roadways, with queues similar to those estimated with 2018 Construction (via rail) scenario trains, extending nearly 1,000 feet beyond those expected with 2028 No-Action scenario trains at the Industrial Way (SR 432), Oregon Way (SR 433), and 3rd Avenue (SR 432) study crossings. The length of the Proposed Action-related trains, estimated at 6,844 feet, and the slow track speeds (between 8 and 10 mph), would contribute to the increased vehicle queue lengths.

One additional intersection would be affected by vehicle queues extending from rail crossings with Proposed Action-related trains (existing track infrastructure) during the PM peak hour (beyond those affected by 2028 No-Action scenario trains), Oregon Way/Alabama Street. Vehicle queues at the 9 affected intersections (all previously identified as being affected with 2018 trains) would exceed available storage at one additional approach beyond those affected by 2028 No-Action scenario trains, the southbound through movement at Industrial Way/Washington Way. This queue could potentially block the southbound left turn from Washington Way to Industrial Way, a movement that would otherwise not be affected by train crossing events.

The planned track infrastructure along the Reynolds Lead would reduce vehicle queues at the study crossings between the Weyerhaeuser access (opposite Washington Way) and 3rd Avenue (SR 432), assuming 1 Proposed Action-related train on the Reynolds Lead during the PM peak hour. Vehicle queues would be between 700 and 1,000 feet shorter than those estimated with the existing track infrastructure along the Reynolds Lead. However, vehicle queues would still exceed available storage at the four of the five approaches identified with the existing track infrastructure. Note that Table 14 shows estimated vehicle queue lengths with the planned track infrastructure and 1 Proposed Action-related train on the Reynolds Lead during the PM peak hour. With 2 Proposed Action-related trains on the Reynolds Lead during the PM peak hour, vehicle queues extending from study crossings would be similar to those estimated with the existing track infrastructure, despite the track improvements.

Table 14. Estimated Vehicle Queue Lengths—2028 Operations (PM Peak Hour)^a

Crossing Name (USDOT Crossing ID)	Road MVMTC ^b	2028 No-	2028	2028	Intersection Affected by Queue from Crossing	Interse- ction MVMTC ^c	2028 No-	2028	2028
		Action	Exist. Infras.	Plan. Infras.			Action	Exist. Infras.	Plan. Infras.
		Estimated Crossing Queue Length (feet)			Estimated Intersection Queue Length (feet)				
Study Crossings along the Reynolds Lead and BNSF Spur									
Project area access at 38th Avenue	NB	40	1,120	1,240	Industrial Way/ 38th Avenue	WBL	20	160	180
	SB	20	160	200		EBR	20	20	20
Weyerhaeuser access- opposite Washington Way	NB	280	760	480	Industrial Way/ Washington Way	WBL	120	180	140
	SB	120	240	200		EBR	40	40	40
Weyerhaeuser NORPAC access	NB	60	160	100	Industrial Way/ NORPAC access	WBL	20	20	20
	SB	20	20	20		EBR	20	20	20
Industrial Way- SR 432 (101806G)	NB	380	500	420	Industrial Way/ Weyerhaeuser	EBL	140	200	120
	SB	340	1,200	520		NBT	260	380	300
Oregon Way- SR 433 (101805A)	NB	880	2,140	1,460	Industrial Way/ Oregon Way	NBT	660	1,920	1,220
						EBL	180	240	200
						WBR	100	100	100
	SB	440	1,580	800	Oregon Way/ Alabama Street	EBR	N/A	280	120
California Way (101821J)	NB	100	240	180	Industrial Way/ California Way	WBL		560	100
	SB	160	660	380		WBL		880	100
						SBT			
3rd Avenue- SR 432 (101826T)	NB	1,400	1,720	600	3rd Avenue/ Industrial Way	WBR	60	120	80
						NBT	1,000	1,320	200
	SB	340	1,740	820	Industrial Way/ California Way	SBL	120	120	N/A
						NBR	80	80	
					EBT	760	1,080		

Crossing Name (USDOT Crossing ID)	Road MVMT ^b	2028 No-	2028	2028	Intersection Affected by Queue from Crossing	Interse- ction MVMT ^c	2028 No-	2028	2028
		Action	Exist. Infras.	Plan. Infras.			Action	Exist. Infras.	Plan. Infras.
		Estimated Crossing Queue Length (feet)					Estimated Intersection Queue Length (feet)		
Dike Road (101791U)	NB	60	80	100	None	N/A	N/A	N/A	N/A
	SB	100	120	140					
Public At-Grade Crossings along the BNSF Main Line in Cowlitz County									
Taylor Crane Road in Castle Rock (092481X)	EB	20	20	20	None	N/A	N/A	N/A	N/A
	WB	20	20	20					
Cowlitz Street in Castle Rock (092476B)	EB	40	60	60	None	N/A	N/A	N/A	N/A
	WB	80	80	80					
Cowlitz Gardens Road in Kelso (092466V)	EB	20	40	40	None	N/A	N/A	N/A	N/A
	WB	20	40	40					
Mill Street in Kelso (092458D)	EB	100	160	160	None	N/A	N/A	N/A	N/A
	WB	160	240	240					
S River Road in Kelso (092457W)	EB	80	120	120	Pacific Avenue/S River Road	SBR	60	100	100
	WB	120	180	180		NBL	40	40	40
Toteff Road/ Port Road in Kalama (092446J)	EB	40	60	60	None	N/A	N/A	N/A	N/A
	WB	60	80	80					
W Scott Avenue in Woodland (092437K)	EB	60	100	100	None	N/A	N/A	N/A	N/A
	WB	140	200	200					
Davidson Avenue in Woodland (092435W)	EB	100	120	120	None	N/A	N/A	N/A	N/A
	WB	60	80	80					
Whalen Road in Woodland (092434P)	EB	60	60	60	None	N/A	N/A	N/A	N/A
	WB	80	80	80					

Notes:

- ^a Shaded gray values indicate a study crossing or intersection with a queue that exceeds available storage. Shaded black values indicate a project impact.
- ^b MVMT= Roadway movement approaching the rail crossing; NB = northbound; SB = southbound; EB = eastbound; WB = westbound
- ^c MVMT= Movement at nearby intersection affected by queue from rail crossing; NBL = northbound left; NBR = northbound right; NBT = northbound through; SBL = southbound left; SBR = southbound right; SBT = southbound through; EBL = eastbound left; EBR = eastbound right; EBT = eastbound through; WBL = westbound left; WBR = westbound right; WBT = westbound through; N/A = not available

Cause Delay to Emergency Vehicle Response from Rail Traffic

EMS and fire protection response times would be affected by increased delay at at-grade crossings as a result of the Proposed Action.

2018 Construction Scenario

During construction, should delivery of preload material by rail occur during the PM peak hour, the average delay per stopped vehicle would be estimated at less than 80 seconds at public at-grade crossings along the Reynolds Lead, and generally less than 20 seconds at public at-grade crossings along the BNSF Spur and BNSF main line. This corresponds to an increase by approximately 60 seconds or less at public at-grade crossings along the Reynolds Lead, and less than 30 seconds along the BNSF Spur and BNSF main line compared to the 2018 No-Action scenario. Construction activities would not result in any material change in vehicle delay at at-grade crossings on the Reynolds Lead, BNSF Spur, and BNSF main line if preload material is delivered by truck.

Total gate downtime would be up to 8 minutes per day at public crossings along the Reynolds Lead, 43 minutes per day at the Dike Road crossing along the BNSF Spur, and up to 108 minutes per day along the BNSF main line under the 2018 No-Action and 2018 Construction (truck delivery) scenarios. If preload material is delivered by rail, total gate downtime would be up to 12 minutes longer per day at public crossings along the Reynolds Lead and BNSF Spur, and up to 2 minutes longer per day along the BNSF main line compared to the 2018 No-Action scenario. Over the course of a day, a 1% increase in probability of EMS and fire protection response vehicles being delayed at study crossings along the Reynolds Lead, BNSF Spur, and BNSF main line is anticipated with 2018 Construction (via rail) scenario trains.

2028 Operations

The average delay during the PM peak hour per stopped vehicle during operations in 2028 would be estimated at less than 110 seconds at public at-grade crossings along the Reynolds Lead, and generally less than 60 seconds at public at-grade crossings along the BNSF Spur and BNSF main line. This corresponds to an increase by approximately 90 seconds or less at public at-grade crossings along the Reynolds Lead, and less than 40 seconds along the BNSF Spur and BNSF main line compared to the 2028 No Action scenario. With the planned track infrastructure, the average delay during the PM peak hour per stopped vehicle would be estimated to increase by less than 50 seconds at public at-grade crossings along the Reynolds Lead.

Total gate downtime would be up to 14 minutes per day at public crossings along the Reynolds Lead, 43 minutes per day at the Dike Road crossing along the BNSF Spur, and up to 148 minutes per day along the BNSF main line in the 2028 No-Action scenario. Under full operations, trains would increase total gate downtime over 130 minutes during an average day for the public study crossings along the Reynolds Lead and BNSF Spur, and up to 20 minutes during an average day along the BNSF main line compared to the 2028 No-Action scenario. The planned track infrastructure along the Reynolds Lead would reduce the total gate downtime at the Industrial Way (SR 432), Oregon Way (SR 433), California Way, and 3rd Avenue (SR 432) study crossings.

Over the course of a day, a 10% increase in probability of EMS and fire protection response vehicles being delayed at study crossings along the Reynolds Lead and BNSF Spur, and 1% increase at study crossings along the BNSF main line is anticipated with the Proposed Action (with existing track

infrastructure) trains. The planned track infrastructure along the Reynolds Lead would reduce the probability of EMS and fire protection response vehicles of being delayed at the Industrial Way (SR 432), Oregon Way (SR 433), California Way, and 3rd Avenue (SR 432) study crossings by around 5%.

Overall, the Proposed Action could have an adverse impact on emergency vehicle response time, especially without planned track improvements, depending on the location of the origin and destination of the response incident in relation to the at-grade crossings that would be anticipated to experience increased gate downtime.

Increase Predicted Accident Probability

An accident probability analysis was conducted using the FRA GradeDec.Net web-based software. GradeDec.Net contains a predicted accident probability module based on the USDOT accident prediction and severity formula. This module predicts accident probability based on a nationwide inventory of roadway/railroad grade crossings, the type of crossing protection in place, historical accident data at the crossing, distribution of daily traffic volumes, and the number of trains per day. The module calculates the number of predicted accidents (fatal, injury, property damage only, and total) in a year. The predicted accident probability is based on data at the time of the analysis. The predicted accident probability could change over time, such changes to accidents, traffic volumes, and train traffic.

For this analysis, a predicted accident probability of 0.04 per year, or one every 25 years, was used as a performance measure for when grade-separation should be considered at study crossings for safety reasons. This was based on a peer review of similar applications of the FRA GradeDec.Net module. The predicted accident probability based on current safety protection for each at-grade study is summarized in Table 15 for both construction and operations of the Proposed Action, with No-Action Alternative conditions shown for reference.

As shown, the predicted accident probability was found to be above 0.04 accidents per year with existing crossing safety protection at the 3rd Avenue (SR 432) study crossing along the Reynolds Lead. At full operation of the Proposed Action, trains would increase the predicted accident probability above 0.04 accidents per year at this study crossing.

3.1.1.4 Washington State Study Area

As described in Section 2.1.2.3, *Operations Impact Analysis*, Proposed Action-related BNSF trains would cross Washington State from the Washington State–Idaho border (east of Spokane) to the project area in Cowlitz County. Loaded and empty UP trains to and from the Powder River Basin and Uinta Basin would travel north from Vancouver, Washington. Section 2.2.2, *Washington State Study Area*, identified a list of statewide crossings of interest during the project’s SEPA scoping process for crossings along the proposed rail routes. Table 16 illustrates the 2028 estimated baseline trains per day at these study crossings and the estimated number of trains per day with the Proposed Action in 2028. Figure 6 illustrates the rail routes and the study crossings. Appendix B, *Data for Selected Crossings Outside of Cowlitz County*, provides additional data on the study crossings.

Table 15. At-Grade Crossing Safety Assessment

Crossing Name (USDOT Crossing ID)	Predicted Accidents (accidents/year)				
	2018 No-Action	2018 Proposed Action (Truck Delivery)	2018 Proposed Action (Rail Delivery)	2028 No-Action	2028 Operations
Study Crossings along the Reynolds Lead and BNSF Spur					
Project area access at 38th Avenue	0.008	0.019	0.020	0.011	0.035
Weyerhaeuser access at Washington Way	0.014	0.014	0.017	0.018	0.027
Weyerhaeuser NORPAC access	0.012	0.012	0.015	0.016	0.031
Industrial Way- SR 432 (101806G)	0.013	0.014	0.016	0.016	0.025
Oregon Way- SR 433 (101805A)	0.018	0.018	0.021	0.022	0.038
California Way (101821J)	0.010	0.010	0.012	0.012	0.020
3rd Avenue- SR 432 (101826T)	0.021	0.021	0.025	0.026	0.042
Dike Road (101791U)	0.014	0.014	0.014	0.014	0.020
At-Grade Public Crossings along the BNSF Main Line in Cowlitz County					
Taylor Crane Road in Castle Rock (092481X)	0.017	0.017	0.017	0.020	0.021
Cowlitz Street in Castle Rock (092476B)	0.027	0.027	0.028	0.031	0.032
Cowlitz Gardens Road in Kelso (092466V)	0.027	0.027	0.028	0.031	0.032
Mill Street in Kelso (092458D)	0.035	0.035	0.036	0.038	0.039
S River Road in Kelso (092457W)	0.033	0.033	0.033	0.037	0.039
Toteff Road/ Port Road in Kalama (092446J)	0.027	0.027	0.028	0.031	0.032
W Scott Avenue in Woodland (092437K)	0.032	0.032	0.032	0.036	0.037
Davidson Avenue in Woodland (092435W)	0.031	0.031	0.031	0.034	0.036
Whalen Road in Woodland (092434P)	0.029	0.029	0.029	0.033	0.034
Notes:					
Bolded, shaded gray values indicate a vehicle safety impact (a study crossing that would have a predicted accident probability above 0.04 under the Proposed Action that would be at or below 0.04 under the No-Action Alternative from the same year).					

Table 16. 2028 Conditions at Selected Crossings Outside of Cowlitz County

# ^a	Road Crossing	USDOT/FRA Crossing ID ^b	Freight Train Speed ^b	2015 Estimated Trains Per Day ^c	2028 Projected Baseline Trains Per Day ^c	2028 Projected Trains Per Day with Proposed Action	2028 Increase in Trains Per Day with Proposed Action
Spokane County							
1	Idaho Road	066236B	60	70	106	122	13%
2	McKinzey Road	066239W	60	70	106	122	13%
3	Harvard Road	066240R	60	70	106	122	13%
4	Barker Road	066244T	60	70	106	122	13%
5	Flora Road	066245A	60	70	106	122	13%
6	Pines Road-SR 27	066367E	60	70	106	122	13%
7	University Road	066371U	60	70	106	122	13%
8	Park Road	066377K	60	70	106	122	13%
9	Pine Street	066315M	35	39	56	72	22%
10	F Street/Cheney-Spangle	065970L	35	39	56	72	22%
11	Cheney-Plaza Road	065971T	35	39	56	72	22%
Adams County							
12	Paha Packard Road	089665U	60	39	56	72	22%
13	Kahlotus Road	089670R	60	39	56	72	22%
14	1st Street	089672E	50	39	56	72	22%
15	Wilbur/City Road	089673L	50	39	56	72	22%
Franklin County							
16	Etopia Road W	089699N	60	39	56	72	22%
17	Sagemoor Road	089700F	60	39	56	72	22%
Benton County							
18	East 3rd Avenue	090031U	35	34	48	56	14%
19	Dague Road-East 25th Avenue	090035W	60	34	48	56	14%
20	Perkins Road	090036D	60	34	48	56	14%

# ^a	Road Crossing	USDOT/FRA Crossing ID ^b	Freight Train Speed ^b	2015 Estimated Trains Per Day ^c	2028 Projected Baseline Trains Per Day ^c	2028 Projected Trains Per Day with Proposed Action	2028 Increase in Trains Per Day with Proposed Action
21	Bowles Road	090038S	60	34	48	56	14%
22	Cochran Road	090039Y	60	34	48	56	14%
23	Finley Road	090040T	60	34	48	56	14%
24	Whitcomb Island	090061L	60	34	48	56	14%
Klickitat County							
25	Maple Street	090169V	45	34	48	56	14%
26	Walnut Street	090168N	45	34	48	56	14%
27	South Dock Grade Road	090164L	55	34	48	56	14%
Skamania County							
28	Indian Crossing	090159P	55	34	48	56	14%
29	Home Valley Park	090155M	55	34	48	56	14%
30	Cemetery Xing	090151K	N/A	34	48	56	14%
31	Russell Avenue	090148C	20	34	48	56	14%
32	Skamania Landing/Butler Road	090135B	60	34	48	56	14%
33	Walker/Skamania Landing	090134U	60	34	48	56	14%
34	St Cloud Road	090133M	N/A	34	48	56	14%
Lewis County							
35	SR 506-7th Street	092484T	50	50	73	81	10%
36	Walnut Street – SR 505/603	092493S	50	50	73	81	10%
37	E Locust Street	092519S	40	50	73	81	10%
38	Main Street	092520L	40	50	73	81	10%
39	Maple Street	092521T	40	50	73	81	10%
40	Big Hanaford Road	092524N	10	50	73	81	10%

# ^a	Road Crossing	USDOT/FRA Crossing ID ^b	Freight Train Speed ^b	2015 Estimated Trains Per Day ^c	2028 Projected Baseline Trains Per Day ^c	2028 Projected Trains Per Day with Proposed Action	2028 Increase in Trains Per Day with Proposed Action
Yakima County							
41	Jones Road East	099178A	55	7	11	19	42%
42	Indian Church	104523U	55	7	11	19	42%
43	SR241/Reservation	104534G	55	7	11	19	42%
44	Gulden Road	104536V	55	7	11	19	42%

Notes:

^a See Figure 6 for crossing location.

^b Source: Washington Utilities Transportation Commission 2015.

^c Washington State Department of Transportation 2014b. Linear extrapolation of 2010 and 2035 projected train traffic to 2015 volumes.

N/A = data not available

Figure 6. Selected At-Grade Crossings Beyond Cowlitz County



Vehicle Delay

As illustrated in Table 16, the Proposed Action would add 16 trains per day to the crossings in Spokane, Adams, and Franklin Counties (between the Washington State-Idaho border east of Spokane and Pasco, Washington) and would increase daily rail traffic by approximately 13% and 22%, depending on location. Between Pasco and Cowlitz County (study crossings in Benton, Klickitat, and Skamania Counties), the Proposed Action would add 8 trains per day and increase daily rail traffic by approximately 14%. At the Lewis County study crossings, the Proposed Action would add 8 trains per day and increase daily rail traffic by approximately 10%, and between Auburn and Pasco (Yakima County study crossings), the Proposed Action would increase daily rail traffic by approximately 44%.

Proposed Action-related trains would be approximately 1.3 miles long, and would take the following approximate times to pass at study crossings.⁷

- 10 mph: 8.5 minutes
- 20 mph: 4.75 minutes
- 30 mph: 3.25 minutes
- 40 mph: 2.75 minutes
- 50 mph: 2.25 minutes
- 60 mph: 2.0 minutes

Vehicle delay would increase between the Washington State-Idaho border and Cowlitz County because the Proposed Action would add 8 or 16 trains daily (depending on location) to existing BNSF rail routes as shown in Figure 6. Proposed Action-related trains would also be longer (approximately 1.3 miles long) than average BNSF freight train length (approximately 1.2 miles long). Assuming Proposed Action-related trains travel at the same freight train speeds identified in Table 16, the five study crossings with the largest increase in daily vehicle delay compared to baseline 2028 conditions would be the following.⁸

- Big Hanaford Road, Lewis County (8 Proposed Action-related trains daily, 10 mph)
- Pine Street, Spokane County (16 Proposed Action-related trains daily, 35 mph)
- F Street/Cheney-Spangle, Spokane County (16 Proposed Action-related trains daily, 35 mph)
- Cheney-Plaza Road, Spokane County (16 Proposed Action-related trains daily, 35 mph)
- Russel Avenue, Skamania County (8 Proposed Action-related trains daily, 20 mph)

When factoring in existing AADT, the five study crossings with the largest increase in vehicle delay compared to the baseline 2028 conditions would be the following.

- Pines Road-SR 27, Spokane County (16 Proposed Action-related trains daily)

⁷ Assumes gate closing 30 seconds before train would pass through grade crossing and 12 seconds after the train passes the crossing. See Table 16 for existing freight train speeds.

⁸ Calculated by multiplying the existing freight train speed at the study crossing (Table 16) by the number of daily Proposed Action-related trains.

- Park Road, Spokane County (16 Proposed Action-related trains daily)
- Barker Road, Spokane County (16 Proposed Action-related trains daily)
- Harvard Road, Spokane County (16 Proposed Action Proposed Action-related trains daily)
- Flora Road, Spokane County (16 Proposed Action-related trains daily)

The combination of high AADTs and 16 trains per day would cause these study crossings to have the highest increase in vehicle delay per vehicle of the study crossings.

Because the frequency of train traffic on BNSF routes would increase from Proposed Action-related trains, the probability of an increase in emergency response time at all crossings would also increase because crossings would be blocked more frequently. This impact would only occur if an emergency vehicle experienced a delay related to Proposed Action-related train that would occur on average 8 or 16 times a day, depending on location. The potential for the Proposed Action to affect emergency response would also depend on whether the dispatched emergency vehicle would need to cross the rail line and the availability of alternative routes if a Proposed Action-related train occupies the crossing at the time of the emergency call.

Vehicle Safety

The accident probability analysis was conducted for the statewide study crossings using the FRA GradeDec.Net web-based software, which estimates the predicted annual accident probability for at-grade crossings in a year. The accident probability was estimated to be above 0.04 accidents per year with existing crossing safety protection at ten of the 44 statewide study crossings without Proposed Action-related trains (Table 17).

Proposed Action-related trains would increase the accident probability at all at-grade crossings because eight or 16 Proposed Action-related trains would pass at each crossing depending on location, and the Proposed Action would not change crossing protection at the study crossings. The accident probability analysis found that none of the statewide study crossings would have an accident probability above 0.04 with Proposed Action-related trains that would be at or below 0.04 under the No-Action Alternative in 2028.

Table 17. 2028 Statewide At-Grade Crossing Safety Assessment

# ^a	Road Crossing	USDOT/FRA Crossing ID	Accident Probability (accidents/year)	
			2028 No-Action	2028 Proposed Action
Spokane County				
1	Idaho Road	066236B	0.041	0.042
2	McKenzie Road	066239W	0.041	0.042
3	Harvard Road	066240R	0.049	0.051
4	Barker Road	066244T	0.049	0.051
5	Flora Road	066245A	0.044	0.045
6	Pines Road-SR 27	066367E	0.061	0.062
7	University Road	066371U	0.037	0.038
8	Park Road	066377K	0.122	0.125
9	Pine Street	066315M	0.029	0.032
10	F Street/Cheney-Spangle	065970L	0.091	0.096
11	Cheney-Plaza Road	065971T	0.025	0.028
Adams County				
12	Paha Packard Road	089665U	0.015	0.016
13	Kahlotus Road	089670R	0.022	0.024
14	1st Street	089672E	0.021	0.024
15	Wilbur/City Road	089673L	0.025	0.027
Franklin County				
16	Eltopia Road W	089699N	0.020	0.022
17	Sagemoor Road	089700F	0.021	0.023
Benton County				
18	East 3rd Avenue	090031U	0.033	0.034
19	Dague Road-East 25th Avenue	090035W	0.023	0.024
20	Perkins Road	090036D	0.059	0.061
21	Bowles Road	090038S	0.029	0.030
22	Cochran Road	090039Y	0.014	0.015
23	Finley Road	090040T	0.030	0.032
24	Whitcomb Island	090061L	0.012	0.012
Klickitat County				
25	Maple Street	090169V	0.032	0.033
26	Walnut Street	090168N	0.025	0.026
27	South Dock Grade Road	090164L	0.014	0.015
Skamania County				
28	Indian Crossing	090159P	0.016	0.017
29	Home Valley Park	090155M	0.012	0.012
30	Cemetery Xing	090151K	0.019	0.020
31	Russell Avenue	090148C	0.024	0.025

# ^a	Road Crossing	USDOT/FRA Crossing ID	Accident Probability (accidents/year)	
			2028 No-Action	2028 Proposed Action
32	Skamania Landing/Butler Road	090135B	0.010	0.011
33	Walker/Skamania Landing	090134U	0.011	0.012
34	St Cloud Road	090133M	0.006	0.007
Lewis County				
35	SR 506-7th Street	092484T	0.033	0.034
36	Walnut Street – SR 505/603	092493S	0.037	0.038
37	E Locust Street	092519S	0.135	0.138
38	Main Street	092520L	0.037	0.038
39	Maple Street	092521T	0.039	0.039
40	Big Hanaford Road	092524N	0.037	0.038
Yakima County				
41	Jones Road East	099178A	0.015	0.019
42	Indian Church	104523U	0.017	0.021
43	SR241/Reservation	104534G	0.020	0.024
44	Gulden Road	104536V	0.010	0.012

3.1.2 No-Action Alternative

Under the No-Action Alternative, the Applicant would not construct the coal export terminal vehicle transportation impacts related to construction and operation of the coal export terminal would not occur. The Applicant would continue with current and future increased operations in the project area. The project area could be developed for other industrial uses including an expanded bulk product terminal or other industrial uses. The Applicant has indicated that, over the long term, it would expand the existing bulk product terminal and develop new facilities to handle more products such as calcine petroleum coke, coal tar pitch, and cement, as described in the SEPA Alternatives Technical Report (ICF International 2016). The Applicant's planned growth would require approximately two additional trains per day on the Reynolds Lead.

Anticipated No-Action Alternative conditions for vehicle LOS for 2018 are shown in Tables 8 and 9. As shown, all study crossings would operate with an LOS B or better along the Reynolds Lead, LOS C at the Dike Road crossing along the BNSF Spur, and LOS B or better along the BNSF main line during the PM peak hour. All study crossings would operate with an LOS A over a 24-hour period.

Table 10 shows the estimated vehicle queue lengths for the 2018 No-Action scenario. Vehicle queues extending from six study crossings (all along the Reynolds Lead) would affect seven nearby intersections with 2018 No-Action scenario trains during the PM peak hour. The affected intersections include Industrial Way/38th Avenue, Industrial Way/Washington Way, Industrial Way/ NORPAC access, Industrial Way/Weyerhaeuser Access, Industrial Way/Oregon Way, 3rd Avenue/Industrial Way, and Industrial Way/California Way. Vehicle queues at these intersections would exceed available storage at four approaches, including the eastbound right turn from Industrial Way to the Weyerhaeuser Access (opposite Washington Way), the eastbound left turn and westbound right turn from Industrial Way to Oregon Way, and the northbound through movement

at the 3rd Avenue/Industrial Way intersection. These queues could potentially block other movements at these intersections that would otherwise not be affected by train crossing events.

Table 11 shows the anticipated weighted average train lengths and total gate downtime at the study crossings for 2028. The 2028 No-Action scenario would include approximately 2 additional non-Proposed Action-related trains per day on the Reynolds Lead, as documented in Section 2.1.2.1, *No-Action Alternative Analysis*. Overall, 4 trains per day are expected along the Reynolds Lead (1 during the PM peak hour), and 7 (1 during the PM peak hour) at the Dike Road study crossing (along the BNSF Spur) under the 2028 No-Action scenario. The weighted average length of these trains would be around 2,000 feet along the Reynolds Lead, and 5,000 feet along the BNSF Spur. The BNSF main line would include approximately 16 additional non-Proposed Action-related trains per day under the 2028 No-Action scenario, as estimated from the WSDOT Rail Plan (Washington State Department of Transportation 2014a). The BNSF main line would have 73 non-Proposed Action-related trains per day (5 during the PM peak hour) under the 2028 No-Action scenario, with a weighted average length of nearly 5,400 feet.

Total gate downtime would be up to 14 minutes per day (3 minutes during the PM peak hour) at public crossings along the Reynolds Lead, 20 minutes per day (5 minutes during the PM peak hour) at private crossings along the Reynolds Lead, 43 minutes per day (6 minutes during the PM peak hour) at the Dike Road crossing along the BNSF Spur, and up to 148 minutes per day (7 minutes during the PM peak hour) along the BNSF main line under the 2028 No-Action scenario.

The predicted accident probability under 2018 No-Action scenario conditions are shown in Table 15. The predicted accident probability for the No-Action Alternative was found to be below 0.04 accidents per year with existing crossing safety protection at the study crossings.

The 2028 No-Action scenario would include approximately 2 additional non-Proposed Action-related trains per day on the Reynolds Lead, as documented in Section 2.1.2.1, *No-Action Alternative Analysis*. The estimated conditions for vehicle LOS for 2028 No-Action scenario are shown in Tables 12 and 13. As shown, all study crossings would operate with an LOS B or better along the Reynolds Lead, and LOS C or better along the BNSF Spur and BNSF main line during the PM peak hour. All study crossings would operate with an LOS A over a 24-hour period.

Table 14 shows the estimated vehicle queue lengths for the 2028 No-Action scenario. Vehicle queues would be up to 400 feet longer beyond those identified with the 2018 No-Action scenario trains. Vehicle queues extending from seven study crossings (six along the Reynolds Lead and one along the BNSF main line) would affect eight nearby intersections with 2028 No-Action scenario trains during the PM peak hour. All of the affected intersections were previously identified as being affected with 2018 trains, including Industrial Way/38th Avenue, Industrial Way/Washington Way, Industrial Way/NORPAC access, Industrial Way/Weyerhaeuser Access, Industrial Way/Oregon Way, 3rd Avenue/Industrial Way, Industrial Way/California Way, and Pacific Avenue/S River Road. Vehicle queues at these intersections would exceed available storage at the four approaches identified with the 2018 No-Action scenario trains, including the westbound right turn from Industrial Way to the Weyerhaeuser Access (opposite Washington Way), the eastbound left turn and westbound right turn from Industrial Way to Oregon Way, and the northbound through movement at the 3rd Avenue/Industrial Way intersection. These queues could potentially block other movements at these intersections that would otherwise not be affected by train crossing events.

The predicted accident probability for the 2028 No-Action scenario conditions are shown in Table 15. The predicted accident probability for the No-Action Alternative was found to be below 0.04 accidents per year with existing crossing safety protection at the study crossings.

3.2 Mitigation

Based on the findings in this technical report, the co-lead agencies (Cowlitz County and Washington State Department of Ecology) developed potential Applicant mitigation measures. In addition, the Applicant has committed to voluntary measures to mitigate potential impacts. The SEPA Draft Environmental Impact Statement presents these mitigation measures.

Chapter 4 **Required Permits**

No permits related to vehicle transportation would be required for construction and operation of the Proposed Action.

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Washington Utilities Transportation Commission. 2015.

5.2 Personal Communications

Wolter, Dave. General Manager. Longview Switching Company. December 3, 2014—In person meeting with ICF International.

Appendix A

Vehicle Transportation Technical Data

Weighted Average Train Length

		2018 No-Action Alternative	2018 Construction (Truck)	2018 Construction (Rail)	2028 No-Action Alternative (current infra)	2028 On-Site Alternative (current infra)	2028 On-Site Alternative (planned infra)
Spur Line							
Project site access (opposite 38th Avenue)	Daily	2,024	2,024	3,530	2,043	5,886	5,886
	P.M. Peak	2,024	2,024	6,219	2,043	6,844	6,844
Weyerhaeuser access (opposite Washington Way)	Daily	2,024	2,024	3,530	2,043	5,886	5,886
	P.M. Peak	2,024	2,024	6,219	2,043	6,844	6,844
Weyerhaeuser Norpac Access	Daily	2,024	2,024	3,530	2,043	5,886	5,886
	P.M. Peak	2,024	2,024	6,219	2,043	6,844	6,844
Industrial Way (SR 432)	Daily	2,024	2,024	3,530	2,043	5,886	5,886
	P.M. Peak	2,024	2,024	6,219	2,043	6,844	6,844
Oregon Way (SR 433)	Daily	2,024	2,024	3,530	2,043	5,886	5,886
	P.M. Peak	2,024	2,024	6,219	2,043	6,844	6,844
California Way	Daily	2,041	2,041	3,541	2,053	5,888	5,888
	P.M. Peak	2,041	2,041	6,219	2,053	6,844	6,844
3rd Avenue (SR 432)	Daily	2,041	2,041	3,541	2,053	5,888	5,888
	P.M. Peak	2,041	2,041	6,219	2,053	6,844	6,844
Dike Road	Daily	4,919	4,919	5,116	4,919	6,251	6,251
	P.M. Peak	4,919	4,919	6,219	4,919	6,844	6,844

Weighted Average Train Length

		2018 No-Action Alternative	2018 Construction (Truck)	2018 Construction (Rail)	2028 No-Action Alternative (current infra)	2028 On-Site Alternative (current infra)	2028 On-Site Alternative (planned infra)
Mainline							
Taylor Crane Road (Castle Rock)	Daily	5,160	5,160	5,178	5,396	5,539	5,539
	P.M. Peak	3,425	3,425	3,995	3,837	4,748	4,748
Cowlitz Avenue (Castle Rock)	Daily	5,160	5,160	5,178	5,396	5,539	5,539
	P.M. Peak	3,425	3,425	3,995	3,837	4,748	4,748
Cowlitz Gardens Road (Kelso)	Daily	5,160	5,160	5,178	5,396	5,539	5,539
	P.M. Peak	3,425	3,425	3,995	3,837	4,748	4,748
Mill Street (Kelso)	Daily	5,160	5,160	5,178	5,396	5,539	5,539
	P.M. Peak	3,425	3,425	3,995	3,837	4,748	4,748
S River Road/ Yew Street (Kelso)	Daily	5,160	5,160	5,178	5,396	5,539	5,539
	P.M. Peak	3,425	3,425	3,995	3,837	4,748	4,748
Toteff Road/Port Road (Kalama)	Daily	5,160	5,160	5,178	5,396	5,539	5,539
	P.M. Peak	3,425	3,425	3,995	3,837	4,748	4,748
W Scott Avenue (Woodland)	Daily	5,160	5,160	5,178	5,396	5,539	5,539
	P.M. Peak	3,425	3,425	3,995	3,837	4,748	4,748
Davidson Avenue (Woodland)	Daily	5,160	5,160	5,178	5,396	5,539	5,539
	P.M. Peak	3,425	3,425	3,995	3,837	4,748	4,748
Whalen Road (Woodland)	Daily	5,160	5,160	5,178	5,396	5,539	5,539
	P.M. Peak	3,425	3,425	3,995	3,837	4,748	4,748

Weighted Average Speed

Spur Line	2018 No-Action Alternative	2018 Construction (Truck Delivery)	2018 Construction (Rail Delivery)	2028 No-Action Alternative (with current track infrastructure)	2028 On-Site Alternative (with current track infrastructure)	2028 On-Site Alternative (with planned track infrastructure)	2028 On-Site Alternative (with planned track infrastructure)
Spur Line	Daily	Daily	Daily	Daily	Daily	Daily	Daily
Project site access (opposite 38th Avenue)	5	5	5	5	5	5	5
Weyerhaeuser access (opposite Washington Way)	8	8	8	8	8	10	10
Weyerhaeuser Norpac Access	10	10	10	10	10	15	15
Industrial Way (SR 432)	10	10	10	10	10	20	20
Oregon Way (SR 433)	10	10	10	10	10	20	20
California Way	8	8	8	8	8	15	15
3rd Avenue (SR 432)	8	8	8	8	8	15	15
Dike Road	10	10	10	10	10	10	10
Mainline	Daily	Daily	Daily	Daily	Daily	Daily	Daily
Taylor Crane Road (Castle Rock)	50	50	50	50	50	50	50
Cowlitz Avenue (Castle Rock)	50	50	50	50	50	50	50
Cowlitz Gardens Road (Kelso)	63	63	63	62	62	62	62
Mill Street (Kelso)	40	40	40	40	40	40	40
S River Road/ Yew Street (Kelso)	40	40	40	40	40	40	40
Toteff Road/Port Road (Kalama)	63	63	63	63	62	62	62
W Scott Avenue (Woodland)	63	63	63	62	62	62	62
Davidson Avenue (Woodland)	63	63	63	62	62	62	62
Whalen Road (Woodland)	63	63	63	62	62	62	62

Weighted Average Speed

Spur Line	2018 No-Action Alternative	2018 Construction (Truck Delivery)	2018 Construction (Rail Delivery)	2028 No-Action Alternative (with current track infrastructure)	2028 On-Site Alternative (with current track infrastructure)	2028 On-Site Alternative (with planned track infrastructure)	2028 On-Site Alternative (with planned track infrastructure)
Spur Line	P.M. Peak	P.M. Peak	P.M. Peak	P.M. Peak	P.M. Peak	P.M. Peak	P.M. Peak
Project site access (opposite 38th Avenue)	5	5	5	5	5	5	5
Weyerhaeuser access (opposite Washington Way)	8	8	8	8	8	10	10
Weyerhaeuser Norpac Access	10	10	10	10	10	15	15
Industrial Way (SR 432)	10	10	10	10	10	20	20
Oregon Way (SR 433)	10	10	10	10	10	20	20
California Way	8	8	8	8	8	15	15
3rd Avenue (SR 432)	8	8	8	8	8	15	15
Dike Road	10	10	10	10	10	10	10
Mainline	P.M. Peak	P.M. Peak	P.M. Peak	P.M. Peak	P.M. Peak	P.M. Peak	P.M. Peak
Taylor Crane Road (Castle Rock)	50	50	50	50	50	50	50
Cowlitz Avenue (Castle Rock)	50	50	50	50	50	50	50
Cowlitz Gardens Road (Kelso)	68	68	66	67	65	65	65
Mill Street (Kelso)	40	40	40	40	40	40	40
S River Road/ Yew Street (Kelso)	40	40	40	40	40	40	40
Toteff Road/Port Road (Kalama)	70	70	68	68	66	66	66
W Scott Avenue (Woodland)	68	68	66	67	65	65	65
Davidson Avenue (Woodland)	68	68	66	67	65	65	65
Whalen Road (Woodland)	68	68	66	67	65	65	65

2018 No-Action Alternative Daily

Crossing ID	Street	Number of Daily Trains	Average Train Length (feet)	Train Speed (mph)	Gate Down-Time per Day (min)	Average daily traffic in both directions (veh/day)	Average delay per vehicle in a 24-hour period (sec/veh)	Level of service
	Spur Line							
	Project site access (opposite 38th Avenue)	2.28	2,024	5	11.62	200	1.2	A
	Weyerhaeuser access (opposite Washington Way)	2.28	2,024	8	7.69	3300	0.6	A
	Weyerhaeuser Norpac Access	2.28	2,024	10	6.38	650	0.4	A
101806G	Industrial Way (SR 432)	2.28	2,024	10	6.38	10100	0.4	A
101805A	Oregon Way (SR 433)	2.28	2,024	10	6.38	15200	0.4	A
101821J	California Way	2.28	2,041	8	7.75	4050	0.6	A
101826T	3rd Avenue (SR 432)	2.28	2,041	8	7.75	16850	0.6	A
101791U	Dike Road	7.12	4,919	10	43.38	950	5.7	A
	Mainline							
092481X	Taylor Crane Road (Castle Rock)	55.10	5160	50	92.16	50	3.2	A
092476B	Cowlitz Avenue (Castle Rock)	55.10	5160	50	92.16	1200	3.3	A
092466V	Cowlitz Gardens Road (Kelso)	55.10	5160	63	79.06	700	2.4	A
092458D	Mill Street (Kelso)	55.10	5160	40	108.31	2550	4.8	A
092457W	S River Road/ Yew Street (Kelso)	55.10	5160	40	108.31	1850	4.7	A
092446J	Toteff Road/Port Road (Kalama)	55.10	5160	63	78.47	1200	2.4	A
092437K	W Scott Avenue (Woodland)	55.10	5160	63	79.06	2650	2.5	A
092435W	Davidson Avenue (Woodland)	55.10	5160	63	79.06	2000	2.5	A
092434P	Whalen Road (Woodland)	55.10	5160	63	79.06	1550	2.5	A

2018 Construction (Truck Delivery)

Crossing ID	Street	Number of Daily Trains	Average Train Length (feet)	Train Speed (mph)	Gate Down-Time per Day (min)	Average daily traffic in both directions (veh/day)	Average delay per vehicle in a 24-hour period (sec/veh)	Level of service
	Spur Line							
	Project site access (opposite 38th Avenue)	2.28	2,024	5	11.62	2850	1.3	A
	Weyerhaeuser access (opposite Washington Way)	2.28	2,024	8	7.69	3300	0.6	A
	Weyerhaeuser Norpac Access	2.28	2,024	10	6.38	650	0.4	A
101806G	Industrial Way (SR 432)	2.28	2,024	10	6.38	12000	0.5	A
101805A	Oregon Way (SR 433)	2.28	2,024	10	6.38	15650	0.4	A
101821J	California Way	2.28	2,041	8	7.75	4050	0.6	A
101826T	3rd Avenue (SR 432)	2.28	2,041	8	7.75	17850	0.6	A
101791U	Dike Road	7.12	4,919	10	43.38	950	5.7	A
	Mainline							
092481X	Taylor Crane Road (Castle Rock)	55.10	5160	50	92.16	50	3.2	A
092476B	Cowlitz Avenue (Castle Rock)	55.10	5160	50	92.16	1200	3.3	A
092466V	Cowlitz Gardens Road (Kelso)	55.10	5160	63	79.06	700	2.4	A
092458D	Mill Street (Kelso)	55.10	5160	40	108.31	2550	4.8	A
092457W	S River Road/ Yew Street (Kelso)	55.10	5160	40	108.31	1850	4.7	A
092446J	Toteff Road/Port Road (Kalama)	55.10	5160	63	78.47	1200	2.4	A
092437K	W Scott Avenue (Woodland)	55.10	5160	63	79.06	2650	2.5	A
092435W	Davidson Avenue (Woodland)	55.10	5160	63	79.06	2000	2.5	A
092434P	Whalen Road (Woodland)	55.10	5160	63	79.06	1550	2.5	A

2018 Construction (Rail Delivery)

Crossing ID	Street	Number of Daily Trains	Average Train Length (feet)	Train Speed (mph)	Gate Down-Time per Day (min)	Average daily traffic in both directions (veh/day)	Average delay per vehicle in a 24-hour period (sec/veh)	Level of service
	Spur Line							
	Project site access (opposite 38th Avenue)	3.56	3,530	5	30.31	2000	5.7	A
	Weyerhaeuser access (opposite Washington Way)	3.56	3,530	8	19.61	3300	2.4	A
	Weyerhaeuser Norpac Access	3.56	3,530	10	16.04	650	1.5	A
101806G	Industrial Way (SR 432)	3.56	3,530	10	16.04	11200	1.8	A
101805A	Oregon Way (SR 433)	3.56	3,530	10	16.04	15650	1.7	A
101821J	California Way	3.56	3,541	8	19.67	4050	2.5	A
101826T	3rd Avenue (SR 432)	3.56	3,541	8	19.67	17200	2.6	A
101791U	Dike Road	8.40	5,116	10	53.04	950	7.2	A
	Mainline							
092481X	Taylor Crane Road (Castle Rock)	56.10	5178	50	94.07	50	3.3	A
092476B	Cowlitz Avenue (Castle Rock)	56.10	5178	50	94.07	1200	3.4	A
092466V	Cowlitz Gardens Road (Kelso)	56.10	5178	63	80.72	700	2.5	A
092458D	Mill Street (Kelso)	56.10	5178	40	110.58	2550	4.9	A
092457W	S River Road/ Yew Street (Kelso)	56.10	5178	40	110.58	1850	4.8	A
092446J	Toteff Road/Port Road (Kalama)	56.10	5178	63	80.13	1200	2.5	A
092437K	W Scott Avenue (Woodland)	56.10	5178	63	80.72	2650	2.6	A
092435W	Davidson Avenue (Woodland)	56.10	5178	63	80.72	2000	2.5	A
092434P	Whalen Road (Woodland)	56.10	5178	63	80.72	1550	2.5	A

2028 No-Action Alternative (with current track infrastructure)

Crossing ID	Street	Number of Daily Trains	Average Train Length (feet)	Train Speed (mph)	Gate Down-Time per Day (min)	Average daily traffic in both directions (veh/day)	Average delay per vehicle in a 24-hour period (sec/veh)	Level of service
	Spur Line							
	Project site access (opposite 38th Avenue)	3.99	2,043	5	20.51	250	2.2	A
	Weyerhaeuser access (opposite Washington Way)	3.99	2,043	8	13.57	3900	1.0	A
	Weyerhaeuser Norpac Access	3.99	2,043	10	11.25	800	0.7	A
101806G	Industrial Way (SR 432)	3.99	2,043	10	11.25	11450	0.8	A
101805A	Oregon Way (SR 433)	3.99	2,043	10	11.25	18500	0.8	A
101821J	California Way	3.99	2,053	8	13.63	4800	1.1	A
101826T	3rd Avenue (SR 432)	3.99	2,053	8	13.63	20500	1.1	A
101791U	Dike Road	7.12	4,919	10	43.38	1100	5.7	A
	Mainline							
092481X	Taylor Crane Road (Castle Rock)	72.70	5396	50	125.50	50	4.5	A
092476B	Cowlitz Avenue (Castle Rock)	72.70	5396	50	125.50	1450	4.7	A
092466V	Cowlitz Gardens Road (Kelso)	72.70	5396	62	108.17	850	3.4	A
092458D	Mill Street (Kelso)	72.70	5396	40	147.79	3000	6.9	A
092457W	S River Road/ Yew Street (Kelso)	72.70	5396	40	147.79	2200	6.7	A
092446J	Toteff Road/Port Road (Kalama)	72.70	5396	63	107.54	1450	3.5	A
092437K	W Scott Avenue (Woodland)	72.70	5396	62	108.17	3100	3.6	A
092435W	Davidson Avenue (Woodland)	72.70	5396	62	108.17	2350	3.5	A
092434P	Whalen Road (Woodland)	72.70	5396	62	108.17	1800	3.5	A

2028 On-Site Alternative (with current track infrastructure)

Crossing ID	Street	Number of Daily Trains	Average Train Length (feet)	Train Speed (mph)	Gate Down-Time per Day (min)	Average daily traffic in both directions (veh/day)	Average delay per vehicle in a 24-hour period (sec/veh)	Level of service
	Spur Line							
	Project site access (opposite 38th Avenue)	19.99	5,886	5	277.39	1340	83.5	F
	Weyerhaeuser access (opposite Washington Way)	19.99	5,886	8	177.11	3900	34.7	C
	Weyerhaeuser Norpac Access	19.99	5,886	10	143.69	800	22.0	C
101806G	Industrial Way (SR 432)	19.99	5,886	10	143.69	12100	26.2	C
101805A	Oregon Way (SR 433)	19.99	5,886	10	143.69	18770	25.0	C
101821J	California Way	19.99	5,888	8	177.17	4800	36.8	D
101826T	3rd Avenue (SR 432)	19.99	5,888	8	177.17	20720	38.7	D
101791U	Dike Road	23.12	6,251	10	175.81	1100	28.8	C
	Mainline							
092481X	Taylor Crane Road (Castle Rock)	80.70	5539	50	141.94	50	5.2	A
092476B	Cowlitz Avenue (Castle Rock)	80.70	5539	50	141.94	1450	5.4	A
092466V	Cowlitz Gardens Road (Kelso)	80.70	5539	62	122.47	850	4.0	A
092458D	Mill Street (Kelso)	80.70	5539	40	167.34	3000	7.9	A
092457W	S River Road/ Yew Street (Kelso)	80.70	5539	40	167.34	2200	7.7	A
092446J	Toteff Road/Port Road (Kalama)	80.70	5539	62	121.82	1450	4.0	A
092437K	W Scott Avenue (Woodland)	80.70	5539	62	122.47	3100	4.2	A
092435W	Davidson Avenue (Woodland)	80.70	5539	62	122.47	2350	4.1	A
092434P	Whalen Road (Woodland)	80.70	5539	62	122.47	1800	4.0	A

2028 On-Site Alternative (with planned track infrastructure)

Crossing ID	Street	Number of Daily Trains	Average Train Length (feet)	Train Speed (mph)	Gate Down-Time per Day (min)	Average daily traffic in both directions (veh/day)	Average delay per vehicle in a 24-hour period (sec/veh)	Level of service
	Spur Line							
	Project site access (opposite 38th Avenue)	19.99	5,886	5	277.39	1340	83.5	F
	Weyerhaeuser access (opposite Washington Way)	19.99	5,886	10	143.69	3900	22.8	C
	Weyerhaeuser Norpac Access	19.99	5,886	15	99.13	800	10.5	B
101806G	Industrial Way (SR 432)	19.99	5,886	20	76.84	12100	7.5	A
101805A	Oregon Way (SR 433)	19.99	5,886	20	76.84	18770	7.2	A
101821J	California Way	19.99	5,888	15	99.16	4800	11.5	B
101826T	3rd Avenue (SR 432)	19.99	5,888	15	99.16	20720	12.1	B
101791U	Dike Road	23.12	6,251	10	175.81	1100	28.8	C
	Mainline							
092481X	Taylor Crane Road (Castle Rock)	80.70	5539	50	141.94	50	5.2	A
092476B	Cowlitz Avenue (Castle Rock)	80.70	5539	50	141.94	1450	5.4	A
092466V	Cowlitz Gardens Road (Kelso)	80.70	5539	62	122.47	850	4.0	A
092458D	Mill Street (Kelso)	80.70	5539	40	167.34	3000	7.9	A
092457W	S River Road/ Yew Street (Kelso)	80.70	5539	40	167.34	2200	7.7	A
092446J	Toteff Road/Port Road (Kalama)	80.70	5539	62	121.82	1450	4.0	A
092437K	W Scott Avenue (Woodland)	80.70	5539	62	122.47	3100	4.2	A
092435W	Davidson Avenue (Woodland)	80.70	5539	62	122.47	2350	4.1	A
092434P	Whalen Road (Woodland)	80.70	5539	62	122.47	1800	4.0	A

2018 No-Action Alternative PM Peak Hour

Crossing ID	Street	Number of PM Peak Hour Trains					Total Number of PM Peak Hour Trains	Gate Down-Time PM Peak (min)
		Existing	MBTL	BNSF	Cascades	Coast Starlight		
	Spur Line							
	Project site access (opposite 38th Avenue)	1	0	0	0	0	1.00	5.10
	Weyerhaeuser access (opposite Washington Way)	1	0	0	0	0	1.00	3.37
	Weyerhaeuser Norpac Access	1	0	0	0	0	1.00	2.80
101806G	Industrial Way (SR 432)	1	0	0	0	0	1.00	2.80
101805A	Oregon Way (SR 433)	1	0	0	0	0	1.00	2.80
101821J	California Way	1	0	0	0	0	1.00	3.40
101826T	3rd Avenue (SR 432)	1	0	0	0	0	1.00	3.40
101791U	Dike Road	1	0	0	0	0	1.00	6.09
	Mainline							
092489X	Taylor Crane Road (Castle Rock)	0	0	1.9	1	1	3.90	4.99
092476B	Cowlitz Avenue (Castle Rock)	0	0	1.9	1	1	3.90	4.99
092466V	Cowlitz Gardens Road (Kelso)	0	0	1.9	1	1	3.90	4.42
092458D	Mill Street (Kelso)	0	0	1.9	1	1	3.90	5.74
092457W	S River Road/ Yew Street (Kelso)	0	0	1.9	1	1	3.90	5.74
092446J	Toteff Road/Port Road (Kalama)	0	0	1.9	1	1	3.90	4.40
092437K	W Scott Avenue (Woodland)	0	0	1.9	1	1	3.90	4.42
092435W	Davidson Avenue (Woodland)	0	0	1.9	1	1	3.90	4.42
092434P	Whalen Road (Woodland)	0	0	1.9	1	1	3.90	4.42

2018 Construction PM Peak Hour (Truck Delivery)

Crossing ID	Street	Number of PM Peak Hour Trains					Total Number of PM Peak Hour Trains	Gate Down-Time PM Peak (min)
		Existing	MBTL	BNSF	Cascades	Coast Starlight		
	Spur Line							
	Project site access (opposite 38th Avenue)	1	0	0	0	0	1.00	5.10
	Weyerhaeuser access (opposite Washington Way)	1	0	0	0	0	1.00	3.37
	Weyerhaeuser Norpac Access	1	0	0	0	0	1.00	2.80
101806G	Industrial Way (SR 432)	1	0	0	0	0	1.00	2.80
101805A	Oregon Way (SR 433)	1	0	0	0	0	1.00	2.80
101821J	California Way	1	0	0	0	0	1.00	3.40
101826T	3rd Avenue (SR 432)	1	0	0	0	0	1.00	3.40
101791U	Dike Road	1	0	0	0	0	1.00	6.09
	Mainline							
092489X	Taylor Crane Road (Castle Rock)	0	0	1.9	1	1	3.90	4.99
092476B	Cowlitz Avenue (Castle Rock)	0	0	1.9	1	1	3.90	4.99
092466V	Cowlitz Gardens Road (Kelso)	0	0	1.9	1	1	3.90	4.42
092458D	Mill Street (Kelso)	0	0	1.9	1	1	3.90	5.74
092457W	S River Road/ Yew Street (Kelso)	0	0	1.9	1	1	3.90	5.74
092446J	Toteff Road/Port Road (Kalama)	0	0	1.9	1	1	3.90	4.40
092437K	W Scott Avenue (Woodland)	0	0	1.9	1	1	3.90	4.42
092435W	Davidson Avenue (Woodland)	0	0	1.9	1	1	3.90	4.42
092434P	Whalen Road (Woodland)	0	0	1.9	1	1	3.90	4.42

2018 Construction PM Peak Hour (Rail Delivery)

Crossing ID	Street	Number of PM Peak Hour Trains					Total Number of PM Peak Hour Trains	Gate Down-Time PM Peak (min)
		Existing	MBTL Const.	BNSF	Cascades	Coast Starlight		
	Spur Line							
	Project site access (opposite 38th Avenue)	0	1.00	0	0	0	1.00	14.63
	Weyerhaeuser access (opposite Washington Way)	0	1.00	0	0	0	1.00	9.33
	Weyerhaeuser Norpac Access	0	1.00	0	0	0	1.00	7.57
101806G	Industrial Way (SR 432)	0	1.00	0	0	0	1.00	7.57
101805A	Oregon Way (SR 433)	0	1.00	0	0	0	1.00	7.57
101821J	California Way	0	1.00	0	0	0	1.00	9.33
101826T	3rd Avenue (SR 432)	0	1.00	0	0	0	1.00	9.33
101791U	Dike Road	0	1.00	0	0	0	1.00	7.57
	Mainline							
092489X	Taylor Crane Road (Castle Rock)	0	1.00	1.9	1	1	4.90	6.90
092476B	Cowlitz Avenue (Castle Rock)	0	1.00	1.9	1	1	4.90	6.90
092466V	Cowlitz Gardens Road (Kelso)	0	1.00	1.9	1	1	4.90	6.09
092458D	Mill Street (Kelso)	0	1.00	1.9	1	1	4.90	8.01
092457W	S River Road/ Yew Street (Kelso)	0	1.00	1.9	1	1	4.90	8.01
092446J	Toteff Road/Port Road (Kalama)	0	1.00	1.9	1	1	4.90	6.08
092437K	W Scott Avenue (Woodland)	0	1.00	1.9	1	1	4.90	6.09
092435W	Davidson Avenue (Woodland)	0	1.00	1.9	1	1	4.90	6.09
092434P	Whalen Road (Woodland)	0	1.00	1.9	1	1	4.90	6.09

2028 No-Action Alternative PM Peak Hour (with current track infrastructure)

Crossing ID	Street	Number of PM Peak Hour Trains					Total Number of PM Peak Hour Trains	Gate Down-Time PM Peak (min)
		Existing	MBTL	BNSF	Cascades	Coast Starlight		
	Spur Line							
	Project site access (opposite 38th Avenue)	1	0	0	0	0	1.00	5.14
	Weyerhaeuser access (opposite Washington Way)	1	0	0	0	0	1.00	3.40
	Weyerhaeuser Norpac Access	1	0	0	0	0	1.00	2.82
101806G	Industrial Way (SR 432)	1	0	0	0	0	1.00	2.82
101805A	Oregon Way (SR 433)	1	0	0	0	0	1.00	2.82
101821J	California Way	1	0	0	0	0	1.00	3.42
101826T	3rd Avenue (SR 432)	1	0	0	0	0	1.00	3.42
101791U	Dike Road	1	0	0	0	0	1.00	6.09
	Mainline							
092489X	Taylor Crane Road (Castle Rock)	0	0	2.6	1	1	4.60	6.31
092476B	Cowlitz Avenue (Castle Rock)	0	0	2.6	1	1	4.60	6.31
092466V	Cowlitz Gardens Road (Kelso)	0	0	2.6	1	1	4.60	5.58
092458D	Mill Street (Kelso)	0	0	2.6	1	1	4.60	7.31
092457W	S River Road/ Yew Street (Kelso)	0	0	2.6	1	1	4.60	7.31
092446J	Toteff Road/Port Road (Kalama)	0	0	2.6	1	1	4.60	5.57
092437K	W Scott Avenue (Woodland)	0	0	2.6	1	1	4.60	5.58
092435W	Davidson Avenue (Woodland)	0	0	2.6	1	1	4.60	5.58
092434P	Whalen Road (Woodland)	0	0	2.6	1	1	4.60	5.58

2028 On-Site Alternative PM Peak Hour (with current track infrastructure)

Crossing ID	Street	Number of PM Peak Hour Trains					Total Number of PM Peak Hour Trains	Gate Down-Time PM Peak (min)
		Existing	MBTL	BNSF	Cascades	Coast Starlight		
	Spur Line							
	Project site access (opposite 38th Avenue)	0	1	0	0	0	1.00	16.05
	Weyerhaeuser access (opposite Washington Way)	0	1	0	0	0	1.00	10.22
	Weyerhaeuser Norpac Access	0	1	0	0	0	1.00	8.28
101806G	Industrial Way (SR 432)	0	1	0	0	0	1.00	8.28
101805A	Oregon Way (SR 433)	0	1	0	0	0	1.00	8.28
101821J	California Way	0	1	0	0	0	1.00	10.22
101826T	3rd Avenue (SR 432)	0	1	0	0	0	1.00	10.22
101791U	Dike Road	0	1	0	0	0	1.00	8.28
	Mainline							
092489X	Taylor Crane Road (Castle Rock)	0	2	2.6	1	1	6.60	10.42
092476B	Cowlitz Avenue (Castle Rock)	0	2	2.6	1	1	6.60	10.42
092466V	Cowlitz Gardens Road (Kelso)	0	2	2.6	1	1	6.60	9.17
092458D	Mill Street (Kelso)	0	2	2.6	1	1	6.60	12.20
092457W	S River Road/ Yew Street (Kelso)	0	2	2.6	1	1	6.60	12.20
092446J	Toteff Road/Port Road (Kalama)	0	2	2.6	1	1	6.60	9.16
092437K	W Scott Avenue (Woodland)	0	2	2.6	1	1	6.60	9.17
092435W	Davidson Avenue (Woodland)	0	2	2.6	1	1	6.60	9.17
092434P	Whalen Road (Woodland)	0	2	2.6	1	1	6.60	9.17

2028 On-Site Alternative PM Peak Hour (with planned track infrastructure)- 1 MBTL Train

Crossing ID	Street	Number of PM Peak Hour Trains					Total Number of PM Peak Hour Trains	Gate Down-Time PM Peak (min)
		Existing	MBTL	BNSF	Cascades	Coast Starlight		
	Spur Line							
	Project site access (opposite 38th Avenue)	0	1	0	0	0	1.00	16.05
	Weyerhaeuser access (opposite Washington Way)	0	1	0	0	0	1.00	8.28
	Weyerhaeuser Norpac Access	0	1	0	0	0	1.00	5.68
101806G	Industrial Way (SR 432)	0	1	0	0	0	1.00	4.39
101805A	Oregon Way (SR 433)	0	1	0	0	0	1.00	4.39
101821J	California Way	0	1	0	0	0	1.00	5.68
101826T	3rd Avenue (SR 432)	0	1	0	0	0	1.00	5.68
101791U	Dike Road	0	1	0	0	0	1.00	8.28
	Mainline							
092489X	Taylor Crane Road (Castle Rock)	0	2	2.6	1	1	6.60	10.42
092476B	Cowlitz Avenue (Castle Rock)	0	2	2.6	1	1	6.60	10.42
092466V	Cowlitz Gardens Road (Kelso)	0	2	2.6	1	1	6.60	9.17
092458D	Mill Street (Kelso)	0	2	2.6	1	1	6.60	12.20
092457W	S River Road/ Yew Street (Kelso)	0	2	2.6	1	1	6.60	12.20
092446J	Toteff Road/Port Road (Kalama)	0	2	2.6	1	1	6.60	9.16
092437K	W Scott Avenue (Woodland)	0	2	2.6	1	1	6.60	9.17
092435W	Davidson Avenue (Woodland)	0	2	2.6	1	1	6.60	9.17
092434P	Whalen Road (Woodland)	0	2	2.6	1	1	6.60	9.17

2028 On-Site Alternative PM Peak Hour (with planned track infrastructure)- 2 MBTL Trains

Crossing ID	Street	Number of PM Peak Hour Trains					Total Number of PM Peak Hour Trains	Gate Down-Time PM Peak (min)
		Existing	MBTL	BNSF	Cascades	Coast Starlight		
	Spur Line							
	Project site access (opposite 38th Avenue)	0	2	0	0	0	2.00	32.11
	Weyerhaeuser access (opposite Washington Way)	0	2	0	0	0	2.00	16.55
	Weyerhaeuser Norpac Access	0	2	0	0	0	2.00	11.37
101806G	Industrial Way (SR 432)	0	2	0	0	0	2.00	8.78
101805A	Oregon Way (SR 433)	0	2	0	0	0	2.00	8.78
101821J	California Way	0	2	0	0	0	2.00	11.37
101826T	3rd Avenue (SR 432)	0	2	0	0	0	2.00	11.37
101791U	Dike Road	0	2	0	0	0	2.00	16.55
	Mainline							
092489X	Taylor Crane Road (Castle Rock)	0	2	2.6	1	1	6.60	10.42
092476B	Cowlitz Avenue (Castle Rock)	0	2	2.6	1	1	6.60	10.42
092466V	Cowlitz Gardens Road (Kelso)	0	2	2.6	1	1	6.60	9.17
092458D	Mill Street (Kelso)	0	2	2.6	1	1	6.60	12.20
092457W	S River Road/ Yew Street (Kelso)	0	2	2.6	1	1	6.60	12.20
092446J	Toteff Road/Port Road (Kalama)	0	2	2.6	1	1	6.60	9.16
092437K	W Scott Avenue (Woodland)	0	2	2.6	1	1	6.60	9.17
092435W	Davidson Avenue (Woodland)	0	2	2.6	1	1	6.60	9.17
092434P	Whalen Road (Woodland)	0	2	2.6	1	1	6.60	9.17

Traffic Volumes- PM Peak

Study Crossing	2018 No Action	2018 Construction, via truck	2018 Construction, via rail	2028 No Action	2028 Proposed Action
38th Avenue	20	285	200	25	134
Washington Way	330	330	330	390	390
Weyerhaeuser Norpac Entrance	65	65	65	80	80
Industrial Way/SR432	1,010	1,200	1,120	1,145	1,210
SR433-Oregon Way	1,520	1,565	1,565	1,850	1,877
California Way	405	405	405	480	480
3rd Ave-SR 432	1,685	1,785	1,720	2,050	2,072
Dike Rd	95	95	95	110	110
Taylor Crane Road	5	5	5	5	5
Cowlitz Ave	120	120	120	145	145
Cowlitz Garden	70	70	70	85	85
Mill St	255	255	255	300	300
S River St/Yew St	185	185	185	220	220
Toteff-Hendrick	120	120	120	145	145
W Scott Ave	265	265	265	310	310
Davidson Avenue	200	200	200	235	235
Whalen Rd	155	155	155	180	180

HCM Signalized Intersection Capacity Analysis

50: Aluminum Access 1/38th Avenue & Spur Line

10/8/2015



Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		↑			↑			↑↑↑			↑	
Volume (vph)	0	0	0	0	20	0	0	17	0	0	3	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					2.0			2.0			2.0	
Lane Util. Factor					1.00			0.91			1.00	
Frt					1.00			1.00			1.00	
Flt Protected					1.00			1.00			1.00	
Satd. Flow (prot)					1900			4590			1863	
Flt Permitted					1.00			1.00			1.00	
Satd. Flow (perm)					1900			4590			1863	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	0	0	0	0	20	0	0	17	0	0	3	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	20	0	0	17	0	0	3	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	13%	13%	13%	2%	2%	2%
Turn Type					NA			NA			NA	
Protected Phases		2			2			1 3			1 3	
Permitted Phases												
Actuated Green, G (s)					304.0			2892.0			2892.0	
Effective Green, g (s)					304.0			2892.0			2892.0	
Actuated g/C Ratio					0.10			0.90			0.90	
Clearance Time (s)					2.0							
Lane Grp Cap (vph)					180			4148			1683	
v/s Ratio Prot					c0.01			c0.00			0.00	
v/s Ratio Perm												
v/c Ratio					0.11			0.00			0.00	
Uniform Delay, d1					1324.4			14.9			14.8	
Progression Factor					0.16			1.00			1.00	
Incremental Delay, d2					1.2			0.0			0.0	
Delay (s)					207.6			14.9			14.8	
Level of Service					F			B			B	
Approach Delay (s)		0.0			207.6			14.9			14.8	
Approach LOS		A			F			B			B	

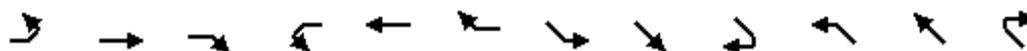
Intersection Summary

HCM 2000 Control Delay	111.2	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	0.01		
Actuated Cycle Length (s)	3200.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

29: Spur Line & Washington Way

10/8/2015



Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations		↑↑↑			↑↑			↑			↑	
Volume (vph)	0	217	0	0	113	0	0	0	0	0	20	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		2.0			2.0						2.0	
Lane Util. Factor		0.91			0.95						1.00	
Frt		1.00			1.00						1.00	
Flt Protected		1.00			1.00						1.00	
Satd. Flow (prot)		4988			3539						1900	
Flt Permitted		1.00			1.00						1.00	
Satd. Flow (perm)		4988			3539						1900	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	241	0	0	126	0	0	0	0	0	20	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	241	0	0	126	0	0	0	0	0	20	0
Heavy Vehicles (%)	4%	4%	4%	2%	2%	2%	0%	0%	0%	0%	0%	0%
Turn Type		NA			NA						NA	
Protected Phases		1 3			1 3			2			2	
Permitted Phases												
Actuated Green, G (s)		2996.0			2996.0						200.0	
Effective Green, g (s)		2996.0			2996.0						200.0	
Actuated g/C Ratio		0.94			0.94						0.06	
Clearance Time (s)											2.0	
Lane Grp Cap (vph)		4670			3313						118	
v/s Ratio Prot		c0.05			0.04						c0.01	
v/s Ratio Perm												
v/c Ratio		0.05			0.04						0.17	
Uniform Delay, d1		6.8			6.7						1421.3	
Progression Factor		1.00			1.00						0.00	
Incremental Delay, d2		0.0			0.0						3.1	
Delay (s)		6.9			6.8						3.2	
Level of Service		A			A						A	
Approach Delay (s)		6.9			6.8			0.0			3.2	
Approach LOS		A			A			A			A	

Intersection Summary

HCM 2000 Control Delay	6.6	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.06		
Actuated Cycle Length (s)	3200.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	14.2%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

31: Weyerhaeuser Access & Spur Line

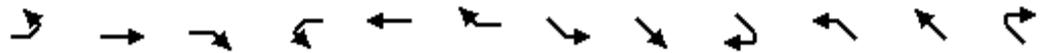
10/8/2015

												
Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		↑			↑			↑			↑	
Volume (vph)	0	0	0	0	20	0	0	57	0	0	8	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					2.0			2.0			2.0	
Lane Util. Factor					1.00			1.00			1.00	
Frt					1.00			1.00			1.00	
Flt Protected					1.00			1.00			1.00	
Satd. Flow (prot)					1900			1863			1863	
Flt Permitted					1.00			1.00			1.00	
Satd. Flow (perm)					1900			1863			1863	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	0	0	0	0	20	0	0	64	0	0	9	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	20	0	0	64	0	0	9	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	2%	2%	2%	2%	2%	2%
Turn Type					NA			NA			NA	
Protected Phases		2			2			1 3			1 3	
Permitted Phases												
Actuated Green, G (s)					166.0			3030.0			3030.0	
Effective Green, g (s)					166.0			3030.0			3030.0	
Actuated g/C Ratio					0.05			0.95			0.95	
Clearance Time (s)					2.0							
Lane Grp Cap (vph)					98			1764			1764	
v/s Ratio Prot					c0.01			c0.03			0.00	
v/s Ratio Perm												
v/c Ratio					0.20			0.04			0.01	
Uniform Delay, d1					1453.7			4.7			4.5	
Progression Factor					0.01			1.00			1.05	
Incremental Delay, d2					4.6			0.0			0.0	
Delay (s)					23.2			4.7			4.8	
Level of Service					C			A			A	
Approach Delay (s)		0.0			23.2			4.7			4.8	
Approach LOS		A			C			A			A	
Intersection Summary												
HCM 2000 Control Delay			8.7					HCM 2000 Level of Service			A	
HCM 2000 Volume to Capacity ratio			0.04									
Actuated Cycle Length (s)			3200.0					Sum of lost time (s)		6.0		
Intersection Capacity Utilization			13.3%					ICU Level of Service		A		
Analysis Period (min)			15									
c	Critical Lane Group											

HCM Signalized Intersection Capacity Analysis

10: Industrial Way & Spur Line

10/8/2015



Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations		↑			↑			↑			↑	
Volume (vph)	0	0	0	0	20	0	0	443	0	0	567	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					2.0			2.0			2.0	
Lane Util. Factor					1.00			1.00			1.00	
Frt					1.00			1.00			1.00	
Flt Protected					1.00			1.00			1.00	
Satd. Flow (prot)					1900			1810			1743	
Flt Permitted					1.00			1.00			1.00	
Satd. Flow (perm)					1900			1810			1743	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	20	0	0	482	0	0	616	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	20	0	0	482	0	0	616	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	5%	5%	5%	9%	9%	9%
Turn Type					NA			NA			NA	
Protected Phases		2			2			1 3			1 3	
Permitted Phases												
Actuated Green, G (s)					166.0			3030.0			3030.0	
Effective Green, g (s)					166.0			3030.0			3030.0	
Actuated g/C Ratio					0.05			0.95			0.95	
Clearance Time (s)					2.0							
Lane Grp Cap (vph)					98			1713			1650	
v/s Ratio Prot					c0.01			0.27			c0.35	
v/s Ratio Perm												
v/c Ratio					0.20			0.28			0.37	
Uniform Delay, d1					1453.7			6.2			7.0	
Progression Factor					0.00			1.00			1.00	
Incremental Delay, d2					4.6			0.4			0.6	
Delay (s)					4.8			6.6			7.6	
Level of Service					A			A			A	
Approach Delay (s)		0.0			4.8			6.6			7.6	
Approach LOS		A			A			A			A	
Intersection Summary												
HCM 2000 Control Delay			7.1		HCM 2000 Level of Service						A	
HCM 2000 Volume to Capacity ratio			0.36									
Actuated Cycle Length (s)			3200.0		Sum of lost time (s)						6.0	
Intersection Capacity Utilization			39.8%		ICU Level of Service						A	
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

4: Oregon Way & Spur Line

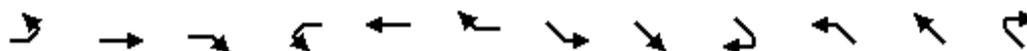
10/8/2015

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑			↑			↑↑			↑↑	
Volume (vph)	0	0	0	0	20	0	0	856	0	0	664	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					2.0			2.0			2.0	
Lane Util. Factor					1.00			0.95			0.95	
Frbp, ped/bikes					1.00			1.00			1.00	
Flpb, ped/bikes					1.00			1.00			1.00	
Frt					1.00			1.00			1.00	
Flt Protected					1.00			1.00			1.00	
Satd. Flow (prot)					1900			3539			3539	
Flt Permitted					1.00			1.00			1.00	
Satd. Flow (perm)					1900			3539			3539	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	20	0	0	930	0	0	722	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	20	0	0	930	0	0	722	0
Confl. Bikes (#/hr)									766			
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	2%	2%	2%	2%	2%	2%
Turn Type					NA			NA			NA	
Protected Phases		2			2			1 3			1 3	
Permitted Phases												
Actuated Green, G (s)					166.0			3030.0			3030.0	
Effective Green, g (s)					166.0			3030.0			3030.0	
Actuated g/C Ratio					0.05			0.95			0.95	
Clearance Time (s)					2.0							
Lane Grp Cap (vph)					98			3350			3350	
v/s Ratio Prot					c0.01			c0.26			0.20	
v/s Ratio Perm												
v/c Ratio					0.20			0.28			0.22	
Uniform Delay, d1					1453.7			6.1			5.7	
Progression Factor					0.02			1.00			1.00	
Incremental Delay, d2					4.6			0.2			0.1	
Delay (s)					39.4			6.3			5.8	
Level of Service					D			A			A	
Approach Delay (s)		0.0			39.4			6.3			5.8	
Approach LOS		A			D			A			A	
Intersection Summary												
HCM 2000 Control Delay			6.5					HCM 2000 Level of Service			A	
HCM 2000 Volume to Capacity ratio			0.27									
Actuated Cycle Length (s)			3200.0					Sum of lost time (s)		6.0		
Intersection Capacity Utilization			33.7%					ICU Level of Service		A		
Analysis Period (min)			15									
c	Critical Lane Group											

HCM Signalized Intersection Capacity Analysis

9: California Way & Spur Line

10/8/2015



Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR	
Lane Configurations		↑			↑			↑			↑		
Volume (vph)	0	0	0	0	20	0	0	196	0	0	209	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)					2.0			2.0			2.0		
Lane Util. Factor					1.00			1.00			1.00		
Frt					1.00			1.00			1.00		
Flt Protected					1.00			1.00			1.00		
Satd. Flow (prot)					1900			1743			1845		
Flt Permitted					1.00			1.00			1.00		
Satd. Flow (perm)					1900			1743			1845		
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	0.93	0.93	0.93	0.93	0.93	0.93	
Adj. Flow (vph)	0	0	0	0	20	0	0	211	0	0	225	0	
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0	
Lane Group Flow (vph)	0	0	0	0	20	0	0	211	0	0	225	0	
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	9%	9%	9%	3%	3%	3%	
Turn Type					NA			NA			NA		
Protected Phases		2			2			1 3			1 3		
Permitted Phases													
Actuated Green, G (s)					200.0			2996.0			2996.0		
Effective Green, g (s)					200.0			2996.0			2996.0		
Actuated g/C Ratio					0.06			0.94			0.94		
Clearance Time (s)					2.0								
Lane Grp Cap (vph)					118			1631			1727		
v/s Ratio Prot					c0.01			0.12			c0.12		
v/s Ratio Perm													
v/c Ratio					0.17			0.13			0.13		
Uniform Delay, d1					1421.3			7.4			7.4		
Progression Factor					0.01			1.00			1.00		
Incremental Delay, d2					3.1			0.2			0.2		
Delay (s)					12.4			7.6			7.6		
Level of Service					B			A			A		
Approach Delay (s)		0.0			12.4			7.6			7.6		
Approach LOS		A			B			A			A		
Intersection Summary													
HCM 2000 Control Delay			7.8									HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio			0.13										
Actuated Cycle Length (s)			3200.0									Sum of lost time (s)	6.0
Intersection Capacity Utilization			21.0%									ICU Level of Service	A
Analysis Period (min)			15										
c Critical Lane Group													

HCM Signalized Intersection Capacity Analysis

22: 3rd Avenue & Spur Line

10/8/2015



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑			↑			↑↑			↑↑	
Volume (vph)	0	0	0	0	20	0	0	1033	0	0	652	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					2.0			2.0			2.0	
Lane Util. Factor					1.00			0.95			0.95	
Frt					1.00			1.00			1.00	
Flt Protected					1.00			1.00			1.00	
Satd. Flow (prot)					1900			3195			3112	
Flt Permitted					1.00			1.00			1.00	
Satd. Flow (perm)					1900			3195			3112	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	0	0	0	0	20	0	0	1161	0	0	733	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	20	0	0	1161	0	0	733	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	13%	13%	13%	16%	16%	16%
Turn Type					NA			NA			NA	
Protected Phases		2			2			1 3			1 3	
Permitted Phases												
Actuated Green, G (s)					200.0			2996.0			2996.0	
Effective Green, g (s)					200.0			2996.0			2996.0	
Actuated g/C Ratio					0.06			0.94			0.94	
Clearance Time (s)					2.0							
Lane Grp Cap (vph)					118			2991			2913	
v/s Ratio Prot					c0.01			c0.36			0.24	
v/s Ratio Perm												
v/c Ratio					0.17			0.39			0.25	
Uniform Delay, d1					1421.3			10.2			8.5	
Progression Factor					1.00			1.00			1.00	
Incremental Delay, d2					3.1			0.4			0.2	
Delay (s)					1424.4			10.6			8.7	
Level of Service					F			B			A	
Approach Delay (s)		0.0			1424.4			10.6			8.7	
Approach LOS		A			F			B			A	
Intersection Summary												
HCM 2000 Control Delay			24.6					HCM 2000 Level of Service			C	
HCM 2000 Volume to Capacity ratio			0.37									
Actuated Cycle Length (s)			3200.0					Sum of lost time (s)			6.0	
Intersection Capacity Utilization			38.6%					ICU Level of Service			A	
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

69: Dike Road & Spur Line

10/8/2015

												
Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		↑			↑			↑			↑	
Volume (vph)	0	20	0	0	20	0	0	38	0	0	57	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		2.0			2.0			2.0			2.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		1.00			1.00			1.00			1.00	
Flt Protected		1.00			1.00			1.00			1.00	
Satd. Flow (prot)		950			950			1727			1727	
Flt Permitted		1.00			1.00			1.00			1.00	
Satd. Flow (perm)		950			950			1727			1727	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	20	0	0	20	0	0	38	0	0	57	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	20	0	0	20	0	0	38	0	0	57	0
Heavy Vehicles (%)	100%	100%	100%	100%	100%	100%	10%	10%	10%	10%	10%	10%
Turn Type		NA			NA			NA			NA	
Protected Phases		2			2			1 3			1 3	
Permitted Phases												
Actuated Green, G (s)		367.0			367.0			2829.0			2829.0	
Effective Green, g (s)		367.0			367.0			2829.0			2829.0	
Actuated g/C Ratio		0.11			0.11			0.88			0.88	
Clearance Time (s)		2.0			2.0							
Lane Grp Cap (vph)		108			108			1526			1526	
v/s Ratio Prot		0.02			c0.02			0.02			c0.03	
v/s Ratio Perm												
v/c Ratio		0.19			0.19			0.02			0.04	
Uniform Delay, d1		1281.3			1281.3			22.0			22.2	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		3.7			3.7			0.0			0.0	
Delay (s)		1285.0			1285.0			22.0			22.3	
Level of Service		F			F			C			C	
Approach Delay (s)		1285.0			1285.0			22.0			22.3	
Approach LOS		F			F			C			C	
Intersection Summary												
HCM 2000 Control Delay		396.4						HCM 2000 Level of Service			F	
HCM 2000 Volume to Capacity ratio		0.05										
Actuated Cycle Length (s)		3200.0						Sum of lost time (s)		6.0		
Intersection Capacity Utilization		13.3%						ICU Level of Service		A		
Analysis Period (min)		15										
c	Critical Lane Group											

HCM Signalized Intersection Capacity Analysis

50: Aluminum Access 1/38th Avenue & Spur Line

10/8/2015



Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		↑			↑			↑↑↑			↑	
Volume (vph)	0	0	0	0	20	0	0	239	0	0	3	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					2.0			2.0			2.0	
Lane Util. Factor					1.00			0.91			1.00	
Frt					1.00			1.00			1.00	
Flt Protected					1.00			1.00			1.00	
Satd. Flow (prot)					1900			4396			1863	
Flt Permitted					1.00			1.00			1.00	
Satd. Flow (perm)					1900			4396			1863	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	0	0	0	0	20	0	0	244	0	0	3	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	20	0	0	244	0	0	3	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	18%	18%	18%	2%	2%	2%
Turn Type					NA			NA			NA	
Protected Phases		2			2			1 3			1 3	
Permitted Phases												
Actuated Green, G (s)					304.0			2892.0			2892.0	
Effective Green, g (s)					304.0			2892.0			2892.0	
Actuated g/C Ratio					0.10			0.90			0.90	
Clearance Time (s)					2.0							
Lane Grp Cap (vph)					180			3972			1683	
v/s Ratio Prot					c0.01			c0.06			0.00	
v/s Ratio Perm												
v/c Ratio					0.11			0.06			0.00	
Uniform Delay, d1					1324.4			15.7			14.8	
Progression Factor					0.16			1.00			1.00	
Incremental Delay, d2					1.2			0.0			0.0	
Delay (s)					207.6			15.7			14.8	
Level of Service					F			B			B	
Approach Delay (s)		0.0			207.6			15.7			14.8	
Approach LOS		A			F			B			B	

Intersection Summary

HCM 2000 Control Delay	30.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.07		
Actuated Cycle Length (s)	3200.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	14.6%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

29: Spur Line & Washington Way

10/8/2015



Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations		↑↑↑			↑↑			↑			↑	
Volume (vph)	0	217	0	0	113	0	0	0	0	0	20	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		2.0			2.0						2.0	
Lane Util. Factor		0.91			0.95						1.00	
Frt		1.00			1.00						1.00	
Flt Protected		1.00			1.00						1.00	
Satd. Flow (prot)		4988			3539						1900	
Flt Permitted		1.00			1.00						1.00	
Satd. Flow (perm)		4988			3539						1900	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	241	0	0	126	0	0	0	0	0	20	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	241	0	0	126	0	0	0	0	0	20	0
Heavy Vehicles (%)	4%	4%	4%	2%	2%	2%	0%	0%	0%	0%	0%	0%
Turn Type		NA			NA						NA	
Protected Phases		1 3			1 3			2			2	
Permitted Phases												
Actuated Green, G (s)		2996.0			2996.0						200.0	
Effective Green, g (s)		2996.0			2996.0						200.0	
Actuated g/C Ratio		0.94			0.94						0.06	
Clearance Time (s)											2.0	
Lane Grp Cap (vph)		4670			3313						118	
v/s Ratio Prot		c0.05			0.04						c0.01	
v/s Ratio Perm												
v/c Ratio		0.05			0.04						0.17	
Uniform Delay, d1		6.8			6.7						1421.3	
Progression Factor		1.00			1.00						0.00	
Incremental Delay, d2		0.0			0.0						3.1	
Delay (s)		6.9			6.8						3.2	
Level of Service		A			A						A	
Approach Delay (s)		6.9			6.8			0.0			3.2	
Approach LOS		A			A			A			A	

Intersection Summary

HCM 2000 Control Delay	6.6	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.06		
Actuated Cycle Length (s)	3200.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	14.2%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

31: Weyerhaeuser Access & Spur Line

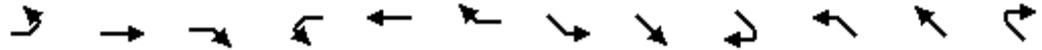
10/8/2015

												
Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		↑			↑			↑			↑	
Volume (vph)	0	0	0	0	20	0	0	57	0	0	8	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					2.0			2.0			2.0	
Lane Util. Factor					1.00			1.00			1.00	
Frt					1.00			1.00			1.00	
Flt Protected					1.00			1.00			1.00	
Satd. Flow (prot)					1900			1863			1863	
Flt Permitted					1.00			1.00			1.00	
Satd. Flow (perm)					1900			1863			1863	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	0	0	0	0	20	0	0	64	0	0	9	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	20	0	0	64	0	0	9	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	2%	2%	2%	2%	2%	2%
Turn Type					NA			NA			NA	
Protected Phases		2			2			1 3			1 3	
Permitted Phases												
Actuated Green, G (s)					166.0			3030.0			3030.0	
Effective Green, g (s)					166.0			3030.0			3030.0	
Actuated g/C Ratio					0.05			0.95			0.95	
Clearance Time (s)					2.0							
Lane Grp Cap (vph)					98			1764			1764	
v/s Ratio Prot					c0.01			c0.03			0.00	
v/s Ratio Perm												
v/c Ratio					0.20			0.04			0.01	
Uniform Delay, d1					1453.7			4.7			4.5	
Progression Factor					0.01			1.00			1.05	
Incremental Delay, d2					4.6			0.0			0.0	
Delay (s)					23.2			4.7			4.8	
Level of Service					C			A			A	
Approach Delay (s)		0.0			23.2			4.7			4.8	
Approach LOS		A			C			A			A	
Intersection Summary												
HCM 2000 Control Delay			8.7					HCM 2000 Level of Service			A	
HCM 2000 Volume to Capacity ratio			0.04									
Actuated Cycle Length (s)			3200.0					Sum of lost time (s)		6.0		
Intersection Capacity Utilization			13.3%					ICU Level of Service		A		
Analysis Period (min)			15									
c	Critical Lane Group											

HCM Signalized Intersection Capacity Analysis

10: Industrial Way & Spur Line

10/8/2015



Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR	
Lane Configurations		↑			↑			↑			↑		
Volume (vph)	0	0	0	0	20	0	0	593	0	0	567	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)					2.0			2.0			2.0		
Lane Util. Factor					1.00			1.00			1.00		
Frt					1.00			1.00			1.00		
Flt Protected					1.00			1.00			1.00		
Satd. Flow (prot)					1900			1638			1652		
Flt Permitted					1.00			1.00			1.00		
Satd. Flow (perm)					1900			1638			1652		
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	0.92	0.92	0.92	0.92	0.92	0.92	
Adj. Flow (vph)	0	0	0	0	20	0	0	645	0	0	616	0	
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0	
Lane Group Flow (vph)	0	0	0	0	20	0	0	645	0	0	616	0	
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	16%	16%	16%	15%	15%	15%	
Turn Type					NA			NA			NA		
Protected Phases		2			2			1 3			1 3		
Permitted Phases													
Actuated Green, G (s)					166.0			3030.0			3030.0		
Effective Green, g (s)					166.0			3030.0			3030.0		
Actuated g/C Ratio					0.05			0.95			0.95		
Clearance Time (s)					2.0								
Lane Grp Cap (vph)					98			1550			1564		
v/s Ratio Prot					c0.01			c0.39			0.37		
v/s Ratio Perm													
v/c Ratio					0.20			0.42			0.39		
Uniform Delay, d1					1453.7			7.5			7.2		
Progression Factor					0.00			1.00			1.00		
Incremental Delay, d2					4.6			0.8			0.7		
Delay (s)					4.8			8.3			7.9		
Level of Service					A			A			A		
Approach Delay (s)		0.0			4.8			8.3			7.9		
Approach LOS		A			A			A			A		
Intersection Summary													
HCM 2000 Control Delay			8.1		HCM 2000 Level of Service						A		
HCM 2000 Volume to Capacity ratio			0.40										
Actuated Cycle Length (s)			3200.0		Sum of lost time (s)						6.0		
Intersection Capacity Utilization			41.2%		ICU Level of Service						A		
Analysis Period (min)			15										
c Critical Lane Group													

HCM Signalized Intersection Capacity Analysis

4: Oregon Way & Spur Line

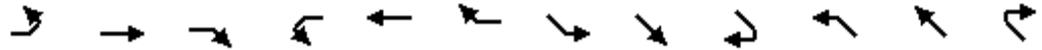
10/8/2015

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		↑			↑			↑↑			↑↑		
Volume (vph)	0	0	0	0	20	0	0	901	0	0	664	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)					2.0			2.0			2.0		
Lane Util. Factor					1.00			0.95			0.95		
Frbp, ped/bikes					1.00			1.00			1.00		
Flpb, ped/bikes					1.00			1.00			1.00		
Frt					1.00			1.00			1.00		
Flt Protected					1.00			1.00			1.00		
Satd. Flow (prot)					1900			3539			3539		
Flt Permitted					1.00			1.00			1.00		
Satd. Flow (perm)					1900			3539			3539		
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	0.92	0.92	0.92	0.92	0.92	0.92	
Adj. Flow (vph)	0	0	0	0	20	0	0	979	0	0	722	0	
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0	
Lane Group Flow (vph)	0	0	0	0	20	0	0	979	0	0	722	0	
Confl. Bikes (#/hr)									766				
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	2%	2%	2%	2%	2%	2%	
Turn Type					NA			NA			NA		
Protected Phases		2			2			1 3			1 3		
Permitted Phases													
Actuated Green, G (s)					166.0			3030.0			3030.0		
Effective Green, g (s)					166.0			3030.0			3030.0		
Actuated g/C Ratio					0.05			0.95			0.95		
Clearance Time (s)					2.0								
Lane Grp Cap (vph)					98			3350			3350		
v/s Ratio Prot					c0.01			c0.28			0.20		
v/s Ratio Perm													
v/c Ratio					0.20			0.29			0.22		
Uniform Delay, d1					1453.7			6.2			5.7		
Progression Factor					0.02			1.00			1.00		
Incremental Delay, d2					4.6			0.2			0.1		
Delay (s)					39.4			6.5			5.8		
Level of Service					D			A			A		
Approach Delay (s)		0.0			39.4			6.5			5.8		
Approach LOS		A			D			A			A		
Intersection Summary													
HCM 2000 Control Delay			6.6									HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio			0.29										
Actuated Cycle Length (s)			3200.0									Sum of lost time (s)	6.0
Intersection Capacity Utilization			34.9%									ICU Level of Service	A
Analysis Period (min)			15										
c Critical Lane Group													

HCM Signalized Intersection Capacity Analysis

9: California Way & Spur Line

10/8/2015



Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR	
Lane Configurations		↑			↑			↑			↑		
Volume (vph)	0	0	0	0	20	0	0	196	0	0	209	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)					2.0			2.0			2.0		
Lane Util. Factor					1.00			1.00			1.00		
Frt					1.00			1.00			1.00		
Flt Protected					1.00			1.00			1.00		
Satd. Flow (prot)					1900			1743			1845		
Flt Permitted					1.00			1.00			1.00		
Satd. Flow (perm)					1900			1743			1845		
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	0.93	0.93	0.93	0.93	0.93	0.93	
Adj. Flow (vph)	0	0	0	0	20	0	0	211	0	0	225	0	
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0	
Lane Group Flow (vph)	0	0	0	0	20	0	0	211	0	0	225	0	
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	9%	9%	9%	3%	3%	3%	
Turn Type					NA			NA			NA		
Protected Phases		2			2			1 3			1 3		
Permitted Phases													
Actuated Green, G (s)					200.0			2996.0			2996.0		
Effective Green, g (s)					200.0			2996.0			2996.0		
Actuated g/C Ratio					0.06			0.94			0.94		
Clearance Time (s)					2.0								
Lane Grp Cap (vph)					118			1631			1727		
v/s Ratio Prot					c0.01			0.12			c0.12		
v/s Ratio Perm													
v/c Ratio					0.17			0.13			0.13		
Uniform Delay, d1					1421.3			7.4			7.4		
Progression Factor					0.01			1.00			1.00		
Incremental Delay, d2					3.1			0.2			0.2		
Delay (s)					12.4			7.6			7.6		
Level of Service					B			A			A		
Approach Delay (s)		0.0			12.4			7.6			7.6		
Approach LOS		A			B			A			A		
Intersection Summary													
HCM 2000 Control Delay			7.8									HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio			0.13										
Actuated Cycle Length (s)			3200.0									Sum of lost time (s)	6.0
Intersection Capacity Utilization			21.0%									ICU Level of Service	A
Analysis Period (min)			15										
c	Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

22: 3rd Avenue & Spur Line

10/8/2015



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑			↑			↑↑			↑↑	
Volume (vph)	0	0	0	0	20	0	0	1100	0	0	652	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					2.0			2.0			2.0	
Lane Util. Factor					1.00			0.95			0.95	
Frt					1.00			1.00			1.00	
Flt Protected					1.00			1.00			1.00	
Satd. Flow (prot)					1900			3139			3112	
Flt Permitted					1.00			1.00			1.00	
Satd. Flow (perm)					1900			3139			3112	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	0	0	0	0	20	0	0	1236	0	0	733	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	20	0	0	1236	0	0	733	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	15%	15%	15%	16%	16%	16%
Turn Type					NA			NA			NA	
Protected Phases		2			2			1 3			1 3	
Permitted Phases												
Actuated Green, G (s)					200.0			2996.0			2996.0	
Effective Green, g (s)					200.0			2996.0			2996.0	
Actuated g/C Ratio					0.06			0.94			0.94	
Clearance Time (s)					2.0							
Lane Grp Cap (vph)					118			2938			2913	
v/s Ratio Prot					c0.01			c0.39			0.24	
v/s Ratio Perm												
v/c Ratio					0.17			0.42			0.25	
Uniform Delay, d1					1421.3			10.7			8.5	
Progression Factor					1.00			1.00			1.00	
Incremental Delay, d2					3.1			0.4			0.2	
Delay (s)					1424.4			11.2			8.7	
Level of Service					F			B			A	
Approach Delay (s)		0.0			1424.4			11.2			8.7	
Approach LOS		A			F			B			A	
Intersection Summary												
HCM 2000 Control Delay			24.5					HCM 2000 Level of Service			C	
HCM 2000 Volume to Capacity ratio			0.40									
Actuated Cycle Length (s)			3200.0					Sum of lost time (s)			6.0	
Intersection Capacity Utilization			40.4%					ICU Level of Service			A	
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

69: Dike Road & Spur Line

10/8/2015

												
Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		↑			↑			↑			↑	
Volume (vph)	0	20	0	0	20	0	0	38	0	0	57	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		2.0			2.0			2.0			2.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		1.00			1.00			1.00			1.00	
Flt Protected		1.00			1.00			1.00			1.00	
Satd. Flow (prot)		950			950			1727			1727	
Flt Permitted		1.00			1.00			1.00			1.00	
Satd. Flow (perm)		950			950			1727			1727	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	20	0	0	20	0	0	38	0	0	57	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	20	0	0	20	0	0	38	0	0	57	0
Heavy Vehicles (%)	100%	100%	100%	100%	100%	100%	10%	10%	10%	10%	10%	10%
Turn Type		NA			NA			NA			NA	
Protected Phases		2			2			1 3			1 3	
Permitted Phases												
Actuated Green, G (s)		367.0			367.0			2829.0			2829.0	
Effective Green, g (s)		367.0			367.0			2829.0			2829.0	
Actuated g/C Ratio		0.11			0.11			0.88			0.88	
Clearance Time (s)		2.0			2.0							
Lane Grp Cap (vph)		108			108			1526			1526	
v/s Ratio Prot		0.02			c0.02			0.02			c0.03	
v/s Ratio Perm												
v/c Ratio		0.19			0.19			0.02			0.04	
Uniform Delay, d1		1281.3			1281.3			22.0			22.2	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		3.7			3.7			0.0			0.0	
Delay (s)		1285.0			1285.0			22.0			22.3	
Level of Service		F			F			C			C	
Approach Delay (s)		1285.0			1285.0			22.0			22.3	
Approach LOS		F			F			C			C	
Intersection Summary												
HCM 2000 Control Delay		396.4			HCM 2000 Level of Service			F				
HCM 2000 Volume to Capacity ratio		0.05										
Actuated Cycle Length (s)		3200.0			Sum of lost time (s)			6.0				
Intersection Capacity Utilization		13.3%			ICU Level of Service			A				
Analysis Period (min)		15										
c	Critical Lane Group											

HCM Signalized Intersection Capacity Analysis

50: Aluminum Access 1/38th Avenue & Spur Line

10/8/2015



Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		↑			↑			↑↑↑			↑	
Volume (vph)	0	0	0	0	20	0	0	197	0	0	3	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					2.0			2.0			2.0	
Lane Util. Factor					1.00			0.91			1.00	
Frt					1.00			1.00			1.00	
Flt Protected					1.00			1.00			1.00	
Satd. Flow (prot)					1900			4590			1863	
Flt Permitted					1.00			1.00			1.00	
Satd. Flow (perm)					1900			4590			1863	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	0	0	0	0	20	0	0	201	0	0	3	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	20	0	0	201	0	0	3	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	13%	13%	13%	2%	2%	2%
Turn Type					NA			NA			NA	
Protected Phases		2			2			1 3			1 3	
Permitted Phases												
Actuated Green, G (s)					961.0			2235.0			2235.0	
Effective Green, g (s)					961.0			2235.0			2235.0	
Actuated g/C Ratio					0.30			0.70			0.70	
Clearance Time (s)					2.0							
Lane Grp Cap (vph)					570			3205			1301	
v/s Ratio Prot					c0.01			c0.04			0.00	
v/s Ratio Perm												
v/c Ratio					0.04			0.06			0.00	
Uniform Delay, d1					791.6			152.2			145.7	
Progression Factor					0.24			1.00			1.00	
Incremental Delay, d2					0.1			0.0			0.0	
Delay (s)					187.9			152.2			145.7	
Level of Service					F			F			F	
Approach Delay (s)		0.0			187.9			152.2			145.7	
Approach LOS		A			F			F			F	

Intersection Summary

HCM 2000 Control Delay	155.3	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	0.05		
Actuated Cycle Length (s)	3200.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	13.8%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

29: Spur Line & Washington Way

10/8/2015



Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations		↑↑↑			↑↑			↑			↑	
Volume (vph)	0	217	0	0	113	0	0	0	0	0	20	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		2.0			2.0						2.0	
Lane Util. Factor		0.91			0.95						1.00	
Frt		1.00			1.00						1.00	
Flt Protected		1.00			1.00						1.00	
Satd. Flow (prot)		4988			3539						1900	
Flt Permitted		1.00			1.00						1.00	
Satd. Flow (perm)		4988			3539						1900	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	241	0	0	126	0	0	0	0	0	20	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	241	0	0	126	0	0	0	0	0	20	0
Heavy Vehicles (%)	4%	4%	4%	2%	2%	2%	0%	0%	0%	0%	0%	0%
Turn Type		NA			NA						NA	
Protected Phases		1 3			1 3			2			2	
Permitted Phases												
Actuated Green, G (s)		2585.0			2585.0						611.0	
Effective Green, g (s)		2585.0			2585.0						611.0	
Actuated g/C Ratio		0.81			0.81						0.19	
Clearance Time (s)											2.0	
Lane Grp Cap (vph)		4029			2858						362	
v/s Ratio Prot		c0.05			0.04						c0.01	
v/s Ratio Perm												
v/c Ratio		0.06			0.04						0.06	
Uniform Delay, d1		62.1			61.3						1058.5	
Progression Factor		1.00			1.00						0.00	
Incremental Delay, d2		0.0			0.0						0.3	
Delay (s)		62.1			61.3						0.4	
Level of Service		E			E						A	
Approach Delay (s)		62.1			61.3			0.0			0.4	
Approach LOS		E			E			A			A	

Intersection Summary

HCM 2000 Control Delay	58.7	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.06		
Actuated Cycle Length (s)	3200.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	14.2%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

31: Weyerhaeuser Access & Spur Line

10/8/2015



Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		↑			↑			↑			↑	
Volume (vph)	0	0	0	0	20	0	0	57	0	0	8	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					2.0			2.0			2.0	
Lane Util. Factor					1.00			1.00			1.00	
Frt					1.00			1.00			1.00	
Flt Protected					1.00			1.00			1.00	
Satd. Flow (prot)					1900			1863			1863	
Flt Permitted					1.00			1.00			1.00	
Satd. Flow (perm)					1900			1863			1863	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	0	0	0	0	20	0	0	64	0	0	9	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	20	0	0	64	0	0	9	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	2%	2%	2%	2%	2%	2%
Turn Type					NA			NA			NA	
Protected Phases		2			2			1 3			1 3	
Permitted Phases												
Actuated Green, G (s)					495.0			2701.0			2701.0	
Effective Green, g (s)					495.0			2701.0			2701.0	
Actuated g/C Ratio					0.15			0.84			0.84	
Clearance Time (s)					2.0							
Lane Grp Cap (vph)					293			1572			1572	
v/s Ratio Prot					c0.01			c0.03			0.00	
v/s Ratio Perm												
v/c Ratio					0.07			0.04			0.01	
Uniform Delay, d1					1155.5			40.3			39.1	
Progression Factor					0.02			1.00			1.04	
Incremental Delay, d2					0.4			0.0			0.0	
Delay (s)					25.7			40.3			40.9	
Level of Service					C			D			D	
Approach Delay (s)		0.0			25.7			40.3			40.9	
Approach LOS		A			C			D			D	

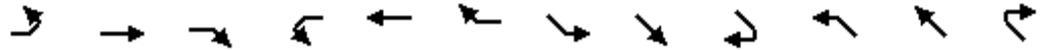
Intersection Summary

HCM 2000 Control Delay	37.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.04		
Actuated Cycle Length (s)	3200.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

10: Industrial Way & Spur Line

10/8/2015



Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR		
Lane Configurations		↑			↑			↑			↑			
Volume (vph)	0	0	0	0	20	0	0	551	0	0	567	0		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900		
Total Lost time (s)					2.0			2.0			2.0			
Lane Util. Factor					1.00			1.00			1.00			
Frt					1.00			1.00			1.00			
Flt Protected					1.00			1.00			1.00			
Satd. Flow (prot)					1900			1727			1652			
Flt Permitted					1.00			1.00			1.00			
Satd. Flow (perm)					1900			1727			1652			
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	0.92	0.92	0.92	0.92	0.92	0.92		
Adj. Flow (vph)	0	0	0	0	20	0	0	599	0	0	616	0		
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0		
Lane Group Flow (vph)	0	0	0	0	20	0	0	599	0	0	616	0		
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	10%	10%	10%	15%	15%	15%		
Turn Type					NA			NA			NA			
Protected Phases		2			2			1 3			1 3			
Permitted Phases														
Actuated Green, G (s)					495.0			2701.0			2701.0			
Effective Green, g (s)					495.0			2701.0			2701.0			
Actuated g/C Ratio					0.15			0.84			0.84			
Clearance Time (s)					2.0									
Lane Grp Cap (vph)					293			1457			1394			
v/s Ratio Prot					c0.01			0.35			c0.37			
v/s Ratio Perm														
v/c Ratio					0.07			0.41			0.44			
Uniform Delay, d1					1155.5			59.6			62.1			
Progression Factor					0.00			1.00			1.00			
Incremental Delay, d2					0.4			0.9			1.0			
Delay (s)					0.6			60.4			63.1			
Level of Service					A			E			E			
Approach Delay (s)		0.0			0.6			60.4			63.1			
Approach LOS		A			A			E			E			
Intersection Summary														
HCM 2000 Control Delay			60.8									HCM 2000 Level of Service	E	
HCM 2000 Volume to Capacity ratio			0.38											
Actuated Cycle Length (s)			3200.0								6.0		Sum of lost time (s)	
Intersection Capacity Utilization			39.8%										ICU Level of Service	A
Analysis Period (min)			15											
c	Critical Lane Group													

HCM Signalized Intersection Capacity Analysis

4: Oregon Way & Spur Line

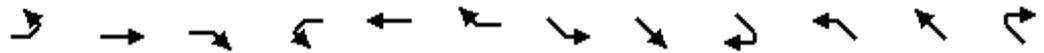
10/8/2015

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑			↑			↑↑			↑↑	
Volume (vph)	0	0	0	0	20	0	0	901	0	0	664	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					2.0			2.0			2.0	
Lane Util. Factor					1.00			0.95			0.95	
Frbp, ped/bikes					1.00			1.00			1.00	
Flpb, ped/bikes					1.00			1.00			1.00	
Frt					1.00			1.00			1.00	
Flt Protected					1.00			1.00			1.00	
Satd. Flow (prot)					1900			3539			3539	
Flt Permitted					1.00			1.00			1.00	
Satd. Flow (perm)					1900			3539			3539	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	20	0	0	979	0	0	722	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	20	0	0	979	0	0	722	0
Confl. Bikes (#/hr)									766			
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	2%	2%	2%	2%	2%	2%
Turn Type					NA			NA			NA	
Protected Phases		2			2			1 3			1 3	
Permitted Phases												
Actuated Green, G (s)					495.0			2701.0			2701.0	
Effective Green, g (s)					495.0			2701.0			2701.0	
Actuated g/C Ratio					0.15			0.84			0.84	
Clearance Time (s)					2.0							
Lane Grp Cap (vph)					293			2987			2987	
v/s Ratio Prot					c0.01			c0.28			0.20	
v/s Ratio Perm												
v/c Ratio					0.07			0.33			0.24	
Uniform Delay, d1					1155.5			53.8			48.9	
Progression Factor					0.08			1.00			1.00	
Incremental Delay, d2					0.4			0.3			0.2	
Delay (s)					93.6			54.1			49.1	
Level of Service					F			D			D	
Approach Delay (s)		0.0			93.6			54.1			49.1	
Approach LOS		A			F			D			D	
Intersection Summary												
HCM 2000 Control Delay			52.4					HCM 2000 Level of Service			D	
HCM 2000 Volume to Capacity ratio			0.29									
Actuated Cycle Length (s)			3200.0					Sum of lost time (s)		6.0		
Intersection Capacity Utilization			34.9%					ICU Level of Service		A		
Analysis Period (min)			15									
c	Critical Lane Group											

HCM Signalized Intersection Capacity Analysis

9: California Way & Spur Line

10/8/2015



Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR		
Lane Configurations		↑			↑			↑			↑			
Volume (vph)	0	0	0	0	20	0	0	196	0	0	209	0		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900		
Total Lost time (s)					2.0			2.0			2.0			
Lane Util. Factor					1.00			1.00			1.00			
Frt					1.00			1.00			1.00			
Flt Protected					1.00			1.00			1.00			
Satd. Flow (prot)					1900			1743			1845			
Flt Permitted					1.00			1.00			1.00			
Satd. Flow (perm)					1900			1743			1845			
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	0.93	0.93	0.93	0.93	0.93	0.93		
Adj. Flow (vph)	0	0	0	0	20	0	0	211	0	0	225	0		
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0		
Lane Group Flow (vph)	0	0	0	0	20	0	0	211	0	0	225	0		
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	9%	9%	9%	3%	3%	3%		
Turn Type					NA			NA			NA			
Protected Phases		2			2			1 3			1 3			
Permitted Phases														
Actuated Green, G (s)					611.0			2585.0			2585.0			
Effective Green, g (s)					611.0			2585.0			2585.0			
Actuated g/C Ratio					0.19			0.81			0.81			
Clearance Time (s)					2.0									
Lane Grp Cap (vph)					362			1408			1490			
v/s Ratio Prot					c0.01			0.12			c0.12			
v/s Ratio Perm														
v/c Ratio					0.06			0.15			0.15			
Uniform Delay, d1					1058.5			67.2			67.3			
Progression Factor					0.01			1.00			1.00			
Incremental Delay, d2					0.3			0.2			0.2			
Delay (s)					8.2			67.5			67.5			
Level of Service					A			E			E			
Approach Delay (s)		0.0			8.2			67.5			67.5			
Approach LOS		A			A			E			E			
Intersection Summary														
HCM 2000 Control Delay			64.9									HCM 2000 Level of Service	E	
HCM 2000 Volume to Capacity ratio			0.13											
Actuated Cycle Length (s)			3200.0								6.0		Sum of lost time (s)	
Intersection Capacity Utilization			21.0%										ICU Level of Service	A
Analysis Period (min)			15											
c	Critical Lane Group													

HCM Signalized Intersection Capacity Analysis

22: 3rd Avenue & Spur Line

10/8/2015



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑			↑			↑↑			↑↑	
Volume (vph)	0	0	0	0	20	0	0	1069	0	0	652	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					2.0			2.0			2.0	
Lane Util. Factor					1.00			0.95			0.95	
Frt					1.00			1.00			1.00	
Flt Protected					1.00			1.00			1.00	
Satd. Flow (prot)					1900			3195			3112	
Flt Permitted					1.00			1.00			1.00	
Satd. Flow (perm)					1900			3195			3112	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	0	0	0	0	20	0	0	1201	0	0	733	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	20	0	0	1201	0	0	733	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	13%	13%	13%	16%	16%	16%
Turn Type					NA			NA			NA	
Protected Phases		2			2			1 3			1 3	
Permitted Phases												
Actuated Green, G (s)					611.0			2585.0			2585.0	
Effective Green, g (s)					611.0			2585.0			2585.0	
Actuated g/C Ratio					0.19			0.81			0.81	
Clearance Time (s)					2.0							
Lane Grp Cap (vph)					362			2580			2513	
v/s Ratio Prot					c0.01			c0.38			0.24	
v/s Ratio Perm												
v/c Ratio					0.06			0.47			0.29	
Uniform Delay, d1					1058.5			94.7			77.3	
Progression Factor					1.00			1.00			1.00	
Incremental Delay, d2					0.3			0.6			0.3	
Delay (s)					1058.8			95.3			77.6	
Level of Service					F			F			E	
Approach Delay (s)		0.0			1058.8			95.3			77.6	
Approach LOS		A			F			F			E	

Intersection Summary

HCM 2000 Control Delay	98.5	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	0.39		
Actuated Cycle Length (s)	3200.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	39.5%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

69: Dike Road & Spur Line

10/8/2015



Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		↑			↑			↑			↑	
Volume (vph)	0	20	0	0	20	0	0	38	0	0	57	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		2.0			2.0			2.0			2.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		1.00			1.00			1.00			1.00	
Flt Protected		1.00			1.00			1.00			1.00	
Satd. Flow (prot)		950			950			1727			1727	
Flt Permitted		1.00			1.00			1.00			1.00	
Satd. Flow (perm)		950			950			1727			1727	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	20	0	0	20	0	0	38	0	0	57	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	20	0	0	20	0	0	38	0	0	57	0
Heavy Vehicles (%)	100%	100%	100%	100%	100%	100%	10%	10%	10%	10%	10%	10%
Turn Type		NA			NA			NA			NA	
Protected Phases		2			2			1 3			1 3	
Permitted Phases												
Actuated Green, G (s)		495.0			495.0			2701.0			2701.0	
Effective Green, g (s)		495.0			495.0			2701.0			2701.0	
Actuated g/C Ratio		0.15			0.15			0.84			0.84	
Clearance Time (s)		2.0			2.0							
Lane Grp Cap (vph)		146			146			1457			1457	
v/s Ratio Prot		0.02			c0.02			0.02			c0.03	
v/s Ratio Perm												
v/c Ratio		0.14			0.14			0.03			0.04	
Uniform Delay, d1		1168.0			1168.0			39.8			40.2	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		1.9			1.9			0.0			0.1	
Delay (s)		1170.0			1170.0			39.8			40.3	
Level of Service		F			F			D			D	
Approach Delay (s)		1170.0			1170.0			39.8			40.3	
Approach LOS		F			F			D			D	

Intersection Summary

HCM 2000 Control Delay	374.9	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	0.05		
Actuated Cycle Length (s)	3200.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

50: Aluminum Access 1/38th Avenue & Spur Line

10/8/2015



Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		↑			↑			↑↑↑			↑	
Volume (vph)	0	0	0	0	20	0	0	21	0	0	4	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					2.0			2.0			2.0	
Lane Util. Factor					1.00			0.91			1.00	
Frt					1.00			1.00			1.00	
Flt Protected					1.00			1.00			1.00	
Satd. Flow (prot)					1900			4590			1863	
Flt Permitted					1.00			1.00			1.00	
Satd. Flow (perm)					1900			4590			1863	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	0	0	0	0	20	0	0	21	0	0	4	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	20	0	0	21	0	0	4	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	13%	13%	13%	2%	2%	2%
Turn Type					NA			NA			NA	
Protected Phases		2			2			1 3			1 3	
Permitted Phases												
Actuated Green, G (s)					304.0			2892.0			2892.0	
Effective Green, g (s)					304.0			2892.0			2892.0	
Actuated g/C Ratio					0.10			0.90			0.90	
Clearance Time (s)					2.0							
Lane Grp Cap (vph)					180			4148			1683	
v/s Ratio Prot					c0.01			c0.00			0.00	
v/s Ratio Perm												
v/c Ratio					0.11			0.01			0.00	
Uniform Delay, d1					1324.4			14.9			14.9	
Progression Factor					0.16			1.00			1.00	
Incremental Delay, d2					1.2			0.0			0.0	
Delay (s)					207.6			14.9			14.9	
Level of Service					F			B			B	
Approach Delay (s)		0.0			207.6			14.9			14.9	
Approach LOS		A			F			B			B	

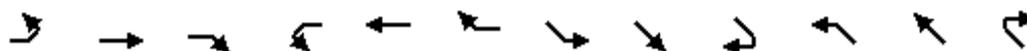
Intersection Summary

HCM 2000 Control Delay	100.5	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	0.02		
Actuated Cycle Length (s)	3200.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

29: Spur Line & Washington Way

10/8/2015



Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations		↑↑↑			↑↑			↑			↑	
Volume (vph)	0	256	0	0	134	0	0	0	0	0	20	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		2.0			2.0						2.0	
Lane Util. Factor		0.91			0.95						1.00	
Frt		1.00			1.00						1.00	
Flt Protected		1.00			1.00						1.00	
Satd. Flow (prot)		4988			3539						1900	
Flt Permitted		1.00			1.00						1.00	
Satd. Flow (perm)		4988			3539						1900	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	284	0	0	149	0	0	0	0	0	20	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	284	0	0	149	0	0	0	0	0	20	0
Heavy Vehicles (%)	4%	4%	4%	2%	2%	2%	0%	0%	0%	0%	0%	0%
Turn Type		NA			NA						NA	
Protected Phases		1 3			1 3			2			2	
Permitted Phases												
Actuated Green, G (s)		2996.0			2996.0						200.0	
Effective Green, g (s)		2996.0			2996.0						200.0	
Actuated g/C Ratio		0.94			0.94						0.06	
Clearance Time (s)											2.0	
Lane Grp Cap (vph)		4670			3313						118	
v/s Ratio Prot		c0.06			0.04						c0.01	
v/s Ratio Perm												
v/c Ratio		0.06			0.04						0.17	
Uniform Delay, d1		6.9			6.8						1421.3	
Progression Factor		1.00			1.00						0.00	
Incremental Delay, d2		0.0			0.0						3.1	
Delay (s)		6.9			6.8						3.2	
Level of Service		A			A						A	
Approach Delay (s)		6.9			6.8			0.0			3.2	
Approach LOS		A			A			A			A	
Intersection Summary												
HCM 2000 Control Delay			6.7		HCM 2000 Level of Service				A			
HCM 2000 Volume to Capacity ratio			0.07									
Actuated Cycle Length (s)			3200.0		Sum of lost time (s)			6.0				
Intersection Capacity Utilization			14.9%		ICU Level of Service				A			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

31: Weyerhaeuser Access & Spur Line

10/8/2015



Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		↑			↑			↑			↑	
Volume (vph)	0	0	0	0	20	0	0	70	0	0	10	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					2.0			2.0			2.0	
Lane Util. Factor					1.00			1.00			1.00	
Frt					1.00			1.00			1.00	
Flt Protected					1.00			1.00			1.00	
Satd. Flow (prot)					1900			1863			1863	
Flt Permitted					1.00			1.00			1.00	
Satd. Flow (perm)					1900			1863			1863	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	0	0	0	0	20	0	0	79	0	0	11	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	20	0	0	79	0	0	11	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	2%	2%	2%	2%	2%	2%
Turn Type					NA			NA			NA	
Protected Phases		2			2			1 3			1 3	
Permitted Phases												
Actuated Green, G (s)					166.0			3030.0			3030.0	
Effective Green, g (s)					166.0			3030.0			3030.0	
Actuated g/C Ratio					0.05			0.95			0.95	
Clearance Time (s)					2.0							
Lane Grp Cap (vph)					98			1764			1764	
v/s Ratio Prot					c0.01			c0.04			0.01	
v/s Ratio Perm												
v/c Ratio					0.20			0.04			0.01	
Uniform Delay, d1					1453.7			4.7			4.5	
Progression Factor					0.01			1.00			1.08	
Incremental Delay, d2					4.6			0.0			0.0	
Delay (s)					23.2			4.8			4.9	
Level of Service					C			A			A	
Approach Delay (s)		0.0			23.2			4.8			4.9	
Approach LOS		A			C			A			A	

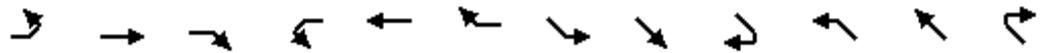
Intersection Summary

HCM 2000 Control Delay	8.1	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.05		
Actuated Cycle Length (s)	3200.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	13.7%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

10: Industrial Way & Spur Line

10/8/2015



Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations		↑			↑			↑			↑	
Volume (vph)	0	0	0	0	20	0	0	502	0	0	643	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					2.0			2.0			2.0	
Lane Util. Factor					1.00			1.00			1.00	
Frt					1.00			1.00			1.00	
Flt Protected					1.00			1.00			1.00	
Satd. Flow (prot)					1900			1810			1743	
Flt Permitted					1.00			1.00			1.00	
Satd. Flow (perm)					1900			1810			1743	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	20	0	0	546	0	0	699	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	20	0	0	546	0	0	699	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	5%	5%	5%	9%	9%	9%
Turn Type					NA			NA			NA	
Protected Phases		2			2			1 3			1 3	
Permitted Phases												
Actuated Green, G (s)					166.0			3030.0			3030.0	
Effective Green, g (s)					166.0			3030.0			3030.0	
Actuated g/C Ratio					0.05			0.95			0.95	
Clearance Time (s)					2.0							
Lane Grp Cap (vph)					98			1713			1650	
v/s Ratio Prot					c0.01			0.30			c0.40	
v/s Ratio Perm												
v/c Ratio					0.20			0.32			0.42	
Uniform Delay, d1					1453.7			6.5			7.5	
Progression Factor					0.00			1.00			1.00	
Incremental Delay, d2					4.6			0.5			0.8	
Delay (s)					4.8			7.0			8.3	
Level of Service					A			A			A	
Approach Delay (s)		0.0			4.8			7.0			8.3	
Approach LOS		A			A			A			A	

Intersection Summary

HCM 2000 Control Delay	7.7	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.41		
Actuated Cycle Length (s)	3200.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	43.8%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

4: Oregon Way & Spur Line

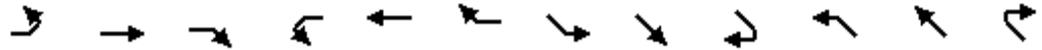
10/8/2015

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		↑			↑			↑↑			↑↑		
Volume (vph)	0	0	0	0	20	0	0	1042	0	0	808	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)					2.0			2.0			2.0		
Lane Util. Factor					1.00			0.95			0.95		
Frbp, ped/bikes					1.00			1.00			1.00		
Flpb, ped/bikes					1.00			1.00			1.00		
Frt					1.00			1.00			1.00		
Flt Protected					1.00			1.00			1.00		
Satd. Flow (prot)					1900			3539			3539		
Flt Permitted					1.00			1.00			1.00		
Satd. Flow (perm)					1900			3539			3539		
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	0.92	0.92	0.92	0.92	0.92	0.92	
Adj. Flow (vph)	0	0	0	0	20	0	0	1133	0	0	878	0	
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0	
Lane Group Flow (vph)	0	0	0	0	20	0	0	1133	0	0	878	0	
Confl. Bikes (#/hr)									766				
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	2%	2%	2%	2%	2%	2%	
Turn Type					NA			NA			NA		
Protected Phases		2			2			1	3		1	3	
Permitted Phases													
Actuated Green, G (s)					166.0			3030.0			3030.0		
Effective Green, g (s)					166.0			3030.0			3030.0		
Actuated g/C Ratio					0.05			0.95			0.95		
Clearance Time (s)					2.0								
Lane Grp Cap (vph)					98			3350			3350		
v/s Ratio Prot					c0.01			c0.32			0.25		
v/s Ratio Perm													
v/c Ratio					0.20			0.34			0.26		
Uniform Delay, d1					1453.7			6.6			6.0		
Progression Factor					0.02			1.00			1.00		
Incremental Delay, d2					4.6			0.3			0.2		
Delay (s)					39.4			6.9			6.2		
Level of Service					D			A			A		
Approach Delay (s)		0.0			39.4			6.9			6.2		
Approach LOS		A			D			A			A		
Intersection Summary													
HCM 2000 Control Delay			6.9									HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio			0.33										
Actuated Cycle Length (s)			3200.0									Sum of lost time (s)	6.0
Intersection Capacity Utilization			38.8%									ICU Level of Service	A
Analysis Period (min)			15										
c Critical Lane Group													

HCM Signalized Intersection Capacity Analysis

9: California Way & Spur Line

10/8/2015



Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations		↑			↑			↑			↑	
Volume (vph)	0	0	0	0	20	0	0	232	0	0	248	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					2.0			2.0			2.0	
Lane Util. Factor					1.00			1.00			1.00	
Frt					1.00			1.00			1.00	
Flt Protected					1.00			1.00			1.00	
Satd. Flow (prot)					1900			1743			1845	
Flt Permitted					1.00			1.00			1.00	
Satd. Flow (perm)					1900			1743			1845	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	0	0	0	0	20	0	0	249	0	0	267	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	20	0	0	249	0	0	267	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	9%	9%	9%	3%	3%	3%
Turn Type					NA			NA			NA	
Protected Phases		2			2			1 3			1 3	
Permitted Phases												
Actuated Green, G (s)					200.0			2996.0			2996.0	
Effective Green, g (s)					200.0			2996.0			2996.0	
Actuated g/C Ratio					0.06			0.94			0.94	
Clearance Time (s)					2.0							
Lane Grp Cap (vph)					118			1631			1727	
v/s Ratio Prot					c0.01			0.14			c0.14	
v/s Ratio Perm												
v/c Ratio					0.17			0.15			0.15	
Uniform Delay, d1					1421.3			7.6			7.6	
Progression Factor					0.01			1.00			1.00	
Incremental Delay, d2					3.1			0.2			0.2	
Delay (s)					12.4			7.8			7.8	
Level of Service					B			A			A	
Approach Delay (s)		0.0			12.4			7.8			7.8	
Approach LOS		A			B			A			A	
Intersection Summary												
HCM 2000 Control Delay			8.0					HCM 2000 Level of Service			A	
HCM 2000 Volume to Capacity ratio			0.16									
Actuated Cycle Length (s)			3200.0					Sum of lost time (s)			6.0	
Intersection Capacity Utilization			23.1%					ICU Level of Service			A	
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

22: 3rd Avenue & Spur Line

10/8/2015



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑			↑			↑↑			↑↑	
Volume (vph)	0	0	0	0	20	0	0	1257	0	0	793	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					2.0			2.0			2.0	
Lane Util. Factor					1.00			0.95			0.95	
Frt					1.00			1.00			1.00	
Flt Protected					1.00			1.00			1.00	
Satd. Flow (prot)					1900			3195			3112	
Flt Permitted					1.00			1.00			1.00	
Satd. Flow (perm)					1900			3195			3112	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	0	0	0	0	20	0	0	1412	0	0	891	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	20	0	0	1412	0	0	891	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	13%	13%	13%	16%	16%	16%
Turn Type					NA			NA			NA	
Protected Phases		2			2			1 3			1 3	
Permitted Phases												
Actuated Green, G (s)					200.0			2996.0			2996.0	
Effective Green, g (s)					200.0			2996.0			2996.0	
Actuated g/C Ratio					0.06			0.94			0.94	
Clearance Time (s)					2.0							
Lane Grp Cap (vph)					118			2991			2913	
v/s Ratio Prot					c0.01			c0.44			0.29	
v/s Ratio Perm												
v/c Ratio					0.17			0.47			0.31	
Uniform Delay, d1					1421.3			11.7			9.1	
Progression Factor					1.00			1.00			1.00	
Incremental Delay, d2					3.1			0.5			0.3	
Delay (s)					1424.4			12.2			9.4	
Level of Service					F			B			A	
Approach Delay (s)		0.0			1424.4			12.2			9.4	
Approach LOS		A			F			B			A	

Intersection Summary

HCM 2000 Control Delay	23.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	3200.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	44.7%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

69: Dike Road & Spur Line

10/8/2015

														
Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR		
Lane Configurations		↑			↑			↑			↑			
Volume (vph)	0	20	0	0	20	0	0	44	0	0	66	0		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900		
Total Lost time (s)		2.0			2.0			2.0			2.0			
Lane Util. Factor		1.00			1.00			1.00			1.00			
Frt		1.00			1.00			1.00			1.00			
Flt Protected		1.00			1.00			1.00			1.00			
Satd. Flow (prot)		950			950			1727			1727			
Flt Permitted		1.00			1.00			1.00			1.00			
Satd. Flow (perm)		950			950			1727			1727			
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
Adj. Flow (vph)	0	20	0	0	20	0	0	44	0	0	66	0		
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0		
Lane Group Flow (vph)	0	20	0	0	20	0	0	44	0	0	66	0		
Heavy Vehicles (%)	100%	100%	100%	100%	100%	100%	10%	10%	10%	10%	10%	10%		
Turn Type		NA			NA			NA			NA			
Protected Phases		2			2			1 3			1 3			
Permitted Phases														
Actuated Green, G (s)		367.0			367.0			2829.0			2829.0			
Effective Green, g (s)		367.0			367.0			2829.0			2829.0			
Actuated g/C Ratio		0.11			0.11			0.88			0.88			
Clearance Time (s)		2.0			2.0									
Lane Grp Cap (vph)		108			108			1526			1526			
v/s Ratio Prot		0.02			c0.02			0.03			c0.04			
v/s Ratio Perm														
v/c Ratio		0.19			0.19			0.03			0.04			
Uniform Delay, d1		1281.3			1281.3			22.1			22.4			
Progression Factor		1.00			1.00			1.00			1.00			
Incremental Delay, d2		3.7			3.7			0.0			0.1			
Delay (s)		1285.0			1285.0			22.1			22.4			
Level of Service		F			F			C			C			
Approach Delay (s)		1285.0			1285.0			22.1			22.4			
Approach LOS		F			F			C			C			
Intersection Summary														
HCM 2000 Control Delay			359.0									HCM 2000 Level of Service	F	
HCM 2000 Volume to Capacity ratio			0.06											
Actuated Cycle Length (s)			3200.0								6.0		Sum of lost time (s)	
Intersection Capacity Utilization			13.5%										ICU Level of Service	A
Analysis Period (min)			15											
c	Critical Lane Group													

HCM Signalized Intersection Capacity Analysis

50: Aluminum Access 1/38th Avenue & Spur Line

10/8/2015



Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		↑			↑			↑↑↑			↑	
Volume (vph)	0	0	0	0	20	0	0	89	0	0	45	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					2.0			2.0			2.0	
Lane Util. Factor					1.00			0.91			1.00	
Frt					1.00			1.00			1.00	
Flt Protected					1.00			1.00			1.00	
Satd. Flow (prot)					1900			4590			1863	
Flt Permitted					1.00			1.00			1.00	
Satd. Flow (perm)					1900			4590			1863	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	0	0	0	0	20	0	0	91	0	0	46	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	20	0	0	91	0	0	46	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	13%	13%	13%	2%	2%	2%
Turn Type					NA			NA			NA	
Protected Phases		2			2			1 3			1 3	
Permitted Phases												
Actuated Green, G (s)					961.0			2235.0			2235.0	
Effective Green, g (s)					961.0			2235.0			2235.0	
Actuated g/C Ratio					0.30			0.70			0.70	
Clearance Time (s)					2.0							
Lane Grp Cap (vph)					570			3205			1301	
v/s Ratio Prot					c0.01			0.02			c0.02	
v/s Ratio Perm												
v/c Ratio					0.04			0.03			0.04	
Uniform Delay, d1					791.6			148.4			149.2	
Progression Factor					0.24			1.00			1.00	
Incremental Delay, d2					0.1			0.0			0.1	
Delay (s)					187.9			148.5			149.2	
Level of Service					F			F			F	
Approach Delay (s)		0.0			187.9			148.5			149.2	
Approach LOS		A			F			F			F	

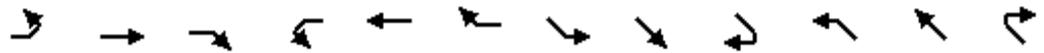
Intersection Summary

HCM 2000 Control Delay	153.7	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	0.04		
Actuated Cycle Length (s)	3200.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

29: Spur Line & Washington Way

10/8/2015



Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations		↑↑↑			↑↑			↑			↑	
Volume (vph)	0	256	0	0	134	0	0	0	0	0	20	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		2.0			2.0						2.0	
Lane Util. Factor		0.91			0.95						1.00	
Frt		1.00			1.00						1.00	
Flt Protected		1.00			1.00						1.00	
Satd. Flow (prot)		4988			3539						1900	
Flt Permitted		1.00			1.00						1.00	
Satd. Flow (perm)		4988			3539						1900	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	284	0	0	149	0	0	0	0	0	20	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	284	0	0	149	0	0	0	0	0	20	0
Heavy Vehicles (%)	4%	4%	4%	2%	2%	2%	0%	0%	0%	0%	0%	0%
Turn Type		NA			NA						NA	
Protected Phases		1 3			1 3			2			2	
Permitted Phases												
Actuated Green, G (s)		2585.0			2585.0						611.0	
Effective Green, g (s)		2585.0			2585.0						611.0	
Actuated g/C Ratio		0.81			0.81						0.19	
Clearance Time (s)											2.0	
Lane Grp Cap (vph)		4029			2858						362	
v/s Ratio Prot		c0.06			0.04						c0.01	
v/s Ratio Perm												
v/c Ratio		0.07			0.05						0.06	
Uniform Delay, d1		62.7			61.7						1058.5	
Progression Factor		1.00			1.00						0.00	
Incremental Delay, d2		0.0			0.0						0.3	
Delay (s)		62.7			61.7						0.4	
Level of Service		E			E						A	
Approach Delay (s)		62.7			61.7			0.0			0.4	
Approach LOS		E			E			A			A	

Intersection Summary

HCM 2000 Control Delay	59.6	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.07		
Actuated Cycle Length (s)	3200.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	14.9%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

31: Weyerhaeuser Access & Spur Line

10/8/2015



Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		↑			↑			↑			↑	
Volume (vph)	0	0	0	0	20	0	0	70	0	0	10	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					2.0			2.0			2.0	
Lane Util. Factor					1.00			1.00			1.00	
Frt					1.00			1.00			1.00	
Flt Protected					1.00			1.00			1.00	
Satd. Flow (prot)					1900			1863			1863	
Flt Permitted					1.00			1.00			1.00	
Satd. Flow (perm)					1900			1863			1863	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	0	0	0	0	20	0	0	79	0	0	11	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	20	0	0	79	0	0	11	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	2%	2%	2%	2%	2%	2%
Turn Type					NA			NA			NA	
Protected Phases		2			2			1 3			1 3	
Permitted Phases												
Actuated Green, G (s)					495.0			2701.0			2701.0	
Effective Green, g (s)					495.0			2701.0			2701.0	
Actuated g/C Ratio					0.15			0.84			0.84	
Clearance Time (s)					2.0							
Lane Grp Cap (vph)					293			1572			1572	
v/s Ratio Prot					c0.01			c0.04			0.01	
v/s Ratio Perm												
v/c Ratio					0.07			0.05			0.01	
Uniform Delay, d1					1155.5			40.6			39.1	
Progression Factor					0.02			1.00			1.00	
Incremental Delay, d2					0.4			0.1			0.0	
Delay (s)					25.7			40.7			39.1	
Level of Service					C			D			D	
Approach Delay (s)		0.0			25.7			40.7			39.1	
Approach LOS		A			C			D			D	

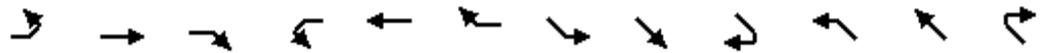
Intersection Summary

HCM 2000 Control Delay	37.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.05		
Actuated Cycle Length (s)	3200.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	13.7%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

10: Industrial Way & Spur Line

10/8/2015



Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations		↑			↑			↑			↑	
Volume (vph)	0	0	0	0	20	0	0	543	0	0	667	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					2.0			2.0			2.0	
Lane Util. Factor					1.00			1.00			1.00	
Frt					1.00			1.00			1.00	
Flt Protected					1.00			1.00			1.00	
Satd. Flow (prot)					1900			1810			1743	
Flt Permitted					1.00			1.00			1.00	
Satd. Flow (perm)					1900			1810			1743	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	20	0	0	590	0	0	725	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	20	0	0	590	0	0	725	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	5%	5%	5%	9%	9%	9%
Turn Type					NA			NA			NA	
Protected Phases		2			2			1 3			1 3	
Permitted Phases												
Actuated Green, G (s)					495.0			2701.0			2701.0	
Effective Green, g (s)					495.0			2701.0			2701.0	
Actuated g/C Ratio					0.15			0.84			0.84	
Clearance Time (s)					2.0							
Lane Grp Cap (vph)					293			1527			1471	
v/s Ratio Prot					c0.01			0.33			c0.42	
v/s Ratio Perm												
v/c Ratio					0.07			0.39			0.49	
Uniform Delay, d1					1155.5			57.7			66.6	
Progression Factor					0.00			1.00			1.00	
Incremental Delay, d2					0.4			0.7			1.2	
Delay (s)					0.6			58.5			67.8	
Level of Service					A			E			E	
Approach Delay (s)		0.0			0.6			58.5			67.8	
Approach LOS		A			A			E			E	
Intersection Summary												
HCM 2000 Control Delay			62.7								HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio			0.43									
Actuated Cycle Length (s)			3200.0								Sum of lost time (s)	6.0
Intersection Capacity Utilization			45.1%								ICU Level of Service	A
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

4: Oregon Way & Spur Line

10/8/2015



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑			↑			↑↑			↑↑	
Volume (vph)	0	0	0	0	20	0	0	1059	0	0	818	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					2.0			2.0			2.0	
Lane Util. Factor					1.00			0.95			0.95	
Frbp, ped/bikes					1.00			1.00			1.00	
Flpb, ped/bikes					1.00			1.00			1.00	
Frt					1.00			1.00			1.00	
Flt Protected					1.00			1.00			1.00	
Satd. Flow (prot)					1900			3539			3539	
Flt Permitted					1.00			1.00			1.00	
Satd. Flow (perm)					1900			3539			3539	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	20	0	0	1151	0	0	889	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	20	0	0	1151	0	0	889	0
Confl. Bikes (#/hr)									766			
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	2%	2%	2%	2%	2%	2%
Turn Type					NA			NA			NA	
Protected Phases		2			2			1 3			1 3	
Permitted Phases												
Actuated Green, G (s)					495.0			2701.0			2701.0	
Effective Green, g (s)					495.0			2701.0			2701.0	
Actuated g/C Ratio					0.15			0.84			0.84	
Clearance Time (s)					2.0							
Lane Grp Cap (vph)					293			2987			2987	
v/s Ratio Prot					c0.01			c0.33			0.25	
v/s Ratio Perm												
v/c Ratio					0.07			0.39			0.30	
Uniform Delay, d1					1155.5			57.7			52.0	
Progression Factor					0.08			1.00			1.00	
Incremental Delay, d2					0.4			0.4			0.3	
Delay (s)					93.6			58.0			52.2	
Level of Service					F			E			D	
Approach Delay (s)		0.0			93.6			58.0			52.2	
Approach LOS		A			F			E			D	

Intersection Summary

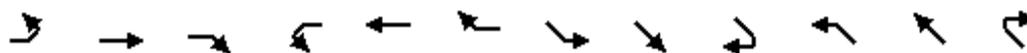
HCM 2000 Control Delay	55.9	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.34		
Actuated Cycle Length (s)	3200.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	39.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

9: California Way & Spur Line

10/8/2015



Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR		
Lane Configurations		↑			↑			↑			↑			
Volume (vph)	0	0	0	0	20	0	0	232	0	0	248	0		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900		
Total Lost time (s)					2.0			2.0			2.0			
Lane Util. Factor					1.00			1.00			1.00			
Frt					1.00			1.00			1.00			
Flt Protected					1.00			1.00			1.00			
Satd. Flow (prot)					1900			1743			1845			
Flt Permitted					1.00			1.00			1.00			
Satd. Flow (perm)					1900			1743			1845			
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	0.93	0.93	0.93	0.93	0.93	0.93		
Adj. Flow (vph)	0	0	0	0	20	0	0	249	0	0	267	0		
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0		
Lane Group Flow (vph)	0	0	0	0	20	0	0	249	0	0	267	0		
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	9%	9%	9%	3%	3%	3%		
Turn Type					NA			NA			NA			
Protected Phases		2			2			1 3			1 3			
Permitted Phases														
Actuated Green, G (s)					611.0			2585.0			2585.0			
Effective Green, g (s)					611.0			2585.0			2585.0			
Actuated g/C Ratio					0.19			0.81			0.81			
Clearance Time (s)					2.0									
Lane Grp Cap (vph)					362			1408			1490			
v/s Ratio Prot					c0.01			0.14			c0.14			
v/s Ratio Perm														
v/c Ratio					0.06			0.18			0.18			
Uniform Delay, d1					1058.5			68.9			69.1			
Progression Factor					0.01			1.00			1.00			
Incremental Delay, d2					0.3			0.3			0.3			
Delay (s)					8.2			69.2			69.4			
Level of Service					A			E			E			
Approach Delay (s)		0.0			8.2			69.2			69.4			
Approach LOS		A			A			E			E			
Intersection Summary														
HCM 2000 Control Delay			67.0									HCM 2000 Level of Service	E	
HCM 2000 Volume to Capacity ratio			0.16											
Actuated Cycle Length (s)			3200.0								6.0		Sum of lost time (s)	
Intersection Capacity Utilization			23.1%										ICU Level of Service	A
Analysis Period (min)			15											
c	Critical Lane Group													

HCM Signalized Intersection Capacity Analysis

22: 3rd Avenue & Spur Line

10/8/2015



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑			↑			↑↑			↑↑	
Volume (vph)	0	0	0	0	20	0	0	1271	0	0	801	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					2.0			2.0			2.0	
Lane Util. Factor					1.00			0.95			0.95	
Frt					1.00			1.00			1.00	
Flt Protected					1.00			1.00			1.00	
Satd. Flow (prot)					1900			3195			3112	
Flt Permitted					1.00			1.00			1.00	
Satd. Flow (perm)					1900			3195			3112	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	0	0	0	0	20	0	0	1428	0	0	900	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	20	0	0	1428	0	0	900	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	13%	13%	13%	16%	16%	16%
Turn Type					NA			NA			NA	
Protected Phases		2			2			1 3			1 3	
Permitted Phases												
Actuated Green, G (s)					611.0			2585.0			2585.0	
Effective Green, g (s)					611.0			2585.0			2585.0	
Actuated g/C Ratio					0.19			0.81			0.81	
Clearance Time (s)					2.0							
Lane Grp Cap (vph)					362			2580			2513	
v/s Ratio Prot					c0.01			c0.45			0.29	
v/s Ratio Perm												
v/c Ratio					0.06			0.55			0.36	
Uniform Delay, d1					1058.5			106.9			83.2	
Progression Factor					1.00			1.00			1.00	
Incremental Delay, d2					0.3			0.9			0.4	
Delay (s)					1058.8			107.8			83.6	
Level of Service					F			F			F	
Approach Delay (s)		0.0			1058.8			107.8			83.6	
Approach LOS		A			F			F			F	

Intersection Summary

HCM 2000 Control Delay	106.6	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	3200.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	45.1%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

69: Dike Road & Spur Line

10/8/2015

													
Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR	
Lane Configurations		↑			↑			↑			↑		
Volume (vph)	0	20	0	0	20	0	0	44	0	0	66	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)		2.0			2.0			2.0			2.0		
Lane Util. Factor		1.00			1.00			1.00			1.00		
Frt		1.00			1.00			1.00			1.00		
Flt Protected		1.00			1.00			1.00			1.00		
Satd. Flow (prot)		950			950			1727			1727		
Flt Permitted		1.00			1.00			1.00			1.00		
Satd. Flow (perm)		950			950			1727			1727		
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Adj. Flow (vph)	0	20	0	0	20	0	0	44	0	0	66	0	
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0	
Lane Group Flow (vph)	0	20	0	0	20	0	0	44	0	0	66	0	
Heavy Vehicles (%)	100%	100%	100%	100%	100%	100%	10%	10%	10%	10%	10%	10%	
Turn Type		NA			NA			NA			NA		
Protected Phases		2			2			1 3			1 3		
Permitted Phases													
Actuated Green, G (s)		495.0			495.0			2701.0			2701.0		
Effective Green, g (s)		495.0			495.0			2701.0			2701.0		
Actuated g/C Ratio		0.15			0.15			0.84			0.84		
Clearance Time (s)		2.0			2.0								
Lane Grp Cap (vph)		146			146			1457			1457		
v/s Ratio Prot		0.02			c0.02			0.03			c0.04		
v/s Ratio Perm													
v/c Ratio		0.14			0.14			0.03			0.05		
Uniform Delay, d1		1168.0			1168.0			39.9			40.5		
Progression Factor		1.00			1.00			1.00			1.00		
Incremental Delay, d2		1.9			1.9			0.0			0.1		
Delay (s)		1170.0			1170.0			40.0			40.5		
Level of Service		F			F			D			D		
Approach Delay (s)		1170.0			1170.0			40.0			40.5		
Approach LOS		F			F			D			D		
Intersection Summary													
HCM 2000 Control Delay			341.5									HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio			0.06										
Actuated Cycle Length (s)			3200.0									Sum of lost time (s)	6.0
Intersection Capacity Utilization			13.5%									ICU Level of Service	A
Analysis Period (min)			15										
c	Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

50: Aluminum Access 1/38th Avenue & Spur Line

10/8/2015



Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		↑			↑			↑↑↑			↑	
Volume (vph)	0	0	0	0	20	0	0	89	0	0	45	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					2.0			2.0			2.0	
Lane Util. Factor					1.00			0.91			1.00	
Frt					1.00			1.00			1.00	
Flt Protected					1.00			1.00			1.00	
Satd. Flow (prot)					1900			4590			1863	
Flt Permitted					1.00			1.00			1.00	
Satd. Flow (perm)					1900			4590			1863	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	0	0	0	0	20	0	0	91	0	0	46	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	20	0	0	91	0	0	46	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	13%	13%	13%	2%	2%	2%
Turn Type					NA			NA			NA	
Protected Phases		2			2			1 3			1 3	
Permitted Phases												
Actuated Green, G (s)					961.0			2235.0			2235.0	
Effective Green, g (s)					961.0			2235.0			2235.0	
Actuated g/C Ratio					0.30			0.70			0.70	
Clearance Time (s)					2.0							
Lane Grp Cap (vph)					570			3205			1301	
v/s Ratio Prot					c0.01			0.02			c0.02	
v/s Ratio Perm												
v/c Ratio					0.04			0.03			0.04	
Uniform Delay, d1					791.6			148.4			149.2	
Progression Factor					0.01			1.00			1.00	
Incremental Delay, d2					0.1			0.0			0.1	
Delay (s)					4.1			148.5			149.2	
Level of Service					A			F			F	
Approach Delay (s)		0.0			4.1			148.5			149.2	
Approach LOS		A			A			F			F	

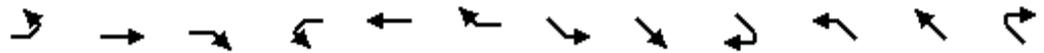
Intersection Summary

HCM 2000 Control Delay	130.3	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	0.04		
Actuated Cycle Length (s)	3200.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

29: Spur Line & Washington Way

10/8/2015



Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations		↑↑↑			↑↑			↑			↑	
Volume (vph)	0	256	0	0	134	0	0	0	0	0	20	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		2.0			2.0						2.0	
Lane Util. Factor		0.91			0.95						1.00	
Frt		1.00			1.00						1.00	
Flt Protected		1.00			1.00						1.00	
Satd. Flow (prot)		4988			3539						1900	
Flt Permitted		1.00			1.00						1.00	
Satd. Flow (perm)		4988			3539						1900	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	284	0	0	149	0	0	0	0	0	20	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	284	0	0	149	0	0	0	0	0	20	0
Heavy Vehicles (%)	4%	4%	4%	2%	2%	2%	0%	0%	0%	0%	0%	0%
Turn Type		NA			NA						NA	
Protected Phases		1 3			1 3			2			2	
Permitted Phases												
Actuated Green, G (s)		2701.0			2701.0						495.0	
Effective Green, g (s)		2701.0			2701.0						495.0	
Actuated g/C Ratio		0.84			0.84						0.15	
Clearance Time (s)											2.0	
Lane Grp Cap (vph)		4210			2987						293	
v/s Ratio Prot		c0.06			0.04						c0.01	
v/s Ratio Perm												
v/c Ratio		0.07			0.05						0.07	
Uniform Delay, d1		41.3			40.6						1155.5	
Progression Factor		1.00			1.00						0.00	
Incremental Delay, d2		0.0			0.0						0.4	
Delay (s)		41.3			40.6						0.4	
Level of Service		D			D						A	
Approach Delay (s)		41.3			40.6			0.0			0.4	
Approach LOS		D			D			A			A	
Intersection Summary												
HCM 2000 Control Delay			39.3				HCM 2000 Level of Service				D	
HCM 2000 Volume to Capacity ratio			0.07									
Actuated Cycle Length (s)			3200.0				Sum of lost time (s)			6.0		
Intersection Capacity Utilization			14.9%				ICU Level of Service			A		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis
 31: Weyerhaeuser Access & Spur Line

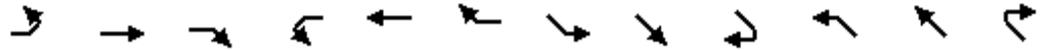
10/8/2015

												
Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		↑			↑			↑			↑	
Volume (vph)	0	0	0	0	20	0	0	70	0	0	10	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					2.0			2.0			2.0	
Lane Util. Factor					1.00			1.00			1.00	
Frt					1.00			1.00			1.00	
Flt Protected					1.00			1.00			1.00	
Satd. Flow (prot)					1900			1863			1863	
Flt Permitted					1.00			1.00			1.00	
Satd. Flow (perm)					1900			1863			1863	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	0	0	0	0	20	0	0	79	0	0	11	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	20	0	0	79	0	0	11	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	2%	2%	2%	2%	2%	2%
Turn Type					NA			NA			NA	
Protected Phases		2			2			1 3			1 3	
Permitted Phases												
Actuated Green, G (s)					339.0			2857.0			2857.0	
Effective Green, g (s)					339.0			2857.0			2857.0	
Actuated g/C Ratio					0.11			0.89			0.89	
Clearance Time (s)					2.0							
Lane Grp Cap (vph)					201			1663			1663	
v/s Ratio Prot					c0.01			c0.04			0.01	
v/s Ratio Perm												
v/c Ratio					0.10			0.05			0.01	
Uniform Delay, d1					1292.6			19.2			18.5	
Progression Factor					2.10			1.00			1.02	
Incremental Delay, d2					1.0			0.1			0.0	
Delay (s)					2721.3			19.3			18.9	
Level of Service					F			B			B	
Approach Delay (s)		0.0			2721.3			19.3			18.9	
Approach LOS		A			F			B			B	
Intersection Summary												
HCM 2000 Control Delay			510.5									F
HCM 2000 Volume to Capacity ratio			0.05									
Actuated Cycle Length (s)			3200.0							6.0		
Intersection Capacity Utilization			13.7%									A
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

10: Industrial Way & Spur Line

10/8/2015

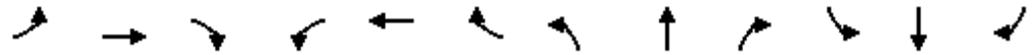


Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR		
Lane Configurations		↑			↑			↑			↑			
Volume (vph)	0	0	0	0	20	0	0	543	0	0	667	0		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900		
Total Lost time (s)					2.0			2.0			2.0			
Lane Util. Factor					1.00			1.00			1.00			
Frt					1.00			1.00			1.00			
Flt Protected					1.00			1.00			1.00			
Satd. Flow (prot)					1900			1810			1743			
Flt Permitted					1.00			1.00			1.00			
Satd. Flow (perm)					1900			1810			1743			
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	0.92	0.92	0.92	0.92	0.92	0.92		
Adj. Flow (vph)	0	0	0	0	20	0	0	590	0	0	725	0		
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0		
Lane Group Flow (vph)	0	0	0	0	20	0	0	590	0	0	725	0		
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	5%	5%	5%	9%	9%	9%		
Turn Type					NA			NA			NA			
Protected Phases		2			2			1 3			1 3			
Permitted Phases														
Actuated Green, G (s)					261.0			2935.0			2935.0			
Effective Green, g (s)					261.0			2935.0			2935.0			
Actuated g/C Ratio					0.08			0.92			0.92			
Clearance Time (s)					2.0									
Lane Grp Cap (vph)					154			1660			1598			
v/s Ratio Prot					c0.01			0.33			c0.42			
v/s Ratio Perm														
v/c Ratio					0.13			0.36			0.45			
Uniform Delay, d1					1364.1			16.3			18.8			
Progression Factor					0.03			1.00			1.00			
Incremental Delay, d2					1.7			0.6			0.9			
Delay (s)					38.3			16.9			19.7			
Level of Service					D			B			B			
Approach Delay (s)		0.0			38.3			16.9			19.7			
Approach LOS		A			D			B			B			
Intersection Summary														
HCM 2000 Control Delay			18.7									HCM 2000 Level of Service	B	
HCM 2000 Volume to Capacity ratio			0.43											
Actuated Cycle Length (s)			3200.0								6.0		Sum of lost time (s)	
Intersection Capacity Utilization			45.1%										ICU Level of Service	A
Analysis Period (min)			15											
c	Critical Lane Group													

HCM Signalized Intersection Capacity Analysis

4: Oregon Way & Spur Line

10/8/2015



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑			↑			↑↑			↑↑	
Volume (vph)	0	0	0	0	20	0	0	1059	0	0	818	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					2.0			2.0			2.0	
Lane Util. Factor					1.00			0.95			0.95	
Frbp, ped/bikes					1.00			1.00			1.00	
Flpb, ped/bikes					1.00			1.00			1.00	
Frt					1.00			1.00			1.00	
Flt Protected					1.00			1.00			1.00	
Satd. Flow (prot)					1900			3539			3539	
Flt Permitted					1.00			1.00			1.00	
Satd. Flow (perm)					1900			3539			3539	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	20	0	0	1151	0	0	889	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	20	0	0	1151	0	0	889	0
Confl. Bikes (#/hr)									766			
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	2%	2%	2%	2%	2%	2%
Turn Type					NA			NA			NA	
Protected Phases		2			2			1 3			1 3	
Permitted Phases												
Actuated Green, G (s)					261.0			2935.0			2935.0	
Effective Green, g (s)					261.0			2935.0			2935.0	
Actuated g/C Ratio					0.08			0.92			0.92	
Clearance Time (s)					2.0							
Lane Grp Cap (vph)					154			3245			3245	
v/s Ratio Prot					c0.01			c0.33			0.25	
v/s Ratio Perm												
v/c Ratio					0.13			0.35			0.27	
Uniform Delay, d1					1364.1			16.3			14.7	
Progression Factor					0.15			1.00			1.00	
Incremental Delay, d2					1.7			0.3			0.2	
Delay (s)					201.2			16.6			14.9	
Level of Service					F			B			B	
Approach Delay (s)		0.0			201.2			16.6			14.9	
Approach LOS		A			F			B			B	

Intersection Summary

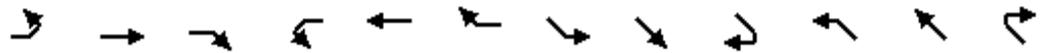
HCM 2000 Control Delay	17.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.34		
Actuated Cycle Length (s)	3200.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	39.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

9: California Way & Spur Line

10/8/2015



Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR	
Lane Configurations		↑			↑			↑			↑		
Volume (vph)	0	0	0	0	20	0	0	232	0	0	248	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)					2.0			2.0			2.0		
Lane Util. Factor					1.00			1.00			1.00		
Frt					1.00			1.00			1.00		
Flt Protected					1.00			1.00			1.00		
Satd. Flow (prot)					1900			1743			1845		
Flt Permitted					1.00			1.00			1.00		
Satd. Flow (perm)					1900			1743			1845		
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	0.93	0.93	0.93	0.93	0.93	0.93	
Adj. Flow (vph)	0	0	0	0	20	0	0	249	0	0	267	0	
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0	
Lane Group Flow (vph)	0	0	0	0	20	0	0	249	0	0	267	0	
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	9%	9%	9%	3%	3%	3%	
Turn Type					NA			NA			NA		
Protected Phases		2			2			1 3			1 3		
Permitted Phases													
Actuated Green, G (s)					339.0			2857.0			2857.0		
Effective Green, g (s)					339.0			2857.0			2857.0		
Actuated g/C Ratio					0.11			0.89			0.89		
Clearance Time (s)					2.0								
Lane Grp Cap (vph)					201			1556			1647		
v/s Ratio Prot					c0.01			0.14			c0.14		
v/s Ratio Perm													
v/c Ratio					0.10			0.16			0.16		
Uniform Delay, d1					1292.6			21.4			21.5		
Progression Factor					0.01			1.00			1.00		
Incremental Delay, d2					1.0			0.2			0.2		
Delay (s)					12.6			21.7			21.7		
Level of Service					B			C			C		
Approach Delay (s)		0.0			12.6			21.7			21.7		
Approach LOS		A			B			C			C		
Intersection Summary													
HCM 2000 Control Delay			21.3									HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			0.16										
Actuated Cycle Length (s)			3200.0									Sum of lost time (s)	6.0
Intersection Capacity Utilization			23.1%									ICU Level of Service	A
Analysis Period (min)			15										
c	Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

22: 3rd Avenue & Spur Line

10/8/2015

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑			↑			↑↑			↑↑	
Volume (vph)	0	0	0	0	20	0	0	1271	0	0	801	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					2.0			2.0			2.0	
Lane Util. Factor					1.00			0.95			0.95	
Frt					1.00			1.00			1.00	
Flt Protected					1.00			1.00			1.00	
Satd. Flow (prot)					1900			3195			3112	
Flt Permitted					1.00			1.00			1.00	
Satd. Flow (perm)					1900			3195			3112	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	0	0	0	0	20	0	0	1428	0	0	900	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	20	0	0	1428	0	0	900	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	13%	13%	13%	16%	16%	16%
Turn Type					NA			NA			NA	
Protected Phases		2			2			1 3			1 3	
Permitted Phases												
Actuated Green, G (s)					339.0			2857.0			2857.0	
Effective Green, g (s)					339.0			2857.0			2857.0	
Actuated g/C Ratio					0.11			0.89			0.89	
Clearance Time (s)					2.0							
Lane Grp Cap (vph)					201			2852			2778	
v/s Ratio Prot					c0.01			c0.45			0.29	
v/s Ratio Perm												
v/c Ratio					0.10			0.50			0.32	
Uniform Delay, d1					1292.6			33.2			25.9	
Progression Factor					1.00			1.00			1.00	
Incremental Delay, d2					1.0			0.6			0.3	
Delay (s)					1293.6			33.9			26.2	
Level of Service					F			C			C	
Approach Delay (s)		0.0			1293.6			33.9			26.2	
Approach LOS		A			F			C			C	
Intersection Summary												
HCM 2000 Control Delay			41.7					HCM 2000 Level of Service			D	
HCM 2000 Volume to Capacity ratio			0.46									
Actuated Cycle Length (s)			3200.0					Sum of lost time (s)			6.0	
Intersection Capacity Utilization			45.1%					ICU Level of Service			A	
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

69: Dike Road & Spur Line

10/8/2015



Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		↑			↑			↑			↑	
Volume (vph)	0	20	0	0	20	0	0	44	0	0	66	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		2.0			2.0			2.0			2.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		1.00			1.00			1.00			1.00	
Flt Protected		1.00			1.00			1.00			1.00	
Satd. Flow (prot)		950			950			1727			1727	
Flt Permitted		1.00			1.00			1.00			1.00	
Satd. Flow (perm)		950			950			1727			1727	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	20	0	0	20	0	0	44	0	0	66	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	20	0	0	20	0	0	44	0	0	66	0
Heavy Vehicles (%)	100%	100%	100%	100%	100%	100%	10%	10%	10%	10%	10%	10%
Turn Type		NA			NA			NA			NA	
Protected Phases		2			2			1 3			1 3	
Permitted Phases												
Actuated Green, G (s)		495.0			495.0			2701.0			2701.0	
Effective Green, g (s)		495.0			495.0			2701.0			2701.0	
Actuated g/C Ratio		0.15			0.15			0.84			0.84	
Clearance Time (s)		2.0			2.0							
Lane Grp Cap (vph)		146			146			1457			1457	
v/s Ratio Prot		0.02			c0.02			0.03			c0.04	
v/s Ratio Perm												
v/c Ratio		0.14			0.14			0.03			0.05	
Uniform Delay, d1		1168.0			1168.0			39.9			40.5	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		1.9			1.9			0.0			0.1	
Delay (s)		1170.0			1170.0			40.0			40.5	
Level of Service		F			F			D			D	
Approach Delay (s)		1170.0			1170.0			40.0			40.5	
Approach LOS		F			F			D			D	

Intersection Summary

HCM 2000 Control Delay	341.5	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	0.06		
Actuated Cycle Length (s)	3200.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	13.5%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

49: 38th Avenue & Industrial Way

10/8/2015



Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations	↖	↗	↘	↖	↗	↘	↖	↗	↘	↖	↗	↘
Volume (vph)	21	187	2	43	333	118	4	16	69	44	0	28
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	3.9	4.0		4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00		0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95		1.00
Satd. Flow (prot)	1641	1727	1468	1752	1845	1568	1597	1681	1429	1805		1615
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95		1.00
Satd. Flow (perm)	1641	1727	1468	1752	1845	1568	1597	1681	1429	1805		1615
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	21	191	2	44	340	120	4	16	70	45	0	29
RTOR Reduction (vph)	0	0	1	0	0	0	0	0	65	0	0	26
Lane Group Flow (vph)	21	191	1	44	340	120	4	16	5	45	0	3
Heavy Vehicles (%)	10%	10%	10%	3%	3%	3%	13%	13%	13%	0%	0%	0%
Turn Type	Prot	NA	Perm	Prot	NA	Free	Prot	NA	Perm	Prot		Perm
Protected Phases	1	6		5	2		7	4		3		8
Permitted Phases			6			Free			4			8
Actuated Green, G (s)	0.5	18.2	18.2	1.2	18.9	39.8	0.5	2.9	2.9	1.5		3.9
Effective Green, g (s)	0.5	18.2	18.2	1.2	18.9	39.8	0.5	2.9	3.0	1.5		3.9
Actuated g/C Ratio	0.01	0.46	0.46	0.03	0.47	1.00	0.01	0.07	0.08	0.04		0.10
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0		4.0
Vehicle Extension (s)	0.2	2.1	2.1	0.2	1.9		0.2	0.2	0.2	0.2		0.2
Lane Grp Cap (vph)	20	789	671	52	876	1568	20	122	107	68		158
v/s Ratio Prot	0.01	0.11		c0.03	c0.18		0.00	0.01		c0.02		
v/s Ratio Perm			0.00			c0.08			0.00			0.00
v/c Ratio	1.05	0.24	0.00	0.85	0.39	0.08	0.20	0.13	0.05	0.66		0.02
Uniform Delay, d1	19.6	6.6	5.9	19.2	6.7	0.0	19.5	17.3	17.1	18.9		16.2
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00
Incremental Delay, d2	217.8	0.1	0.0	68.3	0.1	0.1	1.8	0.2	0.1	17.1		0.0
Delay (s)	237.4	6.7	5.9	87.5	6.8	0.1	21.2	17.4	17.1	36.0		16.2
Level of Service	F	A	A	F	A	A	C	B	B	D		B
Approach Delay (s)		29.3			12.3			17.4				28.3
Approach LOS		C			B			B				C

Intersection Summary

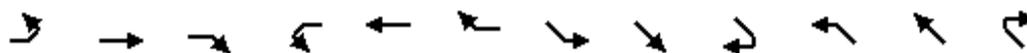
HCM 2000 Control Delay	18.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.42		
Actuated Cycle Length (s)	39.8	Sum of lost time (s)	16.0
Intersection Capacity Utilization	40.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

29: Spur Line & Washington Way

10/8/2015



Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations		↑↑↑			↑↑			↑			↑	
Volume (vph)	0	256	0	0	134	0	0	0	0	0	20	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		2.0			2.0						2.0	
Lane Util. Factor		0.91			0.95						1.00	
Frt		1.00			1.00						1.00	
Flt Protected		1.00			1.00						1.00	
Satd. Flow (prot)		4988			3539						1900	
Flt Permitted		1.00			1.00						1.00	
Satd. Flow (perm)		4988			3539						1900	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	284	0	0	149	0	0	0	0	0	20	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	284	0	0	149	0	0	0	0	0	20	0
Heavy Vehicles (%)	4%	4%	4%	2%	2%	2%	0%	0%	0%	0%	0%	0%
Turn Type		NA			NA						NA	
Protected Phases		1 3			1 3			2			2	
Permitted Phases												
Actuated Green, G (s)		1301.0			1301.0						495.0	
Effective Green, g (s)		1301.0			1301.0						495.0	
Actuated g/C Ratio		0.72			0.72						0.28	
Clearance Time (s)											2.0	
Lane Grp Cap (vph)		3605			2557						522	
v/s Ratio Prot		c0.06			0.04						c0.01	
v/s Ratio Perm												
v/c Ratio		0.08			0.06						0.04	
Uniform Delay, d1		73.3			72.2						478.1	
Progression Factor		1.00			1.00						0.00	
Incremental Delay, d2		0.0			0.0						0.1	
Delay (s)		73.4			72.3						0.1	
Level of Service		E			E						A	
Approach Delay (s)		73.4			72.3			0.0			0.1	
Approach LOS		E			E			A			A	
Intersection Summary												
HCM 2000 Control Delay			69.8				HCM 2000 Level of Service				E	
HCM 2000 Volume to Capacity ratio			0.07									
Actuated Cycle Length (s)			1800.0				Sum of lost time (s)			6.0		
Intersection Capacity Utilization			14.9%				ICU Level of Service			A		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

31: Weyerhaeuser Access & Spur Line

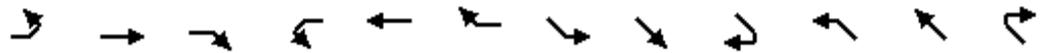
10/8/2015

													
Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR	
Lane Configurations													
Volume (vph)	0	0	0	0	20	0	0	70	0	0	10	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)					2.0			2.0			2.0		
Lane Util. Factor					1.00			1.00			1.00		
Frt					1.00			1.00			1.00		
Flt Protected					1.00			1.00			1.00		
Satd. Flow (prot)					1900			1863			1863		
Flt Permitted					1.00			1.00			1.00		
Satd. Flow (perm)					1900			1863			1863		
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	0.89	0.89	0.89	0.89	0.89	0.89	
Adj. Flow (vph)	0	0	0	0	20	0	0	79	0	0	11	0	
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0	
Lane Group Flow (vph)	0	0	0	0	20	0	0	79	0	0	11	0	
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	2%	2%	2%	2%	2%	2%	
Turn Type					NA			NA			NA		
Protected Phases		2			2			1 3			1 3		
Permitted Phases													
Actuated Green, G (s)					339.0			1457.0			1457.0		
Effective Green, g (s)					339.0			1457.0			1457.0		
Actuated g/C Ratio					0.19			0.81			0.81		
Clearance Time (s)					2.0								
Lane Grp Cap (vph)					357			1507			1507		
v/s Ratio Prot					c0.01			c0.04			0.01		
v/s Ratio Perm													
v/c Ratio					0.06			0.05			0.01		
Uniform Delay, d1					599.2			34.1			32.9		
Progression Factor					2.12			1.00			1.01		
Incremental Delay, d2					0.3			0.1			0.0		
Delay (s)					1271.3			34.2			33.3		
Level of Service					F			C			C		
Approach Delay (s)		0.0			1271.3			34.2			33.3		
Approach LOS		A			F			C			C		
Intersection Summary													
HCM 2000 Control Delay			259.0									HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio			0.05										
Actuated Cycle Length (s)			1800.0									Sum of lost time (s)	6.0
Intersection Capacity Utilization			13.7%									ICU Level of Service	A
Analysis Period (min)			15										
c	Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

10: Industrial Way & Spur Line

10/8/2015



Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations		↑			↑			↑			↑	
Volume (vph)	0	0	0	0	20	0	0	543	0	0	667	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					2.0			2.0			2.0	
Lane Util. Factor					1.00			1.00			1.00	
Frt					1.00			1.00			1.00	
Flt Protected					1.00			1.00			1.00	
Satd. Flow (prot)					1900			1810			1743	
Flt Permitted					1.00			1.00			1.00	
Satd. Flow (perm)					1900			1810			1743	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	20	0	0	590	0	0	725	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	20	0	0	590	0	0	725	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	5%	5%	5%	9%	9%	9%
Turn Type					NA			NA			NA	
Protected Phases		2			2			1 3			1 3	
Permitted Phases												
Actuated Green, G (s)					261.0			1535.0			1535.0	
Effective Green, g (s)					261.0			1535.0			1535.0	
Actuated g/C Ratio					0.14			0.85			0.85	
Clearance Time (s)					2.0							
Lane Grp Cap (vph)					275			1543			1486	
v/s Ratio Prot					c0.01			0.33			c0.42	
v/s Ratio Perm												
v/c Ratio					0.07			0.38			0.49	
Uniform Delay, d1					664.9			28.9			33.4	
Progression Factor					0.05			1.00			1.00	
Incremental Delay, d2					0.5			0.7			1.1	
Delay (s)					34.4			29.7			34.6	
Level of Service					C			C			C	
Approach Delay (s)		0.0			34.4			29.7			34.6	
Approach LOS		A			C			C			C	
Intersection Summary												
HCM 2000 Control Delay			32.4								HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			0.43									
Actuated Cycle Length (s)			1800.0								Sum of lost time (s)	6.0
Intersection Capacity Utilization			45.1%								ICU Level of Service	A
Analysis Period (min)			15									
c	Critical Lane Group											

HCM Signalized Intersection Capacity Analysis

4: Oregon Way & Spur Line

10/8/2015

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑			↑			↑↑			↑↑	
Volume (vph)	0	0	0	0	20	0	0	1059	0	0	818	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					2.0			2.0			2.0	
Lane Util. Factor					1.00			0.95			0.95	
Frbp, ped/bikes					1.00			1.00			1.00	
Flpb, ped/bikes					1.00			1.00			1.00	
Frt					1.00			1.00			1.00	
Flt Protected					1.00			1.00			1.00	
Satd. Flow (prot)					1900			3539			3539	
Flt Permitted					1.00			1.00			1.00	
Satd. Flow (perm)					1900			3539			3539	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	20	0	0	1151	0	0	889	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	20	0	0	1151	0	0	889	0
Confl. Bikes (#/hr)									766			
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	2%	2%	2%	2%	2%	2%
Turn Type					NA			NA			NA	
Protected Phases		2			2			1 3			1 3	
Permitted Phases												
Actuated Green, G (s)					261.0			1535.0			1535.0	
Effective Green, g (s)					261.0			1535.0			1535.0	
Actuated g/C Ratio					0.14			0.85			0.85	
Clearance Time (s)					2.0							
Lane Grp Cap (vph)					275			3017			3017	
v/s Ratio Prot					c0.01			c0.33			0.25	
v/s Ratio Perm												
v/c Ratio					0.07			0.38			0.29	
Uniform Delay, d1					664.9			28.9			26.1	
Progression Factor					0.27			1.00			1.00	
Incremental Delay, d2					0.5			0.4			0.2	
Delay (s)					179.8			29.3			26.3	
Level of Service					F			C			C	
Approach Delay (s)		0.0			179.8			29.3			26.3	
Approach LOS		A			F			C			C	
Intersection Summary												
HCM 2000 Control Delay			29.5					HCM 2000 Level of Service			C	
HCM 2000 Volume to Capacity ratio			0.34									
Actuated Cycle Length (s)			1800.0					Sum of lost time (s)		6.0		
Intersection Capacity Utilization			39.3%					ICU Level of Service		A		
Analysis Period (min)			15									
c	Critical Lane Group											

HCM Signalized Intersection Capacity Analysis

9: California Way & Spur Line

10/8/2015

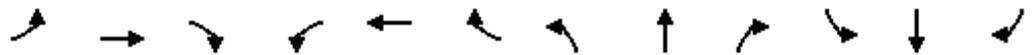


Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR	
Lane Configurations		↑			↑			↑			↑		
Volume (vph)	0	0	0	0	20	0	0	232	0	0	248	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)					2.0			2.0			2.0		
Lane Util. Factor					1.00			1.00			1.00		
Frt					1.00			1.00			1.00		
Flt Protected					1.00			1.00			1.00		
Satd. Flow (prot)					1900			1743			1845		
Flt Permitted					1.00			1.00			1.00		
Satd. Flow (perm)					1900			1743			1845		
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	0.93	0.93	0.93	0.93	0.93	0.93	
Adj. Flow (vph)	0	0	0	0	20	0	0	249	0	0	267	0	
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0	
Lane Group Flow (vph)	0	0	0	0	20	0	0	249	0	0	267	0	
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	9%	9%	9%	3%	3%	3%	
Turn Type					NA			NA			NA		
Protected Phases		2			2			1 3			1 3		
Permitted Phases													
Actuated Green, G (s)					339.0			1457.0			1457.0		
Effective Green, g (s)					339.0			1457.0			1457.0		
Actuated g/C Ratio					0.19			0.81			0.81		
Clearance Time (s)					2.0								
Lane Grp Cap (vph)					357			1410			1493		
v/s Ratio Prot					c0.01			0.14			c0.14		
v/s Ratio Perm													
v/c Ratio					0.06			0.18			0.18		
Uniform Delay, d1					599.2			38.1			38.2		
Progression Factor					0.02			1.00			1.00		
Incremental Delay, d2					0.3			0.3			0.3		
Delay (s)					10.8			38.4			38.5		
Level of Service					B			D			D		
Approach Delay (s)		0.0			10.8			38.4			38.5		
Approach LOS		A			B			D			D		
Intersection Summary													
HCM 2000 Control Delay			37.4									HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio			0.16										
Actuated Cycle Length (s)			1800.0									Sum of lost time (s)	6.0
Intersection Capacity Utilization			23.1%									ICU Level of Service	A
Analysis Period (min)			15										
c Critical Lane Group													

HCM Signalized Intersection Capacity Analysis

22: 3rd Avenue & Spur Line

10/8/2015



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑			↑			↑↑			↑↑	
Volume (vph)	0	0	0	0	20	0	0	1271	0	0	801	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					2.0			2.0			2.0	
Lane Util. Factor					1.00			0.95			0.95	
Frt					1.00			1.00			1.00	
Flt Protected					1.00			1.00			1.00	
Satd. Flow (prot)					1900			3195			3112	
Flt Permitted					1.00			1.00			1.00	
Satd. Flow (perm)					1900			3195			3112	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	0	0	0	0	20	0	0	1428	0	0	900	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	20	0	0	1428	0	0	900	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	13%	13%	13%	16%	16%	16%
Turn Type					NA			NA			NA	
Protected Phases		2			2			1 3			1 3	
Permitted Phases												
Actuated Green, G (s)					339.0			1457.0			1457.0	
Effective Green, g (s)					339.0			1457.0			1457.0	
Actuated g/C Ratio					0.19			0.81			0.81	
Clearance Time (s)					2.0							
Lane Grp Cap (vph)					357			2586			2518	
v/s Ratio Prot					c0.01			c0.45			0.29	
v/s Ratio Perm												
v/c Ratio					0.06			0.55			0.36	
Uniform Delay, d1					599.2			59.1			46.0	
Progression Factor					1.00			1.00			1.00	
Incremental Delay, d2					0.3			0.9			0.4	
Delay (s)					599.5			59.9			46.4	
Level of Service					F			E			D	
Approach Delay (s)		0.0			599.5			59.9			46.4	
Approach LOS		A			F			E			D	
Intersection Summary												
HCM 2000 Control Delay			59.3					HCM 2000 Level of Service			E	
HCM 2000 Volume to Capacity ratio			0.46									
Actuated Cycle Length (s)			1800.0					Sum of lost time (s)			6.0	
Intersection Capacity Utilization			45.1%					ICU Level of Service			A	
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

69: Dike Road & Spur Line

10/8/2015

												
Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		↑			↑			↑			↑	
Volume (vph)	0	20	0	0	20	0	0	44	0	0	66	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		2.0			2.0			2.0			2.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		1.00			1.00			1.00			1.00	
Flt Protected		1.00			1.00			1.00			1.00	
Satd. Flow (prot)		950			950			1727			1727	
Flt Permitted		1.00			1.00			1.00			1.00	
Satd. Flow (perm)		950			950			1727			1727	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	20	0	0	20	0	0	44	0	0	66	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	20	0	0	20	0	0	44	0	0	66	0
Heavy Vehicles (%)	100%	100%	100%	100%	100%	100%	10%	10%	10%	10%	10%	10%
Turn Type		NA			NA			NA			NA	
Protected Phases		2			2			1 3			1 3	
Permitted Phases												
Actuated Green, G (s)		495.0			495.0			1301.0			1301.0	
Effective Green, g (s)		495.0			495.0			1301.0			1301.0	
Actuated g/C Ratio		0.28			0.28			0.72			0.72	
Clearance Time (s)		2.0			2.0							
Lane Grp Cap (vph)		261			261			1248			1248	
v/s Ratio Prot		0.02			c0.02			0.03			c0.04	
v/s Ratio Perm												
v/c Ratio		0.08			0.08			0.04			0.05	
Uniform Delay, d1		483.2			483.2			71.0			71.9	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		0.6			0.6			0.1			0.1	
Delay (s)		483.8			483.8			71.0			72.0	
Level of Service		F			F			E			E	
Approach Delay (s)		483.8			483.8			71.0			72.0	
Approach LOS		F			F			E			E	
Intersection Summary												
HCM 2000 Control Delay		181.5			HCM 2000 Level of Service			F				
HCM 2000 Volume to Capacity ratio		0.06										
Actuated Cycle Length (s)		1800.0			Sum of lost time (s)			6.0				
Intersection Capacity Utilization		13.5%			ICU Level of Service			A				
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

3: Main Line & Taylor Crane Road

10/8/2015

														
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR		
Lane Configurations		↑			↑			↑			↑			
Volume (vph)	0	2	0	0	3	0	0	0	0	0	50	0		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900		
Total Lost time (s)		2.0			2.0						2.0			
Lane Util. Factor		1.00			1.00						1.00			
Frt		1.00			1.00						1.00			
Flt Protected		1.00			1.00						1.00			
Satd. Flow (prot)		1863			1863						1900			
Flt Permitted		1.00			1.00						1.00			
Satd. Flow (perm)		1863			1863						1900			
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	1.00	1.00	1.00	1.00	1.00	1.00		
Adj. Flow (vph)	0	2	0	0	3	0	0	0	0	0	50	0		
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0		
Lane Group Flow (vph)	0	2	0	0	3	0	0	0	0	0	50	0		
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	0%	0%	0%	0%	0%	0%		
Turn Type		NA			NA						NA			
Protected Phases		1 3 5			1 3 5			2 4			2 4			
Permitted Phases														
Actuated Green, G (s)		1638.0			1638.0						154.0			
Effective Green, g (s)		1638.0			1638.0						154.0			
Actuated g/C Ratio		0.91			0.91						0.09			
Clearance Time (s)														
Lane Grp Cap (vph)		1695			1695						162			
v/s Ratio Prot		0.00			c0.00						c0.03			
v/s Ratio Perm														
v/c Ratio		0.00			0.00						0.31			
Uniform Delay, d1		7.3			7.3						773.0			
Progression Factor		1.00			1.00						1.00			
Incremental Delay, d2		0.0			0.0						4.9			
Delay (s)		7.3			7.3						777.9			
Level of Service		A			A						F			
Approach Delay (s)		7.3			7.3			0.0			777.9			
Approach LOS		A			A			A			F			
Intersection Summary														
HCM 2000 Control Delay			707.8									HCM 2000 Level of Service	F	
HCM 2000 Volume to Capacity ratio			0.03											
Actuated Cycle Length (s)			1800.0								10.0		Sum of lost time (s)	
Intersection Capacity Utilization			13.3%										ICU Level of Service	A
Analysis Period (min)			15											
c	Critical Lane Group													

HCM Signalized Intersection Capacity Analysis

3: Main Line & Cowlitz St E/Cowitz St E

10/8/2015



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑			↑			↑			↑	
Volume (vph)	0	48	0	0	72	0	0	0	0	0	50	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		2.0			2.0						2.0	
Lane Util. Factor		1.00			1.00						1.00	
Frt		1.00			1.00						1.00	
Flt Protected		1.00			1.00						1.00	
Satd. Flow (prot)		1863			1863						1900	
Flt Permitted		1.00			1.00						1.00	
Satd. Flow (perm)		1863			1863						1900	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	53	0	0	80	0	0	0	0	0	50	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	53	0	0	80	0	0	0	0	0	50	0
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	0%	0%	0%	0%	0%	0%
Turn Type		NA			NA						NA	
Protected Phases		1 3 5			1 3 5			2 4			2 4	
Permitted Phases												
Actuated Green, G (s)		1638.0			1638.0						154.0	
Effective Green, g (s)		1638.0			1638.0						154.0	
Actuated g/C Ratio		0.91			0.91						0.09	
Clearance Time (s)												
Lane Grp Cap (vph)		1695			1695						162	
v/s Ratio Prot		0.03			c0.04						c0.03	
v/s Ratio Perm												
v/c Ratio		0.03			0.05						0.31	
Uniform Delay, d1		7.5			7.6						773.0	
Progression Factor		1.00			1.00						1.00	
Incremental Delay, d2		0.0			0.1						4.9	
Delay (s)		7.5			7.7						777.9	
Level of Service		A			A						F	
Approach Delay (s)		7.5			7.7			0.0			777.9	
Approach LOS		A			A			A			F	

Intersection Summary

HCM 2000 Control Delay	218.1	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	0.07		
Actuated Cycle Length (s)	1800.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	13.8%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

20: Main Line & Cowlitz Gardens Rd

10/8/2015

														
Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR		
Lane Configurations														
Volume (vph)	0	0	0	0	50	0	0	28	0	0	42	0		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900		
Total Lost time (s)					2.0			2.0			2.0			
Lane Util. Factor					1.00			1.00			1.00			
Frt					1.00			1.00			1.00			
Flt Protected					1.00			1.00			1.00			
Satd. Flow (prot)					1900			1863			1863			
Flt Permitted					1.00			1.00			1.00			
Satd. Flow (perm)					1900			1863			1863			
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	0.90	0.90	0.90	0.90	0.90	0.90		
Adj. Flow (vph)	0	0	0	0	50	0	0	31	0	0	47	0		
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0		
Lane Group Flow (vph)	0	0	0	0	50	0	0	31	0	0	47	0		
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	2%	2%	2%	2%	2%	2%		
Turn Type					NA			NA			NA			
Protected Phases		2 4			2 4			1 3 5			1 3 5			
Permitted Phases														
Actuated Green, G (s)					135.0			1657.0			1657.0			
Effective Green, g (s)					135.0			1657.0			1657.0			
Actuated g/C Ratio					0.08			0.92			0.92			
Clearance Time (s)														
Lane Grp Cap (vph)					142			1714			1714			
v/s Ratio Prot					c0.03			0.02			c0.03			
v/s Ratio Perm														
v/c Ratio					0.35			0.02			0.03			
Uniform Delay, d1					791.0			5.8			5.8			
Progression Factor					1.00			1.00			1.00			
Incremental Delay, d2					6.7			0.0			0.0			
Delay (s)					797.7			5.8			5.9			
Level of Service					F			A			A			
Approach Delay (s)		0.0			797.7			5.8			5.9			
Approach LOS		A			F			A			A			
Intersection Summary														
HCM 2000 Control Delay			315.1									HCM 2000 Level of Service	F	
HCM 2000 Volume to Capacity ratio			0.05											
Actuated Cycle Length (s)			1800.0								10.0			
Intersection Capacity Utilization			13.3%										ICU Level of Service	A
Analysis Period (min)			15											
c	Critical Lane Group													

HCM Signalized Intersection Capacity Analysis

26: Main Line & Riverside Dr/Mill St

10/8/2015

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑			↑			↑			↑	
Volume (vph)	0	102	0	0	153	0	0	0	0	0	50	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		2.0			2.0						2.0	
Lane Util. Factor		1.00			1.00						1.00	
Frt		1.00			1.00						1.00	
Flt Protected		1.00			1.00						1.00	
Satd. Flow (prot)		1863			1863						1900	
Flt Permitted		1.00			1.00						1.00	
Satd. Flow (perm)		1863			1863						1900	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	113	0	0	170	0	0	0	0	0	50	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	113	0	0	170	0	0	0	0	0	50	0
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	0%	0%	0%	0%	0%	0%
Turn Type		NA			NA						NA	
Protected Phases		1 3 5			1 3 5			2 4			2 4	
Permitted Phases												
Actuated Green, G (s)		1614.0			1614.0						178.0	
Effective Green, g (s)		1614.0			1614.0						178.0	
Actuated g/C Ratio		0.90			0.90						0.10	
Clearance Time (s)												
Lane Grp Cap (vph)		1670			1670						187	
v/s Ratio Prot		0.06			c0.09						c0.03	
v/s Ratio Perm												
v/c Ratio		0.07			0.10						0.27	
Uniform Delay, d1		10.2			10.6						750.6	
Progression Factor		1.00			1.00						1.00	
Incremental Delay, d2		0.1			0.1						3.5	
Delay (s)		10.3			10.7						754.1	
Level of Service		B			B						F	
Approach Delay (s)		10.3			10.7			0.0			754.1	
Approach LOS		B			B			A			F	
Intersection Summary												
HCM 2000 Control Delay			122.2									F
HCM 2000 Volume to Capacity ratio			0.12									
Actuated Cycle Length (s)			1800.0							10.0		
Intersection Capacity Utilization			18.1%									A
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

28: Main Line & River Rd

10/8/2015

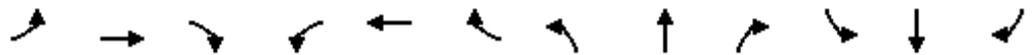


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		↑			↑			↑			↑		
Volume (vph)	0	74	0	0	111	0	0	0	0	0	50	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)		2.0			2.0						2.0		
Lane Util. Factor		1.00			1.00						1.00		
Frt		1.00			1.00						1.00		
Flt Protected		1.00			1.00						1.00		
Satd. Flow (prot)		1863			1863						1900		
Flt Permitted		1.00			1.00						1.00		
Satd. Flow (perm)		1863			1863						1900		
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	1.00	1.00	1.00	1.00	1.00	1.00	
Adj. Flow (vph)	0	82	0	0	123	0	0	0	0	0	50	0	
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0	
Lane Group Flow (vph)	0	82	0	0	123	0	0	0	0	0	50	0	
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	0%	0%	0%	0%	0%	0%	
Turn Type		NA			NA						NA		
Protected Phases		1 3 5			1 3 5			2 4			2 4		
Permitted Phases													
Actuated Green, G (s)		1614.0			1614.0						178.0		
Effective Green, g (s)		1614.0			1614.0						178.0		
Actuated g/C Ratio		0.90			0.90						0.10		
Clearance Time (s)													
Lane Grp Cap (vph)		1670			1670						187		
v/s Ratio Prot		0.04			c0.07						c0.03		
v/s Ratio Perm													
v/c Ratio		0.05			0.07						0.27		
Uniform Delay, d1		10.1			10.3						750.6		
Progression Factor		1.00			1.00						0.00		
Incremental Delay, d2		0.1			0.1						3.4		
Delay (s)		10.1			10.4						4.8		
Level of Service		B			B						A		
Approach Delay (s)		10.1			10.4			0.0			4.8		
Approach LOS		B			B			A			A		
Intersection Summary													
HCM 2000 Control Delay			9.2									HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio			0.09										
Actuated Cycle Length (s)			1800.0									Sum of lost time (s)	10.0
Intersection Capacity Utilization			15.8%									ICU Level of Service	A
Analysis Period (min)			15										
c Critical Lane Group													

HCM Signalized Intersection Capacity Analysis

47: Main Line & Port Rd

10/8/2015



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑			↑			↑			↑	
Volume (vph)	0	48	0	0	72	0	0	0	0	0	50	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		2.0			2.0						2.0	
Lane Util. Factor		1.00			1.00						1.00	
Frt		1.00			1.00						1.00	
Flt Protected		1.00			1.00						1.00	
Satd. Flow (prot)		1863			1863						1900	
Flt Permitted		1.00			1.00						1.00	
Satd. Flow (perm)		1863			1863						1900	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	53	0	0	80	0	0	0	0	0	50	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	53	0	0	80	0	0	0	0	0	50	0
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	0%	0%	0%	0%	0%	0%
Turn Type		NA			NA						NA	
Protected Phases		1 3 5			1 3 5			2 4			2 4	
Permitted Phases												
Actuated Green, G (s)		1657.0			1657.0						135.0	
Effective Green, g (s)		1657.0			1657.0						135.0	
Actuated g/C Ratio		0.92			0.92						0.08	
Clearance Time (s)												
Lane Grp Cap (vph)		1714			1714						142	
v/s Ratio Prot		0.03			c0.04						c0.03	
v/s Ratio Perm												
v/c Ratio		0.03			0.05						0.35	
Uniform Delay, d1		5.8			5.9						791.0	
Progression Factor		1.00			1.00						1.00	
Incremental Delay, d2		0.0			0.1						6.7	
Delay (s)		5.9			6.0						797.7	
Level of Service		A			A						F	
Approach Delay (s)		5.9			6.0			0.0			797.7	
Approach LOS		A			A			A			F	

Intersection Summary

HCM 2000 Control Delay	222.3	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	0.07		
Actuated Cycle Length (s)	1800.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	13.8%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

51: Main Line & Scott Ave

10/8/2015



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑			↑			↑			↑	
Volume (vph)	0	88	0	0	177	0	0	0	0	0	50	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		2.0			2.0						2.0	
Lane Util. Factor		1.00			1.00						1.00	
Frt		1.00			1.00						1.00	
Flt Protected		1.00			1.00						1.00	
Satd. Flow (prot)		1776			1759						1900	
Flt Permitted		1.00			1.00						1.00	
Satd. Flow (perm)		1776			1759						1900	
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	104	0	0	208	0	0	0	0	0	50	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	104	0	0	208	0	0	0	0	0	50	0
Heavy Vehicles (%)	7%	7%	7%	8%	8%	8%	0%	0%	0%	0%	0%	0%
Turn Type		NA			NA						NA	
Protected Phases		1 3 5			1 3 5			2 4			2 4	
Permitted Phases												
Actuated Green, G (s)		1657.0			1657.0						135.0	
Effective Green, g (s)		1657.0			1657.0						135.0	
Actuated g/C Ratio		0.92			0.92						0.08	
Clearance Time (s)												
Lane Grp Cap (vph)		1634			1619						142	
v/s Ratio Prot		0.06			c0.12						c0.03	
v/s Ratio Perm												
v/c Ratio		0.06			0.13						0.35	
Uniform Delay, d1		6.0			6.4						791.0	
Progression Factor		1.00			1.00						1.00	
Incremental Delay, d2		0.1			0.2						6.7	
Delay (s)		6.1			6.6						797.7	
Level of Service		A			A						F	
Approach Delay (s)		6.1			6.6			0.0			797.7	
Approach LOS		A			A			A			F	

Intersection Summary

HCM 2000 Control Delay	115.7	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	0.15		
Actuated Cycle Length (s)	1800.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	19.3%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

54: Main Line & Pekin Rd/Davidson Rd

10/8/2015



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑			↑			↑			↑	
Volume (vph)	0	124	0	0	76	0	0	0	0	0	50	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		2.0			2.0						2.0	
Lane Util. Factor		1.00			1.00						1.00	
Frt		1.00			1.00						1.00	
Flt Protected		1.00			1.00						1.00	
Satd. Flow (prot)		1881			1900						1900	
Flt Permitted		1.00			1.00						1.00	
Satd. Flow (perm)		1881			1900						1900	
Peak-hour factor, PHF	0.86	0.86	0.86	0.86	0.86	0.86	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	144	0	0	88	0	0	0	0	0	50	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	144	0	0	88	0	0	0	0	0	50	0
Heavy Vehicles (%)	1%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type		NA			NA						NA	
Protected Phases		1 3 5			1 3 5			2 4			2 4	
Permitted Phases												
Actuated Green, G (s)		1657.0			1657.0						135.0	
Effective Green, g (s)		1657.0			1657.0						135.0	
Actuated g/C Ratio		0.92			0.92						0.08	
Clearance Time (s)												
Lane Grp Cap (vph)		1731			1749						142	
v/s Ratio Prot		c0.08			0.05						c0.03	
v/s Ratio Perm												
v/c Ratio		0.08			0.05						0.35	
Uniform Delay, d1		6.2			6.0						791.0	
Progression Factor		1.00			1.00						0.86	
Incremental Delay, d2		0.1			0.1						6.4	
Delay (s)		6.2			6.0						687.0	
Level of Service		A			A						F	
Approach Delay (s)		6.2			6.0			0.0			687.0	
Approach LOS		A			A			A			F	

Intersection Summary

HCM 2000 Control Delay	126.9	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	0.10		
Actuated Cycle Length (s)	1800.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	16.5%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

57: Main Line & Whalen Rd

10/8/2015



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑			↑			↑			↑	
Volume (vph)	0	62	0	0	93	0	0	0	0	0	50	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		2.0			2.0						2.0	
Lane Util. Factor		1.00			1.00						1.00	
Frt		1.00			1.00						1.00	
Flt Protected		1.00			1.00						1.00	
Satd. Flow (prot)		1863			1863						1900	
Flt Permitted		1.00			1.00						1.00	
Satd. Flow (perm)		1863			1863						1900	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	69	0	0	103	0	0	0	0	0	50	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	69	0	0	103	0	0	0	0	0	50	0
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	0%	0%	0%	0%	0%	0%
Turn Type		NA			NA						NA	
Protected Phases		1 3 5			1 3 5			2 4			2 4	
Permitted Phases												
Actuated Green, G (s)		1657.0			1657.0						135.0	
Effective Green, g (s)		1657.0			1657.0						135.0	
Actuated g/C Ratio		0.92			0.92						0.08	
Clearance Time (s)												
Lane Grp Cap (vph)		1714			1714						142	
v/s Ratio Prot		0.04			c0.06						c0.03	
v/s Ratio Perm												
v/c Ratio		0.04			0.06						0.35	
Uniform Delay, d1		5.9			6.0						791.0	
Progression Factor		1.00			1.00						0.29	
Incremental Delay, d2		0.0			0.1						6.4	
Delay (s)		5.9			6.1						236.5	
Level of Service		A			A						F	
Approach Delay (s)		5.9			6.1			0.0			236.5	
Approach LOS		A			A			A			F	

Intersection Summary

HCM 2000 Control Delay	57.9	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.08		
Actuated Cycle Length (s)	1800.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	14.9%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

3: Main Line & Taylor Crane Road

10/8/2015



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑			↑			↑			↑	
Volume (vph)	0	2	0	0	3	0	0	0	0	0	50	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		2.0			2.0						2.0	
Lane Util. Factor		1.00			1.00						1.00	
Frt		1.00			1.00						1.00	
Flt Protected		1.00			1.00						1.00	
Satd. Flow (prot)		1863			1863						1900	
Flt Permitted		1.00			1.00						1.00	
Satd. Flow (perm)		1863			1863						1900	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	2	0	0	3	0	0	0	0	0	50	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	2	0	0	3	0	0	0	0	0	50	0
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	0%	0%	0%	0%	0%	0%
Turn Type		NA			NA						NA	
Protected Phases		1 3 5 7			1 3 5 7			4 6			2	
Permitted Phases												
Actuated Green, G (s)		1713.0			1713.0						112.0	
Effective Green, g (s)		1713.0			1713.0						112.0	
Actuated g/C Ratio		0.86			0.86						0.06	
Clearance Time (s)											2.0	
Lane Grp Cap (vph)		1595			1595						106	
v/s Ratio Prot		0.00			c0.00						c0.03	
v/s Ratio Perm												
v/c Ratio		0.00			0.00						0.47	
Uniform Delay, d1		20.6			20.6						915.3	
Progression Factor		1.00			1.00						1.00	
Incremental Delay, d2		0.0			0.0						14.3	
Delay (s)		20.6			20.6						929.6	
Level of Service		C			C						F	
Approach Delay (s)		20.6			20.6			0.0			929.6	
Approach LOS		C			C			A			F	

Intersection Summary

HCM 2000 Control Delay	847.0	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	0.03		
Actuated Cycle Length (s)	2000.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

3: Main Line & Cowlitz St E/Cowitz St E

10/8/2015



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑			↑			↑			↑	
Volume (vph)	0	48	0	0	72	0	0	0	0	0	50	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		2.0			2.0						2.0	
Lane Util. Factor		1.00			1.00						1.00	
Frt		1.00			1.00						1.00	
Flt Protected		1.00			1.00						1.00	
Satd. Flow (prot)		1863			1863						1900	
Flt Permitted		1.00			1.00						1.00	
Satd. Flow (perm)		1863			1863						1900	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	53	0	0	80	0	0	0	0	0	50	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	53	0	0	80	0	0	0	0	0	50	0
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	0%	0%	0%	0%	0%	0%
Turn Type		NA			NA						NA	
Protected Phases		1 3 5 7			1 3 5 7			4 6			2	
Permitted Phases												
Actuated Green, G (s)		1713.0			1713.0						112.0	
Effective Green, g (s)		1713.0			1713.0						112.0	
Actuated g/C Ratio		0.86			0.86						0.06	
Clearance Time (s)											2.0	
Lane Grp Cap (vph)		1595			1595						106	
v/s Ratio Prot		0.03			c0.04						c0.03	
v/s Ratio Perm												
v/c Ratio		0.03			0.05						0.47	
Uniform Delay, d1		21.2			21.5						915.3	
Progression Factor		1.00			1.00						1.00	
Incremental Delay, d2		0.0			0.1						14.3	
Delay (s)		21.2			21.6						929.6	
Level of Service		C			C						F	
Approach Delay (s)		21.2			21.6			0.0			929.6	
Approach LOS		C			C			A			F	

Intersection Summary

HCM 2000 Control Delay	269.6	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	0.07		
Actuated Cycle Length (s)	2000.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	13.8%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

20: Main Line & Cowlitz Gardens Rd

10/8/2015

													
Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR	
Lane Configurations		↑			↑			↑			↑		
Volume (vph)	0	50	0	0	50	0	0	28	0	0	42	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)		2.0			2.0			2.0			2.0		
Lane Util. Factor		1.00			1.00			1.00			1.00		
Frt		1.00			1.00			1.00			1.00		
Flt Protected		1.00			1.00			1.00			1.00		
Satd. Flow (prot)		1900			1900			1863			1863		
Flt Permitted		1.00			1.00			1.00			1.00		
Satd. Flow (perm)		1900			1900			1863			1863		
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	0.90	0.90	0.90	0.90	0.90	0.90	
Adj. Flow (vph)	0	50	0	0	50	0	0	31	0	0	47	0	
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0	
Lane Group Flow (vph)	0	50	0	0	50	0	0	31	0	0	47	0	
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	2%	2%	2%	2%	2%	2%	
Turn Type		NA			NA			NA			NA		
Protected Phases		4 6			2			1 3 5 7			1 3 5 7		
Permitted Phases													
Actuated Green, G (s)		143.0			98.0			1747.0			1747.0		
Effective Green, g (s)		143.0			98.0			1747.0			1747.0		
Actuated g/C Ratio		0.07			0.05			0.87			0.87		
Clearance Time (s)					2.0								
Lane Grp Cap (vph)		135			93			1627			1627		
v/s Ratio Prot		c0.03			c0.03			0.02			c0.03		
v/s Ratio Perm													
v/c Ratio		0.37			0.54			0.02			0.03		
Uniform Delay, d1		885.6			928.9			16.3			16.4		
Progression Factor		1.00			1.00			1.00			1.00		
Incremental Delay, d2		7.6			20.5			0.0			0.0		
Delay (s)		893.2			949.4			16.3			16.4		
Level of Service		F			F			B			B		
Approach Delay (s)		893.2			949.4			16.3			16.4		
Approach LOS		F			F			B			B		
Intersection Summary													
HCM 2000 Control Delay			524.8									HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio			0.08										
Actuated Cycle Length (s)			2000.0									Sum of lost time (s)	14.0
Intersection Capacity Utilization			13.3%									ICU Level of Service	A
Analysis Period (min)			15										
c	Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

26: Main Line & Riverside Dr/Mill St

10/8/2015



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑			↑			↑			↑	
Volume (vph)	0	102	0	0	153	0	0	50	0	0	50	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		2.0			2.0			2.0			2.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		1.00			1.00			1.00			1.00	
Flt Protected		1.00			1.00			1.00			1.00	
Satd. Flow (prot)		1863			1863			1900			1900	
Flt Permitted		1.00			1.00			1.00			1.00	
Satd. Flow (perm)		1863			1863			1900			1900	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	113	0	0	170	0	0	50	0	0	50	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	113	0	0	170	0	0	50	0	0	50	0
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	0%	0%	0%	0%	0%	0%
Turn Type		NA			NA			NA			NA	
Protected Phases		1 3 5 7			1 3 5 7			4 6			2	
Permitted Phases												
Actuated Green, G (s)		1665.0			1665.0			190.0			133.0	
Effective Green, g (s)		1665.0			1665.0			190.0			133.0	
Actuated g/C Ratio		0.83			0.83			0.10			0.07	
Clearance Time (s)											2.0	
Lane Grp Cap (vph)		1550			1550			180			126	
v/s Ratio Prot		0.06			c0.09			c0.03			c0.03	
v/s Ratio Perm												
v/c Ratio		0.07			0.11			0.28			0.40	
Uniform Delay, d1		29.9			30.9			841.2			895.0	
Progression Factor		1.00			1.00			0.00			1.00	
Incremental Delay, d2		0.1			0.1			3.7			9.1	
Delay (s)		30.0			31.0			5.0			904.1	
Level of Service		C			C			A			F	
Approach Delay (s)		30.0			31.0			5.0			904.1	
Approach LOS		C			C			A			F	

Intersection Summary

HCM 2000 Control Delay	141.3	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	0.14		
Actuated Cycle Length (s)	2000.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	18.1%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

28: Main Line & River Rd

10/8/2015



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑			↑			↑			↑	
Volume (vph)	0	74	0	0	111	0	0	50	0	0	50	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		2.0			2.0			2.0			2.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		1.00			1.00			1.00			1.00	
Flt Protected		1.00			1.00			1.00			1.00	
Satd. Flow (prot)		1863			1863			1900			1900	
Flt Permitted		1.00			1.00			1.00			1.00	
Satd. Flow (perm)		1863			1863			1900			1900	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	82	0	0	123	0	0	50	0	0	50	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	82	0	0	123	0	0	50	0	0	50	0
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	0%	0%	0%	0%	0%	0%
Turn Type		NA			NA			NA			NA	
Protected Phases		1 3 5 7			1 3 5 7			4 6			2	
Permitted Phases												
Actuated Green, G (s)		1665.0			1665.0			190.0			133.0	
Effective Green, g (s)		1665.0			1665.0			190.0			133.0	
Actuated g/C Ratio		0.83			0.83			0.10			0.07	
Clearance Time (s)											2.0	
Lane Grp Cap (vph)		1550			1550			180			126	
v/s Ratio Prot		0.04			c0.07			c0.03			c0.03	
v/s Ratio Perm												
v/c Ratio		0.05			0.08			0.28			0.40	
Uniform Delay, d1		29.3			30.0			841.2			895.0	
Progression Factor		1.00			1.00			1.00			0.00	
Incremental Delay, d2		0.1			0.1			3.8			8.5	
Delay (s)		29.4			30.1			845.0			9.5	
Level of Service		C			C			F			A	
Approach Delay (s)		29.4			30.1			845.0			9.5	
Approach LOS		C			C			F			A	

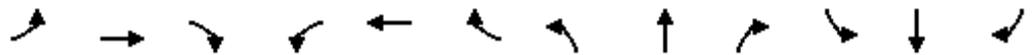
Intersection Summary

HCM 2000 Control Delay	160.2	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	0.12		
Actuated Cycle Length (s)	2000.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	15.8%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

47: Main Line & Port Rd

10/8/2015



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑			↑			↑			↑	
Volume (vph)	0	48	0	0	72	0	0	50	0	0	50	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		2.0			2.0			2.0			2.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		1.00			1.00			1.00			1.00	
Flt Protected		1.00			1.00			1.00			1.00	
Satd. Flow (prot)		1863			1863			1900			1900	
Flt Permitted		1.00			1.00			1.00			1.00	
Satd. Flow (perm)		1863			1863			1900			1900	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	53	0	0	80	0	0	50	0	0	50	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	53	0	0	80	0	0	50	0	0	50	0
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	0%	0%	0%	0%	0%	0%
Turn Type		NA			NA			NA			NA	
Protected Phases		1 3 5 7			1 3 5 7			4 6			2	
Permitted Phases												
Actuated Green, G (s)		1747.0			1747.0			143.0			98.0	
Effective Green, g (s)		1747.0			1747.0			143.0			98.0	
Actuated g/C Ratio		0.87			0.87			0.07			0.05	
Clearance Time (s)											2.0	
Lane Grp Cap (vph)		1627			1627			135			93	
v/s Ratio Prot		0.03			c0.04			c0.03			c0.03	
v/s Ratio Perm												
v/c Ratio		0.03			0.05			0.37			0.54	
Uniform Delay, d1		16.5			16.7			885.6			928.9	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		0.0			0.1			7.6			20.5	
Delay (s)		16.5			16.8			893.2			949.4	
Level of Service		B			B			F			F	
Approach Delay (s)		16.5			16.8			893.2			949.4	
Approach LOS		B			B			F			F	

Intersection Summary

HCM 2000 Control Delay	404.9	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	0.10		
Actuated Cycle Length (s)	2000.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	13.8%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

51: Main Line & Scott Ave

10/8/2015



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑			↑			↑			↑	
Volume (vph)	0	88	0	0	177	0	0	50	0	0	50	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		2.0			2.0			2.0			2.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		1.00			1.00			1.00			1.00	
Flt Protected		1.00			1.00			1.00			1.00	
Satd. Flow (prot)		1776			1759			1900			1900	
Flt Permitted		1.00			1.00			1.00			1.00	
Satd. Flow (perm)		1776			1759			1900			1900	
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	104	0	0	208	0	0	50	0	0	50	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	104	0	0	208	0	0	50	0	0	50	0
Heavy Vehicles (%)	7%	7%	7%	8%	8%	8%	0%	0%	0%	0%	0%	0%
Turn Type		NA			NA			NA			NA	
Protected Phases		1 3 5 7			1 3 5 7			4 6			2	
Permitted Phases												
Actuated Green, G (s)		1747.0			1747.0			143.0			98.0	
Effective Green, g (s)		1747.0			1747.0			143.0			98.0	
Actuated g/C Ratio		0.87			0.87			0.07			0.05	
Clearance Time (s)											2.0	
Lane Grp Cap (vph)		1551			1536			135			93	
v/s Ratio Prot		0.06			c0.12			c0.03			c0.03	
v/s Ratio Perm												
v/c Ratio		0.07			0.14			0.37			0.54	
Uniform Delay, d1		17.0			18.1			885.6			928.9	
Progression Factor		1.00			1.00			0.01			1.00	
Incremental Delay, d2		0.1			0.2			7.2			20.5	
Delay (s)		17.1			18.3			12.6			949.4	
Level of Service		B			B			B			F	
Approach Delay (s)		17.1			18.3			12.6			949.4	
Approach LOS		B			B			B			F	

Intersection Summary

HCM 2000 Control Delay	130.3	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	0.17		
Actuated Cycle Length (s)	2000.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	19.3%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

54: Main Line & Pekin Rd/Davidson Rd

10/8/2015



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑			↑			↑			↑	
Volume (vph)	0	124	0	0	76	0	0	50	0	0	50	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		2.0			2.0			2.0			2.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		1.00			1.00			1.00			1.00	
Flt Protected		1.00			1.00			1.00			1.00	
Satd. Flow (prot)		1881			1900			1900			1900	
Flt Permitted		1.00			1.00			1.00			1.00	
Satd. Flow (perm)		1881			1900			1900			1900	
Peak-hour factor, PHF	0.86	0.86	0.86	0.86	0.86	0.86	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	144	0	0	88	0	0	50	0	0	50	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	144	0	0	88	0	0	50	0	0	50	0
Heavy Vehicles (%)	1%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type		NA			NA			NA			NA	
Protected Phases		1 3 5 7			1 3 5 7			4 6			2	
Permitted Phases												
Actuated Green, G (s)		1747.0			1747.0			143.0			98.0	
Effective Green, g (s)		1747.0			1747.0			143.0			98.0	
Actuated g/C Ratio		0.87			0.87			0.07			0.05	
Clearance Time (s)											2.0	
Lane Grp Cap (vph)		1643			1659			135			93	
v/s Ratio Prot		c0.08			0.05			c0.03			c0.03	
v/s Ratio Perm												
v/c Ratio		0.09			0.05			0.37			0.54	
Uniform Delay, d1		17.3			16.8			885.6			928.9	
Progression Factor		1.00			1.00			0.02			0.01	
Incremental Delay, d2		0.1			0.1			7.2			17.7	
Delay (s)		17.4			16.8			21.0			28.4	
Level of Service		B			B			C			C	
Approach Delay (s)		17.4			16.8			21.0			28.4	
Approach LOS		B			B			C			C	

Intersection Summary

HCM 2000 Control Delay	19.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.13		
Actuated Cycle Length (s)	2000.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	16.5%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

57: Main Line & Whalen Rd

10/8/2015



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑			↑			↑			↑	
Volume (vph)	0	62	0	0	93	0	0	50	0	0	50	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		2.0			2.0			2.0			2.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		1.00			1.00			1.00			1.00	
Flt Protected		1.00			1.00			1.00			1.00	
Satd. Flow (prot)		1863			1863			1900			1900	
Flt Permitted		1.00			1.00			1.00			1.00	
Satd. Flow (perm)		1863			1863			1900			1900	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	69	0	0	103	0	0	50	0	0	50	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	69	0	0	103	0	0	50	0	0	50	0
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	0%	0%	0%	0%	0%	0%
Turn Type		NA			NA			NA			NA	
Protected Phases		1 3 5 7			1 3 5 7			4 6			2	
Permitted Phases												
Actuated Green, G (s)		1747.0			1747.0			143.0			98.0	
Effective Green, g (s)		1747.0			1747.0			143.0			98.0	
Actuated g/C Ratio		0.87			0.87			0.07			0.05	
Clearance Time (s)											2.0	
Lane Grp Cap (vph)		1627			1627			135			93	
v/s Ratio Prot		0.04			c0.06			c0.03			c0.03	
v/s Ratio Perm												
v/c Ratio		0.04			0.06			0.37			0.54	
Uniform Delay, d1		16.6			16.9			885.6			928.9	
Progression Factor		1.00			1.00			1.00			0.01	
Incremental Delay, d2		0.0			0.1			7.6			17.7	
Delay (s)		16.7			17.0			893.2			28.5	
Level of Service		B			B			F			C	
Approach Delay (s)		16.7			17.0			893.2			28.5	
Approach LOS		B			B			F			C	

Intersection Summary

HCM 2000 Control Delay	180.1	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	0.11		
Actuated Cycle Length (s)	2000.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	14.9%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

3: Main Line & Taylor Crane Road

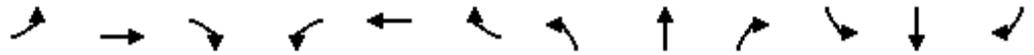
10/8/2015

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑			↑			↑			↑	
Volume (vph)	0	2	0	0	3	0	0	50	0	0	50	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		2.0			2.0			2.0			2.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		1.00			1.00			1.00			1.00	
Flt Protected		1.00			1.00			1.00			1.00	
Satd. Flow (prot)		1863			1863			1900			1900	
Flt Permitted		1.00			1.00			1.00			1.00	
Satd. Flow (perm)		1863			1863			1900			1900	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	2	0	0	3	0	0	50	0	0	50	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	2	0	0	3	0	0	50	0	0	50	0
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	0%	0%	0%	0%	0%	0%
Turn Type		NA			NA			NA			NA	
Protected Phases		1 3 5 7			1 3 5 7			4 6			2	
Permitted Phases												
Actuated Green, G (s)		1722.0			1722.0			154.0			112.0	
Effective Green, g (s)		1722.0			1722.0			154.0			112.0	
Actuated g/C Ratio		0.86			0.86			0.08			0.06	
Clearance Time (s)											2.0	
Lane Grp Cap (vph)		1604			1604			146			106	
v/s Ratio Prot		0.00			c0.00			c0.03			c0.03	
v/s Ratio Perm												
v/c Ratio		0.00			0.00			0.34			0.47	
Uniform Delay, d1		19.3			19.4			875.0			915.3	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		0.0			0.0			6.3			14.3	
Delay (s)		19.3			19.4			881.3			929.6	
Level of Service		B			B			F			F	
Approach Delay (s)		19.3			19.4			881.3			929.6	
Approach LOS		B			B			F			F	
Intersection Summary												
HCM 2000 Control Delay			863.3				HCM 2000 Level of Service				F	
HCM 2000 Volume to Capacity ratio			0.05									
Actuated Cycle Length (s)			2000.0				Sum of lost time (s)			14.0		
Intersection Capacity Utilization			13.3%				ICU Level of Service			A		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

3: Main Line & Cowlitz St E/Cowlitz St E

10/8/2015



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑			↑			↑			↑	
Volume (vph)	0	58	0	0	87	0	0	50	0	0	50	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		2.0			2.0			2.0			2.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		1.00			1.00			1.00			1.00	
Flt Protected		1.00			1.00			1.00			1.00	
Satd. Flow (prot)		1863			1863			1900			1900	
Flt Permitted		1.00			1.00			1.00			1.00	
Satd. Flow (perm)		1863			1863			1900			1900	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	64	0	0	97	0	0	50	0	0	50	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	64	0	0	97	0	0	50	0	0	50	0
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	0%	0%	0%	0%	0%	0%
Turn Type		NA			NA			NA			NA	
Protected Phases		1 3 5 7			1 3 5 7			4 6			2	
Permitted Phases												
Actuated Green, G (s)		1722.0			1722.0			154.0			112.0	
Effective Green, g (s)		1722.0			1722.0			154.0			112.0	
Actuated g/C Ratio		0.86			0.86			0.08			0.06	
Clearance Time (s)											2.0	
Lane Grp Cap (vph)		1604			1604			146			106	
v/s Ratio Prot		0.03			c0.05			c0.03			c0.03	
v/s Ratio Perm												
v/c Ratio		0.04			0.06			0.34			0.47	
Uniform Delay, d1		20.0			20.4			875.0			915.3	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		0.0			0.1			6.3			14.3	
Delay (s)		20.1			20.5			881.3			929.6	
Level of Service		C			C			F			F	
Approach Delay (s)		20.1			20.5			881.3			929.6	
Approach LOS		C			C			F			F	

Intersection Summary

HCM 2000 Control Delay	359.4	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	0.11		
Actuated Cycle Length (s)	2000.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	14.6%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

20: Main Line & Cowlitz Gardens Rd

10/8/2015

												
Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations		↑			↑			↑			↑	
Volume (vph)	0	50	0	0	50	0	0	34	0	0	51	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		2.0			2.0			2.0			2.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		1.00			1.00			1.00			1.00	
Flt Protected		1.00			1.00			1.00			1.00	
Satd. Flow (prot)		1900			1900			1863			1863	
Flt Permitted		1.00			1.00			1.00			1.00	
Satd. Flow (perm)		1900			1900			1863			1863	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	50	0	0	50	0	0	38	0	0	57	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	50	0	0	50	0	0	38	0	0	57	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	2%	2%	2%	2%	2%	2%
Turn Type		NA			NA			NA			NA	
Protected Phases		4 6			2			1 3 5 7			1 3 5 7	
Permitted Phases												
Actuated Green, G (s)		135.0			98.0			1755.0			1755.0	
Effective Green, g (s)		135.0			98.0			1755.0			1755.0	
Actuated g/C Ratio		0.07			0.05			0.88			0.88	
Clearance Time (s)					2.0							
Lane Grp Cap (vph)		128			93			1634			1634	
v/s Ratio Prot		c0.03			c0.03			0.02			c0.03	
v/s Ratio Perm												
v/c Ratio		0.39			0.54			0.02			0.03	
Uniform Delay, d1		893.1			928.9			15.3			15.5	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		8.7			20.5			0.0			0.0	
Delay (s)		901.8			949.4			15.3			15.5	
Level of Service		F			F			B			B	
Approach Delay (s)		901.8			949.4			15.3			15.5	
Approach LOS		F			F			B			B	
Intersection Summary												
HCM 2000 Control Delay			482.2				HCM 2000 Level of Service				F	
HCM 2000 Volume to Capacity ratio			0.08									
Actuated Cycle Length (s)			2000.0				Sum of lost time (s)			14.0		
Intersection Capacity Utilization			13.3%				ICU Level of Service			A		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

26: Main Line & Riverside Dr/Mill St

10/8/2015

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑			↑			↑			↑	
Volume (vph)	0	120	0	0	180	0	0	50	0	0	50	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		2.0			2.0			2.0			2.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		1.00			1.00			1.00			1.00	
Flt Protected		1.00			1.00			1.00			1.00	
Satd. Flow (prot)		1863			1863			1900			1900	
Flt Permitted		1.00			1.00			1.00			1.00	
Satd. Flow (perm)		1863			1863			1900			1900	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	133	0	0	200	0	0	50	0	0	50	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	133	0	0	200	0	0	50	0	0	50	0
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	0%	0%	0%	0%	0%	0%
Turn Type		NA			NA			NA			NA	
Protected Phases		1 3 5 7			1 3 5 7			4 6			2	
Permitted Phases												
Actuated Green, G (s)		1677.0			1677.0			178.0			133.0	
Effective Green, g (s)		1677.0			1677.0			178.0			133.0	
Actuated g/C Ratio		0.84			0.84			0.09			0.07	
Clearance Time (s)											2.0	
Lane Grp Cap (vph)		1562			1562			169			126	
v/s Ratio Prot		0.07			c0.11			c0.03			c0.03	
v/s Ratio Perm												
v/c Ratio		0.09			0.13			0.30			0.40	
Uniform Delay, d1		28.1			29.2			852.4			895.0	
Progression Factor		1.00			1.00			0.00			1.00	
Incremental Delay, d2		0.1			0.2			4.3			9.1	
Delay (s)		28.2			29.4			6.3			904.1	
Level of Service		C			C			A			F	
Approach Delay (s)		28.2			29.4			6.3			904.1	
Approach LOS		C			C			A			F	
Intersection Summary												
HCM 2000 Control Delay			127.4									F
HCM 2000 Volume to Capacity ratio			0.16									
Actuated Cycle Length (s)			2000.0							14.0		
Intersection Capacity Utilization			19.5%									A
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

28: Main Line & River Rd

10/8/2015



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑			↑			↑			↑	
Volume (vph)	0	88	0	0	132	0	0	50	0	0	50	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		2.0			2.0			2.0			2.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		1.00			1.00			1.00			1.00	
Flt Protected		1.00			1.00			1.00			1.00	
Satd. Flow (prot)		1863			1863			1900			1900	
Flt Permitted		1.00			1.00			1.00			1.00	
Satd. Flow (perm)		1863			1863			1900			1900	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	98	0	0	147	0	0	50	0	0	50	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	98	0	0	147	0	0	50	0	0	50	0
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	0%	0%	0%	0%	0%	0%
Turn Type		NA			NA			NA			NA	
Protected Phases		1 3 5 7			1 3 5 7			4 6			2	
Permitted Phases												
Actuated Green, G (s)		1677.0			1677.0			178.0			133.0	
Effective Green, g (s)		1677.0			1677.0			178.0			133.0	
Actuated g/C Ratio		0.84			0.84			0.09			0.07	
Clearance Time (s)											2.0	
Lane Grp Cap (vph)		1562			1562			169			126	
v/s Ratio Prot		0.05			c0.08			c0.03			c0.03	
v/s Ratio Perm												
v/c Ratio		0.06			0.09			0.30			0.40	
Uniform Delay, d1		27.5			28.3			852.4			895.0	
Progression Factor		1.00			1.00			1.00			0.00	
Incremental Delay, d2		0.1			0.1			4.4			8.5	
Delay (s)		27.6			28.4			856.8			9.5	
Level of Service		C			C			F			A	
Approach Delay (s)		27.6			28.4			856.8			9.5	
Approach LOS		C			C			F			A	

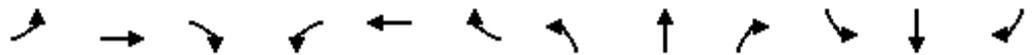
Intersection Summary

HCM 2000 Control Delay	145.5	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	0.13		
Actuated Cycle Length (s)	2000.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	16.9%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

47: Main Line & Port Rd

10/8/2015



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑			↑			↑			↑	
Volume (vph)	0	58	0	0	87	0	0	50	0	0	50	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		2.0			2.0			2.0			2.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		1.00			1.00			1.00			1.00	
Flt Protected		1.00			1.00			1.00			1.00	
Satd. Flow (prot)		1863			1863			1900			1900	
Flt Permitted		1.00			1.00			1.00			1.00	
Satd. Flow (perm)		1863			1863			1900			1900	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	64	0	0	97	0	0	50	0	0	50	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	64	0	0	97	0	0	50	0	0	50	0
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	0%	0%	0%	0%	0%	0%
Turn Type		NA			NA			NA			NA	
Protected Phases		1 3 5 7			1 3 5 7			4 6			2	
Permitted Phases												
Actuated Green, G (s)		1755.0			1755.0			135.0			98.0	
Effective Green, g (s)		1755.0			1755.0			135.0			98.0	
Actuated g/C Ratio		0.88			0.88			0.07			0.05	
Clearance Time (s)											2.0	
Lane Grp Cap (vph)		1634			1634			128			93	
v/s Ratio Prot		0.03			c0.05			c0.03			c0.03	
v/s Ratio Perm												
v/c Ratio		0.04			0.06			0.39			0.54	
Uniform Delay, d1		15.5			15.8			893.1			928.9	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		0.0			0.1			8.7			20.5	
Delay (s)		15.6			15.9			901.8			949.4	
Level of Service		B			B			F			F	
Approach Delay (s)		15.6			15.9			901.8			949.4	
Approach LOS		B			B			F			F	

Intersection Summary

HCM 2000 Control Delay	364.4	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	0.11		
Actuated Cycle Length (s)	2000.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	14.6%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

51: Main Line & Scott Ave

10/8/2015



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑			↑			↑			↑	
Volume (vph)	0	103	0	0	207	0	0	50	0	0	50	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		2.0			2.0			2.0			2.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		1.00			1.00			1.00			1.00	
Flt Protected		1.00			1.00			1.00			1.00	
Satd. Flow (prot)		1776			1759			1900			1900	
Flt Permitted		1.00			1.00			1.00			1.00	
Satd. Flow (perm)		1776			1759			1900			1900	
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	121	0	0	244	0	0	50	0	0	50	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	121	0	0	244	0	0	50	0	0	50	0
Heavy Vehicles (%)	7%	7%	7%	8%	8%	8%	0%	0%	0%	0%	0%	0%
Turn Type		NA			NA			NA			NA	
Protected Phases		1 3 5 7			1 3 5 7			4 6			2	
Permitted Phases												
Actuated Green, G (s)		1755.0			1755.0			135.0			98.0	
Effective Green, g (s)		1755.0			1755.0			135.0			98.0	
Actuated g/C Ratio		0.88			0.88			0.07			0.05	
Clearance Time (s)											2.0	
Lane Grp Cap (vph)		1558			1543			128			93	
v/s Ratio Prot		0.07			c0.14			c0.03			c0.03	
v/s Ratio Perm												
v/c Ratio		0.08			0.16			0.39			0.54	
Uniform Delay, d1		16.1			17.4			893.1			928.9	
Progression Factor		1.00			1.00			0.01			1.00	
Incremental Delay, d2		0.1			0.2			8.2			20.5	
Delay (s)		16.2			17.6			13.6			949.4	
Level of Service		B			B			B			F	
Approach Delay (s)		16.2			17.6			13.6			949.4	
Approach LOS		B			B			B			F	

Intersection Summary

HCM 2000 Control Delay	117.0	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	0.19		
Actuated Cycle Length (s)	2000.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	20.9%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

54: Main Line & Pekin Rd/Davidson Rd

10/8/2015



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑			↑			↑			↑	
Volume (vph)	0	148	0	0	87	0	0	50	0	0	50	0
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		2.0			2.0			2.0			2.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		1.00			1.00			1.00			1.00	
Flt Protected		1.00			1.00			1.00			1.00	
Satd. Flow (prot)		1881			1900			1900			1900	
Flt Permitted		1.00			1.00			1.00			1.00	
Satd. Flow (perm)		1881			1900			1900			1900	
Peak-hour factor, PHF	0.86	0.86	0.86	0.86	0.86	0.86	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	172	0	0	101	0	0	50	0	0	50	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	172	0	0	101	0	0	50	0	0	50	0
Heavy Vehicles (%)	1%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type		NA			NA			NA			NA	
Protected Phases		1 3 5 7			1 3 5 7			4 6			2	
Permitted Phases												
Actuated Green, G (s)		1755.0			1755.0			135.0			98.0	
Effective Green, g (s)		1755.0			1755.0			135.0			98.0	
Actuated g/C Ratio		0.88			0.88			0.07			0.05	
Clearance Time (s)											2.0	
Lane Grp Cap (vph)		1650			1667			128			93	
v/s Ratio Prot		c0.09			0.05			c0.03			c0.03	
v/s Ratio Perm												
v/c Ratio		0.10			0.06			0.39			0.54	
Uniform Delay, d1		16.5			15.8			893.1			928.9	
Progression Factor		1.00			1.00			0.02			0.01	
Incremental Delay, d2		0.1			0.1			8.2			17.7	
Delay (s)		16.6			15.9			21.9			28.4	
Level of Service		B			B			C			C	
Approach Delay (s)		16.6			15.9			21.9			28.4	
Approach LOS		B			B			C			C	

Intersection Summary

HCM 2000 Control Delay	18.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.14		
Actuated Cycle Length (s)	2000.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	17.8%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

57: Main Line & Whalen Rd

10/8/2015



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑			↑			↑			↑	
Volume (vph)	0	72	0	0	108	0	0	50	0	0	50	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		2.0			2.0			2.0			2.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		1.00			1.00			1.00			1.00	
Flt Protected		1.00			1.00			1.00			1.00	
Satd. Flow (prot)		1863			1863			1900			1900	
Flt Permitted		1.00			1.00			1.00			1.00	
Satd. Flow (perm)		1863			1863			1900			1900	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	80	0	0	120	0	0	50	0	0	50	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	80	0	0	120	0	0	50	0	0	50	0
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	0%	0%	0%	0%	0%	0%
Turn Type		NA			NA			NA			NA	
Protected Phases		1 3 5 7			1 3 5 7			4 6			2	
Permitted Phases												
Actuated Green, G (s)		1755.0			1755.0			135.0			98.0	
Effective Green, g (s)		1755.0			1755.0			135.0			98.0	
Actuated g/C Ratio		0.88			0.88			0.07			0.05	
Clearance Time (s)											2.0	
Lane Grp Cap (vph)		1634			1634			128			93	
v/s Ratio Prot		0.04			c0.06			c0.03			c0.03	
v/s Ratio Perm												
v/c Ratio		0.05			0.07			0.39			0.54	
Uniform Delay, d1		15.7			16.0			893.1			928.9	
Progression Factor		1.00			1.00			1.00			0.01	
Incremental Delay, d2		0.1			0.1			8.7			17.7	
Delay (s)		15.7			16.1			901.8			28.5	
Level of Service		B			B			F			C	
Approach Delay (s)		15.7			16.1			901.8			28.5	
Approach LOS		B			B			F			C	

Intersection Summary

HCM 2000 Control Delay	165.7	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	0.12		
Actuated Cycle Length (s)	2000.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	15.7%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

3: Main Line & Taylor Crane Road

10/8/2015

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑			↑			↑			↑	
Volume (vph)	0	2	0	0	3	0	0	50	0	0	50	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		2.0			2.0			2.0			2.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		1.00			1.00			1.00			1.00	
Flt Protected		1.00			1.00			1.00			1.00	
Satd. Flow (prot)		1863			1863			1900			1900	
Flt Permitted		1.00			1.00			1.00			1.00	
Satd. Flow (perm)		1863			1863			1900			1900	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	2	0	0	3	0	0	50	0	0	50	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	2	0	0	3	0	0	50	0	0	50	0
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	0%	0%	0%	0%	0%	0%
Turn Type		NA			NA			NA			NA	
Protected Phases		1 3 5 7			1 3 5 7			4 6			2 8	
Permitted Phases												
Actuated Green, G (s)		1499.0			1499.0			163.0			224.0	
Effective Green, g (s)		1499.0			1499.0			163.0			224.0	
Actuated g/C Ratio		0.79			0.79			0.09			0.12	
Clearance Time (s)												
Lane Grp Cap (vph)		1469			1469			163			224	
v/s Ratio Prot		0.00			c0.00			c0.03			c0.03	
v/s Ratio Perm												
v/c Ratio		0.00			0.00			0.31			0.22	
Uniform Delay, d1		42.4			42.4			815.5			759.2	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		0.0			0.0			4.8			2.3	
Delay (s)		42.4			42.4			820.3			761.5	
Level of Service		D			D			F			F	
Approach Delay (s)		42.4			42.4			820.3			761.5	
Approach LOS		D			D			F			F	
Intersection Summary												
HCM 2000 Control Delay			755.2				HCM 2000 Level of Service				F	
HCM 2000 Volume to Capacity ratio			0.05									
Actuated Cycle Length (s)			1900.0				Sum of lost time (s)			16.0		
Intersection Capacity Utilization			13.3%				ICU Level of Service			A		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

3: Main Line & Cowlitz St E/Cowitz St E

10/8/2015



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑			↑			↑			↑	
Volume (vph)	0	58	0	0	87	0	0	50	0	0	50	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		2.0			2.0			2.0			2.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		1.00			1.00			1.00			1.00	
Flt Protected		1.00			1.00			1.00			1.00	
Satd. Flow (prot)		1863			1863			1900			1900	
Flt Permitted		1.00			1.00			1.00			1.00	
Satd. Flow (perm)		1863			1863			1900			1900	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	64	0	0	97	0	0	50	0	0	50	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	64	0	0	97	0	0	50	0	0	50	0
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	0%	0%	0%	0%	0%	0%
Turn Type		NA			NA			NA			NA	
Protected Phases		1 3 5 7			1 3 5 7			4 6			2 8	
Permitted Phases												
Actuated Green, G (s)		1499.0			1499.0			163.0			224.0	
Effective Green, g (s)		1499.0			1499.0			163.0			224.0	
Actuated g/C Ratio		0.79			0.79			0.09			0.12	
Clearance Time (s)												
Lane Grp Cap (vph)		1469			1469			163			224	
v/s Ratio Prot		0.03			c0.05			c0.03			c0.03	
v/s Ratio Perm												
v/c Ratio		0.04			0.07			0.31			0.22	
Uniform Delay, d1		43.8			44.6			815.5			759.2	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		0.1			0.1			4.8			2.3	
Delay (s)		43.9			44.7			820.3			761.5	
Level of Service		D			D			F			F	
Approach Delay (s)		43.9			44.7			820.3			761.5	
Approach LOS		D			D			F			F	

Intersection Summary

HCM 2000 Control Delay	330.4	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	0.11		
Actuated Cycle Length (s)	1900.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	14.6%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

20: Main Line & Cowlitz Gardens Rd

10/8/2015

												
Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations		↑			↑			↑			↑	
Volume (vph)	0	50	0	0	50	0	0	34	0	0	51	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		2.0			2.0			2.0			2.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		1.00			1.00			1.00			1.00	
Flt Protected		1.00			1.00			1.00			1.00	
Satd. Flow (prot)		1900			1900			1863			1863	
Flt Permitted		1.00			1.00			1.00			1.00	
Satd. Flow (perm)		1900			1900			1863			1863	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	50	0	0	50	0	0	38	0	0	57	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	50	0	0	50	0	0	38	0	0	57	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	2%	2%	2%	2%	2%	2%
Turn Type		NA			NA			NA			NA	
Protected Phases		4 6			2 8			1 3 5 7			1 3 5 7	
Permitted Phases												
Actuated Green, G (s)		143.0			196.0			1547.0			1547.0	
Effective Green, g (s)		143.0			196.0			1547.0			1547.0	
Actuated g/C Ratio		0.08			0.10			0.81			0.81	
Clearance Time (s)												
Lane Grp Cap (vph)		143			196			1516			1516	
v/s Ratio Prot		c0.03			c0.03			0.02			c0.03	
v/s Ratio Perm												
v/c Ratio		0.35			0.26			0.03			0.04	
Uniform Delay, d1		834.3			784.8			33.5			33.8	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		6.6			3.1			0.0			0.0	
Delay (s)		841.0			787.9			33.5			33.9	
Level of Service		F			F			C			C	
Approach Delay (s)		841.0			787.9			33.5			33.9	
Approach LOS		F			F			C			C	
Intersection Summary												
HCM 2000 Control Delay			434.1				HCM 2000 Level of Service				F	
HCM 2000 Volume to Capacity ratio			0.08									
Actuated Cycle Length (s)			1900.0				Sum of lost time (s)			16.0		
Intersection Capacity Utilization			13.3%				ICU Level of Service			A		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis
 26: Main Line & Riverside Dr/Mill St

10/8/2015

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑			↑			↑			↑	
Volume (vph)	0	120	0	0	180	0	0	50	0	0	50	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		2.0			2.0			2.0			2.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		1.00			1.00			1.00			1.00	
Flt Protected		1.00			1.00			1.00			1.00	
Satd. Flow (prot)		1863			1863			1900			1900	
Flt Permitted		1.00			1.00			1.00			1.00	
Satd. Flow (perm)		1863			1863			1900			1900	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	133	0	0	200	0	0	50	0	0	50	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	133	0	0	200	0	0	50	0	0	50	0
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	0%	0%	0%	0%	0%	0%
Turn Type		NA			NA			NA			NA	
Protected Phases		1 3 5 7			1 3 5 7			4 6			2 8	
Permitted Phases												
Actuated Green, G (s)		1430.0			1430.0			190.0			266.0	
Effective Green, g (s)		1430.0			1430.0			190.0			266.0	
Actuated g/C Ratio		0.75			0.75			0.10			0.14	
Clearance Time (s)												
Lane Grp Cap (vph)		1402			1402			190			266	
v/s Ratio Prot		0.07			c0.11			c0.03			c0.03	
v/s Ratio Perm												
v/c Ratio		0.09			0.14			0.26			0.19	
Uniform Delay, d1		62.6			65.1			790.3			721.6	
Progression Factor		1.00			1.00			0.26			1.00	
Incremental Delay, d2		0.1			0.2			3.3			1.6	
Delay (s)		62.7			65.3			210.2			723.2	
Level of Service		E			E			F			F	
Approach Delay (s)		62.7			65.3			210.2			723.2	
Approach LOS		E			E			F			F	
Intersection Summary												
HCM 2000 Control Delay			157.2				HCM 2000 Level of Service				F	
HCM 2000 Volume to Capacity ratio			0.16									
Actuated Cycle Length (s)			1900.0				Sum of lost time (s)			16.0		
Intersection Capacity Utilization			19.5%				ICU Level of Service			A		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

28: Main Line & River Rd

10/8/2015



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑			↑			↑			↑	
Volume (vph)	0	88	0	0	132	0	0	50	0	0	50	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		2.0			2.0			2.0			2.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		1.00			1.00			1.00			1.00	
Flt Protected		1.00			1.00			1.00			1.00	
Satd. Flow (prot)		1863			1863			1900			1900	
Flt Permitted		1.00			1.00			1.00			1.00	
Satd. Flow (perm)		1863			1863			1900			1900	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	98	0	0	147	0	0	50	0	0	50	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	98	0	0	147	0	0	50	0	0	50	0
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	0%	0%	0%	0%	0%	0%
Turn Type		NA			NA			NA			NA	
Protected Phases		1 3 5 7			1 3 5 7			4 6			2 8	
Permitted Phases												
Actuated Green, G (s)		1430.0			1430.0			190.0			266.0	
Effective Green, g (s)		1430.0			1430.0			190.0			266.0	
Actuated g/C Ratio		0.75			0.75			0.10			0.14	
Clearance Time (s)												
Lane Grp Cap (vph)		1402			1402			190			266	
v/s Ratio Prot		0.05			c0.08			c0.03			c0.03	
v/s Ratio Perm												
v/c Ratio		0.07			0.10			0.26			0.19	
Uniform Delay, d1		61.4			63.1			790.3			721.6	
Progression Factor		1.00			1.00			1.00			0.04	
Incremental Delay, d2		0.1			0.2			3.3			1.5	
Delay (s)		61.5			63.3			793.6			31.9	
Level of Service		E			E			F			C	
Approach Delay (s)		61.5			63.3			793.6			31.9	
Approach LOS		E			E			F			C	

Intersection Summary

HCM 2000 Control Delay	164.1	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	0.13		
Actuated Cycle Length (s)	1900.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	16.9%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

47: Main Line & Port Rd

10/8/2015



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑			↑			↑			↑	
Volume (vph)	0	58	0	0	87	0	0	50	0	0	50	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		2.0			2.0			2.0			2.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		1.00			1.00			1.00			1.00	
Flt Protected		1.00			1.00			1.00			1.00	
Satd. Flow (prot)		1863			1863			1900			1900	
Flt Permitted		1.00			1.00			1.00			1.00	
Satd. Flow (perm)		1863			1863			1900			1900	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	64	0	0	97	0	0	50	0	0	50	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	64	0	0	97	0	0	50	0	0	50	0
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	0%	0%	0%	0%	0%	0%
Turn Type		NA			NA			NA			NA	
Protected Phases		1 3 5 7			1 3 5 7			4 6			2 8	
Permitted Phases												
Actuated Green, G (s)		1547.0			1547.0			143.0			196.0	
Effective Green, g (s)		1547.0			1547.0			143.0			196.0	
Actuated g/C Ratio		0.81			0.81			0.08			0.10	
Clearance Time (s)												
Lane Grp Cap (vph)		1516			1516			143			196	
v/s Ratio Prot		0.03			c0.05			c0.03			c0.03	
v/s Ratio Perm												
v/c Ratio		0.04			0.06			0.35			0.26	
Uniform Delay, d1		34.0			34.6			834.3			784.8	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		0.1			0.1			6.6			3.1	
Delay (s)		34.0			34.7			841.0			787.9	
Level of Service		C			C			F			F	
Approach Delay (s)		34.0			34.7			841.0			787.9	
Approach LOS		C			C			F			F	

Intersection Summary

HCM 2000 Control Delay	333.3	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	0.11		
Actuated Cycle Length (s)	1900.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	14.6%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

51: Main Line & Scott Ave

10/8/2015



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑			↑			↑			↑	
Volume (vph)	0	103	0	0	207	0	0	50	0	0	50	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		2.0			2.0			2.0			2.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		1.00			1.00			1.00			1.00	
Flt Protected		1.00			1.00			1.00			1.00	
Satd. Flow (prot)		1776			1759			1900			1900	
Flt Permitted		1.00			1.00			1.00			1.00	
Satd. Flow (perm)		1776			1759			1900			1900	
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	121	0	0	244	0	0	50	0	0	50	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	121	0	0	244	0	0	50	0	0	50	0
Heavy Vehicles (%)	7%	7%	7%	8%	8%	8%	0%	0%	0%	0%	0%	0%
Turn Type		NA			NA			NA			NA	
Protected Phases		1 3 5 7			1 3 5 7			4 6			2 8	
Permitted Phases												
Actuated Green, G (s)		1545.0			1545.0			143.0			196.0	
Effective Green, g (s)		1545.0			1545.0			143.0			196.0	
Actuated g/C Ratio		0.81			0.81			0.08			0.10	
Clearance Time (s)												
Lane Grp Cap (vph)		1444			1430			143			196	
v/s Ratio Prot		0.07			c0.14			c0.03			c0.03	
v/s Ratio Perm												
v/c Ratio		0.08			0.17			0.35			0.26	
Uniform Delay, d1		35.6			38.5			834.3			784.8	
Progression Factor		1.00			1.00			0.00			1.00	
Incremental Delay, d2		0.1			0.3			6.3			3.1	
Delay (s)		35.7			38.8			10.1			787.9	
Level of Service		D			D			B			F	
Approach Delay (s)		35.7			38.8			10.1			787.9	
Approach LOS		D			D			B			F	

Intersection Summary

HCM 2000 Control Delay	115.4	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	0.19		
Actuated Cycle Length (s)	1900.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	20.9%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

54: Main Line & Pekin Rd/Davidson Rd

10/8/2015



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑			↑			↑			↑	
Volume (vph)	0	148	0	0	87	0	0	50	0	0	50	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		2.0			2.0			2.0			2.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		1.00			1.00			1.00			1.00	
Flt Protected		1.00			1.00			1.00			1.00	
Satd. Flow (prot)		1881			1900			1900			1900	
Flt Permitted		1.00			1.00			1.00			1.00	
Satd. Flow (perm)		1881			1900			1900			1900	
Peak-hour factor, PHF	0.86	0.86	0.86	0.86	0.86	0.86	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	172	0	0	101	0	0	50	0	0	50	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	172	0	0	101	0	0	50	0	0	50	0
Heavy Vehicles (%)	1%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type		NA			NA			NA			NA	
Protected Phases		1 3 5 7			1 3 5 7			4 6			2 8	
Permitted Phases												
Actuated Green, G (s)		1545.0			1545.0			143.0			196.0	
Effective Green, g (s)		1545.0			1545.0			143.0			196.0	
Actuated g/C Ratio		0.81			0.81			0.08			0.10	
Clearance Time (s)												
Lane Grp Cap (vph)		1529			1545			143			196	
v/s Ratio Prot		c0.09			0.05			c0.03			c0.03	
v/s Ratio Perm												
v/c Ratio		0.11			0.07			0.35			0.26	
Uniform Delay, d1		36.5			35.0			834.3			784.8	
Progression Factor		1.00			1.00			0.01			0.05	
Incremental Delay, d2		0.1			0.1			6.3			3.1	
Delay (s)		36.7			35.1			14.6			41.1	
Level of Service		D			D			B			D	
Approach Delay (s)		36.7			35.1			14.6			41.1	
Approach LOS		D			D			B			D	

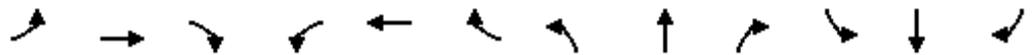
Intersection Summary

HCM 2000 Control Delay	33.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.14		
Actuated Cycle Length (s)	1900.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	17.8%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

57: Main Line & Whalen Rd

10/8/2015



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑			↑			↑			↑	
Volume (vph)	0	72	0	0	108	0	0	50	0	0	50	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		2.0			2.0			2.0			2.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		1.00			1.00			1.00			1.00	
Flt Protected		1.00			1.00			1.00			1.00	
Satd. Flow (prot)		1863			1863			1900			1900	
Flt Permitted		1.00			1.00			1.00			1.00	
Satd. Flow (perm)		1863			1863			1900			1900	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	80	0	0	120	0	0	50	0	0	50	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	80	0	0	120	0	0	50	0	0	50	0
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	0%	0%	0%	0%	0%	0%
Turn Type		NA			NA			NA			NA	
Protected Phases		1 3 5 7			1 3 5 7			4 6			2 8	
Permitted Phases												
Actuated Green, G (s)		1545.0			1545.0			143.0			196.0	
Effective Green, g (s)		1545.0			1545.0			143.0			196.0	
Actuated g/C Ratio		0.81			0.81			0.08			0.10	
Clearance Time (s)												
Lane Grp Cap (vph)		1514			1514			143			196	
v/s Ratio Prot		0.04			c0.06			c0.03			c0.03	
v/s Ratio Perm												
v/c Ratio		0.05			0.08			0.35			0.26	
Uniform Delay, d1		34.7			35.4			834.3			784.8	
Progression Factor		1.00			1.00			1.00			0.62	
Incremental Delay, d2		0.1			0.1			6.6			3.1	
Delay (s)		34.7			35.6			841.0			487.7	
Level of Service		C			D			F			F	
Approach Delay (s)		34.7			35.6			841.0			487.7	
Approach LOS		C			D			F			F	

Intersection Summary

HCM 2000 Control Delay	244.9	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	0.12		
Actuated Cycle Length (s)	1900.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	15.7%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Intersection: 1: Weyerhaeuser & Industrial Way

Movement	SE	NW	NW	NE
Directions Served	TR	L	T	LR
Maximum Queue (ft)	3	54	516	150
Average Queue (ft)	0	10	35	67
95th Queue (ft)	3	37	255	122
Link Distance (ft)	116	745	745	484
Upstream Blk Time (%)			0	
Queuing Penalty (veh)			0	
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 2: Oregon Way & Industrial Way

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	NB
Directions Served	L	T	T	R	L	L	T	R	L	T	T	R
Maximum Queue (ft)	222	253	265	97	297	683	952	78	278	391	616	250
Average Queue (ft)	94	117	115	4	154	201	473	49	140	177	196	137
95th Queue (ft)	179	208	215	51	254	449	894	99	234	306	431	254
Link Distance (ft)		745				1239	1239					2473
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	140		400	400	310			25	235	235		120
Storage Blk Time (%)	6	5			0	0	59	14	1	3	23	6
Queuing Penalty (veh)	23	20			0	1	95	47	4	23	197	50

Intersection: 2: Oregon Way & Industrial Way

Movement	SB	SB	SB
Directions Served	L	T	TR
Maximum Queue (ft)	206	259	257
Average Queue (ft)	64	180	181
95th Queue (ft)	153	274	276
Link Distance (ft)		236	236
Upstream Blk Time (%)	0	5	6
Queuing Penalty (veh)	0	16	18
Storage Bay Dist (ft)	170		
Storage Blk Time (%)	0	16	
Queuing Penalty (veh)	1	9	

Intersection: 4: Oregon Way & Spur Line

Movement	WB	NB	NB	SB	SB
Directions Served	T	T	T	T	T
Maximum Queue (ft)	179	247	246	397	399
Average Queue (ft)	8	17	17	37	36
95th Queue (ft)	71	118	118	195	191
Link Distance (ft)	4581	236	236	702	702
Upstream Blk Time (%)		3	3		
Queuing Penalty (veh)		11	11		
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 5: Oregon Way & Alabama Street

Movement	EB	WB	NB	NB	SB	SB
Directions Served	LTR	LTR	L	TR	L	TR
Maximum Queue (ft)	114	116	77	4	50	17
Average Queue (ft)	47	43	25	0	14	1
95th Queue (ft)	93	85	60	3	41	7
Link Distance (ft)	233	852		702		887
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)			175		165	
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 9: California Way & Spur Line

Movement	WB	SE	NW
Directions Served	T	T	T
Maximum Queue (ft)	137	276	240
Average Queue (ft)	5	16	13
95th Queue (ft)	48	117	102
Link Distance (ft)	464	2581	404
Upstream Blk Time (%)			0
Queuing Penalty (veh)			0
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 10: Industrial Way & Spur Line

Movement	WB	SE	NW
Directions Served	T	T	T
Maximum Queue (ft)	154	554	124
Average Queue (ft)	7	41	11
95th Queue (ft)	64	269	68
Link Distance (ft)	993	2678	116
Upstream Blk Time (%)			3
Queuing Penalty (veh)			19
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 12: Industrial Way & Washington Way

Movement	EB	EB	EB	WB	WB	SE	SE	SE	NW	NW
Directions Served	L	T	R	L	T	L	T	R	L	TR
Maximum Queue (ft)	25	59	42	68	90	90	139	52	198	475
Average Queue (ft)	12	30	10	19	18	26	47	8	31	181
95th Queue (ft)	27	53	29	49	66	68	108	32	110	354
Link Distance (ft)	7	7	7		1347		1220			1630
Upstream Blk Time (%)	16	42	10							
Queuing Penalty (veh)	11	31	7							
Storage Bay Dist (ft)				90		210		25	160	
Storage Blk Time (%)				0	1		9	1		8
Queuing Penalty (veh)				0	1		10	3		3

Intersection: 16: Columbia Ave & Industrial Way

Movement	EB	EB	WB	WB	WB	NB	NB
Directions Served	T	TR	L	T	T	L	R
Maximum Queue (ft)	188	226	74	204	184	120	105
Average Queue (ft)	78	96	13	74	78	55	37
95th Queue (ft)	153	177	48	158	159	100	79
Link Distance (ft)	420	420		379	379	398	
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)			105			130	
Storage Blk Time (%)			0	2		0	0
Queuing Penalty (veh)			0	0		0	0

Intersection: 20: California Way & Industrial Way

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	T	R	L	T	R
Maximum Queue (ft)	269	505	492	79	78	73	55	20	67	164	62	163
Average Queue (ft)	136	174	185	16	20	13	9	1	15	60	3	47
95th Queue (ft)	254	393	385	51	56	46	37	10	49	125	33	104
Link Distance (ft)		843	843		237	237		684			404	
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	150			150			60		60	165		300
Storage Blk Time (%)	11	9					1		1	0		
Queuing Penalty (veh)	53	16					0		0	0		

Intersection: 22: 3rd Avenue & Spur Line

Movement	WB	NB	NB	SB	SB
Directions Served	T	T	T	T	T
Maximum Queue (ft)	324	385	376	502	476
Average Queue (ft)	155	31	30	40	38
95th Queue (ft)	309	195	192	239	227
Link Distance (ft)	2590	370	370	1726	1726
Upstream Blk Time (%)		3	3		
Queuing Penalty (veh)		15	16		
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 24: Industrial Way & Douglas Street

Movement	SE	SW
Directions Served	L	LR
Maximum Queue (ft)	32	45
Average Queue (ft)	3	19
95th Queue (ft)	18	48
Link Distance (ft)		100
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)	195	
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 25: Douglas Street & Alder Street

Movement	NW	NE
Directions Served	LT	LR
Maximum Queue (ft)	7	44
Average Queue (ft)	0	22
95th Queue (ft)	6	50
Link Distance (ft)	681	100
Upstream Blk Time (%)		0
Queuing Penalty (veh)		0
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 29: Spur Line & Washington Way

Movement	EB	EB	EB	WB	WB	NW
Directions Served	T	T	T	T	T	T
Maximum Queue (ft)	114	195	112	21	30	81
Average Queue (ft)	13	38	9	1	2	3
95th Queue (ft)	66	131	50	8	14	32
Link Distance (ft)		674	674	7	7	1681
Upstream Blk Time (%)				4	5	
Queuing Penalty (veh)				2	3	
Storage Bay Dist (ft)	140					
Storage Blk Time (%)	0	4				
Queuing Penalty (veh)	0	3				

Intersection: 31: Weyerhaeuser Access & Spur Line

Movement	NW	NE	SW
Directions Served	T	T	T
Maximum Queue (ft)	126	76	9
Average Queue (ft)	19	9	0
95th Queue (ft)	105	45	6
Link Distance (ft)	5597	313	10
Upstream Blk Time (%)			1
Queuing Penalty (veh)			0
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 33: Weyerhaeuser Access & Industrial Way

Movement	NW	NE
Directions Served	L	LR
Maximum Queue (ft)	22	24
Average Queue (ft)	1	19
95th Queue (ft)	12	33
Link Distance (ft)		10
Upstream Blk Time (%)		9
Queuing Penalty (veh)		5
Storage Bay Dist (ft)	80	
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 37: Weyerhaeuser Access 2 & Industrial Way

Movement	NE
Directions Served	R
Maximum Queue (ft)	33
Average Queue (ft)	11
95th Queue (ft)	35
Link Distance (ft)	26
Upstream Blk Time (%)	1
Queuing Penalty (veh)	0
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 39: Industrial Way & Prudential Blvd

Movement	SE	SE	NW	NW	SW
Directions Served	L	T	T	T	L
Maximum Queue (ft)	14	90	84	64	111
Average Queue (ft)	1	23	28	19	48
95th Queue (ft)	8	64	69	54	87
Link Distance (ft)		2438	513	513	1261
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	170				
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 41: Hoehne Avenue & Industrial Way

Movement	NE
Directions Served	R
Maximum Queue (ft)	32
Average Queue (ft)	10
95th Queue (ft)	35
Link Distance (ft)	26
Upstream Blk Time (%)	1
Queuing Penalty (veh)	0
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 45: International Way & Industrial Way

Movement	EB	EB	WB	WB	WB	NB	NB
Directions Served	T	TR	L	T	T	L	R
Maximum Queue (ft)	213	237	73	225	207	59	122
Average Queue (ft)	85	97	20	74	81	21	52
95th Queue (ft)	175	187	57	167	173	51	96
Link Distance (ft)	746	746		304	304	973	
Upstream Blk Time (%)				0			
Queuing Penalty (veh)				0			
Storage Bay Dist (ft)			150				150
Storage Blk Time (%)				1			0
Queuing Penalty (veh)				0			0

Intersection: 47: Fiber Way & Industrial Way

Movement	EB	EB	WB	WB	WB	NB	NB
Directions Served	T	TR	L	T	T	L	R
Maximum Queue (ft)	236	240	114	238	240	110	195
Average Queue (ft)	142	155	43	85	106	42	99
95th Queue (ft)	237	245	89	189	210	86	166
Link Distance (ft)	208	208		295	295	975	975
Upstream Blk Time (%)	2	3		0	0		
Queuing Penalty (veh)	11	16		0	0		
Storage Bay Dist (ft)			150				
Storage Blk Time (%)			0	1			
Queuing Penalty (veh)			0	1			

Intersection: 48: Industrial Way

Movement	EB	WB	NB	SB
Directions Served	T	T	R	R
Maximum Queue (ft)	4	4	123	73
Average Queue (ft)	0	0	48	22
95th Queue (ft)	0	4	93	58
Link Distance (ft)	1239	420	236	90
Upstream Blk Time (%)				0
Queuing Penalty (veh)				0
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 49: 38th Avenue & Industrial Way

Movement	SE	SE	NW	NW	NE	NE	NE	SW	SW
Directions Served	L	T	L	T	L	T	R	L	R
Maximum Queue (ft)	48	57	23	86	13	58	28	59	45
Average Queue (ft)	12	9	2	21	1	12	2	24	16
95th Queue (ft)	36	33	11	61	7	41	16	52	42
Link Distance (ft)		1112		2438	3	3	3		
Upstream Blk Time (%)					0	3	0		
Queuing Penalty (veh)					0	0	0		
Storage Bay Dist (ft)	115		155					150	200
Storage Blk Time (%)									
Queuing Penalty (veh)									

Intersection: 50: Aluminum Access 1/38th Avenue & Spur Line

Movement	NW	NE	NE	NE	SW
Directions Served	T	T	T	T	T
Maximum Queue (ft)	240	9	49	16	10
Average Queue (ft)	14	0	3	1	0
95th Queue (ft)	101	6	25	12	6
Link Distance (ft)	5784		335		3
Upstream Blk Time (%)					1
Queuing Penalty (veh)					0
Storage Bay Dist (ft)		35		25	
Storage Blk Time (%)		1	4	2	
Queuing Penalty (veh)		0	0	0	

Intersection: 55: Industrial Way

Movement	NB	SB
Directions Served	R	R
Maximum Queue (ft)	48	60
Average Queue (ft)	7	22
95th Queue (ft)	32	53
Link Distance (ft)	99	87
Upstream Blk Time (%)	0	0
Queuing Penalty (veh)	0	0
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 56: Industrial Way & 3rd Avenue

Movement	NW	NW	NE	NE	SW	SW	SW
Directions Served	L	R	T	TR	L	T	T
Maximum Queue (ft)	85	64	233	231	116	376	360
Average Queue (ft)	24	18	55	68	13	158	156
95th Queue (ft)	65	49	157	163	69	306	299
Link Distance (ft)		2710	237	237		370	370
Upstream Blk Time (%)			1	1		2	2
Queuing Penalty (veh)			6	7		6	5
Storage Bay Dist (ft)	175				250		
Storage Blk Time (%)						4	
Queuing Penalty (veh)						0	

Intersection: 59: Industrial Way

Movement	EB	EB	WB	WB	NB
Directions Served	T	T	T	TR	R
Maximum Queue (ft)	138	135	15	13	128
Average Queue (ft)	15	16	1	0	52
95th Queue (ft)	77	76	15	13	99
Link Distance (ft)	304	304	208	208	118
Upstream Blk Time (%)					1
Queuing Penalty (veh)					0
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 61: Industrial Way

Movement	SB	SE
Directions Served	LR	L
Maximum Queue (ft)	104	30
Average Queue (ft)	40	2
95th Queue (ft)	75	15
Link Distance (ft)	1001	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		150
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 64: Industrial Way

Movement	EB	WB	WB	SB
Directions Served	T	T	T	R
Maximum Queue (ft)	14	9	98	37
Average Queue (ft)	0	0	3	13
95th Queue (ft)	10	7	92	39
Link Distance (ft)	295	843	843	88
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 69: Dike Road & Spur Line

Movement	SE	NW	NE	SW
Directions Served	T	T	T	T
Maximum Queue (ft)	559	668	115	198
Average Queue (ft)	268	294	9	18
95th Queue (ft)	563	676	59	111
Link Distance (ft)	2166	1050	476	433
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Network Summary

Network wide Queuing Penalty: 777

Intersection: 1: Weyerhaeuser & Industrial Way

Movement	SE	NW	NW	NE
Directions Served	TR	L	T	LR
Maximum Queue (ft)	44	59	512	194
Average Queue (ft)	3	12	33	66
95th Queue (ft)	23	43	235	141
Link Distance (ft)	116	745	745	484
Upstream Blk Time (%)			0	
Queuing Penalty (veh)			0	
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 2: Oregon Way & Industrial Way

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	NB
Directions Served	L	T	T	R	L	L	T	R	L	T	T	R
Maximum Queue (ft)	237	352	309	108	314	580	827	76	289	401	549	250
Average Queue (ft)	133	159	143	4	160	209	420	51	140	179	197	138
95th Queue (ft)	232	287	258	62	259	488	833	99	237	304	403	251
Link Distance (ft)		745				1239	1239					2473
Upstream Blk Time (%)						0	0					
Queuing Penalty (veh)						0	1					
Storage Bay Dist (ft)	140		400	400	310			25	235	235		120
Storage Blk Time (%)	15	10	0		0	1	59	15	1	3	25	8
Queuing Penalty (veh)	80	50	0		1	1	95	50	7	20	208	62

Intersection: 2: Oregon Way & Industrial Way

Movement	SB	SB	SB
Directions Served	L	T	TR
Maximum Queue (ft)	217	255	272
Average Queue (ft)	59	177	190
95th Queue (ft)	144	270	284
Link Distance (ft)		236	236
Upstream Blk Time (%)	0	4	6
Queuing Penalty (veh)	0	14	20
Storage Bay Dist (ft)	170		
Storage Blk Time (%)	0	13	
Queuing Penalty (veh)	0	8	

Intersection: 4: Oregon Way & Spur Line

Movement	WB	NB	NB	SB	SB
Directions Served	T	T	T	T	T
Maximum Queue (ft)	170	242	243	394	403
Average Queue (ft)	9	17	17	35	39
95th Queue (ft)	68	117	117	200	210
Link Distance (ft)	4581	236	236	702	702
Upstream Blk Time (%)		3	2		
Queuing Penalty (veh)		11	11		
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 5: Oregon Way & Alabama Street

Movement	EB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	LTR	L	T	TR	L	T	TR
Maximum Queue (ft)	122	100	74	4	4	49	4	13
Average Queue (ft)	47	41	23	0	0	13	0	1
95th Queue (ft)	89	79	57	4	3	40	5	6
Link Distance (ft)	233	852		702	702		3090	3090
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)			175			165		
Storage Blk Time (%)								
Queuing Penalty (veh)								

Intersection: 9: California Way & Spur Line

Movement	WB	SE	NW
Directions Served	T	T	T
Maximum Queue (ft)	164	314	221
Average Queue (ft)	6	16	12
95th Queue (ft)	58	125	94
Link Distance (ft)	464	2581	404
Upstream Blk Time (%)			0
Queuing Penalty (veh)			0
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 10: Industrial Way & Spur Line

Movement	WB	SE	NW
Directions Served	T	T	T
Maximum Queue (ft)	149	734	121
Average Queue (ft)	8	53	11
95th Queue (ft)	68	356	65
Link Distance (ft)	993	2678	116
Upstream Blk Time (%)			4
Queuing Penalty (veh)			19
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 12: Industrial Way & Washington Way

Movement	EB	EB	EB	WB	WB	WB	SE	SE	SE	NW	NW
Directions Served	L	T	R	L	T	R	L	T	R	L	TR
Maximum Queue (ft)	48	64	39	72	75	5	199	255	54	211	516
Average Queue (ft)	12	32	10	21	15	0	61	81	9	31	196
95th Queue (ft)	32	55	29	53	49	5	147	186	37	105	379
Link Distance (ft)	7	7	7		1347	1347		1220			1630
Upstream Blk Time (%)	15	52	11								
Queuing Penalty (veh)	11	38	8								
Storage Bay Dist (ft)				90			210		25	160	
Storage Blk Time (%)				0	0		0	15	1		10
Queuing Penalty (veh)				0	0		2	24	4		3

Intersection: 16: Columbia Ave & Industrial Way

Movement	EB	EB	WB	WB	WB	NB	NB
Directions Served	T	TR	L	T	T	L	R
Maximum Queue (ft)	208	240	86	189	196	130	98
Average Queue (ft)	83	101	16	73	80	55	38
95th Queue (ft)	163	186	58	155	160	101	80
Link Distance (ft)	420	420		379	379	398	
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)			105			130	
Storage Blk Time (%)			0	2		0	0
Queuing Penalty (veh)			1	0		0	0

Intersection: 20: California Way & Industrial Way

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	T	R	L	T	R
Maximum Queue (ft)	267	554	569	96	88	87	67	17	61	162	25	155
Average Queue (ft)	127	202	213	18	21	13	12	1	15	56	2	48
95th Queue (ft)	239	422	428	59	62	52	48	10	48	121	15	104
Link Distance (ft)		843	843		237	237		684			404	
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	150			150			60		60	165		300
Storage Blk Time (%)	9	12		0	0		1		0	0		
Queuing Penalty (veh)	43	21		0	0		0		0	0		

Intersection: 22: 3rd Avenue & Spur Line

Movement	WB	NB	NB	SB	SB
Directions Served	T	T	T	T	T
Maximum Queue (ft)	312	377	376	545	562
Average Queue (ft)	149	31	31	46	48
95th Queue (ft)	313	192	192	266	278
Link Distance (ft)	2590	370	370	3244	3244
Upstream Blk Time (%)		3	3		
Queuing Penalty (veh)		18	18		
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 24: Industrial Way & Douglas Street

Movement	SE	SW
Directions Served	L	LR
Maximum Queue (ft)	32	56
Average Queue (ft)	4	21
95th Queue (ft)	21	51
Link Distance (ft)		100
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)	195	
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 25: Douglas Street & Alder Street

Movement	NW	NE
Directions Served	LT	LR
Maximum Queue (ft)	3	44
Average Queue (ft)	0	23
95th Queue (ft)	3	50
Link Distance (ft)	681	100
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 29: Spur Line & Washington Way

Movement	EB	EB	EB	WB	WB	NW
Directions Served	T	T	T	T	T	T
Maximum Queue (ft)	119	216	89	22	32	96
Average Queue (ft)	13	50	9	1	2	6
95th Queue (ft)	71	167	45	9	16	53
Link Distance (ft)		1874	1874	7	7	1681
Upstream Blk Time (%)				5	4	
Queuing Penalty (veh)				3	2	
Storage Bay Dist (ft)	140					
Storage Blk Time (%)	0	6				
Queuing Penalty (veh)	0	4				

Intersection: 31: Weyerhaeuser Access & Spur Line

Movement	NW	NE	SW
Directions Served	T	T	T
Maximum Queue (ft)	146	94	8
Average Queue (ft)	21	11	0
95th Queue (ft)	109	52	5
Link Distance (ft)	5597	313	10
Upstream Blk Time (%)			1
Queuing Penalty (veh)			0
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 33: Weyerhaeuser Access & Industrial Way

Movement	NW	NE
Directions Served	L	LR
Maximum Queue (ft)	30	26
Average Queue (ft)	1	19
95th Queue (ft)	13	33
Link Distance (ft)		10
Upstream Blk Time (%)		11
Queuing Penalty (veh)		7
Storage Bay Dist (ft)	80	
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 37: Weyerhaeuser Access 2 & Industrial Way

Movement	NE
Directions Served	R
Maximum Queue (ft)	35
Average Queue (ft)	12
95th Queue (ft)	37
Link Distance (ft)	26
Upstream Blk Time (%)	1
Queuing Penalty (veh)	0
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 39: Industrial Way & Prudential Blvd

Movement	SE	SE	NW	NW	SW
Directions Served	L	T	T	T	L
Maximum Queue (ft)	12	112	102	79	114
Average Queue (ft)	1	38	32	22	50
95th Queue (ft)	7	89	75	61	89
Link Distance (ft)		2438	513	513	1261
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	170				
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 41: Hoehne Avenue & Industrial Way

Movement	NE
Directions Served	R
Maximum Queue (ft)	35
Average Queue (ft)	10
95th Queue (ft)	35
Link Distance (ft)	26
Upstream Blk Time (%)	1
Queuing Penalty (veh)	0
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 45: International Way & Industrial Way

Movement	EB	EB	WB	WB	WB	NB	NB
Directions Served	T	TR	L	T	T	L	R
Maximum Queue (ft)	224	229	98	214	208	69	113
Average Queue (ft)	89	102	22	78	84	21	51
95th Queue (ft)	188	199	70	174	176	56	91
Link Distance (ft)	746	746		304	304	973	
Upstream Blk Time (%)				0	0		
Queuing Penalty (veh)				0	0		
Storage Bay Dist (ft)			150				150
Storage Blk Time (%)			0	1			0
Queuing Penalty (veh)			0	0			0

Intersection: 47: Fiber Way & Industrial Way

Movement	EB	EB	WB	WB	WB	NB	NB
Directions Served	T	TR	L	T	T	L	R
Maximum Queue (ft)	232	238	148	237	272	124	219
Average Queue (ft)	151	166	50	92	112	41	104
95th Queue (ft)	245	253	110	205	226	94	180
Link Distance (ft)	208	208		295	295	975	975
Upstream Blk Time (%)	3	4		0	0		
Queuing Penalty (veh)	16	22		0	0		
Storage Bay Dist (ft)			150				
Storage Blk Time (%)			0	2			
Queuing Penalty (veh)			1	1			

Intersection: 48: Industrial Way

Movement	WB	WB	NB	SB
Directions Served	T	T	R	R
Maximum Queue (ft)	7	7	126	65
Average Queue (ft)	1	1	49	24
95th Queue (ft)	9	11	95	60
Link Distance (ft)	420	420	236	90
Upstream Blk Time (%)				0
Queuing Penalty (veh)				0
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 49: 38th Avenue & Industrial Way

Movement	SE	SE	NW	NW	NE	NE	NE	SW	SW
Directions Served	L	T	L	T	L	T	R	L	R
Maximum Queue (ft)	46	75	23	93	39	35	85	59	49
Average Queue (ft)	12	14	2	28	5	4	21	25	18
95th Queue (ft)	36	48	12	75	24	20	67	53	45
Link Distance (ft)		2312		2438	3	3	3		
Upstream Blk Time (%)					1	1	9		
Queuing Penalty (veh)					1	1	7		
Storage Bay Dist (ft)	115		155					150	200
Storage Blk Time (%)		0		0					
Queuing Penalty (veh)		0		0					

Intersection: 50: Aluminum Access 1/38th Avenue & Spur Line

Movement	NW	NE	NE	NE	SW
Directions Served	T	T	T	T	T
Maximum Queue (ft)	261	17	1487	83	13
Average Queue (ft)	17	1	845	44	1
95th Queue (ft)	117	12	1947	82	8
Link Distance (ft)	5784		1565		3
Upstream Blk Time (%)			36		1
Queuing Penalty (veh)			0		0
Storage Bay Dist (ft)		35		25	
Storage Blk Time (%)			12	72	
Queuing Penalty (veh)			19	114	

Intersection: 55: Industrial Way

Movement	NB	SB
Directions Served	R	R
Maximum Queue (ft)	45	61
Average Queue (ft)	8	22
95th Queue (ft)	32	52
Link Distance (ft)	99	87
Upstream Blk Time (%)	0	0
Queuing Penalty (veh)	0	0
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 56: Industrial Way & 3rd Avenue

Movement	NW	NW	NE	NE	SW	SW	SW
Directions Served	L	R	T	TR	L	T	T
Maximum Queue (ft)	88	71	245	245	126	368	366
Average Queue (ft)	24	17	67	73	16	154	162
95th Queue (ft)	65	49	170	173	74	301	307
Link Distance (ft)		2710	237	237		370	370
Upstream Blk Time (%)			2	2		2	2
Queuing Penalty (veh)			9	10		6	6
Storage Bay Dist (ft)	175				250		
Storage Blk Time (%)						4	
Queuing Penalty (veh)						0	

Intersection: 59: Industrial Way

Movement	EB	EB	WB	WB	NB
Directions Served	T	T	T	TR	R
Maximum Queue (ft)	174	170	4	6	144
Average Queue (ft)	20	25	0	0	55
95th Queue (ft)	98	103	4	8	115
Link Distance (ft)	304	304	208	208	118
Upstream Blk Time (%)	0				4
Queuing Penalty (veh)	0				0
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 61: Industrial Way

Movement	SB	SE
Directions Served	LR	L
Maximum Queue (ft)	108	30
Average Queue (ft)	44	2
95th Queue (ft)	88	15
Link Distance (ft)	1001	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		150
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 64: Industrial Way

Movement	WB	SB
Directions Served	T	R
Maximum Queue (ft)	8	39
Average Queue (ft)	0	11
95th Queue (ft)	10	36
Link Distance (ft)	843	88
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 69: Dike Road & Spur Line

Movement	SE	NW	NE	SW
Directions Served	T	T	T	T
Maximum Queue (ft)	560	527	101	147
Average Queue (ft)	257	215	8	12
95th Queue (ft)	540	476	51	81
Link Distance (ft)	2167	1049	673	625
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Network Summary

Network wide Queuing Penalty: 1081

Intersection: 1: Weyerhaeuser & Industrial Way

Movement	SE	NW	NW	NE
Directions Served	TR	L	T	LR
Maximum Queue (ft)	29	104	534	293
Average Queue (ft)	2	15	56	92
95th Queue (ft)	14	67	302	247
Link Distance (ft)	116	745	745	484
Upstream Blk Time (%)			0	2
Queuing Penalty (veh)			1	0
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 2: Oregon Way & Industrial Way

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	NB
Directions Served	L	T	T	R	L	L	T	R	L	T	T	R
Maximum Queue (ft)	239	450	370	203	365	1275	1284	78	384	535	3436	250
Average Queue (ft)	136	152	128	13	166	570	809	53	162	240	606	148
95th Queue (ft)	244	338	279	103	310	1369	1526	98	320	450	2236	289
Link Distance (ft)		745				1239	1239				3651	
Upstream Blk Time (%)						6	15					2
Queuing Penalty (veh)						24	64					0
Storage Bay Dist (ft)	140		400	400	310			25	235	235		120
Storage Blk Time (%)	23	7	0		1	3	57	22	4	15	35	10
Queuing Penalty (veh)	105	31	0		2	5	92	73	26	95	294	79

Intersection: 2: Oregon Way & Industrial Way

Movement	SB	SB	SB
Directions Served	L	T	TR
Maximum Queue (ft)	224	263	265
Average Queue (ft)	65	180	186
95th Queue (ft)	163	316	322
Link Distance (ft)		236	236
Upstream Blk Time (%)	0	17	19
Queuing Penalty (veh)	0	56	64
Storage Bay Dist (ft)	170		
Storage Blk Time (%)	0	27	
Queuing Penalty (veh)	1	15	

Intersection: 4: Oregon Way & Spur Line

Movement	WB	NB	NB	SB	SB
Directions Served	T	T	T	T	T
Maximum Queue (ft)	112	246	246	717	718
Average Queue (ft)	7	41	41	210	216
95th Queue (ft)	48	189	190	662	670
Link Distance (ft)	4581	236	236	702	702
Upstream Blk Time (%)		11	11	7	7
Queuing Penalty (veh)		48	50	22	24
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 5: Oregon Way & Alabama Street

Movement	EB	WB	NB	NB	SB	SB	SB
Directions Served	LTR	LTR	L	TR	L	T	TR
Maximum Queue (ft)	150	126	92	13	127	492	509
Average Queue (ft)	53	45	24	0	15	40	44
95th Queue (ft)	120	95	66	8	69	235	250
Link Distance (ft)	233	852		702		3149	3149
Upstream Blk Time (%)	1						
Queuing Penalty (veh)	0						
Storage Bay Dist (ft)			175		165		
Storage Blk Time (%)						4	
Queuing Penalty (veh)						1	

Intersection: 9: California Way & Spur Line

Movement	WB	SE	NW
Directions Served	T	T	T
Maximum Queue (ft)	156	939	315
Average Queue (ft)	6	129	56
95th Queue (ft)	56	600	247
Link Distance (ft)	464	2581	404
Upstream Blk Time (%)			1
Queuing Penalty (veh)			2
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 10: Industrial Way & Spur Line

Movement	WB	SE	NW
Directions Served	T	T	T
Maximum Queue (ft)	103	1950	120
Average Queue (ft)	6	251	19
95th Queue (ft)	50	1216	88
Link Distance (ft)	993	2678	116
Upstream Blk Time (%)			12
Queuing Penalty (veh)			68
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 12: Industrial Way & Washington Way

Movement	EB	EB	EB	WB	WB	SE	SE	SE	NW	NW
Directions Served	L	T	R	L	T	L	T	R	L	TR
Maximum Queue (ft)	34	60	50	137	236	271	416	50	212	574
Average Queue (ft)	11	27	10	25	38	80	96	10	42	214
95th Queue (ft)	29	55	31	78	157	217	319	37	144	562
Link Distance (ft)	7	7	7		1347		1220			1630
Upstream Blk Time (%)	17	47	12							0
Queuing Penalty (veh)	12	34	9							1
Storage Bay Dist (ft)				90		210		25	160	
Storage Blk Time (%)				1	8	4	13	6	3	12
Queuing Penalty (veh)				0	4	15	22	29	15	4

Intersection: 16: Columbia Ave & Industrial Way

Movement	EB	EB	WB	WB	WB	NB	NB
Directions Served	T	TR	L	T	T	L	R
Maximum Queue (ft)	211	240	98	252	264	130	107
Average Queue (ft)	78	100	16	92	99	57	42
95th Queue (ft)	163	196	73	240	247	108	88
Link Distance (ft)	420	420		379	379	398	
Upstream Blk Time (%)				2	2		
Queuing Penalty (veh)				7	7		
Storage Bay Dist (ft)			105			130	
Storage Blk Time (%)				6		0	0
Queuing Penalty (veh)				1		0	0

Intersection: 20: California Way & Industrial Way

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	T	R	L	T	R
Maximum Queue (ft)	275	862	877	77	102	94	74	46	83	201	343	334
Average Queue (ft)	177	490	498	15	17	12	11	2	18	55	18	54
95th Queue (ft)	343	1018	1022	52	62	54	46	25	58	136	148	168
Link Distance (ft)		843	843		237	237		684			404	
Upstream Blk Time (%)		14	15								0	0
Queuing Penalty (veh)		78	81								0	0
Storage Bay Dist (ft)	150			150			60		60	165		300
Storage Blk Time (%)	38	30			0		0	0	3	1		1
Queuing Penalty (veh)	181	51			0		0	0	0	2		0

Intersection: 22: 3rd Avenue & Spur Line

Movement	WB	NB	NB	SB	SB
Directions Served	T	T	T	T	T
Maximum Queue (ft)	265	374	379	1575	1569
Average Queue (ft)	102	69	70	362	363
95th Queue (ft)	241	303	306	1224	1228
Link Distance (ft)	2590	370	370	3309	3309
Upstream Blk Time (%)		14	14		
Queuing Penalty (veh)		70	74		
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 24: Industrial Way & Douglas Street

Movement	SE	NW	SW
Directions Served	L	TR	LR
Maximum Queue (ft)	33	14	54
Average Queue (ft)	4	0	20
95th Queue (ft)	20	14	50
Link Distance (ft)		2660	100
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)	195		
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 25: Douglas Street & Alder Street

Movement	NW	NE
Directions Served	LT	LR
Maximum Queue (ft)	12	52
Average Queue (ft)	1	23
95th Queue (ft)	8	51
Link Distance (ft)	681	100
Upstream Blk Time (%)		0
Queuing Penalty (veh)		0
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 29: Spur Line & Washington Way

Movement	EB	EB	EB	WB	WB	NW
Directions Served	T	T	T	T	T	T
Maximum Queue (ft)	190	548	282	26	47	101
Average Queue (ft)	37	142	41	3	5	5
95th Queue (ft)	144	453	186	15	28	51
Link Distance (ft)		2483	2483	7	7	1681
Upstream Blk Time (%)				15	14	
Queuing Penalty (veh)				8	8	
Storage Bay Dist (ft)	140					
Storage Blk Time (%)	2	28				
Queuing Penalty (veh)	1	19				

Intersection: 31: Weyerhaeuser Access & Spur Line

Movement	NW	NE	SW
Directions Served	T	T	T
Maximum Queue (ft)	93	195	26
Average Queue (ft)	6	30	2
95th Queue (ft)	45	131	13
Link Distance (ft)	5597	313	10
Upstream Blk Time (%)		0	7
Queuing Penalty (veh)		0	1
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 33: Weyerhaeuser Access & Industrial Way

Movement	NW	NW	NE
Directions Served	L	T	LR
Maximum Queue (ft)	18	30	24
Average Queue (ft)	1	2	17
95th Queue (ft)	8	40	33
Link Distance (ft)		466	10
Upstream Blk Time (%)			11
Queuing Penalty (veh)			6
Storage Bay Dist (ft)	80		
Storage Blk Time (%)		0	
Queuing Penalty (veh)		0	

Intersection: 37: Weyerhaeuser Access 2 & Industrial Way

Movement	NE
Directions Served	R
Maximum Queue (ft)	34
Average Queue (ft)	12
95th Queue (ft)	38
Link Distance (ft)	26
Upstream Blk Time (%)	2
Queuing Penalty (veh)	0
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 39: Industrial Way & Prudential Blvd

Movement	SE	NW	NW	SW
Directions Served	T	T	T	L
Maximum Queue (ft)	104	84	75	111
Average Queue (ft)	33	26	20	51
95th Queue (ft)	81	65	57	89
Link Distance (ft)	2438	513	513	1261
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 41: Hoehne Avenue & Industrial Way

Movement	NE
Directions Served	R
Maximum Queue (ft)	33
Average Queue (ft)	10
95th Queue (ft)	34
Link Distance (ft)	26
Upstream Blk Time (%)	1
Queuing Penalty (veh)	0
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 45: International Way & Industrial Way

Movement	EB	EB	WB	WB	WB	NB	NB
Directions Served	T	TR	L	T	T	L	R
Maximum Queue (ft)	597	608	81	254	274	214	192
Average Queue (ft)	148	158	20	81	88	36	61
95th Queue (ft)	426	439	59	192	205	138	130
Link Distance (ft)	746	746		304	304	973	
Upstream Blk Time (%)	1	1		0	0		
Queuing Penalty (veh)	5	5		0	1		
Storage Bay Dist (ft)			150				150
Storage Blk Time (%)				2		2	1
Queuing Penalty (veh)				0		2	0

Intersection: 47: Fiber Way & Industrial Way

Movement	EB	EB	WB	WB	WB	NB	NB
Directions Served	T	TR	L	T	T	L	R
Maximum Queue (ft)	239	245	139	294	303	114	603
Average Queue (ft)	171	180	46	97	117	43	165
95th Queue (ft)	263	267	112	234	260	89	412
Link Distance (ft)	208	208		295	295	975	975
Upstream Blk Time (%)	17	19		0	0		
Queuing Penalty (veh)	83	92		1	1		
Storage Bay Dist (ft)			150				
Storage Blk Time (%)			1	3			
Queuing Penalty (veh)			2	1			

Intersection: 48: Industrial Way

Movement	WB	WB	NB	SB
Directions Served	T	T	R	R
Maximum Queue (ft)	345	363	123	111
Average Queue (ft)	77	88	50	35
95th Queue (ft)	312	333	97	90
Link Distance (ft)	420	420	236	90
Upstream Blk Time (%)	2	2		9
Queuing Penalty (veh)	9	9		0
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 49: 38th Avenue & Industrial Way

Movement	SE	SE	NW	NW	NE	NE	NE	SW	SW
Directions Served	L	T	L	T	L	T	R	L	R
Maximum Queue (ft)	57	85	30	115	33	39	84	57	42
Average Queue (ft)	13	16	3	27	5	6	19	25	15
95th Queue (ft)	40	56	17	77	24	27	65	53	41
Link Distance (ft)		2262		2438	3	3	3		
Upstream Blk Time (%)					2	2	10		
Queuing Penalty (veh)					1	1	7		
Storage Bay Dist (ft)	115		155					150	200
Storage Blk Time (%)		0		0					
Queuing Penalty (veh)		0		0					

Intersection: 50: Aluminum Access 1/38th Avenue & Spur Line

Movement	NW	NE	NE	NE	SW
Directions Served	T	T	T	T	T
Maximum Queue (ft)	267	39	2030	82	20
Average Queue (ft)	17	2	1073	42	2
95th Queue (ft)	117	22	2479	79	12
Link Distance (ft)	5784		2279		3
Upstream Blk Time (%)			18		9
Queuing Penalty (veh)			0		0
Storage Bay Dist (ft)		35		25	
Storage Blk Time (%)		1	9	74	
Queuing Penalty (veh)		2	12	97	

Intersection: 55: Industrial Way

Movement	EB	EB	WB	WB	NB	SB
Directions Served	T	T	T	T	R	R
Maximum Queue (ft)	48	39	53	52	49	69
Average Queue (ft)	3	3	9	9	7	25
95th Queue (ft)	40	34	99	102	33	60
Link Distance (ft)	379	379	746	746	99	87
Upstream Blk Time (%)					0	2
Queuing Penalty (veh)					0	0
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 56: Industrial Way & 3rd Avenue

Movement	NW	NW	NE	NE	SW	SW	SW
Directions Served	L	R	T	TR	L	T	T
Maximum Queue (ft)	94	118	246	244	214	399	395
Average Queue (ft)	25	27	102	110	26	186	188
95th Queue (ft)	69	85	232	231	130	405	406
Link Distance (ft)		2710	237	237		370	370
Upstream Blk Time (%)			13	12		11	12
Queuing Penalty (veh)			65	63		36	37
Storage Bay Dist (ft)	175				250		
Storage Blk Time (%)	0	1				16	
Queuing Penalty (veh)	0	0				2	

Intersection: 59: Industrial Way

Movement	EB	EB	WB	WB	NB
Directions Served	T	T	T	TR	R
Maximum Queue (ft)	319	322	21	23	174
Average Queue (ft)	89	95	1	1	75
95th Queue (ft)	293	297	16	20	151
Link Distance (ft)	304	304	208	208	118
Upstream Blk Time (%)	8	9			21
Queuing Penalty (veh)	36	41			0
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 61: Industrial Way

Movement	SB	SE	NW
Directions Served	LR	L	TR
Maximum Queue (ft)	87	30	6
Average Queue (ft)	41	2	0
95th Queue (ft)	73	14	6
Link Distance (ft)	1001		2678
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)		150	
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 64: Industrial Way

Movement	EB	EB	WB	WB	SB
Directions Served	T	TR	T	T	R
Maximum Queue (ft)	303	316	26	130	40
Average Queue (ft)	84	89	1	6	11
95th Queue (ft)	289	301	12	96	36
Link Distance (ft)	295	295	843	843	88
Upstream Blk Time (%)	9	10			
Queuing Penalty (veh)	51	54			
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 69: Dike Road & Spur Line

Movement	SE	NW	NE	SW
Directions Served	T	T	T	T
Maximum Queue (ft)	602	597	188	232
Average Queue (ft)	242	254	17	23
95th Queue (ft)	584	576	98	128
Link Distance (ft)	2167	1049	673	625
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Network Summary

Network wide Queuing Penalty: 2702

Intersection: 1: Weyerhaeuser & Industrial Way

Movement	SE	NW	NW	NE
Directions Served	TR	L	T	LR
Maximum Queue (ft)	11	42	547	174
Average Queue (ft)	0	10	38	66
95th Queue (ft)	7	34	269	132
Link Distance (ft)	116	745	745	484
Upstream Blk Time (%)			0	
Queuing Penalty (veh)			1	
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 2: Oregon Way & Industrial Way

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	NB
Directions Served	L	T	T	R	L	L	T	R	L	T	T	R
Maximum Queue (ft)	204	229	234	245	337	1285	1283	80	366	514	975	250
Average Queue (ft)	101	114	109	16	185	1044	1206	56	199	240	274	177
95th Queue (ft)	176	202	201	110	302	1604	1440	102	344	408	644	294
Link Distance (ft)		745				1239	1239				2473	
Upstream Blk Time (%)						16	42					
Queuing Penalty (veh)						81	217					
Storage Bay Dist (ft)	140		400	400	310			25	235	235		120
Storage Blk Time (%)	5	6			0	1	64	19	9	8	32	12
Queuing Penalty (veh)	24	28			1	3	145	76	77	67	331	114

Intersection: 2: Oregon Way & Industrial Way

Movement	SB	SB	SB
Directions Served	L	T	TR
Maximum Queue (ft)	236	273	278
Average Queue (ft)	77	232	233
95th Queue (ft)	195	293	297
Link Distance (ft)		236	236
Upstream Blk Time (%)	0	27	29
Queuing Penalty (veh)	0	108	119
Storage Bay Dist (ft)	170		
Storage Blk Time (%)	0	43	
Queuing Penalty (veh)	2	25	

Intersection: 4: Oregon Way & Spur Line

Movement	WB	NB	NB	SB	SB
Directions Served	T	T	T	T	T
Maximum Queue (ft)	155	247	243	528	557
Average Queue (ft)	9	17	17	137	148
95th Queue (ft)	71	118	117	414	432
Link Distance (ft)	4581	236	236	702	702
Upstream Blk Time (%)		3	3		0
Queuing Penalty (veh)		14	15		0
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 5: Oregon Way & Alabama Street

Movement	EB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	LTR	L	T	TR	L	T	TR
Maximum Queue (ft)	167	137	84	3	8	54	6	16
Average Queue (ft)	58	51	30	0	0	16	0	1
95th Queue (ft)	128	103	64	3	4	45	6	7
Link Distance (ft)	233	852		702	702		3034	3034
Upstream Blk Time (%)	0							
Queuing Penalty (veh)	0							
Storage Bay Dist (ft)			175			165		
Storage Blk Time (%)								
Queuing Penalty (veh)								

Intersection: 9: California Way & Spur Line

Movement	WB	SE	NW
Directions Served	T	T	T
Maximum Queue (ft)	170	377	219
Average Queue (ft)	7	20	12
95th Queue (ft)	62	154	94
Link Distance (ft)	464	2581	404
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 10: Industrial Way & Spur Line

Movement	WB	SE	NW
Directions Served	T	T	T
Maximum Queue (ft)	135	704	123
Average Queue (ft)	7	52	11
95th Queue (ft)	56	346	69
Link Distance (ft)	993	2678	116
Upstream Blk Time (%)			4
Queuing Penalty (veh)			24
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 12: Industrial Way & Washington Way

Movement	EB	EB	EB	WB	WB	SE	SE	SE	NW	NW
Directions Served	L	T	R	L	T	L	T	R	L	TR
Maximum Queue (ft)	36	68	41	70	75	115	194	48	177	568
Average Queue (ft)	13	36	11	21	18	35	58	12	32	203
95th Queue (ft)	31	57	30	53	55	90	144	42	110	455
Link Distance (ft)	7	7	7		1347		1220			1630
Upstream Blk Time (%)	21	56	11							
Queuing Penalty (veh)	19	48	10							
Storage Bay Dist (ft)				90		210		25	160	
Storage Blk Time (%)				0	0	0	12	1		11
Queuing Penalty (veh)				0	0	0	14	4		4

Intersection: 16: Columbia Ave & Industrial Way

Movement	EB	EB	WB	WB	WB	NB	NB
Directions Served	T	TR	L	T	T	L	R
Maximum Queue (ft)	270	286	144	391	392	185	150
Average Queue (ft)	109	121	18	180	192	74	55
95th Queue (ft)	209	217	88	394	403	145	113
Link Distance (ft)	420	420		379	379	398	
Upstream Blk Time (%)				8	9		
Queuing Penalty (veh)				34	39		
Storage Bay Dist (ft)			105			130	
Storage Blk Time (%)			0	24		3	0
Queuing Penalty (veh)			0	3		3	1

Intersection: 20: California Way & Industrial Way

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	T	R	L	T	R
Maximum Queue (ft)	275	837	844	82	131	115	72	60	94	144	76	239
Average Queue (ft)	185	366	387	12	18	14	13	7	28	45	13	62
95th Queue (ft)	319	737	753	49	70	59	53	36	74	104	51	146
Link Distance (ft)		843	843		237	237		684			404	
Upstream Blk Time (%)		2	2									
Queuing Penalty (veh)		11	13									
Storage Bay Dist (ft)	150			150			60		60	165		300
Storage Blk Time (%)	24	28		0	0		1	0	2	0		0
Queuing Penalty (veh)	137	47		0	0		0	0	0	0		0

Intersection: 22: 3rd Avenue & Spur Line

Movement	WB	NB	NB	SB	SB
Directions Served	T	T	T	T	T
Maximum Queue (ft)	330	371	381	646	651
Average Queue (ft)	150	32	33	64	68
95th Queue (ft)	305	197	201	329	341
Link Distance (ft)	2590	370	370	2875	2875
Upstream Blk Time (%)		3	4		
Queuing Penalty (veh)		20	24		
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 24: Industrial Way & Douglas Street

Movement	SE	SW
Directions Served	L	LR
Maximum Queue (ft)	35	65
Average Queue (ft)	4	29
95th Queue (ft)	22	58
Link Distance (ft)		100
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)	195	
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 25: Douglas Street & Alder Street

Movement	NW	NE
Directions Served	LT	LR
Maximum Queue (ft)	16	66
Average Queue (ft)	1	30
95th Queue (ft)	10	55
Link Distance (ft)	681	100
Upstream Blk Time (%)		0
Queuing Penalty (veh)		0
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 29: Spur Line & Washington Way

Movement	EB	EB	EB	WB	WB	NW
Directions Served	T	T	T	T	T	T
Maximum Queue (ft)	169	316	120	34	27	73
Average Queue (ft)	26	87	11	2	1	4
95th Queue (ft)	116	261	56	15	14	31
Link Distance (ft)		1764	1764	7	7	1681
Upstream Blk Time (%)				4	4	
Queuing Penalty (veh)				3	2	
Storage Bay Dist (ft)	140					
Storage Blk Time (%)		16				
Queuing Penalty (veh)		14				

Intersection: 31: Weyerhaeuser Access & Spur Line

Movement	NW	NE	SW
Directions Served	T	T	T
Maximum Queue (ft)	77	73	10
Average Queue (ft)	10	14	1
95th Queue (ft)	62	50	7
Link Distance (ft)	5597	313	10
Upstream Blk Time (%)			1
Queuing Penalty (veh)			0
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 33: Weyerhaeuser Access & Industrial Way

Movement	NW	NE
Directions Served	L	LR
Maximum Queue (ft)	30	30
Average Queue (ft)	2	21
95th Queue (ft)	16	33
Link Distance (ft)		10
Upstream Blk Time (%)		12
Queuing Penalty (veh)		9
Storage Bay Dist (ft)	80	
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 37: Weyerhaeuser Access 2 & Industrial Way

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 39: Industrial Way & Prudential Blvd

Movement	SE	SE	NW	NW	SW
Directions Served	L	T	T	T	L
Maximum Queue (ft)	12	97	86	74	107
Average Queue (ft)	0	30	29	19	50
95th Queue (ft)	6	76	70	55	89
Link Distance (ft)		2438	513	513	1261
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	170				
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 41: Hoehne Avenue & Industrial Way

Movement	NE
Directions Served	R
Maximum Queue (ft)	35
Average Queue (ft)	10
95th Queue (ft)	34
Link Distance (ft)	26
Upstream Blk Time (%)	1
Queuing Penalty (veh)	0
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 45: International Way & Industrial Way

Movement	EB	EB	WB	WB	WB	NB	NB
Directions Served	T	TR	L	T	T	L	R
Maximum Queue (ft)	345	351	112	278	284	92	138
Average Queue (ft)	131	139	22	120	130	27	70
95th Queue (ft)	264	273	76	245	259	69	118
Link Distance (ft)	746	746		304	304	973	
Upstream Blk Time (%)				1	1		
Queuing Penalty (veh)				6	6		
Storage Bay Dist (ft)			150				150
Storage Blk Time (%)				5		0	0
Queuing Penalty (veh)				1		0	0

Intersection: 47: Fiber Way & Industrial Way

Movement	EB	EB	WB	WB	WB	NB	NB
Directions Served	T	TR	L	T	T	L	R
Maximum Queue (ft)	245	248	134	287	294	123	238
Average Queue (ft)	177	186	43	116	140	48	123
95th Queue (ft)	265	268	96	244	267	99	204
Link Distance (ft)	208	208		295	295	975	975
Upstream Blk Time (%)	10	11		0	0		
Queuing Penalty (veh)	58	67		0	1		
Storage Bay Dist (ft)			150				
Storage Blk Time (%)			0	4			
Queuing Penalty (veh)			1	2			

Intersection: 48: Industrial Way

Movement	EB	WB	WB	NB	SB
Directions Served	T	T	T	R	R
Maximum Queue (ft)	8	464	444	168	60
Average Queue (ft)	0	248	270	65	9
95th Queue (ft)	2	557	554	125	47
Link Distance (ft)	1239	420	420	236	90
Upstream Blk Time (%)		11	12	0	3
Queuing Penalty (veh)		55	59	0	0
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 49: 38th Avenue & Industrial Way

Movement	SE	SE	NW	NW	NW	NE	NE	NE	SW	SW
Directions Served	L	T	L	T	R	L	T	R	L	R
Maximum Queue (ft)	56	64	23	102	3	3	52	48	66	48
Average Queue (ft)	13	10	2	26	0	0	13	4	28	19
95th Queue (ft)	39	38	13	72	3	3	41	23	56	44
Link Distance (ft)		2365		2438	2438	3	3	3		
Upstream Blk Time (%)						0	3	0		
Queuing Penalty (veh)						0	0	0		
Storage Bay Dist (ft)	115		155						150	200
Storage Blk Time (%)		0		0						
Queuing Penalty (veh)		0		0						

Intersection: 50: Aluminum Access 1/38th Avenue & Spur Line

Movement	NW	NE	NE	SW
Directions Served	T	T	T	T
Maximum Queue (ft)	289	60	22	22
Average Queue (ft)	19	5	1	1
95th Queue (ft)	129	30	14	10
Link Distance (ft)	5784	1935		3
Upstream Blk Time (%)				3
Queuing Penalty (veh)				0
Storage Bay Dist (ft)			25	
Storage Blk Time (%)		8	2	
Queuing Penalty (veh)		1	0	

Intersection: 55: Industrial Way

Movement	WB	WB	NB	SB
Directions Served	T	T	R	R
Maximum Queue (ft)	256	271	78	46
Average Queue (ft)	59	63	22	10
95th Queue (ft)	332	339	57	37
Link Distance (ft)	746	746	99	87
Upstream Blk Time (%)	1	1	0	0
Queuing Penalty (veh)	5	6	0	0
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 56: Industrial Way & 3rd Avenue

Movement	NW	NW	NE	NE	SW	SW	SW
Directions Served	L	R	T	TR	L	T	T
Maximum Queue (ft)	84	73	247	250	188	394	394
Average Queue (ft)	27	20	101	112	21	225	234
95th Queue (ft)	71	53	205	212	97	390	392
Link Distance (ft)		2710	237	237		370	370
Upstream Blk Time (%)			3	3		4	5
Queuing Penalty (veh)			18	16		15	18
Storage Bay Dist (ft)	175				250		
Storage Blk Time (%)						10	
Queuing Penalty (veh)						1	

Intersection: 59: Industrial Way

Movement	EB	EB	WB	WB	NB
Directions Served	T	T	T	TR	R
Maximum Queue (ft)	273	285	31	39	106
Average Queue (ft)	60	70	7	7	28
95th Queue (ft)	196	215	64	64	81
Link Distance (ft)	304	304	208	208	118
Upstream Blk Time (%)	0	0	0	0	1
Queuing Penalty (veh)	1	2	1	1	0
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 61: Industrial Way

Movement	SB	SE
Directions Served	LR	L
Maximum Queue (ft)	115	31
Average Queue (ft)	47	3
95th Queue (ft)	90	16
Link Distance (ft)	1001	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		150
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 64: Industrial Way

Movement	EB	EB	WB	WB	SB
Directions Served	T	TR	T	T	R
Maximum Queue (ft)	195	197	29	81	29
Average Queue (ft)	17	18	1	4	3
95th Queue (ft)	118	124	17	36	17
Link Distance (ft)	295	295	843	843	88
Upstream Blk Time (%)	0	0			
Queuing Penalty (veh)	2	2			
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 69: Dike Road & Spur Line

Movement	SE	NW	NE	SW
Directions Served	T	T	T	T
Maximum Queue (ft)	596	582	103	176
Average Queue (ft)	268	273	8	14
95th Queue (ft)	583	633	51	89
Link Distance (ft)	2167	1051	566	491
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Network Summary

Network wide Queuing Penalty: 2279

Intersection: 1: Weyerhaeuser & Industrial Way

Movement	SE	NW	NW	NE
Directions Served	TR	L	T	LR
Maximum Queue (ft)	15	146	631	272
Average Queue (ft)	2	18	78	80
95th Queue (ft)	24	80	385	203
Link Distance (ft)	116	745	745	484
Upstream Blk Time (%)	0		0	
Queuing Penalty (veh)	1		1	
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 2: Oregon Way & Industrial Way

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	NB
Directions Served	L	T	T	R	L	L	T	R	L	T	T	R
Maximum Queue (ft)	239	400	374	298	360	1289	1276	76	371	523	2511	250
Average Queue (ft)	133	146	131	31	181	1016	1163	55	212	303	633	194
95th Queue (ft)	239	352	302	161	333	1679	1519	101	387	489	1909	331
Link Distance (ft)		745				1239	1239				2473	
Upstream Blk Time (%)		0				23	46				9	
Queuing Penalty (veh)		2				119	238				0	
Storage Bay Dist (ft)	140		400	400	310			25	235	235		120
Storage Blk Time (%)	21	6	0		1	2	58	25	15	19	43	18
Queuing Penalty (veh)	100	29	0		2	4	132	98	126	153	440	169

Intersection: 2: Oregon Way & Industrial Way

Movement	SB	SB	SB
Directions Served	L	T	TR
Maximum Queue (ft)	236	275	273
Average Queue (ft)	75	220	219
95th Queue (ft)	204	351	349
Link Distance (ft)		236	236
Upstream Blk Time (%)	0	46	47
Queuing Penalty (veh)	0	187	193
Storage Bay Dist (ft)	170		
Storage Blk Time (%)	1	57	
Queuing Penalty (veh)	2	33	

Intersection: 4: Oregon Way & Spur Line

Movement	WB	NB	NB	SB	SB
Directions Served	T	T	T	T	T
Maximum Queue (ft)	108	244	245	725	731
Average Queue (ft)	9	41	41	482	489
95th Queue (ft)	62	189	190	937	937
Link Distance (ft)	4581	236	236	702	702
Upstream Blk Time (%)		12	12	29	30
Queuing Penalty (veh)		63	63	115	119
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 5: Oregon Way & Alabama Street

Movement	EB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	LTR	L	T	TR	L	T	TR
Maximum Queue (ft)	251	579	111	2	5	290	1018	1037
Average Queue (ft)	131	173	35	0	0	49	293	308
95th Queue (ft)	270	557	87	2	2	208	853	881
Link Distance (ft)	233	852		702	702		3073	3073
Upstream Blk Time (%)	25	2						
Queuing Penalty (veh)	0	0						
Storage Bay Dist (ft)			175			165		
Storage Blk Time (%)			0				32	
Queuing Penalty (veh)			0				10	

Intersection: 9: California Way & Spur Line

Movement	WB	SE	NW
Directions Served	T	T	T
Maximum Queue (ft)	126	1046	297
Average Queue (ft)	5	148	53
95th Queue (ft)	47	666	232
Link Distance (ft)	464	2581	404
Upstream Blk Time (%)			1
Queuing Penalty (veh)			2
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 10: Industrial Way & Spur Line

Movement	WB	SE	NW
Directions Served	T	T	T
Maximum Queue (ft)	80	1938	124
Average Queue (ft)	4	255	20
95th Queue (ft)	34	1203	94
Link Distance (ft)	993	2678	116
Upstream Blk Time (%)			13
Queuing Penalty (veh)			85
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 12: Industrial Way & Washington Way

Movement	EB	EB	EB	WB	WB	WB	SE	SE	SE	NW	NW
Directions Served	L	T	R	L	T	R	L	T	R	L	TR
Maximum Queue (ft)	41	74	44	142	337	2	214	457	49	218	481
Average Queue (ft)	12	31	11	28	59	0	52	105	12	57	210
95th Queue (ft)	31	62	31	94	233	2	153	416	39	178	471
Link Distance (ft)	7	7	7		1347	1347		1220			1630
Upstream Blk Time (%)	20	55	11					0			
Queuing Penalty (veh)	17	47	10					0			
Storage Bay Dist (ft)				90			210		25	160	
Storage Blk Time (%)				1	12		0	14	8	5	11
Queuing Penalty (veh)				0	7		0	18	34	26	4

Intersection: 16: Columbia Ave & Industrial Way

Movement	EB	EB	WB	WB	WB	NB	NB
Directions Served	T	TR	L	T	T	L	R
Maximum Queue (ft)	330	352	204	432	421	267	198
Average Queue (ft)	140	155	24	257	261	99	57
95th Queue (ft)	284	306	112	514	510	209	129
Link Distance (ft)	420	420		379	379	398	
Upstream Blk Time (%)	1	1		26	27	0	
Queuing Penalty (veh)	4	5		116	122	0	
Storage Bay Dist (ft)			105				130
Storage Blk Time (%)			0	41		9	1
Queuing Penalty (veh)			0	5		8	1

Intersection: 20: California Way & Industrial Way

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	T	R	L	T	R
Maximum Queue (ft)	275	872	884	74	156	156	87	87	97	159	425	373
Average Queue (ft)	188	673	685	9	30	25	16	10	27	42	36	82
95th Queue (ft)	352	1080	1086	41	125	119	56	63	74	111	209	239
Link Distance (ft)		843	843		237	237		684			404	
Upstream Blk Time (%)		20	22		1	1					1	0
Queuing Penalty (veh)		132	144		2	3					2	0
Storage Bay Dist (ft)	150			150			60		60	165		300
Storage Blk Time (%)	30	51		0	3		2	0	8	0	0	2
Queuing Penalty (veh)	171	87		0	0		1	0	2	1	0	1

Intersection: 22: 3rd Avenue & Spur Line

Movement	WB	NB	NB	SB	SB
Directions Served	T	T	T	T	T
Maximum Queue (ft)	290	379	384	1915	1910
Average Queue (ft)	106	71	72	665	676
95th Queue (ft)	269	306	310	1739	1741
Link Distance (ft)	2590	370	370	3200	3200
Upstream Blk Time (%)		15	15		
Queuing Penalty (veh)		89	92		
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 24: Industrial Way & Douglas Street

Movement	SE	SW
Directions Served	L	LR
Maximum Queue (ft)	34	70
Average Queue (ft)	4	27
95th Queue (ft)	22	59
Link Distance (ft)		100
Upstream Blk Time (%)		0
Queuing Penalty (veh)		0
Storage Bay Dist (ft)	195	
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 25: Douglas Street & Alder Street

Movement	NW	NE
Directions Served	LT	LR
Maximum Queue (ft)	10	61
Average Queue (ft)	1	29
95th Queue (ft)	8	56
Link Distance (ft)	681	100
Upstream Blk Time (%)		0
Queuing Penalty (veh)		0
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 29: Spur Line & Washington Way

Movement	EB	EB	EB	WB	WB	NW
Directions Served	T	T	T	T	T	T
Maximum Queue (ft)	190	818	504	27	42	47
Average Queue (ft)	44	258	66	3	5	2
95th Queue (ft)	163	752	318	17	27	20
Link Distance (ft)		1752	1752	7	7	1681
Upstream Blk Time (%)				16	15	
Queuing Penalty (veh)				10	10	
Storage Bay Dist (ft)	140					
Storage Blk Time (%)	0	39				
Queuing Penalty (veh)	0	32				

Intersection: 31: Weyerhaeuser Access & Spur Line

Movement	NW	NE	SW
Directions Served	T	T	T
Maximum Queue (ft)	56	217	20
Average Queue (ft)	5	38	2
95th Queue (ft)	31	158	11
Link Distance (ft)	5597	313	10
Upstream Blk Time (%)		2	4
Queuing Penalty (veh)		0	0
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 33: Weyerhaeuser Access & Industrial Way

Movement	SE	NW	NE
Directions Served	R	L	LR
Maximum Queue (ft)	3	28	26
Average Queue (ft)	0	2	18
95th Queue (ft)	4	15	34
Link Distance (ft)			10
Upstream Blk Time (%)			12
Queuing Penalty (veh)			9
Storage Bay Dist (ft)	210	80	
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 37: Weyerhaeuser Access 2 & Industrial Way

Movement	SE
Directions Served	T
Maximum Queue (ft)	20
Average Queue (ft)	1
95th Queue (ft)	18
Link Distance (ft)	1480
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	0
Queuing Penalty (veh)	0

Intersection: 39: Industrial Way & Prudential Blvd

Movement	SE	SE	NW	NW	SW
Directions Served	L	T	T	T	L
Maximum Queue (ft)	3	104	107	85	116
Average Queue (ft)	0	35	36	25	51
95th Queue (ft)	3	80	84	63	91
Link Distance (ft)		2438	513	513	1261
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	170				
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 41: Hoehne Avenue & Industrial Way

Movement	NE
Directions Served	R
Maximum Queue (ft)	35
Average Queue (ft)	11
95th Queue (ft)	36
Link Distance (ft)	26
Upstream Blk Time (%)	1
Queuing Penalty (veh)	0
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 45: International Way & Industrial Way

Movement	EB	EB	WB	WB	WB	NB	NB
Directions Served	T	TR	L	T	T	L	R
Maximum Queue (ft)	780	780	225	335	346	494	263
Average Queue (ft)	442	448	28	176	180	88	105
95th Queue (ft)	934	935	124	365	371	350	220
Link Distance (ft)	746	746		304	304	973	
Upstream Blk Time (%)	15	17		13	14		
Queuing Penalty (veh)	70	80		57	63		
Storage Bay Dist (ft)			150				150
Storage Blk Time (%)			0	26		4	11
Queuing Penalty (veh)			0	4		6	3

Intersection: 47: Fiber Way & Industrial Way

Movement	EB	EB	WB	WB	WB	NB	NB
Directions Served	T	TR	L	T	T	L	R
Maximum Queue (ft)	254	252	205	316	325	555	842
Average Queue (ft)	210	212	54	162	176	82	246
95th Queue (ft)	260	256	155	341	353	358	651
Link Distance (ft)	208	208		295	295	975	975
Upstream Blk Time (%)	38	40		10	11	1	2
Queuing Penalty (veh)	213	226		43	47	0	0
Storage Bay Dist (ft)			150				
Storage Blk Time (%)			0	19			
Queuing Penalty (veh)			0	9			

Intersection: 48: Industrial Way

Movement	EB	EB	WB	WB	NB	SB
Directions Served	T	T	T	T	R	R
Maximum Queue (ft)	27	38	470	457	167	48
Average Queue (ft)	2	3	294	303	66	6
95th Queue (ft)	36	43	608	600	126	29
Link Distance (ft)	1239	1239	420	420	236	90
Upstream Blk Time (%)			19	22	0	
Queuing Penalty (veh)			95	110	0	
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 49: 38th Avenue & Industrial Way

Movement	SE	SE	SE	NW	NW	NE	NE	NE	SW	SW
Directions Served	L	T	R	L	T	L	T	R	L	R
Maximum Queue (ft)	49	97	15	200	219	38	45	81	68	45
Average Queue (ft)	13	24	1	55	37	2	9	20	27	17
95th Queue (ft)	37	71	8	156	129	18	34	58	59	43
Link Distance (ft)		2250			2438	3	3	3		
Upstream Blk Time (%)						0	4	5		
Queuing Penalty (veh)						0	1	1		
Storage Bay Dist (ft)	115		225	155					150	200
Storage Blk Time (%)		0		9	0					
Queuing Penalty (veh)		0		30	0					

Intersection: 50: Aluminum Access 1/38th Avenue & Spur Line

Movement	NW	NE	NE	NE	SW
Directions Served	T	T	T	T	T
Maximum Queue (ft)	181	25	948	76	52
Average Queue (ft)	14	2	333	29	9
95th Queue (ft)	94	15	1118	71	31
Link Distance (ft)	5783		2106		3
Upstream Blk Time (%)			2		34
Queuing Penalty (veh)			0		16
Storage Bay Dist (ft)		35		25	
Storage Blk Time (%)		4	17	49	
Queuing Penalty (veh)		2	10	29	

Intersection: 55: Industrial Way

Movement	EB	EB	WB	WB	NB	SB
Directions Served	T	T	T	T	R	R
Maximum Queue (ft)	358	369	768	777	98	55
Average Queue (ft)	95	100	294	298	25	14
95th Queue (ft)	336	346	855	862	75	45
Link Distance (ft)	379	379	746	746	99	87
Upstream Blk Time (%)	3	4	8	9	2	0
Queuing Penalty (veh)	13	21	36	38	0	0
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 56: Industrial Way & 3rd Avenue

Movement	NW	NW	NE	NE	SW	SW	SW
Directions Served	L	R	T	TR	L	T	T
Maximum Queue (ft)	111	152	250	242	185	400	401
Average Queue (ft)	28	34	141	147	22	275	276
95th Queue (ft)	82	108	239	241	116	508	505
Link Distance (ft)		2710	237	237		370	370
Upstream Blk Time (%)			15	14		26	27
Queuing Penalty (veh)			90	86		100	103
Storage Bay Dist (ft)	175				250		
Storage Blk Time (%)	0	2				36	
Queuing Penalty (veh)	0	1				4	

Intersection: 59: Industrial Way

Movement	EB	EB	WB	WB	NB
Directions Served	T	T	T	TR	R
Maximum Queue (ft)	330	338	242	230	132
Average Queue (ft)	223	233	56	57	57
95th Queue (ft)	415	424	210	210	136
Link Distance (ft)	304	304	208	208	118
Upstream Blk Time (%)	15	20	7	8	19
Queuing Penalty (veh)	79	107	31	36	0
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 61: Industrial Way

Movement	SB	SE
Directions Served	LR	L
Maximum Queue (ft)	108	30
Average Queue (ft)	47	2
95th Queue (ft)	86	14
Link Distance (ft)	1001	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		150
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 64: Industrial Way

Movement	EB	EB	WB	WB	SB
Directions Served	T	TR	T	T	R
Maximum Queue (ft)	305	314	522	545	30
Average Queue (ft)	140	146	97	102	3
95th Queue (ft)	356	366	493	505	17
Link Distance (ft)	295	295	843	843	88
Upstream Blk Time (%)	12	13	2	3	
Queuing Penalty (veh)	77	89	9	12	
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 69: Dike Road & Spur Line

Movement	SE	NW	NE	SW
Directions Served	T	T	T	T
Maximum Queue (ft)	518	658	160	226
Average Queue (ft)	215	278	14	21
95th Queue (ft)	518	650	83	118
Link Distance (ft)	2167	1051	566	491
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Network Summary

Network wide Queuing Penalty: 5750

Intersection: 1: Weyerhaeuser & Industrial Way

Movement	SE	NW	NW	NE
Directions Served	TR	L	T	LR
Maximum Queue (ft)	3	55	579	174
Average Queue (ft)	0	11	47	63
95th Queue (ft)	3	39	303	127
Link Distance (ft)	116	745	745	484
Upstream Blk Time (%)			1	
Queuing Penalty (veh)			3	
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 2: Oregon Way & Industrial Way

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	NB
Directions Served	L	T	T	R	L	L	T	R	L	T	T	R
Maximum Queue (ft)	231	294	277	257	361	1285	1277	75	376	534	2122	250
Average Queue (ft)	109	114	115	25	176	1082	1205	54	226	267	395	184
95th Queue (ft)	202	221	215	137	309	1613	1437	100	380	462	1215	308
Link Distance (ft)		745				1239	1239				2473	
Upstream Blk Time (%)						23	49				1	
Queuing Penalty (veh)						119	252				0	
Storage Bay Dist (ft)	140		400	400	310			25	235	235		120
Storage Blk Time (%)	9	5		0	0	1	63	19	16	10	34	15
Queuing Penalty (veh)	43	22		0	1	3	143	78	133	82	352	139

Intersection: 2: Oregon Way & Industrial Way

Movement	SB	SB	SB
Directions Served	L	T	TR
Maximum Queue (ft)	236	271	278
Average Queue (ft)	79	226	228
95th Queue (ft)	204	329	328
Link Distance (ft)		236	236
Upstream Blk Time (%)	0	37	40
Queuing Penalty (veh)	0	150	162
Storage Bay Dist (ft)	170		
Storage Blk Time (%)	0	50	
Queuing Penalty (veh)	1	29	

Intersection: 4: Oregon Way & Spur Line

Movement	WB	NB	NB	SB	SB
Directions Served	T	T	T	T	T
Maximum Queue (ft)	75	245	246	698	702
Average Queue (ft)	11	26	28	253	267
95th Queue (ft)	76	143	151	642	655
Link Distance (ft)	4581	236	236	702	702
Upstream Blk Time (%)		6	6	1	2
Queuing Penalty (veh)		29	29	5	7
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 5: Oregon Way & Alabama Street

Movement	EB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	LTR	L	T	TR	L	T	TR
Maximum Queue (ft)	139	109	90	4	11	63	83	130
Average Queue (ft)	54	47	29	0	0	16	7	11
95th Queue (ft)	109	87	68	3	5	47	54	72
Link Distance (ft)	233	852		702	702		3084	3084
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)			175			165		
Storage Blk Time (%)							0	
Queuing Penalty (veh)							0	

Intersection: 9: California Way & Spur Line

Movement	WB	SE	NW
Directions Served	T	T	T
Maximum Queue (ft)	30	687	290
Average Queue (ft)	1	65	33
95th Queue (ft)	15	372	179
Link Distance (ft)	464	2581	404
Upstream Blk Time (%)			1
Queuing Penalty (veh)			1
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 10: Industrial Way & Spur Line

Movement	WB	SE	NW
Directions Served	T	T	T
Maximum Queue (ft)	126	1091	122
Average Queue (ft)	44	84	12
95th Queue (ft)	163	522	72
Link Distance (ft)	993	2678	116
Upstream Blk Time (%)			6
Queuing Penalty (veh)			41
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 12: Industrial Way & Washington Way

Movement	EB	EB	EB	WB	WB	WB	SE	SE	SE	NW	NW
Directions Served	L	T	R	L	T	R	L	T	R	L	TR
Maximum Queue (ft)	41	71	48	154	288	12	216	267	49	229	413
Average Queue (ft)	14	34	11	29	50	0	56	71	9	42	210
95th Queue (ft)	32	61	32	94	188	6	144	187	35	141	367
Link Distance (ft)	7	7	7		1347	1347		1220			1630
Upstream Blk Time (%)	22	58	12								
Queuing Penalty (veh)	19	49	10								
Storage Bay Dist (ft)				90			210		25	160	
Storage Blk Time (%)				1	10		0	12	3	0	13
Queuing Penalty (veh)				1	5		1	17	14	1	5

Intersection: 16: Columbia Ave & Industrial Way

Movement	EB	EB	WB	WB	WB	NB	NB
Directions Served	T	TR	L	T	T	L	R
Maximum Queue (ft)	268	300	179	408	412	250	154
Average Queue (ft)	112	134	22	267	272	94	52
95th Queue (ft)	217	240	103	510	507	201	110
Link Distance (ft)	420	420		379	379	398	
Upstream Blk Time (%)				26	28	0	
Queuing Penalty (veh)				118	125	0	
Storage Bay Dist (ft)			105				130
Storage Blk Time (%)			0	46		8	0
Queuing Penalty (veh)			0	5		7	0

Intersection: 20: California Way & Industrial Way

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	T	R	L	T	R
Maximum Queue (ft)	275	868	867	69	125	130	72	61	101	157	215	321
Average Queue (ft)	186	510	525	8	23	19	15	7	28	47	16	65
95th Queue (ft)	331	961	966	38	83	78	51	35	75	114	104	172
Link Distance (ft)		843	843		237	237		684			404	
Upstream Blk Time (%)		8	9								0	0
Queuing Penalty (veh)		50	55								0	0
Storage Bay Dist (ft)	150			150			60		60	165		300
Storage Blk Time (%)	27	37			0		1	0	2	0		1
Queuing Penalty (veh)	156	63			0		0	0	0	1		0

Intersection: 22: 3rd Avenue & Spur Line

Movement	WB	NB	NB	SB	SB
Directions Served	T	T	T	T	T
Maximum Queue (ft)	303	373	380	1091	1094
Average Queue (ft)	150	38	46	221	228
95th Queue (ft)	310	224	245	806	820
Link Distance (ft)	2590	370	370	3012	3012
Upstream Blk Time (%)		6	8		
Queuing Penalty (veh)		39	47		
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 24: Industrial Way & Douglas Street

Movement	SE	NW	SW
Directions Served	L	TR	LR
Maximum Queue (ft)	35	3	72
Average Queue (ft)	4	0	28
95th Queue (ft)	22	3	59
Link Distance (ft)		2660	100
Upstream Blk Time (%)			0
Queuing Penalty (veh)			0
Storage Bay Dist (ft)	195		
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 25: Douglas Street & Alder Street

Movement	NW	NE
Directions Served	LT	LR
Maximum Queue (ft)	13	66
Average Queue (ft)	1	29
95th Queue (ft)	8	56
Link Distance (ft)	681	100
Upstream Blk Time (%)		0
Queuing Penalty (veh)		0
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 29: Spur Line & Washington Way

Movement	EB	EB	EB	WB	WB
Directions Served	T	T	T	T	T
Maximum Queue (ft)	190	550	303	22	45
Average Queue (ft)	49	166	39	2	4
95th Queue (ft)	170	488	192	11	22
Link Distance (ft)		1817	1817	7	7
Upstream Blk Time (%)				13	12
Queuing Penalty (veh)				8	8
Storage Bay Dist (ft)	140				
Storage Blk Time (%)	1	30			
Queuing Penalty (veh)	1	25			

Intersection: 31: Weyerhaeuser Access & Spur Line

Movement	NW	NE	SW
Directions Served	T	T	T
Maximum Queue (ft)	166	167	16
Average Queue (ft)	51	24	1
95th Queue (ft)	179	96	8
Link Distance (ft)	5597	313	10
Upstream Blk Time (%)			1
Queuing Penalty (veh)			0
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 33: Weyerhaeuser Access & Industrial Way

Movement	SE	NW	NE
Directions Served	R	L	LR
Maximum Queue (ft)	5	22	24
Average Queue (ft)	0	1	19
95th Queue (ft)	4	12	33
Link Distance (ft)			10
Upstream Blk Time (%)			12
Queuing Penalty (veh)			9
Storage Bay Dist (ft)	210	80	
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 37: Weyerhaeuser Access 2 & Industrial Way

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 39: Industrial Way & Prudential Blvd

Movement	SE	SE	NW	NW	SW
Directions Served	L	T	T	T	L
Maximum Queue (ft)	9	95	99	78	100
Average Queue (ft)	0	32	34	23	50
95th Queue (ft)	5	75	79	60	85
Link Distance (ft)		2438	513	513	1261
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	170				
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 41: Hoehne Avenue & Industrial Way

Movement	NE
Directions Served	R
Maximum Queue (ft)	33
Average Queue (ft)	11
95th Queue (ft)	36
Link Distance (ft)	26
Upstream Blk Time (%)	1
Queuing Penalty (veh)	0
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 45: International Way & Industrial Way

Movement	EB	EB	WB	WB	WB	NB	NB
Directions Served	T	TR	L	T	T	L	R
Maximum Queue (ft)	333	348	209	317	323	102	157
Average Queue (ft)	140	154	33	171	179	27	75
95th Queue (ft)	294	311	140	347	354	70	128
Link Distance (ft)	746	746		304	304	973	
Upstream Blk Time (%)				12	12		
Queuing Penalty (veh)				54	52		
Storage Bay Dist (ft)			150				150
Storage Blk Time (%)				23		0	0
Queuing Penalty (veh)				4		0	0

Intersection: 47: Fiber Way & Industrial Way

Movement	EB	EB	WB	WB	WB	NB	NB
Directions Served	T	TR	L	T	T	L	R
Maximum Queue (ft)	250	256	246	322	320	131	360
Average Queue (ft)	191	200	58	158	175	48	151
95th Queue (ft)	266	267	158	322	339	102	291
Link Distance (ft)	208	208		295	295	975	975
Upstream Blk Time (%)	15	18		8	9		
Queuing Penalty (veh)	86	102		35	38		
Storage Bay Dist (ft)			150				
Storage Blk Time (%)			1	16			
Queuing Penalty (veh)			3	8			

Intersection: 48: Industrial Way

Movement	WB	WB	NB	SB
Directions Served	T	T	R	R
Maximum Queue (ft)	471	447	151	54
Average Queue (ft)	312	318	64	12
95th Queue (ft)	613	601	115	55
Link Distance (ft)	420	420	236	90
Upstream Blk Time (%)	21	24		5
Queuing Penalty (veh)	105	123		0
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 49: 38th Avenue & Industrial Way

Movement	SE	SE	SE	NW	NW	NE	NE	NE	SW	SW
Directions Served	L	T	R	L	T	L	T	R	L	R
Maximum Queue (ft)	55	97	19	265	363	42	48	67	76	47
Average Queue (ft)	13	25	2	62	58	2	9	17	30	17
95th Queue (ft)	39	68	13	185	192	18	35	51	62	43
Link Distance (ft)		2300			2438	3	3	3		
Upstream Blk Time (%)						1	3	5		
Queuing Penalty (veh)						0	1	1		
Storage Bay Dist (ft)	115		225	155					150	200
Storage Blk Time (%)		0		13	0					
Queuing Penalty (veh)		0		42	0					

Intersection: 50: Aluminum Access 1/38th Avenue & Spur Line

Movement	NE	NE	NE	SW
Directions Served	T	T	T	T
Maximum Queue (ft)	17	978	77	56
Average Queue (ft)	1	381	25	9
95th Queue (ft)	14	1244	67	30
Link Distance (ft)		2045		3
Upstream Blk Time (%)		2		34
Queuing Penalty (veh)		0		15
Storage Bay Dist (ft)	35		25	
Storage Blk Time (%)	3	24	48	
Queuing Penalty (veh)	2	14	28	

Intersection: 55: Industrial Way

Movement	WB	WB	NB	SB
Directions Served	T	T	R	R
Maximum Queue (ft)	696	690	68	53
Average Queue (ft)	289	294	18	13
95th Queue (ft)	847	853	53	43
Link Distance (ft)	746	746	99	87
Upstream Blk Time (%)	9	8	0	1
Queuing Penalty (veh)	38	35	0	0
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 56: Industrial Way & 3rd Avenue

Movement	NW	NW	NE	NE	SW	SW	SW
Directions Served	L	R	T	TR	L	T	T
Maximum Queue (ft)	94	88	244	247	130	404	403
Average Queue (ft)	27	24	119	130	18	239	245
95th Queue (ft)	72	65	217	230	75	439	436
Link Distance (ft)		2710	237	237		370	370
Upstream Blk Time (%)			5	6		13	13
Queuing Penalty (veh)			31	39		48	49
Storage Bay Dist (ft)	175				250		
Storage Blk Time (%)					0	20	
Queuing Penalty (veh)					0	2	

Intersection: 59: Industrial Way

Movement	EB	EB	WB	WB	NB
Directions Served	T	T	T	TR	R
Maximum Queue (ft)	289	296	177	176	98
Average Queue (ft)	101	111	50	52	27
95th Queue (ft)	283	294	196	200	74
Link Distance (ft)	304	304	208	208	118
Upstream Blk Time (%)	2	3	6	6	0
Queuing Penalty (veh)	9	15	26	27	0
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 61: Industrial Way

Movement	SB	SE	NW
Directions Served	LR	L	TR
Maximum Queue (ft)	104	26	2
Average Queue (ft)	47	2	0
95th Queue (ft)	83	13	2
Link Distance (ft)	1001		2678
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)		150	
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 64: Industrial Way

Movement	EB	EB	WB	WB	SB
Directions Served	T	TR	T	T	R
Maximum Queue (ft)	306	309	411	414	29
Average Queue (ft)	64	68	70	72	2
95th Queue (ft)	247	255	377	383	16
Link Distance (ft)	295	295	843	843	88
Upstream Blk Time (%)	3	4	0	0	
Queuing Penalty (veh)	18	24	1	1	
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 69: Dike Road & Spur Line

Movement	SE	NW	NE	SW
Directions Served	T	T	T	T
Maximum Queue (ft)	606	636	198	258
Average Queue (ft)	252	240	19	23
95th Queue (ft)	635	583	106	137
Link Distance (ft)	2167	1051	566	491
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Network Summary

Network wide Queuing Penalty: 3745

Intersection: 1: Weyerhaeuser & Industrial Way

Movement	SE	NW	NW	NE
Directions Served	TR	L	T	LR
Maximum Queue (ft)	21	68	608	314
Average Queue (ft)	1	13	83	83
95th Queue (ft)	10	45	403	214
Link Distance (ft)	116	745	745	484
Upstream Blk Time (%)			1	0
Queuing Penalty (veh)			4	0
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 2: Oregon Way & Industrial Way

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	NB
Directions Served	L	T	T	R	L	L	T	R	L	T	T	R
Maximum Queue (ft)	239	378	336	306	355	1281	1286	78	384	534	2511	250
Average Queue (ft)	121	140	126	39	190	1046	1156	56	215	306	667	195
95th Queue (ft)	232	299	264	190	336	1695	1557	101	377	521	1971	320
Link Distance (ft)		745				1239	1239				2473	
Upstream Blk Time (%)						26	47				5	
Queuing Penalty (veh)						131	242				0	
Storage Bay Dist (ft)	140		400	400	310			25	235	235		120
Storage Blk Time (%)	17	7	0	0	1	3	60	26	13	19	40	18
Queuing Penalty (veh)	86	32	0	0	3	6	135	108	108	158	423	168

Intersection: 2: Oregon Way & Industrial Way

Movement	SB	SB	SB
Directions Served	L	T	TR
Maximum Queue (ft)	236	271	262
Average Queue (ft)	80	229	224
95th Queue (ft)	211	344	338
Link Distance (ft)		236	236
Upstream Blk Time (%)	0	54	54
Queuing Penalty (veh)	0	222	220
Storage Bay Dist (ft)	170		
Storage Blk Time (%)	0	62	
Queuing Penalty (veh)	1	36	

Intersection: 4: Oregon Way & Spur Line

Movement	WB	NB	NB	SB	SB
Directions Served	T	T	T	T	T
Maximum Queue (ft)	98	247	259	726	734
Average Queue (ft)	19	47	50	637	644
95th Queue (ft)	60	198	207	881	883
Link Distance (ft)	4581	236	236	702	702
Upstream Blk Time (%)		11	12	26	28
Queuing Penalty (veh)		61	65	105	112
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 5: Oregon Way & Alabama Street

Movement	EB	WB	NB	NB	SB	SB	SB
Directions Served	LTR	LTR	L	TR	L	T	TR
Maximum Queue (ft)	222	373	110	9	219	621	651
Average Queue (ft)	123	144	36	0	42	182	199
95th Queue (ft)	254	467	87	4	181	562	589
Link Distance (ft)	233	852		702		3126	3126
Upstream Blk Time (%)	19	3					
Queuing Penalty (veh)	0	0					
Storage Bay Dist (ft)			175		165		
Storage Blk Time (%)						20	
Queuing Penalty (veh)						6	

Intersection: 9: California Way & Spur Line

Movement	WB	SE	NW
Directions Served	T	T	T
Maximum Queue (ft)	70	697	383
Average Queue (ft)	4	101	59
95th Queue (ft)	33	436	249
Link Distance (ft)	464	2581	404
Upstream Blk Time (%)			1
Queuing Penalty (veh)			3
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 10: Industrial Way & Spur Line

Movement	WB	SE	NW
Directions Served	T	T	T
Maximum Queue (ft)	139	1238	124
Average Queue (ft)	56	185	20
95th Queue (ft)	188	831	93
Link Distance (ft)	993	2678	116
Upstream Blk Time (%)			13
Queuing Penalty (veh)			88
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 12: Industrial Way & Washington Way

Movement	EB	EB	EB	WB	WB	WB	SE	SE	SE	NW	NW
Directions Served	L	T	R	L	T	R	L	T	R	L	TR
Maximum Queue (ft)	43	70	50	189	393	2	268	628	53	218	420
Average Queue (ft)	12	31	12	30	78	0	55	116	17	53	189
95th Queue (ft)	32	63	35	104	258	2	164	439	48	159	355
Link Distance (ft)	7	7	7		1347	1347		1220			1630
Upstream Blk Time (%)	21	58	13					0			
Queuing Penalty (veh)	18	49	11					0			
Storage Bay Dist (ft)				90			210		25	160	
Storage Blk Time (%)				1	23		0	14	14	3	9
Queuing Penalty (veh)				1	13		0	19	58	17	3

Intersection: 16: Columbia Ave & Industrial Way

Movement	EB	EB	WB	WB	WB	NB	NB
Directions Served	T	TR	L	T	T	L	R
Maximum Queue (ft)	325	343	172	420	419	231	167
Average Queue (ft)	159	175	26	271	277	93	57
95th Queue (ft)	348	359	116	512	508	182	120
Link Distance (ft)	420	420		379	379	398	
Upstream Blk Time (%)	2	3		26	28		
Queuing Penalty (veh)	10	13		118	125		
Storage Bay Dist (ft)			105			130	
Storage Blk Time (%)			0	46		7	0
Queuing Penalty (veh)			1	5		6	0

Intersection: 20: California Way & Industrial Way

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	T	R	L	T	R
Maximum Queue (ft)	275	873	893	60	135	129	73	129	115	184	246	318
Average Queue (ft)	217	791	798	11	18	14	11	10	30	49	23	74
95th Queue (ft)	361	1036	1042	42	80	73	46	57	79	124	125	208
Link Distance (ft)		843	843		237	237		684			404	
Upstream Blk Time (%)		25	27		0						0	0
Queuing Penalty (veh)		167	183		0						0	0
Storage Bay Dist (ft)	150			150			60		60	165		300
Storage Blk Time (%)	37	56			0		1	0	7	1	0	1
Queuing Penalty (veh)	216	95			0		0	0	1	2	0	1

Intersection: 22: 3rd Avenue & Spur Line

Movement	WB	NB	NB	SB	SB
Directions Served	T	T	T	T	T
Maximum Queue (ft)	220	380	386	1549	1535
Average Queue (ft)	89	77	83	875	881
95th Queue (ft)	208	326	337	1644	1639
Link Distance (ft)	2590	370	370	3128	3128
Upstream Blk Time (%)		14	15		
Queuing Penalty (veh)		86	92		
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 24: Industrial Way & Douglas Street

Movement	SE	NW	SW
Directions Served	L	TR	LR
Maximum Queue (ft)	34	3	60
Average Queue (ft)	4	0	26
95th Queue (ft)	21	3	54
Link Distance (ft)		2660	100
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)	195		
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 25: Douglas Street & Alder Street

Movement	NW	NE
Directions Served	LT	LR
Maximum Queue (ft)	19	67
Average Queue (ft)	1	28
95th Queue (ft)	10	60
Link Distance (ft)	681	100
Upstream Blk Time (%)		0
Queuing Penalty (veh)		0
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 29: Spur Line & Washington Way

Movement	EB	EB	EB	WB	WB	NW
Directions Served	T	T	T	T	T	T
Maximum Queue (ft)	190	808	512	26	49	3
Average Queue (ft)	89	418	84	4	8	0
95th Queue (ft)	236	829	328	18	30	3
Link Distance (ft)		1850	1850	7	7	1681
Upstream Blk Time (%)				26	26	
Queuing Penalty (veh)				18	18	
Storage Bay Dist (ft)	140					
Storage Blk Time (%)	0	75				
Queuing Penalty (veh)	0	63				

Intersection: 31: Weyerhaeuser Access & Spur Line

Movement	NW	NE	SW
Directions Served	T	T	T
Maximum Queue (ft)	105	211	20
Average Queue (ft)	36	40	2
95th Queue (ft)	124	144	13
Link Distance (ft)	5597	313	10
Upstream Blk Time (%)			6
Queuing Penalty (veh)			1
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 33: Weyerhaeuser Access & Industrial Way

Movement	SE	NW	NE
Directions Served	R	L	LR
Maximum Queue (ft)	11	26	26
Average Queue (ft)	1	2	17
95th Queue (ft)	10	13	34
Link Distance (ft)			10
Upstream Blk Time (%)			13
Queuing Penalty (veh)			9
Storage Bay Dist (ft)	210	80	
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 37: Weyerhaeuser Access 2 & Industrial Way

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 39: Industrial Way & Prudential Blvd

Movement	SE	SE	NW	NW	SW
Directions Served	L	T	T	T	L
Maximum Queue (ft)	6	108	94	81	103
Average Queue (ft)	0	33	33	22	48
95th Queue (ft)	4	80	76	60	84
Link Distance (ft)		2438	513	513	1261
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	170				
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 41: Hoehne Avenue & Industrial Way

Movement	NE
Directions Served	R
Maximum Queue (ft)	33
Average Queue (ft)	10
95th Queue (ft)	34
Link Distance (ft)	26
Upstream Blk Time (%)	1
Queuing Penalty (veh)	0
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 45: International Way & Industrial Way

Movement	EB	EB	WB	WB	WB	NB	NB
Directions Served	T	TR	L	T	T	L	R
Maximum Queue (ft)	716	728	213	340	335	397	253
Average Queue (ft)	462	476	33	191	195	79	106
95th Queue (ft)	911	915	139	372	375	303	220
Link Distance (ft)	746	746		304	304	973	
Upstream Blk Time (%)	12	14		12	12		
Queuing Penalty (veh)	57	67		51	53		
Storage Bay Dist (ft)			150				150
Storage Blk Time (%)				25		3	11
Queuing Penalty (veh)				4		5	4

Intersection: 47: Fiber Way & Industrial Way

Movement	EB	EB	WB	WB	WB	NB	NB
Directions Served	T	TR	L	T	T	L	R
Maximum Queue (ft)	247	254	240	320	328	123	608
Average Queue (ft)	215	219	61	174	190	47	222
95th Queue (ft)	244	248	161	345	361	100	489
Link Distance (ft)	208	208		295	295	975	975
Upstream Blk Time (%)	44	46		7	8		
Queuing Penalty (veh)	253	269		30	34		
Storage Bay Dist (ft)			150				
Storage Blk Time (%)			0	16			
Queuing Penalty (veh)			2	8			

Intersection: 48: Industrial Way

Movement	EB	EB	WB	WB	NB	SB
Directions Served	T	T	T	T	R	R
Maximum Queue (ft)	82	96	467	461	186	54
Average Queue (ft)	10	12	316	319	72	16
95th Queue (ft)	87	97	616	614	150	58
Link Distance (ft)	1239	1239	420	420	236	90
Upstream Blk Time (%)			20	23	2	10
Queuing Penalty (veh)			99	117	0	0
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 49: 38th Avenue & Industrial Way

Movement	SE	SE	SE	NW	NW	NE	NE	NE	SW	SW
Directions Served	L	T	R	L	T	L	T	R	L	R
Maximum Queue (ft)	55	95	25	273	363	31	47	74	76	46
Average Queue (ft)	16	25	3	81	58	2	8	16	28	18
95th Queue (ft)	42	68	16	212	221	17	32	53	62	44
Link Distance (ft)		2266			2438	3	3	3		
Upstream Blk Time (%)						1	3	5		
Queuing Penalty (veh)						0	1	2		
Storage Bay Dist (ft)	115		225	155					150	200
Storage Blk Time (%)		0		19	0					
Queuing Penalty (veh)		0		62	0					

Intersection: 50: Aluminum Access 1/38th Avenue & Spur Line

Movement	NW	NE	NE	NE	SW
Directions Served	T	T	T	T	T
Maximum Queue (ft)	47	18	1151	72	51
Average Queue (ft)	4	1	499	35	13
95th Queue (ft)	30	14	1310	75	36
Link Distance (ft)	5784		1907		3
Upstream Blk Time (%)			0		50
Queuing Penalty (veh)			0		23
Storage Bay Dist (ft)		35		25	
Storage Blk Time (%)		3	19	70	
Queuing Penalty (veh)		2	11	41	

Intersection: 55: Industrial Way

Movement	EB	EB	WB	WB	NB	SB
Directions Served	T	T	T	T	R	R
Maximum Queue (ft)	311	323	774	768	86	51
Average Queue (ft)	98	101	310	314	27	14
95th Queue (ft)	354	362	875	880	83	43
Link Distance (ft)	379	379	746	746	99	87
Upstream Blk Time (%)	3	5	7	7	8	0
Queuing Penalty (veh)	13	22	32	30	0	0
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 56: Industrial Way & 3rd Avenue

Movement	NW	NW	NE	NE	SW	SW	SW
Directions Served	L	R	T	TR	L	T	T
Maximum Queue (ft)	90	106	252	254	269	408	404
Average Queue (ft)	26	26	150	160	26	334	332
95th Queue (ft)	68	72	243	250	134	532	526
Link Distance (ft)		2710	237	237		370	370
Upstream Blk Time (%)			13	14		40	40
Queuing Penalty (veh)			79	87		162	163
Storage Bay Dist (ft)	175				250		
Storage Blk Time (%)		0				52	
Queuing Penalty (veh)		0				6	

Intersection: 59: Industrial Way

Movement	EB	EB	WB	WB	NB
Directions Served	T	T	T	TR	R
Maximum Queue (ft)	332	338	217	215	145
Average Queue (ft)	257	266	54	54	71
95th Queue (ft)	415	418	200	200	154
Link Distance (ft)	304	304	208	208	118
Upstream Blk Time (%)	14	23	4	5	30
Queuing Penalty (veh)	78	129	20	20	0
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 61: Industrial Way

Movement	SB	SE	NW
Directions Served	LR	L	TR
Maximum Queue (ft)	114	30	6
Average Queue (ft)	45	2	0
95th Queue (ft)	85	14	6
Link Distance (ft)	1001		2678
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)		150	
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 64: Industrial Way

Movement	EB	EB	WB	WB	SB
Directions Served	T	TR	T	T	R
Maximum Queue (ft)	312	317	429	438	26
Average Queue (ft)	188	199	61	65	3
95th Queue (ft)	381	391	330	335	20
Link Distance (ft)	295	295	843	843	88
Upstream Blk Time (%)	11	14	0	0	
Queuing Penalty (veh)	74	98	0	0	
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 69: Dike Road & Spur Line

Movement	SE	NW	NE	SW
Directions Served	T	T	T	T
Maximum Queue (ft)	409	419	179	306
Average Queue (ft)	152	164	29	43
95th Queue (ft)	392	412	119	192
Link Distance (ft)	2167	1051	566	491
Upstream Blk Time (%)				0
Queuing Penalty (veh)				0
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Network Summary

Network wide Queuing Penalty: 6148

Intersection: 3: Main Line & Cowlitz St E/Cowitz St E

Movement	EB	WB	SB
Directions Served	T	T	T
Maximum Queue (ft)	67	85	373
Average Queue (ft)	4	5	172
95th Queue (ft)	26	35	336
Link Distance (ft)	1245	741	1543
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 10: Cowitz St E & Jo Ann Dr

Movement	EB	SB
Directions Served	LT	LR
Maximum Queue (ft)	7	39
Average Queue (ft)	0	11
95th Queue (ft)	5	37
Link Distance (ft)	741	670
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 20: Main Line & Cowlitz Gardens Rd

Movement	SB	SE	NW
Directions Served	T	T	T
Maximum Queue (ft)	364	30	50
Average Queue (ft)	170	2	3
95th Queue (ft)	333	14	21
Link Distance (ft)	1043	550	636
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 26: Main Line & Riverside Dr/Mill St

Movement	EB	WB	SB
Directions Served	T	T	T
Maximum Queue (ft)	148	208	352
Average Queue (ft)	12	18	160
95th Queue (ft)	68	95	331
Link Distance (ft)	672	687	934
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 28: Main Line & River Rd

Movement	EB	WB	SB
Directions Served	T	T	T
Maximum Queue (ft)	87	142	2
Average Queue (ft)	6	10	0
95th Queue (ft)	39	60	4
Link Distance (ft)	778	931	1545
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 47: Main Line & Port Rd

Movement	EB	WB	SB
Directions Served	T	T	T
Maximum Queue (ft)	66	88	405
Average Queue (ft)	3	5	175
95th Queue (ft)	24	37	352
Link Distance (ft)	897	913	1078
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 51: Main Line & Scott Ave

Movement	EB	WB	SB
Directions Served	T	T	T
Maximum Queue (ft)	61	167	387
Average Queue (ft)	5	14	168
95th Queue (ft)	31	81	343
Link Distance (ft)	594	737	1217
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 52: Pekin Rd & Guild Rd/Scott Ave

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (ft)	54	71
Average Queue (ft)	4	32
95th Queue (ft)	29	57
Link Distance (ft)	594	781
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 53: Down River Rd/Dow River Rd & Scott Ave

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	8	8	80	78
Average Queue (ft)	0	0	38	33
95th Queue (ft)	6	5	64	58
Link Distance (ft)	737	725	1412	1143
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 54: Main Line & Pekin Rd/Davidson Rd

Movement	EB	WB	SB
Directions Served	T	T	T
Maximum Queue (ft)	115	89	340
Average Queue (ft)	11	7	150
95th Queue (ft)	61	42	381
Link Distance (ft)	1258	684	4527
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 57: Main Line & Whalen Rd

Movement	EB	WB	SB
Directions Served	T	T	T
Maximum Queue (ft)	73	110	15
Average Queue (ft)	4	9	4
95th Queue (ft)	29	51	16
Link Distance (ft)	1426	1931	4587
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 67: 5th St & Davidson Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	6	60	94	47
Average Queue (ft)	0	15	46	20
95th Queue (ft)	5	48	75	49
Link Distance (ft)	684	755	922	939
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Network Summary

Network wide Queuing Penalty: 0

Intersection: 3: Main Line & Cowlitz St E/Cowitz St E

Movement	EB	WB	SB
Directions Served	T	T	T
Maximum Queue (ft)	67	87	630
Average Queue (ft)	6	9	282
95th Queue (ft)	33	46	576
Link Distance (ft)	1245	741	1543
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 10: Cowitz St E & Jo Ann Dr

Movement	EB	SB
Directions Served	LT	LR
Maximum Queue (ft)	14	34
Average Queue (ft)	0	11
95th Queue (ft)	7	36
Link Distance (ft)	741	670
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 20: Main Line & Cowlitz Gardens Rd

Movement	NB	SB	SE	NW
Directions Served	T	T	T	T
Maximum Queue (ft)	469	674	33	42
Average Queue (ft)	226	295	2	3
95th Queue (ft)	445	616	15	20
Link Distance (ft)	938	1043	550	636
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 26: Main Line & Riverside Dr/Mill St

Movement	EB	WB	NB	SB
Directions Served	T	T	T	T
Maximum Queue (ft)	160	236	62	632
Average Queue (ft)	20	30	10	296
95th Queue (ft)	86	122	51	605
Link Distance (ft)	672	687	1545	934
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 28: Main Line & River Rd

Movement	EB	WB	NB
Directions Served	T	T	T
Maximum Queue (ft)	140	183	549
Average Queue (ft)	17	22	250
95th Queue (ft)	75	99	505
Link Distance (ft)	778	931	926
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 47: Main Line & Port Rd

Movement	EB	WB	NB	SB
Directions Served	T	T	T	T
Maximum Queue (ft)	76	87	546	663
Average Queue (ft)	8	10	266	281
95th Queue (ft)	42	48	510	584
Link Distance (ft)	897	913	1390	1078
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 51: Main Line & Scott Ave

Movement	EB	WB	NB	SB
Directions Served	T	T	T	T
Maximum Queue (ft)	102	190	80	599
Average Queue (ft)	12	23	15	284
95th Queue (ft)	58	105	64	571
Link Distance (ft)	594	737	4527	1217
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 52: Pekin Rd & Guild Rd/Scott Ave

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (ft)	43	82
Average Queue (ft)	3	35
95th Queue (ft)	21	65
Link Distance (ft)	594	781
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 53: Down River Rd/Dow River Rd & Scott Ave

Movement	EB	NB	SB
Directions Served	LTR	LTR	LTR
Maximum Queue (ft)	13	90	79
Average Queue (ft)	1	38	33
95th Queue (ft)	7	67	61
Link Distance (ft)	737	1412	1143
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 54: Main Line & Pekin Rd/Davidson Rd

Movement	EB	WB	NB
Directions Served	T	T	T
Maximum Queue (ft)	145	92	172
Average Queue (ft)	20	11	47
95th Queue (ft)	86	51	159
Link Distance (ft)	1258	684	4587
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 57: Main Line & Whalen Rd

Movement	EB	WB	NB	SB
Directions Served	T	T	T	T
Maximum Queue (ft)	73	103	540	4
Average Queue (ft)	8	13	264	0
95th Queue (ft)	40	61	505	3
Link Distance (ft)	1426	1931	976	4587
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 67: 5th St & Davidson Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	8	62	83	49
Average Queue (ft)	0	14	44	20
95th Queue (ft)	5	46	70	49
Link Distance (ft)	684	755	922	939
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Network Summary

Network wide Queuing Penalty: 0

Intersection: 3: Main Line & Cowlitz St E/Cowitz St E

Movement	EB	WB	NB	SB
Directions Served	T	T	T	T
Maximum Queue (ft)	73	126	532	652
Average Queue (ft)	7	16	233	293
95th Queue (ft)	38	73	485	617
Link Distance (ft)	1245	741	1167	1543
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 10: Cowitz St E & Jo Ann Dr

Movement	EB	SB
Directions Served	LT	LR
Maximum Queue (ft)	3	34
Average Queue (ft)	0	12
95th Queue (ft)	4	38
Link Distance (ft)	741	670
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 20: Main Line & Cowlitz Gardens Rd

Movement	NB	SB	SE	NW
Directions Served	T	T	T	T
Maximum Queue (ft)	538	655	40	44
Average Queue (ft)	243	292	4	4
95th Queue (ft)	486	622	22	22
Link Distance (ft)	938	1043	550	636
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 26: Main Line & Riverside Dr/Mill St

Movement	EB	WB	NB	SB
Directions Served	T	T	T	T
Maximum Queue (ft)	156	260	40	667
Average Queue (ft)	22	39	9	301
95th Queue (ft)	95	159	45	626
Link Distance (ft)	672	687	1545	934
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 28: Main Line & River Rd

Movement	EB	WB	NB	SB
Directions Served	T	T	T	T
Maximum Queue (ft)	141	184	463	2
Average Queue (ft)	18	25	210	0
95th Queue (ft)	80	109	436	3
Link Distance (ft)	778	931	926	1545
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 47: Main Line & Port Rd

Movement	EB	WB	NB	SB
Directions Served	T	T	T	T
Maximum Queue (ft)	68	102	538	601
Average Queue (ft)	8	12	249	270
95th Queue (ft)	39	54	508	566
Link Distance (ft)	897	913	1390	1078
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 51: Main Line & Scott Ave

Movement	EB	WB	NB	SB
Directions Served	T	T	T	T
Maximum Queue (ft)	109	225	75	698
Average Queue (ft)	13	27	18	311
95th Queue (ft)	61	129	68	629
Link Distance (ft)	594	737	4527	1217
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 52: Pekin Rd & Guild Rd/Scott Ave

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (ft)	63	82
Average Queue (ft)	5	37
95th Queue (ft)	31	66
Link Distance (ft)	594	781
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 53: Down River Rd/Dow River Rd & Scott Ave

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	10	13	84	71
Average Queue (ft)	0	0	38	35
95th Queue (ft)	5	6	66	58
Link Distance (ft)	737	725	1412	1143
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 54: Main Line & Pekin Rd/Davidson Rd

Movement	EB	WB	NB	SB
Directions Served	T	T	T	T
Maximum Queue (ft)	149	105	149	3
Average Queue (ft)	22	13	41	1
95th Queue (ft)	89	59	144	7
Link Distance (ft)	1258	684	4587	4527
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 57: Main Line & Whalen Rd

Movement	EB	WB	NB	SB
Directions Served	T	T	T	T
Maximum Queue (ft)	122	142	506	5
Average Queue (ft)	12	17	241	0
95th Queue (ft)	62	79	464	4
Link Distance (ft)	1426	1931	976	4587
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 67: 5th St & Davidson Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	6	86	87	35
Average Queue (ft)	0	21	47	18
95th Queue (ft)	5	61	75	45
Link Distance (ft)	684	755	922	939
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Network Summary

Network wide Queuing Penalty: 0

Intersection: 3: Main Line & Cowlitz St E/Cowitz St E

Movement	EB	WB	NB	SB
Directions Served	T	T	T	T
Maximum Queue (ft)	106	123	588	459
Average Queue (ft)	14	19	262	174
95th Queue (ft)	63	77	536	401
Link Distance (ft)	1245	741	1167	1543
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 10: Cowitz St E & Jo Ann Dr

Movement	EB	SB
Directions Served	LT	LR
Maximum Queue (ft)	10	34
Average Queue (ft)	0	11
95th Queue (ft)	7	36
Link Distance (ft)	741	670
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 20: Main Line & Cowlitz Gardens Rd

Movement	NB	SB	SE	NW
Directions Served	T	T	T	T
Maximum Queue (ft)	506	402	63	65
Average Queue (ft)	214	153	6	7
95th Queue (ft)	471	345	36	36
Link Distance (ft)	938	1043	550	636
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 26: Main Line & Riverside Dr/Mill St

Movement	EB	WB	NB	SB
Directions Served	T	T	T	T
Maximum Queue (ft)	252	355	320	453
Average Queue (ft)	44	65	52	180
95th Queue (ft)	160	230	224	400
Link Distance (ft)	672	687	1545	934
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 28: Main Line & River Rd

Movement	EB	WB	NB	SB
Directions Served	T	T	T	T
Maximum Queue (ft)	179	273	515	18
Average Queue (ft)	27	46	209	4
95th Queue (ft)	108	171	472	19
Link Distance (ft)	778	931	926	1545
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 47: Main Line & Port Rd

Movement	EB	WB	NB	SB
Directions Served	T	T	T	T
Maximum Queue (ft)	83	129	524	421
Average Queue (ft)	13	21	205	166
95th Queue (ft)	53	84	452	377
Link Distance (ft)	897	913	1390	1078
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 51: Main Line & Scott Ave

Movement	EB	WB	NB	SB
Directions Served	T	T	T	T
Maximum Queue (ft)	144	272	79	428
Average Queue (ft)	27	60	7	165
95th Queue (ft)	96	196	39	360
Link Distance (ft)	594	737	4527	1217
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 52: Pekin Rd & Guild Rd/Scott Ave

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (ft)	65	82
Average Queue (ft)	5	37
95th Queue (ft)	33	64
Link Distance (ft)	594	781
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 53: Down River Rd/Dow River Rd & Scott Ave

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	24	7	81	73
Average Queue (ft)	1	0	38	35
95th Queue (ft)	11	4	64	60
Link Distance (ft)	737	725	1412	1143
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 54: Main Line & Pekin Rd/Davidson Rd

Movement	EB	WB	NB	SB
Directions Served	T	T	T	T
Maximum Queue (ft)	187	120	179	70
Average Queue (ft)	36	21	24	15
95th Queue (ft)	123	78	119	89
Link Distance (ft)	1258	684	4587	4527
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 57: Main Line & Whalen Rd

Movement	EB	WB	NB	SB
Directions Served	T	T	T	T
Maximum Queue (ft)	106	139	580	405
Average Queue (ft)	15	22	273	149
95th Queue (ft)	64	85	559	421
Link Distance (ft)	1426	1931	976	4587
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 67: 5th St & Davidson Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	24	82	83	38
Average Queue (ft)	1	20	46	18
95th Queue (ft)	10	59	72	46
Link Distance (ft)	684	755	922	939
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Network Summary

Network wide Queuing Penalty: 0



FEDERAL RAILROAD ADMINISTRATION
GRADEDEC.NET
CORRIDOR AND CROSSING DATA
 (without phased improvements)

User: kchewuk
 Dataset: Initial dataset
 Corridor ID 12

Corridor Name	2018 No Action - Spur			Avg. No. Trains Per Day	Train Time-of-Day Distribution
				<i>Passenger</i>	0.0 Uniform
Technology Factors	0.50	0.50	0.50	<i>Freight</i>	2.5 Uniform
Signal Synchronization?	False			<i>Switch</i>	0.0 Uniform

CORRIDOR SUMMARY OF PREDICTED ANNUAL ACCIDENTS

Calculated: 24-Sep-2015 6:02 pm

	Fatal	Injury	PDO	Total
<i>Base</i>	0.001598	0.021084	0.073685	0.096367
<i>Alternate</i>	0.000518	0.006881	0.024562	0.031961

CROSSING DATA FOR THE 2018 NO ACTION - SPUR CORRIDOR

Milepost 0.69	Crossing ID 101812K	Accidents in 5 Years	0		Predicted Annual Accidents		
Description BNSF - WEYERHAUSER TBR		<u>Highway Traffic Characteristics</u>			<i>Base</i>	<i>Alternate</i>	
Paved? True	Urban? True	H'way Lanes	<i>Base</i>	<i>Alternate</i>	Fatal	0.00014	0.00003
GCX Base Type	Passive	Dist from hway	2	2.0	Injury	0.00184	0.00046
Safety Sup. Type	None	AADT	0.10	0.1	PDO	0.00609	0.00152
GCX Alt Type	Lights	Auto TOD Dist	200	200	Total	0.00807	0.00202
Safety Sup. type	None	Percent Trucks	Uniform	Uniform	<u>Costs in '000 \$</u>		
No. RR Tracks	1	Of this, % trailers	5.0	5.0	<i>Base</i>	<i>Alternate</i>	
<u>Train Speeds (mph)</u>		Truck TOD Dist	0.0	0.0	<u>Grade Crossing Devices</u>		
Max Timetable	10.0	Bus TOD Dist	Uniform	Uniform	O&M	0.2	1.8
Passenger	10.0	Costs in '000 \$ of Hwy Improvement	0.0	0.0	Oth. Lcycle	0.0	0.0
Freight	5.0				Capital		74.8
Switch	3.0				<u>Supplementary Safety</u>		
					O&M	0.0	0.0
					Oth. Lcycle	0.0	0.0
					Capital		0.0

Milepost 2.68	Crossing ID 101826T	Accidents in 5 Years	0		Predicted Annual Accidents		
Description BNSF - 3RD AVE		<u>Highway Traffic Characteristics</u>			<i>Base</i>	<i>Alternate</i>	
Paved? True	Urban? True	H'way Lanes	<i>Base</i>	<i>Alternate</i>	Fatal	0.00029	0.00014
GCX Base Type	Gates	Dist from hway	4	4.0	Injury	0.00411	0.00206
Safety Sup. Type	None	AADT	0.10	0.1	PDO	0.01636	0.00818
GCX Alt Type	New Technology 1	Auto TOD Dist	16,850	16,850	Total	0.02076	0.01038
Safety Sup. type	None	Percent Trucks	Uniform	Uniform	<u>Costs in '000 \$</u>		
No. RR Tracks	2	Of this, % trailers	15.0	15.0	<i>Base</i>	<i>Alternate</i>	
<u>Train Speeds (mph)</u>		Truck TOD Dist	0.0	0.0	<u>Grade Crossing Devices</u>		
Max Timetable	8.0	Bus TOD Dist	Uniform	Uniform	O&M	2.5	5.0
Passenger	8.0	Costs in '000 \$ of Hwy Improvement	0.0	0.0	Oth. Lcycle	0.0	0.0
Freight	8.0				Capital		280.0
Switch	3.0				<u>Supplementary Safety</u>		
					O&M	0.0	0.0
					Oth. Lcycle	0.0	0.0
					Capital		0.0

CROSSING DATA FOR THE 2018 NO ACTION - SPUR CORRIDOR

Milepost 2.79	Crossing ID 101821J	Accidents in 5 Years	0		<u>Predicted Annual Accidents</u>		
Description BNSF - CALIFORNIA WAY		<u>Highway Traffic Characteristics</u>			<i>Base</i>	<i>Alternate</i>	
			<i>Base</i>	<i>Alternate</i>	Fatal	0.00017	0.00002
Paved? True	Urban? True	H'way Lanes	2	2.0	Injury	0.00225	0.00025
GCX Base Type	Lights	Dist from hway	0.10	0.1	PDO	0.00743	0.00082
Safety Sup. Type	None	AADT	4,050	4,050	Total	0.00984	0.00108
GCX Alt Type	Gates	Auto TOD Dist	Uniform	Uniform	<u>Costs in '000 \$</u>		
Safety Sup. type	None	Percent Trucks	7.0	7.0	<i>Base</i> <i>Alternate</i>		
No. RR Tracks	1	Of this, % trailers	0.0	0.0	<u>Grade Crossing Devices</u>		
<u>Train Speeds (mph)</u>		Truck TOD Dist	Uniform	Uniform	O&M	1.8	2.5
Max Timetable	10.0	Percent Bus	0.0	0.0	Oth. Lcycle	0.0	0.0
Passenger	10.0	Bus TOD Dist	Uniform	Uniform	Capital		106.1
Freight	8.0	Costs in '000 \$ of Hwy Improvement		0.0	<u>Supplementary Safety</u>		
Switch	3.0				O&M	0.0	0.0
					Oth. Lcycle	0.0	0.0
					Capital		0.0

Milepost 3.67	Crossing ID 101805A	Accidents in 5 Years	0		<u>Predicted Annual Accidents</u>		
Description BNSF - OREGON WAY		<u>Highway Traffic Characteristics</u>			<i>Base</i>	<i>Alternate</i>	
			<i>Base</i>	<i>Alternate</i>	Fatal	0.00031	0.00016
Paved? True	Urban? True	H'way Lanes	4	4.0	Injury	0.00410	0.00205
GCX Base Type	Gates	Dist from hway	0.10	0.1	PDO	0.01354	0.00677
Safety Sup. Type	None	AADT	15,200	15,200	Total	0.01795	0.00898
GCX Alt Type	New Technology 1	Auto TOD Dist	Uniform	Uniform	<u>Costs in '000 \$</u>		
Safety Sup. type	None	Percent Trucks	5.0	5.0	<i>Base</i> <i>Alternate</i>		
No. RR Tracks	1	Of this, % trailers	0.0	0.0	<u>Grade Crossing Devices</u>		
<u>Train Speeds (mph)</u>		Truck TOD Dist	Uniform	Uniform	O&M	2.5	5.0
Max Timetable	10.0	Percent Bus	0.0	0.0	Oth. Lcycle	0.0	0.0
Passenger	10.0	Bus TOD Dist	Uniform	Uniform	Capital		280.0
Freight	10.0	Costs in '000 \$ of Hwy Improvement		0.0	<u>Supplementary Safety</u>		
Switch	3.0				O&M	0.0	0.0
					Oth. Lcycle	0.0	0.0
					Capital		0.0

Milepost 3.88	Crossing ID 101806G	Accidents in 5 Years	0		<u>Predicted Annual Accidents</u>		
Description BNSF - INDUSTRIAL WAY		<u>Highway Traffic Characteristics</u>			<i>Base</i>	<i>Alternate</i>	
			<i>Base</i>	<i>Alternate</i>	Fatal	0.00023	0.00003
Paved? True	Urban? True	H'way Lanes	2	2.0	Injury	0.00305	0.00034
GCX Base Type	Lights	Dist from hway	0.10	0.1	PDO	0.01008	0.00111
Safety Sup. Type	None	AADT	10,100	10,100	Total	0.01336	0.00147
GCX Alt Type	Gates	Auto TOD Dist	Uniform	Uniform	<u>Costs in '000 \$</u>		
Safety Sup. type	None	Percent Trucks	15.0	15.0	<i>Base</i> <i>Alternate</i>		
No. RR Tracks	1	Of this, % trailers	0.0	0.0	<u>Grade Crossing Devices</u>		
<u>Train Speeds (mph)</u>		Truck TOD Dist	Uniform	Uniform	O&M	1.8	2.5
Max Timetable	10.0	Percent Bus	0.0	0.0	Oth. Lcycle	0.0	0.0
Passenger	10.0	Bus TOD Dist	Uniform	Uniform	Capital		106.1
Freight	10.0	Costs in '000 \$ of Hwy Improvement		0.0	<u>Supplementary Safety</u>		
Switch	3.0				O&M	0.0	0.0
					Oth. Lcycle	0.0	0.0
					Capital		0.0

CROSSING DATA FOR THE 2018 NO ACTION - SPUR CORRIDOR

Milepost 5.05	Crossing ID 101809C	Accidents in 5 Years	0		<u>Predicted Annual Accidents</u>		
Description BNSF - WEYERHAUSER TBR		<u>Highway Traffic Characteristics</u>				<i>Base</i>	<i>Alternate</i>
			<i>Base</i>	<i>Alternate</i>	Fatal	0.00021	0.00005
Paved? True	Urban? True	H'way Lanes	2	2.0	Injury	0.00273	0.00068
GCX Base Type	Passive	Dist from hway	0.10	0.1	PDO	0.00902	0.00226
Safety Sup. Type	None	AADT	650	650	Total	0.01196	0.00299
GCX Alt Type	Lights	Auto TOD Dist	Uniform	Uniform	<u>Costs in '000 \$</u>		
Safety Sup. type	None	Percent Trucks	5.0	5.0	<i>Base</i> <i>Alternate</i>		
No. RR Tracks	1	Of this, % trailers	0.0	0.0	<u>Grade Crossing Devices</u>		
<u>Train Speeds (mph)</u>		Truck TOD Dist	Uniform	Uniform	O&M	0.2	1.8
Max Timetable	10.0	Percent Bus	0.0	0.0	Oth. Lcycle	0.0	0.0
Passenger	10.0	Bus TOD Dist	Uniform	Uniform	Capital		74.8
Freight	10.0	Costs in '000 \$ of Hwy Improvement		0.0	<u>Supplementary Safety</u>		
Switch	3.0				O&M	0.0	0.0
					Oth. Lcycle	0.0	0.0
					Capital		0.0

Milepost 6.47	Crossing ID 101817U	Accidents in 5 Years	0		<u>Predicted Annual Accidents</u>		
Description BNSF - REYNOLDS ALUM		<u>Highway Traffic Characteristics</u>				<i>Base</i>	<i>Alternate</i>
			<i>Base</i>	<i>Alternate</i>	Fatal	0.00025	0.00009
Paved? True	Urban? True	H'way Lanes	4	4.0	Injury	0.00299	0.00105
GCX Base Type	Lights	Dist from hway	0.10	0.1	PDO	0.01117	0.00391
Safety Sup. Type	None	AADT	3,300	3,300	Total	0.01442	0.00505
GCX Alt Type	Gates	Auto TOD Dist	Uniform	Uniform	<u>Costs in '000 \$</u>		
Safety Sup. type	None	Percent Trucks	5.0	5.0	<i>Base</i> <i>Alternate</i>		
No. RR Tracks	2	Of this, % trailers	0.0	0.0	<u>Grade Crossing Devices</u>		
<u>Train Speeds (mph)</u>		Truck TOD Dist	Uniform	Uniform	O&M	1.8	2.5
Max Timetable	10.0	Percent Bus	0.0	0.0	Oth. Lcycle	0.0	0.0
Passenger	10.0	Bus TOD Dist	Uniform	Uniform	Capital		106.1
Freight	8.0	Costs in '000 \$ of Hwy Improvement		0.0	<u>Supplementary Safety</u>		
Switch	3.0				O&M	0.0	0.0
					Oth. Lcycle	0.0	0.0
					Capital		0.0



FEDERAL RAILROAD ADMINISTRATION
GRADEDEC.NET
CORRIDOR AND CROSSING DATA
 (without phased improvements)

User: kchewuk
 Dataset: Initial dataset
 Corridor ID 13

Corridor Name	2018 No Action - Dike			<i>Avg. No. Trains Per Day</i>	<i>Train Time-of-Day Distribution</i>	
				<i>Passenger</i>	0.0	Uniform
Technology Factors	0.50	0.50	0.50	<i>Freight</i>	7.0	Uniform
Signal Synchronization?	False			<i>Switch</i>	0.0	Uniform

CORRIDOR SUMMARY OF PREDICTED ANNUAL ACCIDENTS

Calculated: 24-Sep-2015 6:02 pm

	Fatal	Injury	PDO	Total
<i>Base</i>	0.000360	0.002870	0.010421	0.013651
<i>Alternate</i>	0.000360	0.002870	0.010421	0.013651

CROSSING DATA FOR THE 2018 NO ACTION - DIKE CORRIDOR

Milepost 13.43	Crossing ID 101791U	Accidents in 5 Years	0		<u>Predicted Annual Accidents</u>		
Description BNSF - DIKE RD		<u>Highway Traffic Characteristics</u>			<i>Base</i> <i>Alternate</i>		
					Fatal	0.00036	0.00036
					Injury	0.00287	0.00287
					PDO	0.01042	0.01042
					Total	0.01365	0.01365
					<u>Costs in '000 \$</u>		
					<i>Base</i> <i>Alternate</i>		
					<u>Grade Crossing Devices</u>		
					O&M	1.8	1.8
					Oth. Lcycle	0.0	0.0
					Capital		74.8
					<u>Supplementary Safety</u>		
					O&M	0.0	0.0
					Oth. Lcycle	0.0	0.0
					Capital		0.0
<u>Train Speeds (mph)</u>							
Max Timetable		10.0					
Passenger		10.0					
Freight		10.0					
Switch		3.0					
		Costs in '000 \$ of Hway Improvement			0.0		



FEDERAL RAILROAD ADMINISTRATION
GRADEDEC.NET
CORRIDOR AND CROSSING DATA
 (without phased improvements)

User: kchewuk
 Dataset: Initial dataset
 Corridor ID 15

Corridor Name	2018 Construction Truck - Spur			Avg. No. Trains Per Day	Train Time-of-Day Distribution
Technology Factors	0.50	0.50	0.50	<i>Passenger</i> 0.0	Uniform
Signal Synchronization?	False			<i>Freight</i> 2.5	Uniform
				<i>Switch</i> 0.0	Uniform

CORRIDOR SUMMARY OF PREDICTED ANNUAL ACCIDENTS

Calculated: 24-Sep-2015 5:59 pm

	Fatal	Injury	PDO	Total
<i>Base</i>	0.001807	0.023847	0.082845	0.108499
<i>Alternate</i>	0.000570	0.007569	0.026850	0.034989

CROSSING DATA FOR THE 2018 CONSTRUCTION TRUCK - SPUR CORRIDOR

Milepost 0.69	Crossing ID 101812K	Accidents in 5 Years	0	Predicted Annual Accidents		
Description BNSF - WEYERHAUSER TBR		<u>Highway Traffic Characteristics</u>		<i>Base</i>	<i>Alternate</i>	
Paved? True	Urban? True	H'way Lanes	2	2.0		
GCX Base Type	Passive	Dist from hwy	0.10	0.1		
Safety Sup. Type	None	AADT	2,850	2,850		
GCX Alt Type	Lights	Auto TOD Dist	Uniform	Uniform		
Safety Sup. type	None	Percent Trucks	5.0	5.0		
No. RR Tracks	1	Of this, % trailers	0.0	0.0		
		Truck TOD Dist	Uniform	Uniform		
<u>Train Speeds (mph)</u>		Percent Bus	0.0	0.0		
Max Timetable	10.0	Bus TOD Dist	Uniform	Uniform		
Passenger	10.0	Costs in '000 \$ of Hwy Improvement		0.0		
Freight	5.0					
Switch	3.0					
				<u>Costs in '000 \$</u>		
				<i>Base</i>	<i>Alternate</i>	
				<u>Grade Crossing Devices</u>		
				O&M	0.2	1.8
				Oth. Lcycle	0.0	0.0
				Capital		74.8
				<u>Supplementary Safety</u>		
				O&M	0.0	0.0
				Oth. Lcycle	0.0	0.0
				Capital		0.0

Milepost 2.68	Crossing ID 101826T	Accidents in 5 Years	0	Predicted Annual Accidents		
Description BNSF - 3RD AVE		<u>Highway Traffic Characteristics</u>		<i>Base</i>	<i>Alternate</i>	
Paved? True	Urban? True	H'way Lanes	4	4.0		
GCX Base Type	Gates	Dist from hwy	0.10	0.1		
Safety Sup. Type	None	AADT	17,850	17,850		
GCX Alt Type	New Technology 1	Auto TOD Dist	Uniform	Uniform		
Safety Sup. type	None	Percent Trucks	15.0	15.0		
No. RR Tracks	2	Of this, % trailers	0.0	0.0		
		Truck TOD Dist	Uniform	Uniform		
<u>Train Speeds (mph)</u>		Percent Bus	0.0	0.0		
Max Timetable	8.0	Bus TOD Dist	Uniform	Uniform		
Passenger	8.0	Costs in '000 \$ of Hwy Improvement		0.0		
Freight	8.0					
Switch	3.0					
				<u>Costs in '000 \$</u>		
				<i>Base</i>	<i>Alternate</i>	
				<u>Grade Crossing Devices</u>		
				O&M	2.5	5.0
				Oth. Lcycle	0.0	0.0
				Capital		280.0
				<u>Supplementary Safety</u>		
				O&M	0.0	0.0
				Oth. Lcycle	0.0	0.0
				Capital		0.0

CROSSING DATA FOR THE 2018 CONSTRUCTION TRUCK - SPUR CORRIDOR

Milepost 2.79	Crossing ID 101821J	Accidents in 5 Years	0		<u>Predicted Annual Accidents</u>		
Description BNSF - CALIFORNIA WAY		<u>Highway Traffic Characteristics</u>			<i>Base</i>	<i>Alternate</i>	
Paved? True	Urban? True	H'way Lanes	2	2.0	Fatal	0.00017	0.00002
GCX Base Type	Lights	Dist from hway	0.10	0.1	Injury	0.00225	0.00025
Safety Sup. Type	None	AADT	4,050	4,050	PDO	0.00743	0.00082
GCX Alt Type	Gates	Auto TOD Dist	Uniform	Uniform	Total	0.00984	0.00108
Safety Sup. type	None	Percent Trucks	7.0	7.0	<u>Costs in '000 \$</u>		
No. RR Tracks	1	Of this, % trailers	0.0	0.0	<i>Base</i>	<i>Alternate</i>	
<u>Train Speeds (mph)</u>		Truck TOD Dist	Uniform	Uniform	<u>Grade Crossing Devices</u>		
Max Timetable	10.0	Percent Bus	0.0	0.0	O&M	1.8	2.5
Passenger	10.0	Bus TOD Dist	Uniform	Uniform	Oth. Lcycle	0.0	0.0
Freight	8.0	Costs in '000 \$ of Hwy Improvement		0.0	Capital	106.1	
Switch	3.0				<u>Supplementary Safety</u>		
					O&M	0.0	0.0
					Oth. Lcycle	0.0	0.0
					Capital	0.0	

Milepost 3.67	Crossing ID 101805A	Accidents in 5 Years	0		<u>Predicted Annual Accidents</u>		
Description BNSF - OREGON WAY		<u>Highway Traffic Characteristics</u>			<i>Base</i>	<i>Alternate</i>	
Paved? True	Urban? True	H'way Lanes	4	4.0	Fatal	0.00031	0.00016
GCX Base Type	Gates	Dist from hway	0.10	0.1	Injury	0.00413	0.00206
Safety Sup. Type	None	AADT	15,650	15,650	PDO	0.01363	0.00682
GCX Alt Type	New Technology 1	Auto TOD Dist	Uniform	Uniform	Total	0.01808	0.00904
Safety Sup. type	None	Percent Trucks	5.0	5.0	<u>Costs in '000 \$</u>		
No. RR Tracks	1	Of this, % trailers	0.0	0.0	<i>Base</i>	<i>Alternate</i>	
<u>Train Speeds (mph)</u>		Truck TOD Dist	Uniform	Uniform	<u>Grade Crossing Devices</u>		
Max Timetable	10.0	Percent Bus	0.0	0.0	O&M	2.5	5.0
Passenger	10.0	Bus TOD Dist	Uniform	Uniform	Oth. Lcycle	0.0	0.0
Freight	10.0	Costs in '000 \$ of Hwy Improvement		0.0	Capital	280.0	
Switch	3.0				<u>Supplementary Safety</u>		
					O&M	0.0	0.0
					Oth. Lcycle	0.0	0.0
					Capital	0.0	

Milepost 3.88	Crossing ID 101806G	Accidents in 5 Years	0		<u>Predicted Annual Accidents</u>		
Description BNSF - INDUSTRIAL WAY		<u>Highway Traffic Characteristics</u>			<i>Base</i>	<i>Alternate</i>	
Paved? True	Urban? True	H'way Lanes	2	2.0	Fatal	0.00024	0.00003
GCX Base Type	Lights	Dist from hway	0.10	0.1	Injury	0.00323	0.00035
Safety Sup. Type	None	AADT	12,000	12,000	PDO	0.01065	0.00117
GCX Alt Type	Gates	Auto TOD Dist	Uniform	Uniform	Total	0.01412	0.00155
Safety Sup. type	None	Percent Trucks	15.0	15.0	<u>Costs in '000 \$</u>		
No. RR Tracks	1	Of this, % trailers	0.0	0.0	<i>Base</i>	<i>Alternate</i>	
<u>Train Speeds (mph)</u>		Truck TOD Dist	Uniform	Uniform	<u>Grade Crossing Devices</u>		
Max Timetable	10.0	Percent Bus	0.0	0.0	O&M	1.8	2.5
Passenger	10.0	Bus TOD Dist	Uniform	Uniform	Oth. Lcycle	0.0	0.0
Freight	10.0	Costs in '000 \$ of Hwy Improvement		0.0	Capital	106.1	
Switch	3.0				<u>Supplementary Safety</u>		
					O&M	0.0	0.0
					Oth. Lcycle	0.0	0.0
					Capital	0.0	

CROSSING DATA FOR THE 2018 CONSTRUCTION TRUCK - SPUR CORRIDOR

Milepost 5.05	Crossing ID 101809C	Accidents in 5 Years	0		<u>Predicted Annual Accidents</u>		
Description BNSF - WEYERHAUSER TBR		<u>Highway Traffic Characteristics</u>			<i>Base</i>	<i>Alternate</i>	
Paved? True	Urban? True	H'way Lanes	2	2.0	Fatal	0.00021	0.00005
GCX Base Type	Passive	Dist from hway	0.10	0.1	Injury	0.00273	0.00068
Safety Sup. Type	None	AADT	650	650	PDO	0.00902	0.00226
GCX Alt Type	Lights	Auto TOD Dist	Uniform	Uniform	Total	0.01196	0.00299
Safety Sup. type	None	Percent Trucks	5.0	5.0	<u>Costs in '000 \$</u>		
No. RR Tracks	1	Of this, % trailers	0.0	0.0	<u>Grade Crossing Devices</u>		
<u>Train Speeds (mph)</u>		Truck TOD Dist	Uniform	Uniform	O&M	0.2	1.8
Max Timetable	10.0	Percent Bus	0.0	0.0	Oth. Lcycle	0.0	0.0
Passenger	10.0	Bus TOD Dist	Uniform	Uniform	Capital		74.8
Freight	10.0	Costs in '000 \$ of Hwy Improvement		0.0	<u>Supplementary Safety</u>		
Switch	3.0				O&M	0.0	0.0
					Oth. Lcycle	0.0	0.0
					Capital		0.0

Milepost 6.47	Crossing ID 101817U	Accidents in 5 Years	0		<u>Predicted Annual Accidents</u>		
Description BNSF - REYNOLDS ALUM		<u>Highway Traffic Characteristics</u>			<i>Base</i>	<i>Alternate</i>	
Paved? True	Urban? True	H'way Lanes	4	4.0	Fatal	0.00025	0.00009
GCX Base Type	Lights	Dist from hway	0.10	0.1	Injury	0.00299	0.00105
Safety Sup. Type	None	AADT	3,300	3,300	PDO	0.01117	0.00391
GCX Alt Type	Gates	Auto TOD Dist	Uniform	Uniform	Total	0.01442	0.00505
Safety Sup. type	None	Percent Trucks	5.0	5.0	<u>Costs in '000 \$</u>		
No. RR Tracks	2	Of this, % trailers	0.0	0.0	<u>Grade Crossing Devices</u>		
<u>Train Speeds (mph)</u>		Truck TOD Dist	Uniform	Uniform	O&M	1.8	2.5
Max Timetable	10.0	Percent Bus	0.0	0.0	Oth. Lcycle	0.0	0.0
Passenger	10.0	Bus TOD Dist	Uniform	Uniform	Capital		106.1
Freight	8.0	Costs in '000 \$ of Hwy Improvement		0.0	<u>Supplementary Safety</u>		
Switch	3.0				O&M	0.0	0.0
					Oth. Lcycle	0.0	0.0
					Capital		0.0



FEDERAL RAILROAD ADMINISTRATION
GRADEDEC.NET
CORRIDOR AND CROSSING DATA
 (without phased improvements)

User: kchewuk
 Dataset: Initial dataset
 Corridor ID 16

Corridor Name	2018 Construction Truck - Dike			Avg. No. Trains Per Day	Train Time-of-Day Distribution
Technology Factors	0.50	0.50	0.50	<i>Passenger</i> 0.0	Uniform
Signal Synchronization?	False			<i>Freight</i> 7.0	Uniform
				<i>Switch</i> 0.0	Uniform

CORRIDOR SUMMARY OF PREDICTED ANNUAL ACCIDENTS

Calculated: 24-Sep-2015 6:00 pm

	Fatal	Injury	PDO	Total
<i>Base</i>	0.000360	0.002870	0.010421	0.013651
<i>Alternate</i>	0.000360	0.002870	0.010421	0.013651

CROSSING DATA FOR THE 2018 CONSTRUCTION TRUCK - DIKE CORRIDOR

Milepost 13.43	Crossing ID 101791U	Accidents in 5 Years	0		<u>Predicted Annual Accidents</u>		
Description BNSF - DIKE RD		<u>Highway Traffic Characteristics</u>			<i>Base</i>	<i>Alternate</i>	
			<i>Base</i>	<i>Alternate</i>	Fatal	0.00036	0.00036
Paved? True	Urban? False	H'way Lanes	2	2.0	Injury	0.00287	0.00287
GCX Base Type	Lights	Dist from hway	0.10	0.1	PDO	0.01042	0.01042
Safety Sup. Type	None	AADT	950	950	Total	0.01365	0.01365
GCX Alt Type	Lights	Auto TOD Dist	Uniform	Uniform	<u>Costs in '000 \$</u>		
Safety Sup. type	None	Percent Trucks	12.0	12.0	<i>Base</i>	<i>Alternate</i>	
No. RR Tracks	4	Of this, % trailers	0.0	0.0	<u>Grade Crossing Devices</u>		
<u>Train Speeds (mph)</u>		Truck TOD Dist	Uniform	Uniform	O&M	1.8	1.8
Max Timetable	10.0	Percent Bus	0.0	0.0	Oth. Lcycle	0.0	0.0
Passenger	10.0	Bus TOD Dist	Uniform	Uniform	Capital		74.8
Freight	10.0	Costs in '000 \$ of Hway Improvement		0.0	<u>Supplementary Safety</u>		
Switch	3.0				O&M	0.0	0.0
					Oth. Lcycle	0.0	0.0
					Capital		0.0



FEDERAL RAILROAD ADMINISTRATION
GRADEDEC.NET
CORRIDOR AND CROSSING DATA
 (without phased improvements)

User: kchewuk
 Dataset: Initial dataset
 Corridor ID 18

Corridor Name	2018 Construction Rail - Spur			<i>Avg. No. Trains Per Day</i>	<i>Train Time-of-Day Distribution</i>	
				<i>Passenger</i>	0.0	Uniform
Technology Factors	0.50	0.50	0.50	<i>Freight</i>	4.0	Uniform
Signal Synchronization?	False			<i>Switch</i>	0.0	Uniform

CORRIDOR SUMMARY OF PREDICTED ANNUAL ACCIDENTS

Calculated: 24-Sep-2015 5:56 pm

	Fatal	Injury	PDO	Total
<i>Base</i>	0.002151	0.027464	0.095672	0.125288
<i>Alternate</i>	0.000682	0.008765	0.031173	0.040620

CROSSING DATA FOR THE 2018 CONSTRUCTION RAIL - SPUR CORRIDOR

Milepost 0.69	Crossing ID 101812K	Accidents in 5 Years	0		<u>Predicted Annual Accidents</u>		
Description BNSF - WEYERHAUSER TBR		<u>Highway Traffic Characteristics</u>			<i>Base</i>	<i>Alternate</i>	
		<i>Base</i>	<i>Alternate</i>		Fatal	0.00036	0.00009
Paved? True	Urban? True	H'way Lanes	2	2.0	Injury	0.00462	0.00116
GCX Base Type	Passive	Dist from hwy	0.10	0.1	PDO	0.01530	0.00382
Safety Sup. Type	None	AADT	1,800	1,800	Total	0.02028	0.00507
GCX Alt Type	Lights	Auto TOD Dist	Uniform	Uniform	<u>Costs in '000 \$</u>		
Safety Sup. type	None	Percent Trucks	5.0	5.0	<i>Base</i>	<i>Alternate</i>	
No. RR Tracks	1	Of this, % trailers	0.0	0.0	<u>Grade Crossing Devices</u>		
<u>Train Speeds (mph)</u>		Truck TOD Dist	Uniform	Uniform	O&M	0.2	1.8
Max Timetable	10.0	Percent Bus	0.0	0.0	Oth. Lcycle	0.0	0.0
Passenger	10.0	Bus TOD Dist	Uniform	Uniform	Capital		74.8
Freight	5.0	Costs in '000 \$ of Hwy Improvement		0.0	<u>Supplementary Safety</u>		
Switch	3.0				O&M	0.0	0.0
					Oth. Lcycle	0.0	0.0
					Capital		0.0

Milepost 2.68	Crossing ID 101826T	Accidents in 5 Years	0		<u>Predicted Annual Accidents</u>		
Description BNSF - 3RD AVE		<u>Highway Traffic Characteristics</u>			<i>Base</i>	<i>Alternate</i>	
		<i>Base</i>	<i>Alternate</i>		Fatal	0.00035	0.00018
Paved? True	Urban? True	H'way Lanes	4	4.0	Injury	0.00485	0.00243
GCX Base Type	Gates	Dist from hwy	0.10	0.1	PDO	0.01934	0.00967
Safety Sup. Type	None	AADT	17,200	17,200	Total	0.02454	0.01227
GCX Alt Type	New Technology 1	Auto TOD Dist	Uniform	Uniform	<u>Costs in '000 \$</u>		
Safety Sup. type	None	Percent Trucks	15.0	15.0	<i>Base</i>	<i>Alternate</i>	
No. RR Tracks	2	Of this, % trailers	0.0	0.0	<u>Grade Crossing Devices</u>		
<u>Train Speeds (mph)</u>		Truck TOD Dist	Uniform	Uniform	O&M	2.5	5.0
Max Timetable	8.0	Percent Bus	0.0	0.0	Oth. Lcycle	0.0	0.0
Passenger	8.0	Bus TOD Dist	Uniform	Uniform	Capital		280.0
Freight	8.0	Costs in '000 \$ of Hwy Improvement		0.0	<u>Supplementary Safety</u>		
Switch	3.0				O&M	0.0	0.0
					Oth. Lcycle	0.0	0.0
					Capital		0.0

CROSSING DATA FOR THE 2018 CONSTRUCTION RAIL - SPUR CORRIDOR

Milepost 2.79	Crossing ID 101821J	Accidents in 5 Years	0		<u>Predicted Annual Accidents</u>		
Description BNSF - CALIFORNIA WAY		<u>Highway Traffic Characteristics</u>			<i>Base</i>	<i>Alternate</i>	
Paved? True	Urban? True	H'way Lanes	2	2.0	Fatal	0.00021	0.00002
GCX Base Type	Lights	Dist from hway	0.10	0.1	Injury	0.00263	0.00029
Safety Sup. Type	None	AADT	4,050	4,050	PDO	0.00871	0.00096
GCX Alt Type	Gates	Auto TOD Dist	Uniform	Uniform	Total	0.01155	0.00127
Safety Sup. type	None	Percent Trucks	7.0	7.0	<u>Costs in '000 \$</u>		
No. RR Tracks	1	Of this, % trailers	0.0	0.0	<i>Base</i>	<i>Alternate</i>	
<u>Train Speeds (mph)</u>		Truck TOD Dist	Uniform	Uniform	<u>Grade Crossing Devices</u>		
Max Timetable	10.0	Percent Bus	0.0	0.0	O&M	1.8	2.5
Passenger	10.0	Bus TOD Dist	Uniform	Uniform	Oth. Lcycle	0.0	0.0
Freight	8.0	Costs in '000 \$ of Hwy Improvement		0.0	Capital	106.1	
Switch	3.0	<u>Supplementary Safety</u>					
					O&M	0.0	0.0
					Oth. Lcycle	0.0	0.0
					Capital	0.0	

Milepost 3.67	Crossing ID 101805A	Accidents in 5 Years	0		<u>Predicted Annual Accidents</u>		
Description BNSF - OREGON WAY		<u>Highway Traffic Characteristics</u>			<i>Base</i>	<i>Alternate</i>	
Paved? True	Urban? True	H'way Lanes	4	4.0	Fatal	0.00038	0.00019
GCX Base Type	Gates	Dist from hway	0.10	0.1	Injury	0.00488	0.00244
Safety Sup. Type	None	AADT	15,650	15,650	PDO	0.01615	0.00807
GCX Alt Type	New Technology 1	Auto TOD Dist	Uniform	Uniform	Total	0.02141	0.01071
Safety Sup. type	None	Percent Trucks	5.0	5.0	<u>Costs in '000 \$</u>		
No. RR Tracks	1	Of this, % trailers	0.0	0.0	<i>Base</i>	<i>Alternate</i>	
<u>Train Speeds (mph)</u>		Truck TOD Dist	Uniform	Uniform	<u>Grade Crossing Devices</u>		
Max Timetable	10.0	Percent Bus	0.0	0.0	O&M	2.5	5.0
Passenger	10.0	Bus TOD Dist	Uniform	Uniform	Oth. Lcycle	0.0	0.0
Freight	10.0	Costs in '000 \$ of Hwy Improvement		0.0	Capital	280.0	
Switch	3.0	<u>Supplementary Safety</u>					
					O&M	0.0	0.0
					Oth. Lcycle	0.0	0.0
					Capital	0.0	

Milepost 3.88	Crossing ID 101806G	Accidents in 5 Years	0		<u>Predicted Annual Accidents</u>		
Description BNSF - INDUSTRIAL WAY		<u>Highway Traffic Characteristics</u>			<i>Base</i>	<i>Alternate</i>	
Paved? True	Urban? True	H'way Lanes	2	2.0	Fatal	0.00029	0.00003
GCX Base Type	Lights	Dist from hway	0.10	0.1	Injury	0.00365	0.00040
Safety Sup. Type	None	AADT	11,200	11,200	PDO	0.01207	0.00133
GCX Alt Type	Gates	Auto TOD Dist	Uniform	Uniform	Total	0.01600	0.00176
Safety Sup. type	None	Percent Trucks	15.0	15.0	<u>Costs in '000 \$</u>		
No. RR Tracks	1	Of this, % trailers	0.0	0.0	<i>Base</i>	<i>Alternate</i>	
<u>Train Speeds (mph)</u>		Truck TOD Dist	Uniform	Uniform	<u>Grade Crossing Devices</u>		
Max Timetable	10.0	Percent Bus	0.0	0.0	O&M	1.8	2.5
Passenger	10.0	Bus TOD Dist	Uniform	Uniform	Oth. Lcycle	0.0	0.0
Freight	10.0	Costs in '000 \$ of Hwy Improvement		0.0	Capital	106.1	
Switch	3.0	<u>Supplementary Safety</u>					
					O&M	0.0	0.0
					Oth. Lcycle	0.0	0.0
					Capital	0.0	

CROSSING DATA FOR THE 2018 CONSTRUCTION RAIL - SPUR CORRIDOR

Milepost 5.05	Crossing ID 101809C	Accidents in 5 Years	0		<u>Predicted Annual Accidents</u>		
Description BNSF - WEYERHAUSER TBR		<u>Highway Traffic Characteristics</u>			<i>Base</i>	<i>Alternate</i>	
Paved? True	Urban? True	H'way Lanes	2	2.0	Fatal	0.00027	0.00007
GCX Base Type	Passive	Dist from hway	0.10	0.1	Injury	0.00338	0.00085
Safety Sup. Type	None	AADT	650	650	PDO	0.01119	0.00280
GCX Alt Type	Lights	Auto TOD Dist	Uniform	Uniform	Total	0.01484	0.00371
Safety Sup. type	None	Percent Trucks	5.0	5.0	<u>Costs in '000 \$</u>		
No. RR Tracks	1	Of this, % trailers	0.0	0.0	<u>Grade Crossing Devices</u>		
<u>Train Speeds (mph)</u>		Truck TOD Dist	Uniform	Uniform	O&M	0.2	1.8
Max Timetable	10.0	Percent Bus	0.0	0.0	Oth. Lcycle	0.0	0.0
Passenger	10.0	Bus TOD Dist	Uniform	Uniform	Capital		74.8
Freight	10.0	Costs in '000 \$ of Hwy Improvement		0.0	<u>Supplementary Safety</u>		
Switch	3.0				O&M	0.0	0.0
					Oth. Lcycle	0.0	0.0
					Capital		0.0

Milepost 6.47	Crossing ID 101817U	Accidents in 5 Years	0		<u>Predicted Annual Accidents</u>		
Description BNSF - REYNOLDS ALUM		<u>Highway Traffic Characteristics</u>			<i>Base</i>	<i>Alternate</i>	
Paved? True	Urban? True	H'way Lanes	4	4.0	Fatal	0.00030	0.00010
GCX Base Type	Lights	Dist from hway	0.10	0.1	Injury	0.00345	0.00121
Safety Sup. Type	None	AADT	3,300	3,300	PDO	0.01291	0.00452
GCX Alt Type	Gates	Auto TOD Dist	Uniform	Uniform	Total	0.01666	0.00583
Safety Sup. type	None	Percent Trucks	5.0	5.0	<u>Costs in '000 \$</u>		
No. RR Tracks	2	Of this, % trailers	0.0	0.0	<u>Grade Crossing Devices</u>		
<u>Train Speeds (mph)</u>		Truck TOD Dist	Uniform	Uniform	O&M	1.8	2.5
Max Timetable	10.0	Percent Bus	0.0	0.0	Oth. Lcycle	0.0	0.0
Passenger	10.0	Bus TOD Dist	Uniform	Uniform	Capital		106.1
Freight	8.0	Costs in '000 \$ of Hwy Improvement		0.0	<u>Supplementary Safety</u>		
Switch	3.0				O&M	0.0	0.0
					Oth. Lcycle	0.0	0.0
					Capital		0.0



FEDERAL RAILROAD ADMINISTRATION
GRADEDEC.NET
CORRIDOR AND CROSSING DATA
 (without phased improvements)

User: kchewuk
 Dataset: Initial dataset
 Corridor ID 19

Corridor Name	2018 Construction Rail - Dike			<i>Avg. No. Trains Per Day</i>	<i>Train Time-of-Day Distribution</i>	
				<i>Passenger</i>	0.0	Uniform
Technology Factors	0.50	0.50	0.50	<i>Freight</i>	8.0	Uniform
Signal Synchronization?	False			<i>Switch</i>	0.0	Uniform

CORRIDOR SUMMARY OF PREDICTED ANNUAL ACCIDENTS

Calculated: 24-Sep-2015 5:57 pm

	Fatal	Injury	PDO	Total
<i>Base</i>	0.000379	0.002991	0.010874	0.014244
<i>Alternate</i>	0.000379	0.002991	0.010874	0.014244

CROSSING DATA FOR THE 2018 CONSTRUCTION RAIL - DIKE CORRIDOR

Milepost 13.43	Crossing ID 101791U	Accidents in 5 Years	0		<u>Predicted Annual Accidents</u>		
Description BNSF - DIKE RD		<u>Highway Traffic Characteristics</u>			<i>Base</i>	<i>Alternate</i>	
		<i>Base</i>	<i>Alternate</i>		Fatal	0.00038	0.00038
Paved? True	Urban? False	H'way Lanes	2	2.0	Injury	0.00299	0.00299
GCX Base Type	Lights	Dist from hway	0.10	0.1	PDO	0.01087	0.01087
Safety Sup. Type	None	AADT	950	950	Total	0.01424	0.01424
GCX Alt Type	Lights	Auto TOD Dist	Uniform	Uniform	<u>Costs in '000 \$</u>		
Safety Sup. type	None	Percent Trucks	12.0	12.0	<i>Base</i>	<i>Alternate</i>	
No. RR Tracks	4	Of this, % trailers	0.0	0.0	<u>Grade Crossing Devices</u>		
<u>Train Speeds (mph)</u>		Truck TOD Dist	Uniform	Uniform	O&M	1.8	1.8
Max Timetable	10.0	Percent Bus	0.0	0.0	Oth. Lcycle	0.0	0.0
Passenger	10.0	Bus TOD Dist	Uniform	Uniform	Capital		74.8
Freight	10.0	Costs in '000 \$ of Hway Improvement		0.0	<u>Supplementary Safety</u>		
Switch	3.0				O&M	0.0	0.0
					Oth. Lcycle	0.0	0.0
					Capital		0.0



FEDERAL RAILROAD ADMINISTRATION
GRADEDEC.NET
CORRIDOR AND CROSSING DATA
 (without phased improvements)

User: kchewuk
 Dataset: Initial dataset
 Corridor ID 21

Corridor Name	2028 No Action w Current Track - Spur			<i>Avg. No. Trains Per Day</i>	<i>Train Time-of-Day Distribution</i>	
				<i>Passenger</i>	0.0	Uniform
Technology Factors	0.50	0.50	0.50	<i>Freight</i>	4.0	Uniform
Signal Synchronization?	False			<i>Switch</i>	0.0	Uniform

CORRIDOR SUMMARY OF PREDICTED ANNUAL ACCIDENTS

Calculated: 24-Sep-2015 3:07 pm

	Fatal	Injury	PDO	Total
<i>Base</i>	0.002059	0.026286	0.091977	0.120321
<i>Alternate</i>	0.000666	0.008558	0.030579	0.039802

CROSSING DATA FOR THE 2028 NO ACTION W CURRENT TRACK - SPUR CORRIDOR

Milepost 0.69	Crossing ID 101812K	Accidents in 5 Years	0		<u>Predicted Annual Accidents</u>		
Description BNSF - WEYERHAUSER TBR		<u>Highway Traffic Characteristics</u>			<i>Base</i>	<i>Alternate</i>	
			<i>Base</i>	<i>Alternate</i>	Fatal	0.00019	0.00005
Paved? True	Urban? True	H'way Lanes	2	2.0	Injury	0.00248	0.00062
GCX Base Type	Passive	Dist from hwy	0.10	0.1	PDO	0.00822	0.00205
Safety Sup. Type	None	AADT	250	250	Total	0.01090	0.00272
GCX Alt Type	Lights	Auto TOD Dist	Uniform	Uniform	<u>Costs in '000 \$</u>		
Safety Sup. type	None	Percent Trucks	5.0	5.0	<i>Base</i>	<i>Alternate</i>	
No. RR Tracks	1	Of this, % trailers	0.0	0.0	<u>Grade Crossing Devices</u>		
<u>Train Speeds (mph)</u>		Truck TOD Dist	Uniform	Uniform	O&M	0.2	1.8
Max Timetable	10.0	Percent Bus	0.0	0.0	Oth. Lcycle	0.0	0.0
Passenger	10.0	Bus TOD Dist	Uniform	Uniform	Capital		74.8
Freight	5.0	Costs in '000 \$ of Hwy Improvement		0.0	<u>Supplementary Safety</u>		
Switch	3.0				O&M	0.0	0.0
					Oth. Lcycle	0.0	0.0
					Capital		0.0

Milepost 2.68	Crossing ID 101826T	Accidents in 5 Years	0		<u>Predicted Annual Accidents</u>		
Description BNSF - 3RD AVE		<u>Highway Traffic Characteristics</u>			<i>Base</i>	<i>Alternate</i>	
			<i>Base</i>	<i>Alternate</i>	Fatal	0.00037	0.00018
Paved? True	Urban? True	H'way Lanes	4	4.0	Injury	0.00504	0.00252
GCX Base Type	Gates	Dist from hwy	0.10	0.1	PDO	0.02010	0.01005
Safety Sup. Type	None	AADT	20,500	20,500	Total	0.02550	0.01275
GCX Alt Type	New Technology 1	Auto TOD Dist	Uniform	Uniform	<u>Costs in '000 \$</u>		
Safety Sup. type	None	Percent Trucks	15.0	15.0	<i>Base</i>	<i>Alternate</i>	
No. RR Tracks	2	Of this, % trailers	0.0	0.0	<u>Grade Crossing Devices</u>		
<u>Train Speeds (mph)</u>		Truck TOD Dist	Uniform	Uniform	O&M	2.5	5.0
Max Timetable	8.0	Percent Bus	0.0	0.0	Oth. Lcycle	0.0	0.0
Passenger	8.0	Bus TOD Dist	Uniform	Uniform	Capital		280.0
Freight	8.0	Costs in '000 \$ of Hwy Improvement		0.0	<u>Supplementary Safety</u>		
Switch	3.0				O&M	0.0	0.0
					Oth. Lcycle	0.0	0.0
					Capital		0.0

CROSSING DATA FOR THE 2028 NO ACTION W CURRENT TRACK - SPUR CORRIDOR

Milepost 2.79	Crossing ID 101821J	Accidents in 5 Years	0		<u>Predicted Annual Accidents</u>		
Description BNSF - CALIFORNIA WAY		<u>Highway Traffic Characteristics</u>			<i>Base</i>	<i>Alternate</i>	
			<i>Base</i>	<i>Alternate</i>	Fatal	0.00022	0.00002
Paved? True	Urban? True	H'way Lanes	2	2.0	Injury	0.00279	0.00031
GCX Base Type	Lights	Dist from hway	0.10	0.1	PDO	0.00922	0.00101
Safety Sup. Type	None	AADT	4,800	4,800	Total	0.01222	0.00134
GCX Alt Type	Gates	Auto TOD Dist	Uniform	Uniform	<u>Costs in '000 \$</u>		
Safety Sup. type	None	Percent Trucks	7.0	7.0	<i>Base</i>	<i>Alternate</i>	
No. RR Tracks	1	Of this, % trailers	0.0	0.0	<u>Grade Crossing Devices</u>		
<u>Train Speeds (mph)</u>		Truck TOD Dist	Uniform	Uniform	O&M	1.8	2.5
Max Timetable	10.0	Percent Bus	0.0	0.0	Oth. Lcycle	0.0	0.0
Passenger	10.0	Bus TOD Dist	Uniform	Uniform	Capital		106.1
Freight	8.0	Costs in '000 \$ of Hwy Improvement		0.0	<u>Supplementary Safety</u>		
Switch	3.0				O&M	0.0	0.0
					Oth. Lcycle	0.0	0.0
					Capital		0.0

Milepost 3.67	Crossing ID 101805A	Accidents in 5 Years	0		<u>Predicted Annual Accidents</u>		
Description BNSF - OREGON WAY		<u>Highway Traffic Characteristics</u>			<i>Base</i>	<i>Alternate</i>	
			<i>Base</i>	<i>Alternate</i>	Fatal	0.00040	0.00020
Paved? True	Urban? True	H'way Lanes	4	4.0	Injury	0.00507	0.00253
GCX Base Type	Gates	Dist from hway	0.10	0.1	PDO	0.01678	0.00839
Safety Sup. Type	None	AADT	18,500	18,500	Total	0.02224	0.01112
GCX Alt Type	New Technology 1	Auto TOD Dist	Uniform	Uniform	<u>Costs in '000 \$</u>		
Safety Sup. type	None	Percent Trucks	5.0	5.0	<i>Base</i>	<i>Alternate</i>	
No. RR Tracks	1	Of this, % trailers	0.0	0.0	<u>Grade Crossing Devices</u>		
<u>Train Speeds (mph)</u>		Truck TOD Dist	Uniform	Uniform	O&M	2.5	5.0
Max Timetable	10.0	Percent Bus	0.0	0.0	Oth. Lcycle	0.0	0.0
Passenger	10.0	Bus TOD Dist	Uniform	Uniform	Capital		280.0
Freight	10.0	Costs in '000 \$ of Hwy Improvement		0.0	<u>Supplementary Safety</u>		
Switch	3.0				O&M	0.0	0.0
					Oth. Lcycle	0.0	0.0
					Capital		0.0

Milepost 3.88	Crossing ID 101806G	Accidents in 5 Years	0		<u>Predicted Annual Accidents</u>		
Description BNSF - INDUSTRIAL WAY		<u>Highway Traffic Characteristics</u>			<i>Base</i>	<i>Alternate</i>	
			<i>Base</i>	<i>Alternate</i>	Fatal	0.00029	0.00003
Paved? True	Urban? True	H'way Lanes	2	2.0	Injury	0.00367	0.00040
GCX Base Type	Lights	Dist from hway	0.10	0.1	PDO	0.01215	0.00134
Safety Sup. Type	None	AADT	11,450	11,450	Total	0.01610	0.00177
GCX Alt Type	Gates	Auto TOD Dist	Uniform	Uniform	<u>Costs in '000 \$</u>		
Safety Sup. type	None	Percent Trucks	15.0	15.0	<i>Base</i>	<i>Alternate</i>	
No. RR Tracks	1	Of this, % trailers	0.0	0.0	<u>Grade Crossing Devices</u>		
<u>Train Speeds (mph)</u>		Truck TOD Dist	Uniform	Uniform	O&M	1.8	2.5
Max Timetable	10.0	Percent Bus	0.0	0.0	Oth. Lcycle	0.0	0.0
Passenger	10.0	Bus TOD Dist	Uniform	Uniform	Capital		106.1
Freight	10.0	Costs in '000 \$ of Hwy Improvement		0.0	<u>Supplementary Safety</u>		
Switch	3.0				O&M	0.0	0.0
					Oth. Lcycle	0.0	0.0
					Capital		0.0

CROSSING DATA FOR THE 2028 NO ACTION W CURRENT TRACK - SPUR CORRIDOR

Milepost 5.05	Crossing ID 101809C	Accidents in 5 Years	0		<u>Predicted Annual Accidents</u>		
Description BNSF - WEYERHAUSER TBR		<u>Highway Traffic Characteristics</u>			<i>Base</i>	<i>Alternate</i>	
			<i>Base</i>	<i>Alternate</i>	Fatal	0.00028	0.00007
Paved? True	Urban? True	H'way Lanes	2	2.0	Injury	0.00361	0.00090
GCX Base Type	Passive	Dist from hway	0.10	0.1	PDO	0.01195	0.00299
Safety Sup. Type	None	AADT	800	800	Total	0.01584	0.00396
GCX Alt Type	Lights	Auto TOD Dist	Uniform	Uniform	<u>Costs in '000 \$</u>		
Safety Sup. type	None	Percent Trucks	5.0	5.0	<u>Grade Crossing Devices</u>	<i>Base</i>	<i>Alternate</i>
No. RR Tracks	1	Of this, % trailers	0.0	0.0	O&M	0.2	1.8
<u>Train Speeds (mph)</u>		Truck TOD Dist	Uniform	Uniform	Oth. Lcycle	0.0	0.0
Max Timetable	10.0	Percent Bus	0.0	0.0	Capital	74.8	
Passenger	10.0	Bus TOD Dist	Uniform	Uniform	<u>Supplementary Safety</u>	O&M	0.0
Freight	10.0	Costs in '000 \$ of Hwy Improvement		0.0	Oth. Lcycle	0.0	0.0
Switch	3.0				Capital	0.0	

Milepost 6.47	Crossing ID 101817U	Accidents in 5 Years	0		<u>Predicted Annual Accidents</u>		
Description BNSF - REYNOLDS ALUM		<u>Highway Traffic Characteristics</u>			<i>Base</i>	<i>Alternate</i>	
			<i>Base</i>	<i>Alternate</i>	Fatal	0.00031	0.00011
Paved? True	Urban? True	H'way Lanes	4	4.0	Injury	0.00363	0.00127
GCX Base Type	Lights	Dist from hway	0.10	0.1	PDO	0.01357	0.00475
Safety Sup. Type	None	AADT	3,900	3,900	Total	0.01751	0.00613
GCX Alt Type	Gates	Auto TOD Dist	Uniform	Uniform	<u>Costs in '000 \$</u>		
Safety Sup. type	None	Percent Trucks	5.0	5.0	<u>Grade Crossing Devices</u>	<i>Base</i>	<i>Alternate</i>
No. RR Tracks	2	Of this, % trailers	0.0	0.0	O&M	1.8	2.5
<u>Train Speeds (mph)</u>		Truck TOD Dist	Uniform	Uniform	Oth. Lcycle	0.0	0.0
Max Timetable	10.0	Percent Bus	0.0	0.0	Capital	106.1	
Passenger	10.0	Bus TOD Dist	Uniform	Uniform	<u>Supplementary Safety</u>	O&M	0.0
Freight	8.0	Costs in '000 \$ of Hwy Improvement		0.0	Oth. Lcycle	0.0	0.0
Switch	3.0				Capital	0.0	



FEDERAL RAILROAD ADMINISTRATION
GRADEDEC.NET
CORRIDOR AND CROSSING DATA
 (without phased improvements)

User: kchewuk
 Dataset: Initial dataset
 Corridor ID 22

Corridor Name	2028 No Action w Current Track - Dike			Avg. No. Trains Per Day	Train Time-of-Day Distribution
Technology Factors	0.50	0.50	0.50	<i>Passenger</i> 0.0	Uniform
Signal Synchronization?	False			<i>Freight</i> 7.0	Uniform
				<i>Switch</i> 0.0	Uniform

CORRIDOR SUMMARY OF PREDICTED ANNUAL ACCIDENTS

Calculated: 24-Sep-2015 3:10 pm

	Fatal	Injury	PDO	Total
<i>Base</i>	0.000377	0.003008	0.010919	0.014303
<i>Alternate</i>	0.000377	0.003008	0.010919	0.014303

CROSSING DATA FOR THE 2028 NO ACTION W CURRENT TRACK - DIKE CORRIDOR

Milepost 13.43	Crossing ID 101791U	Accidents in 5 Years	0		<u>Predicted Annual Accidents</u>		
Description BNSF - DIKE RD		<u>Highway Traffic Characteristics</u>			<i>Base</i>	<i>Alternate</i>	
Paved? True	Urban? False	<i>Base</i>	<i>Alternate</i>	Fatal	0.00038	0.00038	
GCX Base Type	Lights	H'way Lanes	2	2.0	Injury	0.00301	0.00301
Safety Sup. Type	None	Dist from hway	0.10	0.1	PDO	0.01092	0.01092
GCX Alt Type	Lights	AADT	1,100	1,100	Total	0.01430	0.01430
Safety Sup. type	None	Auto TOD Dist	Uniform	Uniform	<u>Costs in '000 \$</u>		
No. RR Tracks	4	Percent Trucks	12.0	12.0	<i>Base</i>	<i>Alternate</i>	
<u>Train Speeds (mph)</u>		Of this, % trailers	0.0	0.0	<u>Grade Crossing Devices</u>		
Max Timetable	10.0	Truck TOD Dist	Uniform	Uniform	O&M	1.8	1.8
Passenger	10.0	Percent Bus	0.0	0.0	Oth. Lcycle	0.0	0.0
Freight	10.0	Bus TOD Dist	Uniform	Uniform	Capital		74.8
Switch	3.0	Costs in '000 \$ of Hway Improvement		0.0	<u>Supplementary Safety</u>		
					O&M	0.0	0.0
					Oth. Lcycle	0.0	0.0
					Capital		0.0



FEDERAL RAILROAD ADMINISTRATION
GRADEDEC.NET
CORRIDOR AND CROSSING DATA
 (without phased improvements)

User: kchewuk
 Dataset: Initial dataset
 Corridor ID 25

Corridor Name	2028 No Action w Planned Track - Spur			Avg. No. Trains Per Day	Train Time-of-Day Distribution
Technology Factors	0.50	0.50	0.50	<i>Passenger</i> 0.0	Uniform
Signal Synchronization?	False			<i>Freight</i> 4.0	Uniform
				<i>Switch</i> 0.0	Uniform

CORRIDOR SUMMARY OF PREDICTED ANNUAL ACCIDENTS

Calculated: 24-Sep-2015 5:26 pm

	Fatal	Injury	PDO	Total
<i>Base</i>	0.002059	0.026286	0.091977	0.120321
<i>Alternate</i>	0.000666	0.008558	0.030579	0.039802

CROSSING DATA FOR THE 2028 NO ACTION W PLANNED TRACK - SPUR CORRIDOR

Milepost 0.69	Crossing ID 101812K	Accidents in 5 Years	0	Predicted Annual Accidents		
Description BNSF - WEYERHAUSER TBR		<u>Highway Traffic Characteristics</u>		<i>Base</i>	<i>Alternate</i>	
Paved? True	Urban? True	H'way Lanes	2	2.0		
GCX Base Type	Passive	Dist from hwy	0.10	0.1		
Safety Sup. Type	None	AADT	250	250		
GCX Alt Type	Lights	Auto TOD Dist	Uniform	Uniform		
Safety Sup. type	None	Percent Trucks	5.0	5.0		
No. RR Tracks	1	Of this, % trailers	0.0	0.0		
<u>Train Speeds (mph)</u>		Truck TOD Dist	Uniform	Uniform		
Max Timetable	10.0	Percent Bus	0.0	0.0		
Passenger	10.0	Bus TOD Dist	Uniform	Uniform		
Freight	5.0	Costs in '000 \$ of Hwy Improvement		0.0		
Switch	3.0					
				<u>Costs in '000 \$</u>		
				<i>Base</i>	<i>Alternate</i>	
				<u>Grade Crossing Devices</u>		
				O&M	0.2	1.8
				Oth. Lcycle	0.0	0.0
				Capital		74.8
				<u>Supplementary Safety</u>		
				O&M	0.0	0.0
				Oth. Lcycle	0.0	0.0
				Capital		0.0

Milepost 2.68	Crossing ID 101826T	Accidents in 5 Years	0	Predicted Annual Accidents		
Description BNSF - 3RD AVE		<u>Highway Traffic Characteristics</u>		<i>Base</i>	<i>Alternate</i>	
Paved? True	Urban? True	H'way Lanes	4	4.0		
GCX Base Type	Gates	Dist from hwy	0.10	0.1		
Safety Sup. Type	None	AADT	20,500	20,500		
GCX Alt Type	New Technology 1	Auto TOD Dist	Uniform	Uniform		
Safety Sup. type	None	Percent Trucks	15.0	15.0		
No. RR Tracks	2	Of this, % trailers	0.0	0.0		
<u>Train Speeds (mph)</u>		Truck TOD Dist	Uniform	Uniform		
Max Timetable	8.0	Percent Bus	0.0	0.0		
Passenger	8.0	Bus TOD Dist	Uniform	Uniform		
Freight	15.0	Costs in '000 \$ of Hwy Improvement		0.0		
Switch	3.0					
				<u>Costs in '000 \$</u>		
				<i>Base</i>	<i>Alternate</i>	
				<u>Grade Crossing Devices</u>		
				O&M	2.5	5.0
				Oth. Lcycle	0.0	0.0
				Capital		280.0
				<u>Supplementary Safety</u>		
				O&M	0.0	0.0
				Oth. Lcycle	0.0	0.0
				Capital		0.0

CROSSING DATA FOR THE 2028 NO ACTION W PLANNED TRACK - SPUR CORRIDOR

Milepost 2.79	Crossing ID 101821J	Accidents in 5 Years	0		<u>Predicted Annual Accidents</u>		
Description BNSF - CALIFORNIA WAY		<u>Highway Traffic Characteristics</u>			<i>Base</i>	<i>Alternate</i>	
			<i>Base</i>	<i>Alternate</i>	Fatal	0.00022	0.00002
Paved? True	Urban? True	H'way Lanes	2	2.0	Injury	0.00279	0.00031
GCX Base Type	Lights	Dist from hway	0.10	0.1	PDO	0.00922	0.00101
Safety Sup. Type	None	AADT	4,800	4,800	Total	0.01222	0.00134
GCX Alt Type	Gates	Auto TOD Dist	Uniform	Uniform	<u>Costs in '000 \$</u>		
Safety Sup. type	None	Percent Trucks	7.0	7.0	<i>Base</i> <i>Alternate</i>		
No. RR Tracks	1	Of this, % trailers	0.0	0.0	<u>Grade Crossing Devices</u>		
<u>Train Speeds (mph)</u>		Truck TOD Dist	Uniform	Uniform	O&M	1.8	2.5
Max Timetable	10.0	Percent Bus	0.0	0.0	Oth. Lcycle	0.0	0.0
Passenger	10.0	Bus TOD Dist	Uniform	Uniform	Capital		106.1
Freight	15.0	Costs in '000 \$ of Hwy Improvement		0.0	<u>Supplementary Safety</u>		
Switch	3.0				O&M	0.0	0.0
					Oth. Lcycle	0.0	0.0
					Capital		0.0

Milepost 3.67	Crossing ID 101805A	Accidents in 5 Years	0		<u>Predicted Annual Accidents</u>		
Description BNSF - OREGON WAY		<u>Highway Traffic Characteristics</u>			<i>Base</i>	<i>Alternate</i>	
			<i>Base</i>	<i>Alternate</i>	Fatal	0.00040	0.00020
Paved? True	Urban? True	H'way Lanes	4	4.0	Injury	0.00507	0.00253
GCX Base Type	Gates	Dist from hway	0.10	0.1	PDO	0.01678	0.00839
Safety Sup. Type	None	AADT	18,500	18,500	Total	0.02224	0.01112
GCX Alt Type	New Technology 1	Auto TOD Dist	Uniform	Uniform	<u>Costs in '000 \$</u>		
Safety Sup. type	None	Percent Trucks	5.0	5.0	<i>Base</i> <i>Alternate</i>		
No. RR Tracks	1	Of this, % trailers	0.0	0.0	<u>Grade Crossing Devices</u>		
<u>Train Speeds (mph)</u>		Truck TOD Dist	Uniform	Uniform	O&M	2.5	5.0
Max Timetable	10.0	Percent Bus	0.0	0.0	Oth. Lcycle	0.0	0.0
Passenger	10.0	Bus TOD Dist	Uniform	Uniform	Capital		280.0
Freight	20.0	Costs in '000 \$ of Hwy Improvement		0.0	<u>Supplementary Safety</u>		
Switch	3.0				O&M	0.0	0.0
					Oth. Lcycle	0.0	0.0
					Capital		0.0

Milepost 3.88	Crossing ID 101806G	Accidents in 5 Years	0		<u>Predicted Annual Accidents</u>		
Description BNSF - INDUSTRIAL WAY		<u>Highway Traffic Characteristics</u>			<i>Base</i>	<i>Alternate</i>	
			<i>Base</i>	<i>Alternate</i>	Fatal	0.00029	0.00003
Paved? True	Urban? True	H'way Lanes	2	2.0	Injury	0.00367	0.00040
GCX Base Type	Lights	Dist from hway	0.10	0.1	PDO	0.01215	0.00134
Safety Sup. Type	None	AADT	11,450	11,450	Total	0.01610	0.00177
GCX Alt Type	Gates	Auto TOD Dist	Uniform	Uniform	<u>Costs in '000 \$</u>		
Safety Sup. type	None	Percent Trucks	15.0	15.0	<i>Base</i> <i>Alternate</i>		
No. RR Tracks	1	Of this, % trailers	0.0	0.0	<u>Grade Crossing Devices</u>		
<u>Train Speeds (mph)</u>		Truck TOD Dist	Uniform	Uniform	O&M	1.8	2.5
Max Timetable	10.0	Percent Bus	0.0	0.0	Oth. Lcycle	0.0	0.0
Passenger	10.0	Bus TOD Dist	Uniform	Uniform	Capital		106.1
Freight	20.0	Costs in '000 \$ of Hwy Improvement		0.0	<u>Supplementary Safety</u>		
Switch	3.0				O&M	0.0	0.0
					Oth. Lcycle	0.0	0.0
					Capital		0.0

CROSSING DATA FOR THE 2028 NO ACTION W PLANNED TRACK - SPUR CORRIDOR

Milepost 5.05	Crossing ID 101809C	Accidents in 5 Years	0		<u>Predicted Annual Accidents</u>		
Description BNSF - WEYERHAUSER TBR		<u>Highway Traffic Characteristics</u>			<i>Base</i>	<i>Alternate</i>	
Paved? True	Urban? True	H'way Lanes	2	2.0	Fatal	0.00028	0.00007
GCX Base Type	Passive	Dist from hway	0.10	0.1	Injury	0.00361	0.00090
Safety Sup. Type	None	AADT	800	800	PDO	0.01195	0.00299
GCX Alt Type	Lights	Auto TOD Dist	Uniform	Uniform	Total	0.01584	0.00396
Safety Sup. type	None	Percent Trucks	5.0	5.0	<u>Costs in '000 \$</u>		
No. RR Tracks	1	Of this, % trailers	0.0	0.0	<i>Base</i>	<i>Alternate</i>	
<u>Train Speeds (mph)</u>		Truck TOD Dist	Uniform	Uniform	<u>Grade Crossing Devices</u>		
Max Timetable	10.0	Percent Bus	0.0	0.0	O&M	0.2	1.8
Passenger	10.0	Bus TOD Dist	Uniform	Uniform	Oth. Lcycle	0.0	0.0
Freight	15.0	Costs in '000 \$ of Hwy Improvement		0.0	Capital	74.8	
Switch	3.0				<u>Supplementary Safety</u>		
					O&M	0.0	0.0
					Oth. Lcycle	0.0	0.0
					Capital	0.0	

Milepost 6.47	Crossing ID 101817U	Accidents in 5 Years	0		<u>Predicted Annual Accidents</u>		
Description BNSF - REYNOLDS ALUM		<u>Highway Traffic Characteristics</u>			<i>Base</i>	<i>Alternate</i>	
Paved? True	Urban? True	H'way Lanes	4	4.0	Fatal	0.00031	0.00011
GCX Base Type	Lights	Dist from hway	0.10	0.1	Injury	0.00363	0.00127
Safety Sup. Type	None	AADT	3,900	3,900	PDO	0.01357	0.00475
GCX Alt Type	Gates	Auto TOD Dist	Uniform	Uniform	Total	0.01751	0.00613
Safety Sup. type	None	Percent Trucks	5.0	5.0	<u>Costs in '000 \$</u>		
No. RR Tracks	2	Of this, % trailers	0.0	0.0	<i>Base</i>	<i>Alternate</i>	
<u>Train Speeds (mph)</u>		Truck TOD Dist	Uniform	Uniform	<u>Grade Crossing Devices</u>		
Max Timetable	10.0	Percent Bus	0.0	0.0	O&M	1.8	2.5
Passenger	10.0	Bus TOD Dist	Uniform	Uniform	Oth. Lcycle	0.0	0.0
Freight	10.0	Costs in '000 \$ of Hwy Improvement		0.0	Capital	106.1	
Switch	3.0				<u>Supplementary Safety</u>		
					O&M	0.0	0.0
					Oth. Lcycle	0.0	0.0
					Capital	0.0	



FEDERAL RAILROAD ADMINISTRATION
GRADEDEC.NET
CORRIDOR AND CROSSING DATA
 (without phased improvements)

User: kchewuk
 Dataset: Initial dataset
 Corridor ID 26

Corridor Name	2028 No Action w Planned Track - Dike			Avg. No. Trains Per Day	Train Time-of-Day Distribution
Technology Factors	0.50	0.50	0.50	<i>Passenger</i> 0.0	Uniform
Signal Synchronization?	False			<i>Freight</i> 7.0	Uniform
				<i>Switch</i> 0.0	Uniform

CORRIDOR SUMMARY OF PREDICTED ANNUAL ACCIDENTS

Calculated: 24-Sep-2015 3:10 pm

	Fatal	Injury	PDO	Total
<i>Base</i>	0.000377	0.003008	0.010919	0.014303
<i>Alternate</i>	0.000377	0.003008	0.010919	0.014303

CROSSING DATA FOR THE 2028 NO ACTION W PLANNED TRACK - DIKE CORRIDOR

Milepost 13.43	Crossing ID 101791U	Accidents in 5 Years	0		<u>Predicted Annual Accidents</u>		
Description BNSF - DIKE RD		<u>Highway Traffic Characteristics</u>			<i>Base</i>	<i>Alternate</i>	
Paved? True	Urban? False	<i>Base</i>	<i>Alternate</i>	Fatal	0.00038	0.00038	
GCX Base Type	Lights	H'way Lanes	2	2.0	Injury	0.00301	0.00301
Safety Sup. Type	None	Dist from hway	0.10	0.1	PDO	0.01092	0.01092
GCX Alt Type	Lights	AADT	1,100	1,100	Total	0.01430	0.01430
Safety Sup. type	None	Auto TOD Dist	Uniform	Uniform	<u>Costs in '000 \$</u>		
No. RR Tracks	4	Percent Trucks	12.0	12.0	<i>Base</i>	<i>Alternate</i>	
<u>Train Speeds (mph)</u>		Of this, % trailers	0.0	0.0	<u>Grade Crossing Devices</u>		
Max Timetable	10.0	Truck TOD Dist	Uniform	Uniform	O&M	1.8	1.8
Passenger	10.0	Percent Bus	0.0	0.0	Oth. Lcycle	0.0	0.0
Freight	10.0	Bus TOD Dist	Uniform	Uniform	Capital		74.8
Switch	3.0	Costs in '000 \$ of Hway Improvement		0.0	<u>Supplementary Safety</u>		
					O&M	0.0	0.0
					Oth. Lcycle	0.0	0.0
					Capital		0.0



FEDERAL RAILROAD ADMINISTRATION
GRADEDEC.NET
CORRIDOR AND CROSSING DATA
 (without phased improvements)

User: kchewuk
 Dataset: Initial dataset
 Corridor ID 29

Corridor Name	2028 On Site Alt w Current Track - Spur			Avg. No. Trains Per Day	Train Time-of-Day Distribution
Technology Factors	0.50	0.50	0.50	<i>Passenger</i> 0.0	Uniform
Signal Synchronization?	False			<i>Freight</i> 20.0	Uniform
				<i>Switch</i> 0.0	Uniform

CORRIDOR SUMMARY OF PREDICTED ANNUAL ACCIDENTS

Calculated: 24-Sep-2015 5:46 pm

	Fatal	Injury	PDO	Total
<i>Base</i>	0.004233	0.047344	0.166294	0.217870
<i>Alternate</i>	0.001724	0.019363	0.068426	0.089514

CROSSING DATA FOR THE 2028 ON SITE ALT W CURRENT TRACK - SPUR CORRIDOR

Milepost 0.69	Crossing ID 101812K	Accidents in 5 Years	0		Predicted Annual Accidents		
Description BNSF - WEYERHAUSER TBR		<u>Highway Traffic Characteristics</u>			<i>Base</i>	<i>Alternate</i>	
Paved? True	Urban? True	H'way Lanes	2	2.0	Fatal	0.00071	0.00028
GCX Base Type	Passive	Dist from hway	0.10	0.1	Injury	0.00797	0.00311
Safety Sup. Type	None	AADT	1,340	1,340	PDO	0.02665	0.01039
GCX Alt Type	Lights	Auto TOD Dist	Uniform	Uniform	Total	0.03533	0.01378
Safety Sup. type	None	Percent Trucks	5.0	5.0	<u>Costs in '000 \$</u>		
No. RR Tracks	1	Of this, % trailers	0.0	0.0	<i>Base</i>	<i>Alternate</i>	
<u>Train Speeds (mph)</u>		Truck TOD Dist	Uniform	Uniform	<u>Grade Crossing Devices</u>		
Max Timetable	10.0	Percent Bus	0.0	0.0	O&M	0.2	1.8
Passenger	10.0	Bus TOD Dist	Uniform	Uniform	Oth. Lcycle	0.0	0.0
Freight	5.0	Costs in '000 \$ of Hway Improvement		0.0	Capital	74.8	
Switch	3.0				<u>Supplementary Safety</u>		
					O&M	0.0	0.0
					Oth. Lcycle	0.0	0.0
					Capital	0.0	

Milepost 2.68	Crossing ID 101826T	Accidents in 5 Years	0		Predicted Annual Accidents		
Description BNSF - 3RD AVE		<u>Highway Traffic Characteristics</u>			<i>Base</i>	<i>Alternate</i>	
Paved? True	Urban? True	H'way Lanes	4	4.0	Fatal	0.00068	0.00034
GCX Base Type	Gates	Dist from hway	0.10	0.1	Injury	0.00817	0.00408
Safety Sup. Type	None	AADT	20,720	20,720	PDO	0.03288	0.01644
GCX Alt Type	New Technology 1	Auto TOD Dist	Uniform	Uniform	Total	0.04172	0.02086
Safety Sup. type	None	Percent Trucks	15.0	15.0	<u>Costs in '000 \$</u>		
No. RR Tracks	2	Of this, % trailers	0.0	0.0	<i>Base</i>	<i>Alternate</i>	
<u>Train Speeds (mph)</u>		Truck TOD Dist	Uniform	Uniform	<u>Grade Crossing Devices</u>		
Max Timetable	8.0	Percent Bus	0.0	0.0	O&M	2.5	5.0
Passenger	8.0	Bus TOD Dist	Uniform	Uniform	Oth. Lcycle	0.0	0.0
Freight	8.0	Costs in '000 \$ of Hway Improvement		0.0	Capital	280.0	
Switch	3.0				<u>Supplementary Safety</u>		
					O&M	0.0	0.0
					Oth. Lcycle	0.0	0.0
					Capital	0.0	

CROSSING DATA FOR THE 2028 ON SITE ALT W CURRENT TRACK - SPUR CORRIDOR

Milepost 2.79	Crossing ID 101821J	Accidents in 5 Years	0		<u>Predicted Annual Accidents</u>		
Description BNSF - CALIFORNIA WAY		<u>Highway Traffic Characteristics</u>			<i>Base</i>	<i>Alternate</i>	
			<i>Base</i>	<i>Alternate</i>	Fatal	0.00040	0.00013
Paved? True	Urban? True	H'way Lanes	2	2.0	Injury	0.00451	0.00140
GCX Base Type	Lights	Dist from hway	0.10	0.1	PDO	0.01507	0.00467
Safety Sup. Type	None	AADT	4,800	4,800	Total	0.01998	0.00619
GCX Alt Type	Gates	Auto TOD Dist	Uniform	Uniform	<u>Costs in '000 \$</u>		
Safety Sup. type	None	Percent Trucks	7.0	7.0	<i>Base</i>	<i>Alternate</i>	
No. RR Tracks	1	Of this, % trailers	0.0	0.0	<u>Grade Crossing Devices</u>		
<u>Train Speeds (mph)</u>		Truck TOD Dist	Uniform	Uniform	O&M	1.8	2.5
Max Timetable	10.0	Percent Bus	0.0	0.0	Oth. Lcycle	0.0	0.0
Passenger	10.0	Bus TOD Dist	Uniform	Uniform	Capital		106.1
Freight	8.0	Costs in '000 \$ of Hwy Improvement		0.0	<u>Supplementary Safety</u>		
Switch	3.0				O&M	0.0	0.0
					Oth. Lcycle	0.0	0.0
					Capital		0.0

Milepost 3.67	Crossing ID 101805A	Accidents in 5 Years	0		<u>Predicted Annual Accidents</u>		
Description BNSF - OREGON WAY		<u>Highway Traffic Characteristics</u>			<i>Base</i>	<i>Alternate</i>	
			<i>Base</i>	<i>Alternate</i>	Fatal	0.00076	0.00038
Paved? True	Urban? True	H'way Lanes	4	4.0	Injury	0.00846	0.00423
GCX Base Type	Gates	Dist from hway	0.10	0.1	PDO	0.02829	0.01414
Safety Sup. Type	None	AADT	18,770	18,770	Total	0.03750	0.01875
GCX Alt Type	New Technology 1	Auto TOD Dist	Uniform	Uniform	<u>Costs in '000 \$</u>		
Safety Sup. type	None	Percent Trucks	5.0	5.0	<i>Base</i>	<i>Alternate</i>	
No. RR Tracks	1	Of this, % trailers	0.0	0.0	<u>Grade Crossing Devices</u>		
<u>Train Speeds (mph)</u>		Truck TOD Dist	Uniform	Uniform	O&M	2.5	5.0
Max Timetable	10.0	Percent Bus	0.0	0.0	Oth. Lcycle	0.0	0.0
Passenger	10.0	Bus TOD Dist	Uniform	Uniform	Capital		280.0
Freight	10.0	Costs in '000 \$ of Hwy Improvement		0.0	<u>Supplementary Safety</u>		
Switch	3.0				O&M	0.0	0.0
					Oth. Lcycle	0.0	0.0
					Capital		0.0

Milepost 3.88	Crossing ID 101806G	Accidents in 5 Years	0		<u>Predicted Annual Accidents</u>		
Description BNSF - INDUSTRIAL WAY		<u>Highway Traffic Characteristics</u>			<i>Base</i>	<i>Alternate</i>	
			<i>Base</i>	<i>Alternate</i>	Fatal	0.00051	0.00016
Paved? True	Urban? True	H'way Lanes	2	2.0	Injury	0.00574	0.00178
GCX Base Type	Lights	Dist from hway	0.10	0.1	PDO	0.01918	0.00595
Safety Sup. Type	None	AADT	12,100	12,100	Total	0.02543	0.00788
GCX Alt Type	Gates	Auto TOD Dist	Uniform	Uniform	<u>Costs in '000 \$</u>		
Safety Sup. type	None	Percent Trucks	15.0	15.0	<i>Base</i>	<i>Alternate</i>	
No. RR Tracks	1	Of this, % trailers	0.0	0.0	<u>Grade Crossing Devices</u>		
<u>Train Speeds (mph)</u>		Truck TOD Dist	Uniform	Uniform	O&M	1.8	2.5
Max Timetable	10.0	Percent Bus	0.0	0.0	Oth. Lcycle	0.0	0.0
Passenger	10.0	Bus TOD Dist	Uniform	Uniform	Capital		106.1
Freight	10.0	Costs in '000 \$ of Hwy Improvement		0.0	<u>Supplementary Safety</u>		
Switch	3.0				O&M	0.0	0.0
					Oth. Lcycle	0.0	0.0
					Capital		0.0

CROSSING DATA FOR THE 2028 ON SITE ALT W CURRENT TRACK - SPUR CORRIDOR

Milepost 5.05	Crossing ID 101809C	Accidents in 5 Years	0		<u>Predicted Annual Accidents</u>		
Description BNSF - WEYERHAUSER TBR		<u>Highway Traffic Characteristics</u>			<i>Base</i>	<i>Alternate</i>	
Paved? True	Urban? True	H'way Lanes	2	2.0	Fatal	0.00063	0.00024
GCX Base Type	Passive	Dist from hway	0.10	0.1	Injury	0.00701	0.00273
Safety Sup. Type	None	AADT	800	800	PDO	0.02343	0.00914
GCX Alt Type	Lights	Auto TOD Dist	Uniform	Uniform	Total	0.03107	0.01212
Safety Sup. type	None	Percent Trucks	5.0	5.0	<u>Costs in '000 \$</u>		
No. RR Tracks	1	Of this, % trailers	0.0	0.0	<u>Grade Crossing Devices</u>		
<u>Train Speeds (mph)</u>		Truck TOD Dist	Uniform	Uniform	O&M	0.2	1.8
Max Timetable	10.0	Percent Bus	0.0	0.0	Oth. Lcycle	0.0	0.0
Passenger	10.0	Bus TOD Dist	Uniform	Uniform	Capital		74.8
Freight	10.0	Costs in '000 \$ of Hway Improvement		0.0	<u>Supplementary Safety</u>		
Switch	3.0				O&M	0.0	0.0
					Oth. Lcycle	0.0	0.0
					Capital		0.0

Milepost 6.47	Crossing ID 101817U	Accidents in 5 Years	0		<u>Predicted Annual Accidents</u>		
Description BNSF - REYNOLDS ALUM		<u>Highway Traffic Characteristics</u>			<i>Base</i>	<i>Alternate</i>	
Paved? True	Urban? True	H'way Lanes	4	4.0	Fatal	0.00054	0.00020
GCX Base Type	Lights	Dist from hway	0.10	0.1	Injury	0.00549	0.00203
Safety Sup. Type	None	AADT	3,900	3,900	PDO	0.02079	0.00769
GCX Alt Type	Gates	Auto TOD Dist	Uniform	Uniform	Total	0.02683	0.00993
Safety Sup. type	None	Percent Trucks	5.0	5.0	<u>Costs in '000 \$</u>		
No. RR Tracks	2	Of this, % trailers	0.0	0.0	<u>Grade Crossing Devices</u>		
<u>Train Speeds (mph)</u>		Truck TOD Dist	Uniform	Uniform	O&M	1.8	2.5
Max Timetable	10.0	Percent Bus	0.0	0.0	Oth. Lcycle	0.0	0.0
Passenger	10.0	Bus TOD Dist	Uniform	Uniform	Capital		106.1
Freight	8.0	Costs in '000 \$ of Hway Improvement		0.0	<u>Supplementary Safety</u>		
Switch	3.0				O&M	0.0	0.0
					Oth. Lcycle	0.0	0.0
					Capital		0.0



FEDERAL RAILROAD ADMINISTRATION
GRADEDEC.NET
CORRIDOR AND CROSSING DATA
 (without phased improvements)

User: kchewuk
 Dataset: Initial dataset
 Corridor ID 28

Corridor Name	2028 On Site Alt w Current Track - Dike			Avg. No. Trains Per Day	Train Time-of-Day Distribution
Technology Factors	0.50	0.50	0.50	<i>Passenger</i> 0.0	Uniform
Signal Synchronization?	False			<i>Freight</i> 23.0	Uniform
				<i>Switch</i> 0.0	Uniform

CORRIDOR SUMMARY OF PREDICTED ANNUAL ACCIDENTS

Calculated: 24-Sep-2015 5:44 pm

	Fatal	Injury	PDO	Total
<i>Base</i>	0.000589	0.004229	0.015542	0.020359
<i>Alternate</i>	0.000589	0.004229	0.015542	0.020359

CROSSING DATA FOR THE 2028 ON SITE ALT W CURRENT TRACK - DIKE CORRIDOR

Milepost 13.43	Crossing ID 101791U	Accidents in 5 Years	0		<u>Predicted Annual Accidents</u>		
Description BNSF - DIKE RD		<u>Highway Traffic Characteristics</u>			<i>Base</i> <i>Alternate</i>		
Paved? True	Urban? False	<i>Base</i>	<i>Alternate</i>	Fatal	0.00059	0.00059	
GCX Base Type	Lights	H'way Lanes	2	2.0	Injury	0.00423	0.00423
Safety Sup. Type	None	Dist from hway	0.10	0.1	PDO	0.01554	0.01554
GCX Alt Type	Lights	AADT	1,100	1,100	Total	0.02036	0.02036
Safety Sup. type	None	Auto TOD Dist	Uniform	Uniform	<u>Costs in '000 \$</u>		
No. RR Tracks	4	Percent Trucks	12.0	12.0	<i>Base</i> <i>Alternate</i>		
<u>Train Speeds (mph)</u>		Of this, % trailers	0.0	0.0	<u>Grade Crossing Devices</u>		
Max Timetable	10.0	Truck TOD Dist	Uniform	Uniform	O&M	1.8	1.8
Passenger	10.0	Percent Bus	0.0	0.0	Oth. Lcycle	0.0	0.0
Freight	10.0	Bus TOD Dist	Uniform	Uniform	Capital	74.8	
Switch	3.0	Costs in '000 \$ of Hway Improvement	0.0		<u>Supplementary Safety</u>		
					O&M	0.0	0.0
					Oth. Lcycle	0.0	0.0
					Capital	0.0	



FEDERAL RAILROAD ADMINISTRATION
GRADEDEC.NET
CORRIDOR AND CROSSING DATA
 (without phased improvements)

User: kchewuk
 Dataset: Initial dataset
 Corridor ID 30

Corridor Name	2028 On Site Alt w/ Planned Track - Spur			Avg. No. Trains Per Day	Train Time-of-Day Distribution
Technology Factors	0.50	0.50	0.50	<i>Passenger</i> 0.0	Uniform
Signal Synchronization?	False			<i>Freight</i> 20.0	Uniform
				<i>Switch</i> 0.0	Uniform

CORRIDOR SUMMARY OF PREDICTED ANNUAL ACCIDENTS

Calculated: 24-Sep-2015 5:55 pm

	Fatal	Injury	PDO	Total
<i>Base</i>	0.004233	0.047344	0.166294	0.217870
<i>Alternate</i>	0.001724	0.019363	0.068426	0.089514

CROSSING DATA FOR THE 2028 ON SITE ALT W/ PLANNED TRACK - SPUR CORRIDOR

Milepost 0.69	Crossing ID 101812K	Accidents in 5 Years	0		Predicted Annual Accidents		
Description BNSF - WEYERHAUSER TBR		<u>Highway Traffic Characteristics</u>			<i>Base</i>	<i>Alternate</i>	
Paved? True	Urban? True	H'way Lanes	2	2.0	Fatal	0.00071	0.00028
GCX Base Type	Passive	Dist from hway	0.10	0.1	Injury	0.00797	0.00311
Safety Sup. Type	None	AADT	1,340	1,340	PDO	0.02665	0.01039
GCX Alt Type	Lights	Auto TOD Dist	Uniform	Uniform	Total	0.03533	0.01378
Safety Sup. type	None	Percent Trucks	5.0	5.0	<u>Costs in '000 \$</u>		
No. RR Tracks	1	Of this, % trailers	0.0	0.0	<i>Base</i>	<i>Alternate</i>	
<u>Train Speeds (mph)</u>		Truck TOD Dist	Uniform	Uniform	<u>Grade Crossing Devices</u>		
Max Timetable	10.0	Percent Bus	0.0	0.0	O&M	0.2	1.8
Passenger	10.0	Bus TOD Dist	Uniform	Uniform	Oth. Lcycle	0.0	0.0
Freight	5.0	Costs in '000 \$ of Hway Improvement		0.0	Capital	74.8	
Switch	3.0				<u>Supplementary Safety</u>		
					O&M	0.0	0.0
					Oth. Lcycle	0.0	0.0
					Capital	0.0	

Milepost 2.68	Crossing ID 101826T	Accidents in 5 Years	0		Predicted Annual Accidents		
Description BNSF - 3RD AVE		<u>Highway Traffic Characteristics</u>			<i>Base</i>	<i>Alternate</i>	
Paved? True	Urban? True	H'way Lanes	4	4.0	Fatal	0.00068	0.00034
GCX Base Type	Gates	Dist from hway	0.10	0.1	Injury	0.00817	0.00408
Safety Sup. Type	None	AADT	20,720	20,720	PDO	0.03288	0.01644
GCX Alt Type	New Technology 1	Auto TOD Dist	Uniform	Uniform	Total	0.04172	0.02086
Safety Sup. type	None	Percent Trucks	15.0	15.0	<u>Costs in '000 \$</u>		
No. RR Tracks	2	Of this, % trailers	0.0	0.0	<i>Base</i>	<i>Alternate</i>	
<u>Train Speeds (mph)</u>		Truck TOD Dist	Uniform	Uniform	<u>Grade Crossing Devices</u>		
Max Timetable	8.0	Percent Bus	0.0	0.0	O&M	2.5	5.0
Passenger	8.0	Bus TOD Dist	Uniform	Uniform	Oth. Lcycle	0.0	0.0
Freight	15.0	Costs in '000 \$ of Hway Improvement		0.0	Capital	280.0	
Switch	3.0				<u>Supplementary Safety</u>		
					O&M	0.0	0.0
					Oth. Lcycle	0.0	0.0
					Capital	0.0	

CROSSING DATA FOR THE 2028 ON SITE ALT W/ PLANNED TRACK - SPUR CORRIDOR

Milepost 2.79	Crossing ID 101821J	Accidents in 5 Years	0		<u>Predicted Annual Accidents</u>		
Description BNSF - CALIFORNIA WAY		<u>Highway Traffic Characteristics</u>			<i>Base</i>	<i>Alternate</i>	
			<i>Base</i>	<i>Alternate</i>	Fatal	0.00040	0.00013
Paved? True	Urban? True	H'way Lanes	2	2.0	Injury	0.00451	0.00140
GCX Base Type	Lights	Dist from hway	0.10	0.1	PDO	0.01507	0.00467
Safety Sup. Type	None	AADT	4,800	4,800	Total	0.01998	0.00619
GCX Alt Type	Gates	Auto TOD Dist	Uniform	Uniform	<u>Costs in '000 \$</u>		
Safety Sup. type	None	Percent Trucks	7.0	7.0	<i>Base</i> <i>Alternate</i>		
No. RR Tracks	1	Of this, % trailers	0.0	0.0	<u>Grade Crossing Devices</u>		
<u>Train Speeds (mph)</u>		Truck TOD Dist	Uniform	Uniform	O&M	1.8	2.5
Max Timetable	10.0	Percent Bus	0.0	0.0	Oth. Lcycle	0.0	0.0
Passenger	10.0	Bus TOD Dist	Uniform	Uniform	Capital		106.1
Freight	15.0	Costs in '000 \$ of Hwy Improvement		0.0	<u>Supplementary Safety</u>		
Switch	3.0				O&M	0.0	0.0
					Oth. Lcycle	0.0	0.0
					Capital		0.0

Milepost 3.67	Crossing ID 101805A	Accidents in 5 Years	0		<u>Predicted Annual Accidents</u>		
Description BNSF - OREGON WAY		<u>Highway Traffic Characteristics</u>			<i>Base</i>	<i>Alternate</i>	
			<i>Base</i>	<i>Alternate</i>	Fatal	0.00076	0.00038
Paved? True	Urban? True	H'way Lanes	4	4.0	Injury	0.00846	0.00423
GCX Base Type	Gates	Dist from hway	0.10	0.1	PDO	0.02829	0.01414
Safety Sup. Type	None	AADT	18,770	18,770	Total	0.03750	0.01875
GCX Alt Type	New Technology 1	Auto TOD Dist	Uniform	Uniform	<u>Costs in '000 \$</u>		
Safety Sup. type	None	Percent Trucks	5.0	5.0	<i>Base</i> <i>Alternate</i>		
No. RR Tracks	1	Of this, % trailers	0.0	0.0	<u>Grade Crossing Devices</u>		
<u>Train Speeds (mph)</u>		Truck TOD Dist	Uniform	Uniform	O&M	2.5	5.0
Max Timetable	10.0	Percent Bus	0.0	0.0	Oth. Lcycle	0.0	0.0
Passenger	10.0	Bus TOD Dist	Uniform	Uniform	Capital		280.0
Freight	20.0	Costs in '000 \$ of Hwy Improvement		0.0	<u>Supplementary Safety</u>		
Switch	3.0				O&M	0.0	0.0
					Oth. Lcycle	0.0	0.0
					Capital		0.0

Milepost 3.88	Crossing ID 101806G	Accidents in 5 Years	0		<u>Predicted Annual Accidents</u>		
Description BNSF - INDUSTRIAL WAY		<u>Highway Traffic Characteristics</u>			<i>Base</i>	<i>Alternate</i>	
			<i>Base</i>	<i>Alternate</i>	Fatal	0.00051	0.00016
Paved? True	Urban? True	H'way Lanes	2	2.0	Injury	0.00574	0.00178
GCX Base Type	Lights	Dist from hway	0.10	0.1	PDO	0.01918	0.00595
Safety Sup. Type	None	AADT	12,100	12,100	Total	0.02543	0.00788
GCX Alt Type	Gates	Auto TOD Dist	Uniform	Uniform	<u>Costs in '000 \$</u>		
Safety Sup. type	None	Percent Trucks	15.0	15.0	<i>Base</i> <i>Alternate</i>		
No. RR Tracks	1	Of this, % trailers	0.0	0.0	<u>Grade Crossing Devices</u>		
<u>Train Speeds (mph)</u>		Truck TOD Dist	Uniform	Uniform	O&M	1.8	2.5
Max Timetable	10.0	Percent Bus	0.0	0.0	Oth. Lcycle	0.0	0.0
Passenger	10.0	Bus TOD Dist	Uniform	Uniform	Capital		106.1
Freight	20.0	Costs in '000 \$ of Hwy Improvement		0.0	<u>Supplementary Safety</u>		
Switch	3.0				O&M	0.0	0.0
					Oth. Lcycle	0.0	0.0
					Capital		0.0

CROSSING DATA FOR THE 2028 ON SITE ALT W/ PLANNED TRACK - SPUR CORRIDOR

Milepost 5.05	Crossing ID 101809C	Accidents in 5 Years	0		<u>Predicted Annual Accidents</u>		
Description BNSF - WEYERHAUSER TBR		<u>Highway Traffic Characteristics</u>			<i>Base</i>	<i>Alternate</i>	
Paved? True	Urban? True	H'way Lanes	2	2.0	Fatal	0.00063	0.00024
GCX Base Type	Passive	Dist from hway	0.10	0.1	Injury	0.00701	0.00273
Safety Sup. Type	None	AADT	800	800	PDO	0.02343	0.00914
GCX Alt Type	Lights	Auto TOD Dist	Uniform	Uniform	Total	0.03107	0.01212
Safety Sup. type	None	Percent Trucks	5.0	5.0	<u>Costs in '000 \$</u>		
No. RR Tracks	1	Of this, % trailers	0.0	0.0	<u>Grade Crossing Devices</u>		
<u>Train Speeds (mph)</u>		Truck TOD Dist	Uniform	Uniform	O&M	0.2	1.8
Max Timetable	10.0	Percent Bus	0.0	0.0	Oth. Lcycle	0.0	0.0
Passenger	10.0	Bus TOD Dist	Uniform	Uniform	Capital		74.8
Freight	15.0	Costs in '000 \$ of Hwy Improvement		0.0	<u>Supplementary Safety</u>		
Switch	3.0				O&M	0.0	0.0
					Oth. Lcycle	0.0	0.0
					Capital		0.0

Milepost 6.47	Crossing ID 101817U	Accidents in 5 Years	0		<u>Predicted Annual Accidents</u>		
Description BNSF - REYNOLDS ALUM		<u>Highway Traffic Characteristics</u>			<i>Base</i>	<i>Alternate</i>	
Paved? True	Urban? True	H'way Lanes	4	4.0	Fatal	0.00054	0.00020
GCX Base Type	Lights	Dist from hway	0.10	0.1	Injury	0.00549	0.00203
Safety Sup. Type	None	AADT	3,900	3,900	PDO	0.02079	0.00769
GCX Alt Type	Gates	Auto TOD Dist	Uniform	Uniform	Total	0.02683	0.00993
Safety Sup. type	None	Percent Trucks	5.0	5.0	<u>Costs in '000 \$</u>		
No. RR Tracks	2	Of this, % trailers	0.0	0.0	<u>Grade Crossing Devices</u>		
<u>Train Speeds (mph)</u>		Truck TOD Dist	Uniform	Uniform	O&M	1.8	2.5
Max Timetable	10.0	Percent Bus	0.0	0.0	Oth. Lcycle	0.0	0.0
Passenger	10.0	Bus TOD Dist	Uniform	Uniform	Capital		106.1
Freight	10.0	Costs in '000 \$ of Hwy Improvement		0.0	<u>Supplementary Safety</u>		
Switch	3.0				O&M	0.0	0.0
					Oth. Lcycle	0.0	0.0
					Capital		0.0



FEDERAL RAILROAD ADMINISTRATION
GRADEDEC.NET
CORRIDOR AND CROSSING DATA
 (without phased improvements)

User: kchewuk
 Dataset: Initial dataset
 Corridor ID 31

Corridor Name	2028 On Site Alt w/ Planned Track - Dike			Avg. No. Trains Per Day	Train Time-of-Day Distribution
Technology Factors	0.50	0.50	0.50	<i>Passenger</i> 0.0	Uniform
Signal Synchronization?	False			<i>Freight</i> 23.0	Uniform
				<i>Switch</i> 0.0	Uniform

CORRIDOR SUMMARY OF PREDICTED ANNUAL ACCIDENTS

Calculated: 24-Sep-2015 5:52 pm

	Fatal	Injury	PDO	Total
<i>Base</i>	0.000589	0.004229	0.015542	0.020359
<i>Alternate</i>	0.000589	0.004229	0.015542	0.020359

CROSSING DATA FOR THE 2028 ON SITE ALT W/ PLANNED TRACK - DIKE CORRIDOR

Milepost 13.43	Crossing ID 101791U	Accidents in 5 Years	0		<u>Predicted Annual Accidents</u>			
Description BNSF - DIKE RD		<u>Highway Traffic Characteristics</u>			<i>Base</i> <i>Alternate</i>			
Paved? True	Urban? False	H'way Lanes	2	2.0	Fatal	0.00059	0.00059	
GCX Base Type	Lights	Dist from hway	0.10	0.1	Injury	0.00423	0.00423	
Safety Sup. Type	None	AADT	1,100	1,100	PDO	0.01554	0.01554	
GCX Alt Type	Lights	Auto TOD Dist	Uniform	Uniform	Total	0.02036	0.02036	
Safety Sup. type	None	Percent Trucks	12.0	12.0	<u>Costs in '000 \$</u>			
No. RR Tracks	4	Of this, % trailers	0.0	0.0	<i>Base</i> <i>Alternate</i>			
<u>Train Speeds (mph)</u>		Truck TOD Dist	Uniform	Uniform	<u>Grade Crossing Devices</u>			
Max Timetable	10.0	Percent Bus	0.0	0.0	O&M	1.8	1.8	
Passenger	10.0	Bus TOD Dist	Uniform	Uniform	Oth. Lcycle	0.0	0.0	
Freight	10.0	Costs in '000 \$ of Hway Improvement		0.0	Capital	74.8		
Switch	3.0	<u>Supplementary Safety</u>						
						O&M	0.0	0.0
						Oth. Lcycle	0.0	0.0
						Capital	0.0	



FEDERAL RAILROAD ADMINISTRATION
GRADEDEC.NET
CORRIDOR AND CROSSING DATA
 (without phased improvements)

User: kchewuk
 Dataset: Initial dataset
 Corridor ID 14

Corridor Name	2018 No Action - Mainline			Avg. No. Trains Per Day	Train Time-of-Day Distribution
Technology Factors	0.50	0.50	0.50	<i>Passenger</i> 10.0	Uniform
Signal Synchronization?	False			<i>Freight</i> 45.0	Uniform
				<i>Switch</i> 0.0	Uniform

CORRIDOR SUMMARY OF PREDICTED ANNUAL ACCIDENTS

Calculated: 28-Sep-2015 1:09 pm

	Fatal	Injury	PDO	Total
<i>Base</i>	0.039044	0.060936	0.160175	0.260155
<i>Alternate</i>	0.039044	0.060936	0.160175	0.260155

CROSSING DATA FOR THE 2018 NO ACTION - MAINLINE CORRIDOR

Milepost 82.72	Crossing ID 092481X	Accidents in 5 Years	0	Predicted Annual Accidents		
Description BNSF - TAYLOR CRANE RD		<u>Highway Traffic Characteristics</u>		<i>Base</i>	<i>Alternate</i>	
Paved? False	Urban? False	H'way Lanes	2	2.0		
GCX Base Type	Passive	Dist from hway	0.10	0.1		
Safety Sup. Type	None	AADT	50	50		
GCX Alt Type	Passive	Auto TOD Dist	Uniform	Uniform		
Safety Sup. type	None	Percent Trucks	5.0	5.0		
No. RR Tracks	2	Of this, % trailers	0.0	0.0		
<u>Train Speeds (mph)</u>		Truck TOD Dist	Uniform	Uniform		
Max Timetable	50.0	Percent Bus	0.0	0.0		
Passenger	50.0	Bus TOD Dist	Uniform	Uniform		
Freight	50.0	Costs in '000 \$ of Hwy Improvement		0.0		
Switch	21.0					
				<u>Costs in '000 \$</u>		
				<i>Base</i>	<i>Alternate</i>	
				<u>Grade Crossing Devices</u>		
				O&M	0.2	0.2
				Oth. Lcycle	0.0	0.0
				Capital		1.6
				<u>Supplementary Safety</u>		
				O&M	0.0	0.0
				Oth. Lcycle	0.0	0.0
				Capital		0.0

Milepost 87.43	Crossing ID 092476B	Accidents in 5 Years	0	Predicted Annual Accidents		
Description BNSF - COWLITZ AVE		<u>Highway Traffic Characteristics</u>		<i>Base</i>	<i>Alternate</i>	
Paved? True	Urban? False	H'way Lanes	2	2.0		
GCX Base Type	Gates	Dist from hway	0.10	0.1		
Safety Sup. Type	None	AADT	1,200	1,200		
GCX Alt Type	Gates	Auto TOD Dist	Uniform	Uniform		
Safety Sup. type	None	Percent Trucks	2.0	2.0		
No. RR Tracks	2	Of this, % trailers	0.0	0.0		
<u>Train Speeds (mph)</u>		Truck TOD Dist	Uniform	Uniform		
Max Timetable	50.0	Percent Bus	0.0	0.0		
Passenger	50.0	Bus TOD Dist	Uniform	Uniform		
Freight	50.0	Costs in '000 \$ of Hwy Improvement		0.0		
Switch	23.7					
				<u>Costs in '000 \$</u>		
				<i>Base</i>	<i>Alternate</i>	
				<u>Grade Crossing Devices</u>		
				O&M	2.5	2.5
				Oth. Lcycle	0.0	0.0
				Capital		106.1
				<u>Supplementary Safety</u>		
				O&M	0.0	0.0
				Oth. Lcycle	0.0	0.0
				Capital		0.0

CROSSING DATA FOR THE 2018 NO ACTION - MAINLINE CORRIDOR

Milepost 95.56	Crossing ID 092466V	Accidents in 5 Years	0		<u>Predicted Annual Accidents</u>		
Description BNSF - COWLITZ GARDEN RD		<u>Highway Traffic Characteristics</u>			<i>Base</i>	<i>Alternate</i>	
Paved? True	Urban? True	H'way Lanes	2	2.0	Fatal	0.00393	0.00393
GCX Base Type	Gates	Dist from hwy	0.10	0.1	Injury	0.00539	0.00539
Safety Sup. Type	None	AADT	700	700	PDO	0.01803	0.01803
GCX Alt Type	Gates	Auto TOD Dist	Uniform	Uniform	Total	0.02735	0.02735
Safety Sup. type	None	Percent Trucks	10.0	10.0	<u>Costs in '000 \$</u>		
No. RR Tracks	3	Of this, % trailers	0.0	0.0	<i>Base</i> <i>Alternate</i>		
<u>Train Speeds (mph)</u>		Truck TOD Dist	Uniform	Uniform	<u>Grade Crossing Devices</u>		
Max Timetable	75.0	Percent Bus	0.0	0.0	O&M	2.5	2.5
Passenger	75.0	Bus TOD Dist	Uniform	Uniform	Oth. Lcycle	0.0	0.0
Freight	60.0	Costs in '000 \$ of Hwy Improvement		0.0	Capital	106.1	
Switch	15.6				<u>Supplementary Safety</u>		
					O&M	0.0	0.0
					Oth. Lcycle	0.0	0.0
					Capital	0.0	

Milepost 97.67	Crossing ID 092458D	Accidents in 5 Years	0		<u>Predicted Annual Accidents</u>		
Description BNSF - MILL STREET		<u>Highway Traffic Characteristics</u>			<i>Base</i>	<i>Alternate</i>	
Paved? True	Urban? True	H'way Lanes	2	2.0	Fatal	0.00291	0.00291
GCX Base Type	Gates	Dist from hwy	0.10	0.1	Injury	0.00749	0.00749
Safety Sup. Type	None	AADT	2,550	2,550	PDO	0.02498	0.02498
GCX Alt Type	Gates	Auto TOD Dist	Uniform	Uniform	Total	0.03538	0.03538
Safety Sup. type	None	Percent Trucks	5.0	5.0	<u>Costs in '000 \$</u>		
No. RR Tracks	3	Of this, % trailers	0.0	0.0	<i>Base</i> <i>Alternate</i>		
<u>Train Speeds (mph)</u>		Truck TOD Dist	Uniform	Uniform	<u>Grade Crossing Devices</u>		
Max Timetable	40.0	Percent Bus	0.0	0.0	O&M	2.5	2.5
Passenger	40.0	Bus TOD Dist	Uniform	Uniform	Oth. Lcycle	0.0	0.0
Freight	40.0	Costs in '000 \$ of Hwy Improvement		0.0	Capital	106.1	
Switch	22.5				<u>Supplementary Safety</u>		
					O&M	0.0	0.0
					Oth. Lcycle	0.0	0.0
					Capital	0.0	

Milepost 97.98	Crossing ID 092457W	Accidents in 5 Years	0		<u>Predicted Annual Accidents</u>		
Description BNSF - YEW ST.(S RIVER)		<u>Highway Traffic Characteristics</u>			<i>Base</i>	<i>Alternate</i>	
Paved? True	Urban? True	H'way Lanes	2	2.0	Fatal	0.00274	0.00274
GCX Base Type	Gates	Dist from hwy	0.10	0.1	Injury	0.00705	0.00705
Safety Sup. Type	None	AADT	1,850	1,850	PDO	0.02350	0.02350
GCX Alt Type	Gates	Auto TOD Dist	Uniform	Uniform	Total	0.03329	0.03329
Safety Sup. type	None	Percent Trucks	50.0	50.0	<u>Costs in '000 \$</u>		
No. RR Tracks	3	Of this, % trailers	0.0	0.0	<i>Base</i> <i>Alternate</i>		
<u>Train Speeds (mph)</u>		Truck TOD Dist	Uniform	Uniform	<u>Grade Crossing Devices</u>		
Max Timetable	40.0	Percent Bus	0.0	0.0	O&M	2.5	2.5
Passenger	40.0	Bus TOD Dist	Uniform	Uniform	Oth. Lcycle	0.0	0.0
Freight	40.0	Costs in '000 \$ of Hwy Improvement		0.0	Capital	106.1	
Switch	22.5				<u>Supplementary Safety</u>		
					O&M	0.0	0.0
					Oth. Lcycle	0.0	0.0
					Capital	0.0	

CROSSING DATA FOR THE 2018 NO ACTION - MAINLINE CORRIDOR

Milepost 109.60	Crossing ID 092446J	Accidents in 5 Years	0		<u>Predicted Annual Accidents</u>			
Description BNSF - TOTEFF ROAD		<u>Highway Traffic Characteristics</u>			<i>Base</i>	<i>Alternate</i>		
Paved? True	Urban? False	H'way Lanes	2	2.0	Fatal	0.00554	0.00554	
GCX Base Type	Gates	Dist from hway	0.10	0.1	Injury	0.00662	0.00662	
Safety Sup. Type	None	AADT	1,200	1,200	PDO	0.01533	0.01533	
GCX Alt Type	Gates	Auto TOD Dist	Uniform	Uniform	Total	0.02749	0.02749	
Safety Sup. type	None	Percent Trucks	50.0	50.0	<u>Costs in '000 \$</u>			
No. RR Tracks	2	Of this, % trailers	0.0	0.0	<i>Base</i> <i>Alternate</i>			
<u>Train Speeds (mph)</u>		Truck TOD Dist	Uniform	Uniform	<u>Grade Crossing Devices</u>			
Max Timetable	79.0	Percent Bus	0.0	0.0	O&M	2.5	2.5	
Passenger	79.0	Bus TOD Dist	Uniform	Uniform	Oth. Lcycle	0.0	0.0	
Freight	60.0	Costs in '000 \$ of Hwy Improvement		0.0	Capital	106.1		
Switch	23.7	<u>Supplementary Safety</u>						
						O&M	0.0	0.0
						Oth. Lcycle	0.0	0.0
						Capital	0.0	

Milepost 115.75	Crossing ID 092437K	Accidents in 5 Years	0		<u>Predicted Annual Accidents</u>			
Description BNSF - SCOTT AVE WEST		<u>Highway Traffic Characteristics</u>			<i>Base</i>	<i>Alternate</i>		
Paved? True	Urban? False	H'way Lanes	2	2.0	Fatal	0.00624	0.00624	
GCX Base Type	Gates	Dist from hway	0.10	0.1	Injury	0.00790	0.00790	
Safety Sup. Type	None	AADT	2,650	2,650	PDO	0.01816	0.01816	
GCX Alt Type	Gates	Auto TOD Dist	Uniform	Uniform	Total	0.03230	0.03230	
Safety Sup. type	None	Percent Trucks	2.0	2.0	<u>Costs in '000 \$</u>			
No. RR Tracks	2	Of this, % trailers	0.0	0.0	<i>Base</i> <i>Alternate</i>			
<u>Train Speeds (mph)</u>		Truck TOD Dist	Uniform	Uniform	<u>Grade Crossing Devices</u>			
Max Timetable	75.0	Percent Bus	0.0	0.0	O&M	2.5	2.5	
Passenger	75.0	Bus TOD Dist	Uniform	Uniform	Oth. Lcycle	0.0	0.0	
Freight	60.0	Costs in '000 \$ of Hwy Improvement		0.0	Capital	106.1		
Switch	23.7	<u>Supplementary Safety</u>						
						O&M	0.0	0.0
						Oth. Lcycle	0.0	0.0
						Capital	0.0	

Milepost 116.62	Crossing ID 092435W	Accidents in 5 Years	0		<u>Predicted Annual Accidents</u>			
Description BNSF - DAVIDSON AVE		<u>Highway Traffic Characteristics</u>			<i>Base</i>	<i>Alternate</i>		
Paved? True	Urban? False	H'way Lanes	2	2.0	Fatal	0.00590	0.00590	
GCX Base Type	Gates	Dist from hway	0.10	0.1	Injury	0.00747	0.00747	
Safety Sup. Type	None	AADT	2,000	2,000	PDO	0.01717	0.01717	
GCX Alt Type	Gates	Auto TOD Dist	Uniform	Uniform	Total	0.03054	0.03054	
Safety Sup. type	None	Percent Trucks	35.0	35.0	<u>Costs in '000 \$</u>			
No. RR Tracks	2	Of this, % trailers	0.0	0.0	<i>Base</i> <i>Alternate</i>			
<u>Train Speeds (mph)</u>		Truck TOD Dist	Uniform	Uniform	<u>Grade Crossing Devices</u>			
Max Timetable	75.0	Percent Bus	0.0	0.0	O&M	2.5	2.5	
Passenger	75.0	Bus TOD Dist	Uniform	Uniform	Oth. Lcycle	0.0	0.0	
Freight	60.0	Costs in '000 \$ of Hwy Improvement		0.0	Capital	106.1		
Switch	23.7	<u>Supplementary Safety</u>						
						O&M	0.0	0.0
						Oth. Lcycle	0.0	0.0
						Capital	0.0	

CROSSING DATA FOR THE 2018 NO ACTION - MAINLINE CORRIDOR

Milepost 117.50	Crossing ID 092434P	Accidents in 5 Years	0		<u>Predicted Annual Accidents</u>		
Description BNSF - WHALEN RD.		<u>Highway Traffic Characteristics</u>			<i>Base</i>	<i>Alternate</i>	
			<i>Base</i>	<i>Alternate</i>	Fatal	0.00561	0.00561
Paved? True	Urban? False	H'way Lanes	2	2.0	Injury	0.00709	0.00709
GCX Base Type	Gates	Dist from hway	0.10	0.1	PDO	0.01630	0.01630
Safety Sup. Type	None	AADT	1,550	1,550	Total	0.02900	0.02900
GCX Alt Type	Gates	Auto TOD Dist	Uniform	Uniform	<u>Costs in '000 \$</u>		
Safety Sup. type	None	Percent Trucks	25.0	25.0	<i>Base</i>		
No. RR Tracks	2	Of this, % trailers	0.0	0.0	<u>Grade Crossing Devices</u>		
		Truck TOD Dist	Uniform	Uniform	O&M	2.5	2.5
		Percent Bus	0.0	0.0	Oth. Lcycle	0.0	0.0
		Bus TOD Dist	Uniform	Uniform	Capital		106.1
<u>Train Speeds (mph)</u>		Costs in '000 \$ of Hway Improvement		0.0	<u>Supplementary Safety</u>		
Max Timetable	75.0				O&M	0.0	0.0
Passenger	75.0				Oth. Lcycle	0.0	0.0
Freight	60.0				Capital		0.0
Switch	23.7						



FEDERAL RAILROAD ADMINISTRATION
GRADEDEC.NET
CORRIDOR AND CROSSING DATA
 (without phased improvements)

User: kchewuk
 Dataset: Initial dataset
 Corridor ID 17

Corridor Name	2018 Construction Truck - Mainline			Avg. No. Trains Per Day	Train Time-of-Day Distribution
Technology Factors	0.50	0.50	0.50	<i>Passenger</i> 10.0	Uniform
Signal Synchronization?	False			<i>Freight</i> 45.0	Uniform
				<i>Switch</i> 0.0	Uniform

CORRIDOR SUMMARY OF PREDICTED ANNUAL ACCIDENTS

Calculated: 28-Sep-2015 1:27 pm

	Fatal	Injury	PDO	Total
<i>Base</i>	0.039044	0.060936	0.160175	0.260155
<i>Alternate</i>	0.039044	0.060936	0.160175	0.260155

CROSSING DATA FOR THE 2018 CONSTRUCTION TRUCK - MAINLINE CORRIDOR

Milepost 82.72	Crossing ID 092481X	Accidents in 5 Years	0		Predicted Annual Accidents		
Description BNSF - TAYLOR CRANE RD		<u>Highway Traffic Characteristics</u>			<i>Base</i>	<i>Alternate</i>	
Paved? False	Urban? False	H'way Lanes	2	2.0	Fatal	0.00239	0.00239
GCX Base Type	Passive	Dist from hway	0.10	0.1	Injury	0.00461	0.00461
Safety Sup. Type	None	AADT	50	50	PDO	0.01032	0.01032
GCX Alt Type	Passive	Auto TOD Dist	Uniform	Uniform	Total	0.01732	0.01732
Safety Sup. type	None	Percent Trucks	5.0	5.0	<u>Costs in '000 \$</u>		
No. RR Tracks	2	Of this, % trailers	0.0	0.0	<i>Base</i>	<i>Alternate</i>	
<u>Train Speeds (mph)</u>		Truck TOD Dist	Uniform	Uniform	<u>Grade Crossing Devices</u>		
Max Timetable	50.0	Percent Bus	0.0	0.0	O&M	0.2	0.2
Passenger	50.0	Bus TOD Dist	Uniform	Uniform	Oth. Lcycle	0.0	0.0
Freight	50.0	Costs in '000 \$ of Hwy Improvement	0.0		Capital	1.6	
Switch	21.0				<u>Supplementary Safety</u>		
					O&M	0.0	0.0
					Oth. Lcycle	0.0	0.0
					Capital	0.0	

Milepost 87.43	Crossing ID 092476B	Accidents in 5 Years	0		Predicted Annual Accidents		
Description BNSF - COWLITZ AVE		<u>Highway Traffic Characteristics</u>			<i>Base</i>	<i>Alternate</i>	
Paved? True	Urban? False	H'way Lanes	2	2.0	Fatal	0.00379	0.00379
GCX Base Type	Gates	Dist from hway	0.10	0.1	Injury	0.00732	0.00732
Safety Sup. Type	None	AADT	1,200	1,200	PDO	0.01638	0.01638
GCX Alt Type	Gates	Auto TOD Dist	Uniform	Uniform	Total	0.02749	0.02749
Safety Sup. type	None	Percent Trucks	2.0	2.0	<u>Costs in '000 \$</u>		
No. RR Tracks	2	Of this, % trailers	0.0	0.0	<i>Base</i>	<i>Alternate</i>	
<u>Train Speeds (mph)</u>		Truck TOD Dist	Uniform	Uniform	<u>Grade Crossing Devices</u>		
Max Timetable	50.0	Percent Bus	0.0	0.0	O&M	2.5	2.5
Passenger	50.0	Bus TOD Dist	Uniform	Uniform	Oth. Lcycle	0.0	0.0
Freight	50.0	Costs in '000 \$ of Hwy Improvement	0.0		Capital	106.1	
Switch	23.7				<u>Supplementary Safety</u>		
					O&M	0.0	0.0
					Oth. Lcycle	0.0	0.0
					Capital	0.0	

CROSSING DATA FOR THE 2018 CONSTRUCTION TRUCK - MAINLINE CORRIDOR

Milepost 95.56	Crossing ID 092466V	Accidents in 5 Years	0		<u>Predicted Annual Accidents</u>		
Description BNSF - COWLITZ GARDEN RD		<u>Highway Traffic Characteristics</u>			<i>Base</i>	<i>Alternate</i>	
Paved? True	Urban? True	H'way Lanes	2	2.0	Fatal	0.00393	0.00393
GCX Base Type	Gates	Dist from hwy	0.10	0.1	Injury	0.00539	0.00539
Safety Sup. Type	None	AADT	700	700	PDO	0.01803	0.01803
GCX Alt Type	Gates	Auto TOD Dist	Uniform	Uniform	Total	0.02735	0.02735
Safety Sup. type	None	Percent Trucks	10.0	10.0	<u>Costs in '000 \$</u>		
No. RR Tracks	3	Of this, % trailers	0.0	0.0	<i>Base</i> <i>Alternate</i>		
<u>Train Speeds (mph)</u>		Truck TOD Dist	Uniform	Uniform	<u>Grade Crossing Devices</u>		
Max Timetable	75.0	Percent Bus	0.0	0.0	O&M	2.5	2.5
Passenger	75.0	Bus TOD Dist	Uniform	Uniform	Oth. Lcycle	0.0	0.0
Freight	60.0	Costs in '000 \$ of Hwy Improvement		0.0	Capital	106.1	
Switch	15.6				<u>Supplementary Safety</u>		
					O&M	0.0	0.0
					Oth. Lcycle	0.0	0.0
					Capital	0.0	

Milepost 97.67	Crossing ID 092458D	Accidents in 5 Years	0		<u>Predicted Annual Accidents</u>		
Description BNSF - MILL STREET		<u>Highway Traffic Characteristics</u>			<i>Base</i>	<i>Alternate</i>	
Paved? True	Urban? True	H'way Lanes	2	2.0	Fatal	0.00291	0.00291
GCX Base Type	Gates	Dist from hwy	0.10	0.1	Injury	0.00749	0.00749
Safety Sup. Type	None	AADT	2,550	2,550	PDO	0.02498	0.02498
GCX Alt Type	Gates	Auto TOD Dist	Uniform	Uniform	Total	0.03538	0.03538
Safety Sup. type	None	Percent Trucks	5.0	5.0	<u>Costs in '000 \$</u>		
No. RR Tracks	3	Of this, % trailers	0.0	0.0	<i>Base</i> <i>Alternate</i>		
<u>Train Speeds (mph)</u>		Truck TOD Dist	Uniform	Uniform	<u>Grade Crossing Devices</u>		
Max Timetable	40.0	Percent Bus	0.0	0.0	O&M	2.5	2.5
Passenger	40.0	Bus TOD Dist	Uniform	Uniform	Oth. Lcycle	0.0	0.0
Freight	40.0	Costs in '000 \$ of Hwy Improvement		0.0	Capital	106.1	
Switch	22.5				<u>Supplementary Safety</u>		
					O&M	0.0	0.0
					Oth. Lcycle	0.0	0.0
					Capital	0.0	

Milepost 97.98	Crossing ID 092457W	Accidents in 5 Years	0		<u>Predicted Annual Accidents</u>		
Description BNSF - YEW ST.(S RIVER)		<u>Highway Traffic Characteristics</u>			<i>Base</i>	<i>Alternate</i>	
Paved? True	Urban? True	H'way Lanes	2	2.0	Fatal	0.00274	0.00274
GCX Base Type	Gates	Dist from hwy	0.10	0.1	Injury	0.00705	0.00705
Safety Sup. Type	None	AADT	1,850	1,850	PDO	0.02350	0.02350
GCX Alt Type	Gates	Auto TOD Dist	Uniform	Uniform	Total	0.03329	0.03329
Safety Sup. type	None	Percent Trucks	50.0	50.0	<u>Costs in '000 \$</u>		
No. RR Tracks	3	Of this, % trailers	0.0	0.0	<i>Base</i> <i>Alternate</i>		
<u>Train Speeds (mph)</u>		Truck TOD Dist	Uniform	Uniform	<u>Grade Crossing Devices</u>		
Max Timetable	40.0	Percent Bus	0.0	0.0	O&M	2.5	2.5
Passenger	40.0	Bus TOD Dist	Uniform	Uniform	Oth. Lcycle	0.0	0.0
Freight	40.0	Costs in '000 \$ of Hwy Improvement		0.0	Capital	106.1	
Switch	22.5				<u>Supplementary Safety</u>		
					O&M	0.0	0.0
					Oth. Lcycle	0.0	0.0
					Capital	0.0	

CROSSING DATA FOR THE 2018 CONSTRUCTION TRUCK - MAINLINE CORRIDOR

Milepost 109.60	Crossing ID 092446J	Accidents in 5 Years	0		<u>Predicted Annual Accidents</u>		
Description BNSF - TOTEFF ROAD		<u>Highway Traffic Characteristics</u>			<i>Base</i>	<i>Alternate</i>	
			<i>Base</i>	<i>Alternate</i>	Fatal	0.00554	0.00554
Paved? True	Urban? False	H'way Lanes	2	2.0	Injury	0.00662	0.00662
GCX Base Type	Gates	Dist from hway	0.10	0.1	PDO	0.01533	0.01533
Safety Sup. Type	None	AADT	1,200	1,200	Total	0.02749	0.02749
GCX Alt Type	Gates	Auto TOD Dist	Uniform	Uniform	<u>Costs in '000 \$</u>		
Safety Sup. type	None	Percent Trucks	50.0	50.0	<i>Base</i> <i>Alternate</i>		
No. RR Tracks	2	Of this, % trailers	0.0	0.0	<u>Grade Crossing Devices</u>		
		Truck TOD Dist	Uniform	Uniform	O&M	2.5	2.5
		Percent Bus	0.0	0.0	Oth. Lcycle	0.0	0.0
		Bus TOD Dist	Uniform	Uniform	Capital		106.1
		Costs in '000 \$ of Hwy Improvement		0.0	<u>Supplementary Safety</u>		
<u>Train Speeds (mph)</u>					O&M	0.0	0.0
Max Timetable	79.0				Oth. Lcycle	0.0	0.0
Passenger	79.0				Capital		0.0
Freight	60.0						
Switch	23.7						

Milepost 115.75	Crossing ID 092437K	Accidents in 5 Years	0		<u>Predicted Annual Accidents</u>		
Description BNSF - SCOTT AVE WEST		<u>Highway Traffic Characteristics</u>			<i>Base</i>	<i>Alternate</i>	
			<i>Base</i>	<i>Alternate</i>	Fatal	0.00624	0.00624
Paved? True	Urban? False	H'way Lanes	2	2.0	Injury	0.00790	0.00790
GCX Base Type	Gates	Dist from hway	0.10	0.1	PDO	0.01816	0.01816
Safety Sup. Type	None	AADT	2,650	2,650	Total	0.03230	0.03230
GCX Alt Type	Gates	Auto TOD Dist	Uniform	Uniform	<u>Costs in '000 \$</u>		
Safety Sup. type	None	Percent Trucks	2.0	2.0	<i>Base</i> <i>Alternate</i>		
No. RR Tracks	2	Of this, % trailers	0.0	0.0	<u>Grade Crossing Devices</u>		
		Truck TOD Dist	Uniform	Uniform	O&M	2.5	2.5
		Percent Bus	0.0	0.0	Oth. Lcycle	0.0	0.0
		Bus TOD Dist	Uniform	Uniform	Capital		106.1
		Costs in '000 \$ of Hwy Improvement		0.0	<u>Supplementary Safety</u>		
<u>Train Speeds (mph)</u>					O&M	0.0	0.0
Max Timetable	75.0				Oth. Lcycle	0.0	0.0
Passenger	75.0				Capital		0.0
Freight	60.0						
Switch	23.7						

Milepost 116.62	Crossing ID 092435W	Accidents in 5 Years	0		<u>Predicted Annual Accidents</u>		
Description BNSF - DAVIDSON AVE		<u>Highway Traffic Characteristics</u>			<i>Base</i>	<i>Alternate</i>	
			<i>Base</i>	<i>Alternate</i>	Fatal	0.00590	0.00590
Paved? True	Urban? False	H'way Lanes	2	2.0	Injury	0.00747	0.00747
GCX Base Type	Gates	Dist from hway	0.10	0.1	PDO	0.01717	0.01717
Safety Sup. Type	None	AADT	2,000	2,000	Total	0.03054	0.03054
GCX Alt Type	Gates	Auto TOD Dist	Uniform	Uniform	<u>Costs in '000 \$</u>		
Safety Sup. type	None	Percent Trucks	35.0	35.0	<i>Base</i> <i>Alternate</i>		
No. RR Tracks	2	Of this, % trailers	0.0	0.0	<u>Grade Crossing Devices</u>		
		Truck TOD Dist	Uniform	Uniform	O&M	2.5	2.5
		Percent Bus	0.0	0.0	Oth. Lcycle	0.0	0.0
		Bus TOD Dist	Uniform	Uniform	Capital		106.1
		Costs in '000 \$ of Hwy Improvement		0.0	<u>Supplementary Safety</u>		
<u>Train Speeds (mph)</u>					O&M	0.0	0.0
Max Timetable	75.0				Oth. Lcycle	0.0	0.0
Passenger	75.0				Capital		0.0
Freight	60.0						
Switch	23.7						

CROSSING DATA FOR THE 2018 CONSTRUCTION TRUCK - MAINLINE CORRIDOR

Milepost 117.50	Crossing ID 092434P	Accidents in 5 Years	0		<u>Predicted Annual Accidents</u>		
Description BNSF - WHALEN RD.		<u>Highway Traffic Characteristics</u>			<i>Base</i>	<i>Alternate</i>	
			<i>Base</i>	<i>Alternate</i>	Fatal	0.00561	0.00561
Paved? True	Urban? False	H'way Lanes	2	2.0	Injury	0.00709	0.00709
GCX Base Type	Gates	Dist from hway	0.10	0.1	PDO	0.01630	0.01630
Safety Sup. Type	None	AADT	1,550	1,550	Total	0.02900	0.02900
GCX Alt Type	Gates	Auto TOD Dist	Uniform	Uniform	<u>Costs in '000 \$</u>		
Safety Sup. type	None	Percent Trucks	25.0	25.0	<i>Base</i>		
No. RR Tracks	2	Of this, % trailers	0.0	0.0	<u>Grade Crossing Devices</u>		
		Truck TOD Dist	Uniform	Uniform	O&M	2.5	2.5
		Percent Bus	0.0	0.0	Oth. Lcycle	0.0	0.0
		Bus TOD Dist	Uniform	Uniform	Capital		106.1
<u>Train Speeds (mph)</u>		Costs in '000 \$ of Hway Improvement		0.0	<u>Supplementary Safety</u>		
Max Timetable	75.0				O&M	0.0	0.0
Passenger	75.0				Oth. Lcycle	0.0	0.0
Freight	60.0				Capital		0.0
Switch	23.7						



FEDERAL RAILROAD ADMINISTRATION
GRADEDEC.NET
CORRIDOR AND CROSSING DATA
 (without phased improvements)

User: kchewuk
 Dataset: Initial dataset
 Corridor ID 20

Corridor Name	2018 Construction Rail - Mainline			Avg. No. Trains Per Day	Train Time-of-Day Distribution
Technology Factors	0.50	0.50	0.50	<i>Passenger</i> 10.0	Uniform
Signal Synchronization?	False			<i>Freight</i> 46.0	Uniform
				<i>Switch</i> 0.0	Uniform

CORRIDOR SUMMARY OF PREDICTED ANNUAL ACCIDENTS

Calculated: 28-Sep-2015 1:32 pm

	Fatal	Injury	PDO	Total
<i>Base</i>	0.039329	0.061252	0.161128	0.261709
<i>Alternate</i>	0.039329	0.061252	0.161128	0.261709

CROSSING DATA FOR THE 2018 CONSTRUCTION RAIL - MAINLINE CORRIDOR

Milepost 82.72	Crossing ID 092481X	Accidents in 5 Years	0	Predicted Annual Accidents		
Description BNSF - TAYLOR CRANE RD		<u>Highway Traffic Characteristics</u>		<i>Base</i>	<i>Alternate</i>	
Paved? False	Urban? False	H'way Lanes	2	2.0		
GCX Base Type	Passive	Dist from hway	0.10	0.1		
Safety Sup. Type	None	AADT	50	50		
GCX Alt Type	Passive	Auto TOD Dist	Uniform	Uniform		
Safety Sup. type	None	Percent Trucks	5.0	5.0		
No. RR Tracks	2	Of this, % trailers	0.0	0.0		
		Truck TOD Dist	Uniform	Uniform		
		Percent Bus	0.0	0.0		
		Bus TOD Dist	Uniform	Uniform		
		Costs in '000 \$ of Hwy Improvement		0.0		
<u>Train Speeds (mph)</u>						
Max Timetable		50.0				
Passenger		50.0				
Freight		50.0				
Switch		21.0				
				<u>Costs in '000 \$</u>		
				<i>Base</i>	<i>Alternate</i>	
				<u>Grade Crossing Devices</u>		
				O&M	0.2	0.2
				Oth. Lcycle	0.0	0.0
				Capital		1.6
				<u>Supplementary Safety</u>		
				O&M	0.0	0.0
				Oth. Lcycle	0.0	0.0
				Capital		0.0

Milepost 87.43	Crossing ID 092476B	Accidents in 5 Years	0	Predicted Annual Accidents		
Description BNSF - COWLITZ AVE		<u>Highway Traffic Characteristics</u>		<i>Base</i>	<i>Alternate</i>	
Paved? True	Urban? False	H'way Lanes	2	2.0		
GCX Base Type	Gates	Dist from hway	0.10	0.1		
Safety Sup. Type	None	AADT	1,200	1,200		
GCX Alt Type	Gates	Auto TOD Dist	Uniform	Uniform		
Safety Sup. type	None	Percent Trucks	2.0	2.0		
No. RR Tracks	2	Of this, % trailers	0.0	0.0		
		Truck TOD Dist	Uniform	Uniform		
		Percent Bus	0.0	0.0		
		Bus TOD Dist	Uniform	Uniform		
		Costs in '000 \$ of Hwy Improvement		0.0		
<u>Train Speeds (mph)</u>						
Max Timetable		50.0				
Passenger		50.0				
Freight		50.0				
Switch		23.7				
				<u>Costs in '000 \$</u>		
				<i>Base</i>	<i>Alternate</i>	
				<u>Grade Crossing Devices</u>		
				O&M	2.5	2.5
				Oth. Lcycle	0.0	0.0
				Capital		106.1
				<u>Supplementary Safety</u>		
				O&M	0.0	0.0
				Oth. Lcycle	0.0	0.0
				Capital		0.0

CROSSING DATA FOR THE 2018 CONSTRUCTION RAIL - MAINLINE CORRIDOR

Milepost 95.56	Crossing ID 092466V	Accidents in 5 Years	0		<u>Predicted Annual Accidents</u>		
Description BNSF - COWLITZ GARDEN RD		<u>Highway Traffic Characteristics</u>			<i>Base</i>	<i>Alternate</i>	
Paved? True	Urban? True	H'way Lanes	2	2.0	Fatal	0.00396	0.00396
GCX Base Type	Gates	Dist from hway	0.10	0.1	Injury	0.00541	0.00541
Safety Sup. Type	None	AADT	700	700	PDO	0.01814	0.01814
GCX Alt Type	Gates	Auto TOD Dist	Uniform	Uniform	Total	0.02751	0.02751
Safety Sup. type	None	Percent Trucks	10.0	10.0	<u>Costs in '000 \$</u>		
No. RR Tracks	3	Of this, % trailers	0.0	0.0	<i>Base</i> <i>Alternate</i>		
<u>Train Speeds (mph)</u>		Truck TOD Dist	Uniform	Uniform	<u>Grade Crossing Devices</u>		
Max Timetable	75.0	Percent Bus	0.0	0.0	O&M	2.5	2.5
Passenger	75.0	Bus TOD Dist	Uniform	Uniform	Oth. Lcycle	0.0	0.0
Freight	60.0	Costs in '000 \$ of Hwy Improvement		0.0	Capital	106.1	
Switch	15.6				<u>Supplementary Safety</u>		
					O&M	0.0	0.0
					Oth. Lcycle	0.0	0.0
					Capital	0.0	

Milepost 97.67	Crossing ID 092458D	Accidents in 5 Years	0		<u>Predicted Annual Accidents</u>		
Description BNSF - MILL STREET		<u>Highway Traffic Characteristics</u>			<i>Base</i>	<i>Alternate</i>	
Paved? True	Urban? True	H'way Lanes	2	2.0	Fatal	0.00293	0.00293
GCX Base Type	Gates	Dist from hway	0.10	0.1	Injury	0.00753	0.00753
Safety Sup. Type	None	AADT	2,550	2,550	PDO	0.02512	0.02512
GCX Alt Type	Gates	Auto TOD Dist	Uniform	Uniform	Total	0.03557	0.03557
Safety Sup. type	None	Percent Trucks	5.0	5.0	<u>Costs in '000 \$</u>		
No. RR Tracks	3	Of this, % trailers	0.0	0.0	<i>Base</i> <i>Alternate</i>		
<u>Train Speeds (mph)</u>		Truck TOD Dist	Uniform	Uniform	<u>Grade Crossing Devices</u>		
Max Timetable	40.0	Percent Bus	0.0	0.0	O&M	2.5	2.5
Passenger	40.0	Bus TOD Dist	Uniform	Uniform	Oth. Lcycle	0.0	0.0
Freight	40.0	Costs in '000 \$ of Hwy Improvement		0.0	Capital	106.1	
Switch	22.5				<u>Supplementary Safety</u>		
					O&M	0.0	0.0
					Oth. Lcycle	0.0	0.0
					Capital	0.0	

Milepost 97.98	Crossing ID 092457W	Accidents in 5 Years	0		<u>Predicted Annual Accidents</u>		
Description BNSF - YEW ST.(S RIVER)		<u>Highway Traffic Characteristics</u>			<i>Base</i>	<i>Alternate</i>	
Paved? True	Urban? True	H'way Lanes	2	2.0	Fatal	0.00275	0.00275
GCX Base Type	Gates	Dist from hway	0.10	0.1	Injury	0.00708	0.00708
Safety Sup. Type	None	AADT	1,850	1,850	PDO	0.02364	0.02364
GCX Alt Type	Gates	Auto TOD Dist	Uniform	Uniform	Total	0.03347	0.03347
Safety Sup. type	None	Percent Trucks	50.0	50.0	<u>Costs in '000 \$</u>		
No. RR Tracks	3	Of this, % trailers	0.0	0.0	<i>Base</i> <i>Alternate</i>		
<u>Train Speeds (mph)</u>		Truck TOD Dist	Uniform	Uniform	<u>Grade Crossing Devices</u>		
Max Timetable	40.0	Percent Bus	0.0	0.0	O&M	2.5	2.5
Passenger	40.0	Bus TOD Dist	Uniform	Uniform	Oth. Lcycle	0.0	0.0
Freight	40.0	Costs in '000 \$ of Hwy Improvement		0.0	Capital	106.1	
Switch	22.5				<u>Supplementary Safety</u>		
					O&M	0.0	0.0
					Oth. Lcycle	0.0	0.0
					Capital	0.0	

CROSSING DATA FOR THE 2018 CONSTRUCTION RAIL - MAINLINE CORRIDOR

Milepost 109.60	Crossing ID 092446J	Accidents in 5 Years	0		<u>Predicted Annual Accidents</u>		
Description BNSF - TOTEFF ROAD		<u>Highway Traffic Characteristics</u>			<i>Base</i>	<i>Alternate</i>	
			<i>Base</i>	<i>Alternate</i>	Fatal	0.00558	0.00558
Paved? True	Urban? False	H'way Lanes	2	2.0	Injury	0.00665	0.00665
GCX Base Type	Gates	Dist from hway	0.10	0.1	PDO	0.01542	0.01542
Safety Sup. Type	None	AADT	1,200	1,200	Total	0.02766	0.02766
GCX Alt Type	Gates	Auto TOD Dist	Uniform	Uniform	<u>Costs in '000 \$</u>		
Safety Sup. type	None	Percent Trucks	50.0	50.0	<i>Base</i> <i>Alternate</i>		
No. RR Tracks	2	Of this, % trailers	0.0	0.0	<u>Grade Crossing Devices</u>		
		Truck TOD Dist	Uniform	Uniform	O&M	2.5	2.5
		Percent Bus	0.0	0.0	Oth. Lcycle	0.0	0.0
		Bus TOD Dist	Uniform	Uniform	Capital		106.1
		Costs in '000 \$ of Hwy Improvement		0.0	<u>Supplementary Safety</u>		
<u>Train Speeds (mph)</u>					O&M	0.0	0.0
Max Timetable	79.0				Oth. Lcycle	0.0	0.0
Passenger	79.0				Capital		0.0
Freight	60.0						
Switch	23.7						

Milepost 115.75	Crossing ID 092437K	Accidents in 5 Years	0		<u>Predicted Annual Accidents</u>		
Description BNSF - SCOTT AVE WEST		<u>Highway Traffic Characteristics</u>			<i>Base</i>	<i>Alternate</i>	
			<i>Base</i>	<i>Alternate</i>	Fatal	0.00629	0.00629
Paved? True	Urban? False	H'way Lanes	2	2.0	Injury	0.00794	0.00794
GCX Base Type	Gates	Dist from hway	0.10	0.1	PDO	0.01826	0.01826
Safety Sup. Type	None	AADT	2,650	2,650	Total	0.03248	0.03248
GCX Alt Type	Gates	Auto TOD Dist	Uniform	Uniform	<u>Costs in '000 \$</u>		
Safety Sup. type	None	Percent Trucks	2.0	2.0	<i>Base</i> <i>Alternate</i>		
No. RR Tracks	2	Of this, % trailers	0.0	0.0	<u>Grade Crossing Devices</u>		
		Truck TOD Dist	Uniform	Uniform	O&M	2.5	2.5
		Percent Bus	0.0	0.0	Oth. Lcycle	0.0	0.0
		Bus TOD Dist	Uniform	Uniform	Capital		106.1
		Costs in '000 \$ of Hwy Improvement		0.0	<u>Supplementary Safety</u>		
<u>Train Speeds (mph)</u>					O&M	0.0	0.0
Max Timetable	75.0				Oth. Lcycle	0.0	0.0
Passenger	75.0				Capital		0.0
Freight	60.0						
Switch	23.7						

Milepost 116.62	Crossing ID 092435W	Accidents in 5 Years	0		<u>Predicted Annual Accidents</u>		
Description BNSF - DAVIDSON AVE		<u>Highway Traffic Characteristics</u>			<i>Base</i>	<i>Alternate</i>	
			<i>Base</i>	<i>Alternate</i>	Fatal	0.00595	0.00595
Paved? True	Urban? False	H'way Lanes	2	2.0	Injury	0.00751	0.00751
GCX Base Type	Gates	Dist from hway	0.10	0.1	PDO	0.01727	0.01727
Safety Sup. Type	None	AADT	2,000	2,000	Total	0.03072	0.03072
GCX Alt Type	Gates	Auto TOD Dist	Uniform	Uniform	<u>Costs in '000 \$</u>		
Safety Sup. type	None	Percent Trucks	35.0	35.0	<i>Base</i> <i>Alternate</i>		
No. RR Tracks	2	Of this, % trailers	0.0	0.0	<u>Grade Crossing Devices</u>		
		Truck TOD Dist	Uniform	Uniform	O&M	2.5	2.5
		Percent Bus	0.0	0.0	Oth. Lcycle	0.0	0.0
		Bus TOD Dist	Uniform	Uniform	Capital		106.1
		Costs in '000 \$ of Hwy Improvement		0.0	<u>Supplementary Safety</u>		
<u>Train Speeds (mph)</u>					O&M	0.0	0.0
Max Timetable	75.0				Oth. Lcycle	0.0	0.0
Passenger	75.0				Capital		0.0
Freight	60.0						
Switch	23.7						

CROSSING DATA FOR THE 2018 CONSTRUCTION RAIL - MAINLINE CORRIDOR

Milepost 117.50	Crossing ID 092434P	Accidents in 5 Years	0		<u>Predicted Annual Accidents</u>		
Description BNSF - WHALEN RD.		<u>Highway Traffic Characteristics</u>			<i>Base</i>	<i>Alternate</i>	
			<i>Base</i>	<i>Alternate</i>	Fatal	0.00565	0.00565
Paved? True	Urban? False	H'way Lanes	2	2.0	Injury	0.00713	0.00713
GCX Base Type	Gates	Dist from hway	0.10	0.1	PDO	0.01640	0.01640
Safety Sup. Type	None	AADT	1,550	1,550	Total	0.02917	0.02917
GCX Alt Type	Gates	Auto TOD Dist	Uniform	Uniform	<u>Costs in '000 \$</u>		
Safety Sup. type	None	Percent Trucks	25.0	25.0	<i>Base</i>		
No. RR Tracks	2	Of this, % trailers	0.0	0.0	<u>Grade Crossing Devices</u>		
		Truck TOD Dist	Uniform	Uniform	O&M	2.5	2.5
		Percent Bus	0.0	0.0	Oth. Lcycle	0.0	0.0
		Bus TOD Dist	Uniform	Uniform	Capital		106.1
<u>Train Speeds (mph)</u>		Costs in '000 \$ of Hway Improvement		0.0	<u>Supplementary Safety</u>		
Max Timetable	75.0				O&M	0.0	0.0
Passenger	75.0				Oth. Lcycle	0.0	0.0
Freight	60.0				Capital		0.0
Switch	23.7						



FEDERAL RAILROAD ADMINISTRATION
GRADEDEC.NET
CORRIDOR AND CROSSING DATA
 (without phased improvements)

User: kchewuk
 Dataset: Initial dataset
 Corridor ID 23

Corridor Name	2028 No Action w Current Track - Mainline			Avg. No. Trains Per Day	Train Time-of-Day Distribution
Technology Factors	0.50	0.50	0.50	<i>Passenger</i> 10.0	Uniform
Signal Synchronization?	False			<i>Freight</i> 63.0	Uniform
				<i>Switch</i> 0.0	Uniform

CORRIDOR SUMMARY OF PREDICTED ANNUAL ACCIDENTS

Calculated: 28-Sep-2015 3:17 pm

	Fatal	Injury	PDO	Total
<i>Base</i>	0.044963	0.067717	0.180100	0.292781
<i>Alternate</i>	0.044963	0.067717	0.180100	0.292781

CROSSING DATA FOR THE 2028 NO ACTION W CURRENT TRACK - MAINLINE CORRIDOR

Milepost 82.72	Crossing ID 092481X	Accidents in 5 Years	0	Predicted Annual Accidents		
Description BNSF - TAYLOR CRANE RD		<u>Highway Traffic Characteristics</u>		<i>Base</i>	<i>Alternate</i>	
Paved? False	Urban? False	H'way Lanes	2	2.0		
GCX Base Type	Passive	Dist from hway	0.10	0.1		
Safety Sup. Type	None	AADT	50	50		
GCX Alt Type	Passive	Auto TOD Dist	Uniform	Uniform		
Safety Sup. type	None	Percent Trucks	5.0	5.0		
No. RR Tracks	2	Of this, % trailers	0.0	0.0		
		Truck TOD Dist	Uniform	Uniform		
<u>Train Speeds (mph)</u>		Percent Bus	0.0	0.0		
Max Timetable	50.0	Bus TOD Dist	Uniform	Uniform		
Passenger	50.0	Costs in '000 \$ of Hwy Improvement		0.0		
Freight	50.0					
Switch	21.0					
				<u>Costs in '000 \$</u>		
				<i>Base</i>	<i>Alternate</i>	
				<u>Grade Crossing Devices</u>		
				O&M	0.2	0.2
				Oth. Lcycle	0.0	0.0
				Capital		1.6
				<u>Supplementary Safety</u>		
				O&M	0.0	0.0
				Oth. Lcycle	0.0	0.0
				Capital		0.0

Milepost 87.43	Crossing ID 092476B	Accidents in 5 Years	0	Predicted Annual Accidents		
Description BNSF - COWLITZ AVE		<u>Highway Traffic Characteristics</u>		<i>Base</i>	<i>Alternate</i>	
Paved? True	Urban? False	H'way Lanes	2	2.0		
GCX Base Type	Gates	Dist from hway	0.10	0.1		
Safety Sup. Type	None	AADT	1,450	1,450		
GCX Alt Type	Gates	Auto TOD Dist	Uniform	Uniform		
Safety Sup. type	None	Percent Trucks	2.0	2.0		
No. RR Tracks	2	Of this, % trailers	0.0	0.0		
		Truck TOD Dist	Uniform	Uniform		
<u>Train Speeds (mph)</u>		Percent Bus	0.0	0.0		
Max Timetable	50.0	Bus TOD Dist	Uniform	Uniform		
Passenger	50.0	Costs in '000 \$ of Hwy Improvement		0.0		
Freight	50.0					
Switch	23.7					
				<u>Costs in '000 \$</u>		
				<i>Base</i>	<i>Alternate</i>	
				<u>Grade Crossing Devices</u>		
				O&M	2.5	2.5
				Oth. Lcycle	0.0	0.0
				Capital		106.1
				<u>Supplementary Safety</u>		
				O&M	0.0	0.0
				Oth. Lcycle	0.0	0.0
				Capital		0.0

CROSSING DATA FOR THE 2028 NO ACTION W CURRENT TRACK - MAINLINE CORRIDOR

Milepost 95.56	Crossing ID 092466V	Accidents in 5 Years	0		<u>Predicted Annual Accidents</u>		
Description BNSF - COWLITZ GARDEN RD		<u>Highway Traffic Characteristics</u>			<i>Base</i>	<i>Alternate</i>	
Paved? True	Urban? True	H'way Lanes	2	2.0	Fatal	0.00458	0.00458
GCX Base Type	Gates	Dist from hwy	0.10	0.1	Injury	0.00606	0.00606
Safety Sup. Type	None	AADT	850	850	PDO	0.02060	0.02060
GCX Alt Type	Gates	Auto TOD Dist	Uniform	Uniform	Total	0.03124	0.03124
Safety Sup. type	None	Percent Trucks	10.0	10.0	<u>Costs in '000 \$</u>		
No. RR Tracks	3	Of this, % trailers	0.0	0.0	<i>Base</i> <i>Alternate</i>		
<u>Train Speeds (mph)</u>		Truck TOD Dist	Uniform	Uniform	<u>Grade Crossing Devices</u>		
Max Timetable	75.0	Percent Bus	0.0	0.0	O&M	2.5	2.5
Passenger	75.0	Bus TOD Dist	Uniform	Uniform	Oth. Lcycle	0.0	0.0
Freight	60.0	Costs in '000 \$ of Hwy Improvement		0.0	Capital	106.1	
Switch	15.6				<u>Supplementary Safety</u>		
					O&M	0.0	0.0
					Oth. Lcycle	0.0	0.0
					Capital	0.0	

Milepost 97.67	Crossing ID 092458D	Accidents in 5 Years	0		<u>Predicted Annual Accidents</u>		
Description BNSF - MILL STREET		<u>Highway Traffic Characteristics</u>			<i>Base</i>	<i>Alternate</i>	
Paved? True	Urban? True	H'way Lanes	2	2.0	Fatal	0.00322	0.00322
GCX Base Type	Gates	Dist from hwy	0.10	0.1	Injury	0.00804	0.00804
Safety Sup. Type	None	AADT	2,500	2,500	PDO	0.02704	0.02704
GCX Alt Type	Gates	Auto TOD Dist	Uniform	Uniform	Total	0.03829	0.03829
Safety Sup. type	None	Percent Trucks	5.0	5.0	<u>Costs in '000 \$</u>		
No. RR Tracks	3	Of this, % trailers	0.0	0.0	<i>Base</i> <i>Alternate</i>		
<u>Train Speeds (mph)</u>		Truck TOD Dist	Uniform	Uniform	<u>Grade Crossing Devices</u>		
Max Timetable	40.0	Percent Bus	0.0	0.0	O&M	2.5	2.5
Passenger	40.0	Bus TOD Dist	Uniform	Uniform	Oth. Lcycle	0.0	0.0
Freight	40.0	Costs in '000 \$ of Hwy Improvement		0.0	Capital	106.1	
Switch	22.5				<u>Supplementary Safety</u>		
					O&M	0.0	0.0
					Oth. Lcycle	0.0	0.0
					Capital	0.0	

Milepost 97.98	Crossing ID 092457W	Accidents in 5 Years	0		<u>Predicted Annual Accidents</u>		
Description BNSF - YEW ST.(S RIVER)		<u>Highway Traffic Characteristics</u>			<i>Base</i>	<i>Alternate</i>	
Paved? True	Urban? True	H'way Lanes	2	2.0	Fatal	0.00315	0.00315
GCX Base Type	Gates	Dist from hwy	0.10	0.1	Injury	0.00785	0.00785
Safety Sup. Type	None	AADT	2,200	2,200	PDO	0.02643	0.02643
GCX Alt Type	Gates	Auto TOD Dist	Uniform	Uniform	Total	0.03742	0.03742
Safety Sup. type	None	Percent Trucks	50.0	50.0	<u>Costs in '000 \$</u>		
No. RR Tracks	3	Of this, % trailers	0.0	0.0	<i>Base</i> <i>Alternate</i>		
<u>Train Speeds (mph)</u>		Truck TOD Dist	Uniform	Uniform	<u>Grade Crossing Devices</u>		
Max Timetable	40.0	Percent Bus	0.0	0.0	O&M	2.5	2.5
Passenger	40.0	Bus TOD Dist	Uniform	Uniform	Oth. Lcycle	0.0	0.0
Freight	40.0	Costs in '000 \$ of Hwy Improvement		0.0	Capital	106.1	
Switch	22.5				<u>Supplementary Safety</u>		
					O&M	0.0	0.0
					Oth. Lcycle	0.0	0.0
					Capital	0.0	

CROSSING DATA FOR THE 2028 NO ACTION W CURRENT TRACK - MAINLINE CORRIDOR

Milepost 109.60	Crossing ID 092446J	Accidents in 5 Years	0		<u>Predicted Annual Accidents</u>		
Description BNSF - TOTEFF ROAD		<u>Highway Traffic Characteristics</u>			<i>Base</i>	<i>Alternate</i>	
			<i>Base</i>	<i>Alternate</i>	Fatal	0.00644	0.00644
Paved? True	Urban? False	H'way Lanes	2	2.0	Injury	0.00743	0.00743
GCX Base Type	Gates	Dist from hway	0.10	0.1	PDO	0.01749	0.01749
Safety Sup. Type	None	AADT	1,450	1,450	Total	0.03136	0.03136
GCX Alt Type	Gates	Auto TOD Dist	Uniform	Uniform	<u>Costs in '000 \$</u>		
Safety Sup. type	None	Percent Trucks	50.0	50.0	<i>Base</i> <i>Alternate</i>		
No. RR Tracks	2	Of this, % trailers	0.0	0.0	<u>Grade Crossing Devices</u>		
<u>Train Speeds (mph)</u>		Truck TOD Dist	Uniform	Uniform	O&M	2.5	2.5
Max Timetable	79.0	Percent Bus	0.0	0.0	Oth. Lcycle	0.0	0.0
Passenger	79.0	Bus TOD Dist	Uniform	Uniform	Capital		106.1
Freight	60.0	Costs in '000 \$ of Hwy Improvement		0.0	<u>Supplementary Safety</u>		
Switch	23.7				O&M	0.0	0.0
					Oth. Lcycle	0.0	0.0
					Capital		0.0

Milepost 115.75	Crossing ID 092437K	Accidents in 5 Years	0		<u>Predicted Annual Accidents</u>		
Description BNSF - SCOTT AVE WEST		<u>Highway Traffic Characteristics</u>			<i>Base</i>	<i>Alternate</i>	
			<i>Base</i>	<i>Alternate</i>	Fatal	0.00715	0.00715
Paved? True	Urban? False	H'way Lanes	2	2.0	Injury	0.00873	0.00873
GCX Base Type	Gates	Dist from hway	0.10	0.1	PDO	0.02039	0.02039
Safety Sup. Type	None	AADT	3,100	3,100	Total	0.03628	0.03628
GCX Alt Type	Gates	Auto TOD Dist	Uniform	Uniform	<u>Costs in '000 \$</u>		
Safety Sup. type	None	Percent Trucks	2.0	2.0	<i>Base</i> <i>Alternate</i>		
No. RR Tracks	2	Of this, % trailers	0.0	0.0	<u>Grade Crossing Devices</u>		
<u>Train Speeds (mph)</u>		Truck TOD Dist	Uniform	Uniform	O&M	2.5	2.5
Max Timetable	75.0	Percent Bus	0.0	0.0	Oth. Lcycle	0.0	0.0
Passenger	75.0	Bus TOD Dist	Uniform	Uniform	Capital		106.1
Freight	60.0	Costs in '000 \$ of Hwy Improvement		0.0	<u>Supplementary Safety</u>		
Switch	23.7				O&M	0.0	0.0
					Oth. Lcycle	0.0	0.0
					Capital		0.0

Milepost 116.62	Crossing ID 092435W	Accidents in 5 Years	0		<u>Predicted Annual Accidents</u>		
Description BNSF - DAVIDSON AVE		<u>Highway Traffic Characteristics</u>			<i>Base</i>	<i>Alternate</i>	
			<i>Base</i>	<i>Alternate</i>	Fatal	0.00679	0.00679
Paved? True	Urban? False	H'way Lanes	2	2.0	Injury	0.00829	0.00829
GCX Base Type	Gates	Dist from hway	0.10	0.1	PDO	0.01936	0.01936
Safety Sup. Type	None	AADT	2,350	2,350	Total	0.03445	0.03445
GCX Alt Type	Gates	Auto TOD Dist	Uniform	Uniform	<u>Costs in '000 \$</u>		
Safety Sup. type	None	Percent Trucks	35.0	35.0	<i>Base</i> <i>Alternate</i>		
No. RR Tracks	2	Of this, % trailers	0.0	0.0	<u>Grade Crossing Devices</u>		
<u>Train Speeds (mph)</u>		Truck TOD Dist	Uniform	Uniform	O&M	2.5	2.5
Max Timetable	75.0	Percent Bus	0.0	0.0	Oth. Lcycle	0.0	0.0
Passenger	75.0	Bus TOD Dist	Uniform	Uniform	Capital		106.1
Freight	60.0	Costs in '000 \$ of Hwy Improvement		0.0	<u>Supplementary Safety</u>		
Switch	23.7				O&M	0.0	0.0
					Oth. Lcycle	0.0	0.0
					Capital		0.0

CROSSING DATA FOR THE 2028 NO ACTION W CURRENT TRACK - MAINLINE CORRIDOR

Milepost 117.50	Crossing ID 092434P	Accidents in 5 Years	0		<u>Predicted Annual Accidents</u>		
Description BNSF - WHALEN RD.		<u>Highway Traffic Characteristics</u>			<i>Base</i>	<i>Alternate</i>	
			<i>Base</i>	<i>Alternate</i>	Fatal	0.00645	0.00645
Paved? True	Urban? False	H'way Lanes	2	2.0	Injury	0.00788	0.00788
GCX Base Type	Gates	Dist from hway	0.10	0.1	PDO	0.01839	0.01839
Safety Sup. Type	None	AADT	1,800	1,800	Total	0.03272	0.03272
GCX Alt Type	Gates	Auto TOD Dist	Uniform	Uniform	<u>Costs in '000 \$</u>		
Safety Sup. type	None	Percent Trucks	25.0	25.0	<u>Grade Crossing Devices</u>		
No. RR Tracks	2	Of this, % trailers	0.0	0.0	<i>Base</i>	<i>Alternate</i>	
		Truck TOD Dist	Uniform	Uniform	O&M	2.5	2.5
		Percent Bus	0.0	0.0	Oth. Lcycle	0.0	0.0
		Bus TOD Dist	Uniform	Uniform	Capital		106.1
<u>Train Speeds (mph)</u>		Costs in '000 \$ of Hway Improvement		0.0	<u>Supplementary Safety</u>		
Max Timetable	75.0				O&M	0.0	0.0
Passenger	75.0				Oth. Lcycle	0.0	0.0
Freight	60.0				Capital		0.0
Switch	23.7						



FEDERAL RAILROAD ADMINISTRATION
GRADEDEC.NET
CORRIDOR AND CROSSING DATA
 (without phased improvements)

User: kchewuk
 Dataset: Initial dataset
 Corridor ID 27

Corridor Name	2028 On Site Alt w Current Track - Mainline			Avg. No. Trains Per Day	Train Time-of-Day Distribution
Technology Factors	0.50	0.50	0.50	<i>Passenger</i> 10.0	Uniform
Signal Synchronization?	False			<i>Freight</i> 71.0	Uniform
				<i>Switch</i> 0.0	Uniform

CORRIDOR SUMMARY OF PREDICTED ANNUAL ACCIDENTS

Calculated: 28-Sep-2015 3:07 pm

	Fatal	Injury	PDO	Total
<i>Base</i>	0.046795	0.069608	0.185999	0.302402
<i>Alternate</i>	0.046795	0.069608	0.185999	0.302402

CROSSING DATA FOR THE 2028 ON SITE ALT W CURRENT TRACK - MAINLINE CORRIDOR

Milepost 82.72	Crossing ID 092481X	Accidents in 5 Years	0		Predicted Annual Accidents		
Description BNSF - TAYLOR CRANE RD		<u>Highway Traffic Characteristics</u>			<i>Base</i>	<i>Alternate</i>	
Paved? False	Urban? False	H'way Lanes	2	2.0	Fatal	0.00292	0.00292
GCX Base Type	Passive	Dist from hwy	0.10	0.1	Injury	0.00540	0.00540
Safety Sup. Type	None	AADT	50	50	PDO	0.01226	0.01226
GCX Alt Type	Passive	Auto TOD Dist	Uniform	Uniform	Total	0.02058	0.02058
Safety Sup. type	None	Percent Trucks	5.0	5.0	<u>Costs in '000 \$</u>		
No. RR Tracks	2	Of this, % trailers	0.0	0.0	<i>Base</i>	<i>Alternate</i>	
<u>Train Speeds (mph)</u>		Truck TOD Dist	Uniform	Uniform	<u>Grade Crossing Devices</u>		
Max Timetable	50.0	Percent Bus	0.0	0.0	O&M	0.2	0.2
Passenger	50.0	Bus TOD Dist	Uniform	Uniform	Oth. Lcycle	0.0	0.0
Freight	50.0	Costs in '000 \$ of Hwy Improvement	0.0		Capital	1.6	
Switch	21.0				<u>Supplementary Safety</u>		
					O&M	0.0	0.0
					Oth. Lcycle	0.0	0.0
					Capital	0.0	

Milepost 87.43	Crossing ID 092476B	Accidents in 5 Years	0		Predicted Annual Accidents		
Description BNSF - COWLITZ AVE		<u>Highway Traffic Characteristics</u>			<i>Base</i>	<i>Alternate</i>	
Paved? True	Urban? False	H'way Lanes	2	2.0	Fatal	0.00460	0.00460
GCX Base Type	Gates	Dist from hwy	0.10	0.1	Injury	0.00850	0.00850
Safety Sup. Type	None	AADT	1,450	1,450	PDO	0.01931	0.01931
GCX Alt Type	Gates	Auto TOD Dist	Uniform	Uniform	Total	0.03241	0.03241
Safety Sup. type	None	Percent Trucks	2.0	2.0	<u>Costs in '000 \$</u>		
No. RR Tracks	2	Of this, % trailers	0.0	0.0	<i>Base</i>	<i>Alternate</i>	
<u>Train Speeds (mph)</u>		Truck TOD Dist	Uniform	Uniform	<u>Grade Crossing Devices</u>		
Max Timetable	50.0	Percent Bus	0.0	0.0	O&M	2.5	2.5
Passenger	50.0	Bus TOD Dist	Uniform	Uniform	Oth. Lcycle	0.0	0.0
Freight	50.0	Costs in '000 \$ of Hwy Improvement	0.0		Capital	106.1	
Switch	23.7				<u>Supplementary Safety</u>		
					O&M	0.0	0.0
					Oth. Lcycle	0.0	0.0
					Capital	0.0	

CROSSING DATA FOR THE 2028 ON SITE ALT W CURRENT TRACK - MAINLINE CORRIDOR

Milepost 95.56	Crossing ID 092466V	Accidents in 5 Years	0		<u>Predicted Annual Accidents</u>		
Description BNSF - COWLITZ GARDEN RD		<u>Highway Traffic Characteristics</u>			<i>Base</i>	<i>Alternate</i>	
			<i>Base</i>	<i>Alternate</i>	Fatal	0.00477	0.00477
Paved? True	Urban? True	H'way Lanes	2	2.0	Injury	0.00622	0.00622
GCX Base Type	Gates	Dist from hwy	0.10	0.1	PDO	0.02129	0.02129
Safety Sup. Type	None	AADT	850	850	Total	0.03228	0.03228
GCX Alt Type	Gates	Auto TOD Dist	Uniform	Uniform	<u>Costs in '000 \$</u>		
Safety Sup. type	None	Percent Trucks	10.0	10.0	<i>Base</i> <i>Alternate</i>		
No. RR Tracks	3	Of this, % trailers	0.0	0.0	<u>Grade Crossing Devices</u>		
<u>Train Speeds (mph)</u>		Truck TOD Dist	Uniform	Uniform	O&M	2.5	2.5
Max Timetable	75.0	Percent Bus	0.0	0.0	Oth. Lcycle	0.0	0.0
Passenger	75.0	Bus TOD Dist	Uniform	Uniform	Capital		106.1
Freight	60.0	Costs in '000 \$ of Hwy Improvement		0.0	<u>Supplementary Safety</u>		
Switch	15.6				O&M	0.0	0.0
					Oth. Lcycle	0.0	0.0
					Capital		0.0

Milepost 97.67	Crossing ID 092458D	Accidents in 5 Years	0		<u>Predicted Annual Accidents</u>		
Description BNSF - MILL STREET		<u>Highway Traffic Characteristics</u>			<i>Base</i>	<i>Alternate</i>	
			<i>Base</i>	<i>Alternate</i>	Fatal	0.00334	0.00334
Paved? True	Urban? True	H'way Lanes	2	2.0	Injury	0.00825	0.00825
GCX Base Type	Gates	Dist from hwy	0.10	0.1	PDO	0.02784	0.02784
Safety Sup. Type	None	AADT	2,500	2,500	Total	0.03943	0.03943
GCX Alt Type	Gates	Auto TOD Dist	Uniform	Uniform	<u>Costs in '000 \$</u>		
Safety Sup. type	None	Percent Trucks	5.0	5.0	<i>Base</i> <i>Alternate</i>		
No. RR Tracks	3	Of this, % trailers	0.0	0.0	<u>Grade Crossing Devices</u>		
<u>Train Speeds (mph)</u>		Truck TOD Dist	Uniform	Uniform	O&M	2.5	2.5
Max Timetable	40.0	Percent Bus	0.0	0.0	Oth. Lcycle	0.0	0.0
Passenger	40.0	Bus TOD Dist	Uniform	Uniform	Capital		106.1
Freight	40.0	Costs in '000 \$ of Hwy Improvement		0.0	<u>Supplementary Safety</u>		
Switch	22.5				O&M	0.0	0.0
					Oth. Lcycle	0.0	0.0
					Capital		0.0

Milepost 97.98	Crossing ID 092457W	Accidents in 5 Years	0		<u>Predicted Annual Accidents</u>		
Description BNSF - YEW ST.(S RIVER)		<u>Highway Traffic Characteristics</u>			<i>Base</i>	<i>Alternate</i>	
			<i>Base</i>	<i>Alternate</i>	Fatal	0.00327	0.00327
Paved? True	Urban? True	H'way Lanes	2	2.0	Injury	0.00807	0.00807
GCX Base Type	Gates	Dist from hwy	0.10	0.1	PDO	0.02722	0.02722
Safety Sup. Type	None	AADT	2,200	2,200	Total	0.03856	0.03856
GCX Alt Type	Gates	Auto TOD Dist	Uniform	Uniform	<u>Costs in '000 \$</u>		
Safety Sup. type	None	Percent Trucks	50.0	50.0	<i>Base</i> <i>Alternate</i>		
No. RR Tracks	3	Of this, % trailers	0.0	0.0	<u>Grade Crossing Devices</u>		
<u>Train Speeds (mph)</u>		Truck TOD Dist	Uniform	Uniform	O&M	2.5	2.5
Max Timetable	40.0	Percent Bus	0.0	0.0	Oth. Lcycle	0.0	0.0
Passenger	40.0	Bus TOD Dist	Uniform	Uniform	Capital		106.1
Freight	40.0	Costs in '000 \$ of Hwy Improvement		0.0	<u>Supplementary Safety</u>		
Switch	22.5				O&M	0.0	0.0
					Oth. Lcycle	0.0	0.0
					Capital		0.0

CROSSING DATA FOR THE 2028 ON SITE ALT W CURRENT TRACK - MAINLINE CORRIDOR

Milepost 109.60	Crossing ID 092446J	Accidents in 5 Years	0		<u>Predicted Annual Accidents</u>		
Description BNSF - TOTEFF ROAD		<u>Highway Traffic Characteristics</u>			<i>Base</i>	<i>Alternate</i>	
			<i>Base</i>	<i>Alternate</i>	Fatal	0.00671	0.00671
Paved? True	Urban? False	H'way Lanes	2	2.0	Injury	0.00763	0.00763
GCX Base Type	Gates	Dist from hwy	0.10	0.1	PDO	0.01807	0.01807
Safety Sup. Type	None	AADT	1,450	1,450	Total	0.03241	0.03241
GCX Alt Type	Gates	Auto TOD Dist	Uniform	Uniform	<u>Costs in '000 \$</u>		
Safety Sup. type	None	Percent Trucks	50.0	50.0	<u>Grade Crossing Devices</u>		
No. RR Tracks	2	Of this, % trailers	0.0	0.0	O&M	2.5	2.5
<u>Train Speeds (mph)</u>		Truck TOD Dist	Uniform	Uniform	Oth. Lcycle	0.0	0.0
Max Timetable	79.0	Percent Bus	0.0	0.0	Capital		106.1
Passenger	79.0	Bus TOD Dist	Uniform	Uniform	<u>Supplementary Safety</u>		
Freight	60.0	Costs in '000 \$ of Hwy Improvement		0.0	O&M	0.0	0.0
Switch	23.7				Oth. Lcycle	0.0	0.0
					Capital		0.0

Milepost 115.75	Crossing ID 092437K	Accidents in 5 Years	0		<u>Predicted Annual Accidents</u>		
Description BNSF - SCOTT AVE WEST		<u>Highway Traffic Characteristics</u>			<i>Base</i>	<i>Alternate</i>	
			<i>Base</i>	<i>Alternate</i>	Fatal	0.00743	0.00743
Paved? True	Urban? False	H'way Lanes	2	2.0	Injury	0.00895	0.00895
GCX Base Type	Gates	Dist from hwy	0.10	0.1	PDO	0.02102	0.02102
Safety Sup. Type	None	AADT	3,100	3,100	Total	0.03740	0.03740
GCX Alt Type	Gates	Auto TOD Dist	Uniform	Uniform	<u>Costs in '000 \$</u>		
Safety Sup. type	None	Percent Trucks	2.0	2.0	<u>Grade Crossing Devices</u>		
No. RR Tracks	2	Of this, % trailers	0.0	0.0	O&M	2.5	2.5
<u>Train Speeds (mph)</u>		Truck TOD Dist	Uniform	Uniform	Oth. Lcycle	0.0	0.0
Max Timetable	75.0	Percent Bus	0.0	0.0	Capital		106.1
Passenger	75.0	Bus TOD Dist	Uniform	Uniform	<u>Supplementary Safety</u>		
Freight	60.0	Costs in '000 \$ of Hwy Improvement		0.0	O&M	0.0	0.0
Switch	23.7				Oth. Lcycle	0.0	0.0
					Capital		0.0

Milepost 116.62	Crossing ID 092435W	Accidents in 5 Years	0		<u>Predicted Annual Accidents</u>		
Description BNSF - DAVIDSON AVE		<u>Highway Traffic Characteristics</u>			<i>Base</i>	<i>Alternate</i>	
			<i>Base</i>	<i>Alternate</i>	Fatal	0.00706	0.00706
Paved? True	Urban? False	H'way Lanes	2	2.0	Injury	0.00851	0.00851
GCX Base Type	Gates	Dist from hwy	0.10	0.1	PDO	0.01998	0.01998
Safety Sup. Type	None	AADT	2,350	2,350	Total	0.03554	0.03554
GCX Alt Type	Gates	Auto TOD Dist	Uniform	Uniform	<u>Costs in '000 \$</u>		
Safety Sup. type	None	Percent Trucks	35.0	35.0	<u>Grade Crossing Devices</u>		
No. RR Tracks	2	Of this, % trailers	0.0	0.0	O&M	2.5	2.5
<u>Train Speeds (mph)</u>		Truck TOD Dist	Uniform	Uniform	Oth. Lcycle	0.0	0.0
Max Timetable	75.0	Percent Bus	0.0	0.0	Capital		106.1
Passenger	75.0	Bus TOD Dist	Uniform	Uniform	<u>Supplementary Safety</u>		
Freight	60.0	Costs in '000 \$ of Hwy Improvement		0.0	O&M	0.0	0.0
Switch	23.7				Oth. Lcycle	0.0	0.0
					Capital		0.0

CROSSING DATA FOR THE 2028 ON SITE ALT W CURRENT TRACK - MAINLINE CORRIDOR

Milepost 117.50	Crossing ID 092434P	Accidents in 5 Years	0		<u>Predicted Annual Accidents</u>		
Description BNSF - WHALEN RD.		<u>Highway Traffic Characteristics</u>			<i>Base</i>	<i>Alternate</i>	
			<i>Base</i>	<i>Alternate</i>	Fatal	0.00671	0.00671
Paved? True	Urban? False	H'way Lanes	2	2.0	Injury	0.00809	0.00809
GCX Base Type	Gates	Dist from hway	0.10	0.1	PDO	0.01900	0.01900
Safety Sup. Type	None	AADT	1,800	1,800	Total	0.03380	0.03380
GCX Alt Type	Gates	Auto TOD Dist	Uniform	Uniform	<u>Costs in '000 \$</u>		
Safety Sup. type	None	Percent Trucks	25.0	25.0	<u>Grade Crossing Devices</u>		
No. RR Tracks	2	Of this, % trailers	0.0	0.0	<i>Base</i>	<i>Alternate</i>	
		Truck TOD Dist	Uniform	Uniform	O&M	2.5	2.5
		Percent Bus	0.0	0.0	Oth. Lcycle	0.0	0.0
		Bus TOD Dist	Uniform	Uniform	Capital		106.1
<u>Train Speeds (mph)</u>		Costs in '000 \$ of Hway Improvement		0.0	<u>Supplementary Safety</u>		
Max Timetable	75.0				O&M	0.0	0.0
Passenger	75.0				Oth. Lcycle	0.0	0.0
Freight	60.0				Capital		0.0
Switch	23.7						

Data for Selected Crossings Outside of Cowlitz County

Data for Selected Crossings Outside of Cowlitz County

ID #	USDOT/FRA Crossing ID	Milepost	Study Crossing	County	Passenger Train Speed (mph) (UTC Data)	Freight Train Speed (mph) (UTC Data)	AADT (FRA Source 1)	AADT Year (FRA Source 1)	AADT 2015 (FRA Source 1)	AADT (UTC Data)	AADT Year (UTC Data)	AADT 2015 (UTC Data)	Existing Daily Train Traffic (FRA Source 1)	Existing Daily Train Traffic Year (FRA Source 1)	Existing Daily Train Traffic (FRA Source 2)	Existing Daily Train Traffic Year (FRA Source 2)	Existing Plus Proposed Action Daily Train Traffic	Existing Daily Train Traffic (WSDOT Rail Plan)	2028 Baseline Daily Traffic (WSDOT Rail Plan)	2028 Baseline Plus Proposed Action Daily Traffic	Percent Increase in Daily Train Traffic 2028
Kootenai Subdivision																					
1	066236B	53.37	Idaho Rd	Spokane	79	60	000201	0	0	2041	2000	2653	50	0	55	2015	71	70	106	122	13%
2	066239W	56.16	McKinze Rd	Spokane	79	60	000127	1988	203	2041	2001	2612	50	1998	55	2015	71	70	106	122	13%
3	066240R	56.81	Harvard Rd	Spokane	79	60	000540	1988	862	6561	2001	8398	50	1998	55	2015	71	70	106	122	13%
4	066244T	58.93	Barker Rd	Spokane	79	60	001258	1988	2009	10694	2000	13902	50	1993	55	2013	71	70	106	122	13%
5	066245A	59.9	Flora Rd	Spokane	79	60	000362	1988	578	5061	2000	6579	50	1993	55	2013	71	70	106	122	13%
6	066367E	62.95	Pines Rd-SR27	Spokane	79	60	011000	1995	15180	28000	2012	29680	50	1989	55	2015	71	70	106	122	13%
7	066371U	64.04	University Rd	Spokane	79	60	002662	2005	3194	2210	2010	2431	50	0	56	2014	72	70	106	122	13%
8	066377K	66.12	Park Road	Spokane	79	60	006682	1989	10464	12612	2000	16396	50	1989	56	2015	72	70	106	122	13%
Lakeside Subdivision																					
9	066315M	15.8	Pine St	Spokane	35	35	000480	1988	767	250	0	0	37	1998	39	2014	55	39	56	72	22%
10	065970L	16.4	"F" St/Cheney-Spangle	Spokane	35	35	002300	1988	3673	1906	0	0	37	1998	39	2015	55	39	56	72	22%
11	065971T	16.83	Cheney-Plaza Rd	Spokane	35	35	000670	1988	1070	1400	0	0	37	1998	39	2014	55	39	56	72	22%
12	089665U	74.22	Paha Packard Rd	Adams	79	60	000076	1987	124	128	0	0	35	1991	38	2013	54	39	56	72	22%
13	089670R	80.59	Kahlotus Rd	Adams	79	60	000190	1986	315	93	0	0	35	1991	38	2013	54	39	56	72	22%
14	089672E	81.85	1st St	Adams	60	50	000300	1987	488	140	0	0	35	1991	38	2015	54	39	56	72	22%
15	089673L	82.1	Wilbur/City Rd	Adams	60	50	000344	1987	560	344	0	0	35	1991	38	2014	54	39	56	72	22%
16	089699N	129.1	Eltopia Rd W	Franklin	79	60	000220	1987	358	582	0	0	37	1991	39	2014	55	39	56	72	22%
17	089700F	134.16	Sagemoor Rd	Franklin	79	60	000260	1986	431	410	0	0	36	1991	38	2013	54	39	56	72	22%
Fallbridge Subdivision																					
18	090031U	229.21	E 3rd Ave	Benton	35	35	001735	1987	2825	2041	0	0	32	1991	37	2014	45	34	48	56	14%
19	090035W	227.47	Dague Rd-E 25th Avenue	Benton	60	60	000487	1987	793	833	0	0	32	1991	37	2014	45	34	48	56	14%
20	090036D	226.41	Perkins Rd 7572	Benton	60	60	000440	1987	716	849	0	0	32	1991	37	2014	45	34	48	56	14%
21	090038S	225.75	Bowles Rd 9713	Benton	60	60	001515	1987	2466	650	0	0	32	1991	37	2014	45	34	48	56	14%
22	090039Y	225.04	Cochran Rd 7810	Benton	60	60	000073	1987	119	347	0	0	32	1991	37	2014	45	34	48	56	14%
23	090040T	224.52	Finley Rd 9721	Benton	60	60	001943	1988	3103	1030	0	0	32	1991	37	2014	45	34	48	56	14%
24	090061L	171.9	Whitcomb Island	Benton	60	60	000035	1987	57	35	1987	57	34	1991	36	2014	44	34	48	56	14%
25	090169V	75.76	Maple St	Klickitat	45	45	000330	1988	527	750	2009	840	43	0	48	2014	56	34	48	56	14%
26	090168N	75.5	Walnut St	Klickitat	45	45	000850	1987	1384	850	1987	1384	43	1991	48	2014	56	34	48	56	14%
27	090164L	74.2	South Dock Grade Rd	Klickitat	60	55	000080	2011	86	377	0	0	21	0	41	2014	49	34	48	56	14%
28	090159P	65.9	Indian Crossing	Skamania	60	55	000070	1988	112	70	1988	112	37	1991	41	2014	49	34	48	56	14%
29	090155M	59.6	Home Valley Pk	Skamania	60	55	000050	1992	74	100	0	0	37	1991	41	2013	49	34	48	56	14%
30	090151K	54.75	Cemetery Xing	Skamania	0	0	000010	1987	16	0	0	0	37	1991	41	2013	49	34	48	56	14%
31	090148C	53.89	Russell Ave	Skamania	20	20	000500	1988	799	361	2015	361	36	1991	40	2013	48	34	48	56	14%
32	090135B	43.3	Skamania Landing/Butler Rd	Skamania	60	60	000100	1987	163	100	2011	108	36	1991	40	2015	48	34	48	56	14%
33	090134U	42.6	Walker/Skam Landing	Skamania	60	60	000100	1987	163	120	0	0	36	1991	40	2013	48	34	48	56	14%
34	090133M	39.72	St Cloud Rd	Skamania	0	0	000050	0	0	0	0	0	20	0	40	2014	48	34	48	56	14%
Seattle Subdivision																					
35	092484T	77.83	SR 506-7th St	Lewis	75	50	002200	1988	3513	1300	2012	1378	40	1990	52	2014	60	50	73	81	10%
36	092493S	71.6	Walnut St - SR505/603	Lewis	50	50	004500	1995	6210	2700	2012	2862	40	1990	52	2013	60	50	73	81	10%
37	092519S	54.2	E Locust St	Lewis	40	40	001937	1993	2793	2000	0	0	40	1990	52	2013	60	50	73	81	10%
38	092520L	54.1	Main St	Lewis	40	40	001850	1993	2668	5000	0	0	40	1990	52	2013	60	50	73	81	10%
39	092521T	53.8	Maple St	Lewis	40	40	002442	1993	3521	2500	0	0	40	1987	51	2013	59	50	73	81	10%
40	092524N	51.8	Big Hanaford Rd	Lewis	0	10	001550	1986	2571	2760	0	0	0	1995	0	2015	8	50	73	81	10%
Yakima Valley Subdivision																					
41	099178A	79.4	Jones Rd E	Yakima	0	40	000950	1986	1576	2440	0	0	10	1986	10	2013	18	7	11	19	42%
42	104523U	63.8	Indian Church	Yakima	0	40	001519	1987	2473	613	0	0	10	1987	10	2013	18	7	11	19	42%
43	104534G	52.21	SR241/Reservation	Yakima	0	40	002200	1995	3036	2700	2012	2862	10	1986	7	2014	15	7	11	19	42%
44	104536V	51.12	Gulden Rd	Yakima	0	40	000170	1986	282	500	0	0	8	1986	7	2013	15	7	11	19	42%

0 No Data

UTC Data = Washington Utilities and Transportation Commission crossing data sent by request to ICF International on September 18, 2015.

FRA Source 1 = <http://safetydata.fra.dot.gov/OfficeofSafety/publicsite/Downloaddbf.aspx>. Accessed September 25, 2015.

FRA Source 2 = FRA Office of Safety Analysis data. Available at: <http://safetydata.fra.dot.gov/OfficeofSafety/publicsite/crossing/crossing.aspx>. Accessed September 25, 2015.

WSDOT Rail Plan = Washington State Rail Plan, 2014. Available: <http://www.wsdot.wa.gov/NR/rdonlyres/F67D73E5-2F2D-40F2-9795-736131D98106/0/StateRailPlanFinal201403.pdf>