3.12 TRANSPORTATION

The following section compares the probable significant impacts from the Preferred Alternative and the Straight Street Grid Option on transportation to those associated with the Redevelopment Alternatives (Alternatives 1 - 3) in the *2008 New Whatcom Redevelopment Project Draft EIS* (DEIS) and identifies any new or increased of significant impacts and mitigation. This section is based on the September 2008, *Supplemental Transportation Discipline Report* prepared by The Transpo Group (see **Appendix M** for the full report).

3.12.1 Affected Environment

Study Area

A study area for the transportation analysis in the DEIS was developed in conjunction with the City of Bellingham to represent the locations most likely to be impacted by redevelopment of the New Whatcom site. The analysis focuses on the immediate area of the New Whatcom site, but also includes major corridors outside the vicinity of the site that would likely serve as access to and from the site area. The off-site study area primarily includes transportation facilities within six to eight blocks of the site, as well as Interstate 5 (I-5) interchanges serving regional traffic.

Methodology

For the DEIS, data was collected from several local and state agencies for each of the major transportation components (street system, non-motorized traffic, transit, rail, parking, and marine traffic). The existing data was supplemented by data collected in the field such as traffic counts, vehicle classification counts, parking utilization and supply surveys, and general windshield surveys (see Section 3.12, Transportation and Appendix N of the DEIS for more information).

Travel forecasts were projected based on the most recent (2002) City of Bellingham travel demand model which includes all of Whatcom County, and has been refined for the City of Bellingham and its Urban Growth Area (UGA). The model was used to evaluate the Redevelopment Alternatives and was also used to forecast traffic volumes for 2016 and 2026 along major roadways within the study area.

Performance measures were identified and evaluated for each of the transportation modes. These measures are used to characterize relative differences between the DEIS Alternatives and establish transportation impacts that could be expected. The performance measures used to evaluate the street system include roadway volume-to-capacity (v/c) and intersection delay based level of service (LOS). The calculated v/c ratio shows the general congestion level of the transportation facility and the PM peak hour directional v/c ratio is used to determine the roadway's operating LOS. Roadway LOS and intersection LOS are a useful measure to depict traffic conditions. The City of Bellingham's adopted service standard during the PM peak hour is LOS E.

Refer to DEIS Section 3.12 for further detail on the transportation analysis methodology.

Onsite Affected Environment

Street System

As indicated in the DEIS, major roadways currently providing access to the New Whatcom site include Roeder Ave., Chestnut St. and Cornwall Ave. Current trip generation at the site was calculated based on the approximately 645 employees that were assumed to work at the site (existing trip generation estimates are summarized in DEIS Table 3.12-1). It should be noted that subsequent to the closure of GP operations, employment and associated trip generation has likely decreased.

Onsite roadway and intersection operations for various access locations, including along Roeder Ave., Chestnut St., and Cornwall Ave. were evaluated. All of the roadways currently operate within the City's LOS E threshold and the site access intersections operate at LOS E or better in both directions during the PM peak hour (see DEIS Table 3.12-5 for a summary of onsite LOS and volumes).

Non-Motorized and Transit

There are currently no formal pedestrian or bicycle facilities available on the site. In addition, no transit service is provided onsite.

Rail

The Burlington Northern Santa Fe (BNSF) Railway runs parallel to Cornwall Ave. and Roeder Ave. along the site frontage and enters the site along the southern boundary. At grade crossings within the site are located at Laurel St. and Pine/Wharf St. At grade crossings along the site frontage are located at F St., C St., Cornwall Ave., and Central Ave. Most railroad operations occur outside the PM peak hour; therefore, off-peak traffic conditions are subject to impacts from railroad operations. Vehicles can experience long delays and queues at certain intersections.

Offsite Affected Environment

Street System

A total of 32 offsite intersections are included in the offsite study area. The highest existing PM peak hour traffic volumes were found along Lakeway Dr., King St., Iowa St., Roeder Ave./Chestnut St., and Cornwall Ave. All offsite roadways currently operate at greater than the City's LOS Standard of E for both directions during the PM peak hour. In general, the intersections within the study area operate at LOS E or better. Most of the major intersections operate at LOS C or better, which suggests that additional capacity is available. The intersection of North State St./James St./Iowa St. is the only intersection operating at LOS F. Refer to **Table 3.12-5** for a summary of the LOS levels at off-site intersections. Seven offsite intersections have more than 1.0 accidents per million entering vehicles (MEV [the accepted performance measure for intersection safety]) based on traffic accident records from 2004-2006.

Non-Motorized

The City of Bellingham has three classifications of bicycle facilities: on-street marked bicycle lanes, on-street unmarked bicycle routes, and off-street marked bicycle trails. Various streets in the surrounding area provide these routes. Multi-use paths/trails are also available in the waterfront vicinity, including the Old Village Trail, Squalicum Harbor Trail, and South Bay Trail. In addition, sidewalks for pedestrian access are provided on both sides of most streets within the study area. There are 32 bus routes serving the City of Bellingham, with 24 of those routes serving the Downtown Transit Center (approximately ¼ mile from the New Whatcom site). Four routes directly serve the New Whatcom site.

Rail

Freight trains served local industries on the site and serve the City of Bellingham in general. Amtrak Cascades provides passenger rail service to and from the City of Bellingham. Access to passenger rail is located south of the site at the Harris Ave. Station in the Fairhaven District.

Parking

Based on the DEIS parking survey, approximately 1,100 on-street parking spaces are available within ¼ mile of the project site. Fifty percent or less of this parking is typically utilized within the Lettered Streets Neighborhood and along Roeder Ave. near Hilton Ave. Over 50 percent is utilized along Holly St. and Prospect St. and most other areas of the downtown have over 75 percent utilization. Off-street parking is also available downtown; ten public parking lots are located within ¼ mile of the site. A majority of these sites typically contain a utilization of at least 50 percent.

Shipping and Boating Traffic

Navigation uses in the site vicinity currently occur at four primary locations: within the I & J Waterway, the Inner Whatcom Waterway, at the Bellingham Shipping Terminal, and offshore of the southwest portion of the site (Area 10). Typical uses support industrial operations; cargo operations; moorage of research, Coast Guard or military vessels; small boat traffic; and recreational use.

3.12.2 Impacts

Draft EIS (Alternatives 1 – 4)

Methodology

Travel forecasts for the DEIS Alternatives were calculated using the City of Bellingham's 2022 travel demand model. The model is used to forecast vehicular traffic volumes given the assumed land uses and roadway systems for each alternative. Trip generation was based on calculating the number of daily person trips given the assumed land uses for each alternative and estimating the number of person trips that would be vehicle trips. The ITE Trip Generation Handbook was used to determine PM peak hour trip generation. The distribution of trips among the various analysis zones in the model was estimated using the destination choice mode (gravity model), which allocates trips based on impedances between zones. A trip assignment model was used to estimate the volume of PM peak hour trips on the City's transportation

system (see Section 3.12 and Appendix N of the DEIS for details on trip generation and distribution).

To determine the weekday parking demand from the five onsite parking sub-areas, the peak hour parking demand was calculated for each land use within the sub-area, and then the hourly (6:00 AM to 12:00 AM) parking demand was estimated for each land use using the ITE's *Parking Generation* (3rd edition) and Urban Land Use Institute's *Shared Parking* (2nd edition). The one hour between 6:00 AM and 12:00 PM with the highest hourly parking demand was considered the peak parking demand which the assumed parking supply should accommodate. The assumed parking supply was calculated by multiplying the size of each assumed land use component (i.e. square footage of development per use) by the number of spaces allocated per 1,000 square feet. The recommended parking supply was calculated using an assumed safety factor of 10 to 15 percent applied to the parking demand for each land use (see DEIS Section 3.12.2 for further discussion of the impacts methodology).

Construction Impacts

As described in the DEIS, construction of the New Whatcom Redevelopment Project would increase vehicular traffic at the site and site vicinity due to additional truck traffic, transportation of equipment and materials, and construction employees commuting to and from the site. All construction-related impacts would be temporary in nature, would, however, occur over an extended period given the phased construction of the site, and would cease once full buildout occurs. Construction truck traffic could be highest during grading operations; truck traffic would likely use the City's existing truck routes and would temporarily increase conflicts between truck traffic and other modes along haul routes and other truck routes in the City.

Operational Impacts

It is assumed that redevelopment under DEIS Alternatives 1 - 3 would include a range of improvements to the transportation system to provide added capacity for their expected trip generation. This would include an onsite roadway network, as well as at-grade and elevated bridge connections to the surrounding road network. In addition, off-site transportation improvements are also assumed as part of the City of Bellingham's 2008-2013 TIP and Comprehensive Plan 20-Year Project List (see DEIS Section 3.12.2 for further discussion on assumed improvements).

Street System

Redevelopment under the DEIS Alternatives would contribute to increases in travel demands and congestion along the on and off-site transportation system. Additional vehicular trips would be added to the site and area street system with operation of the assumed redevelopment. The greatest number of vehicular trips would occur during the PM peak hour. This increase in vehicular trips would add congestion to the onsite and off-site transportation network and would affect the operations of certain roadways and intersection. Under the Redevelopment Alternatives up to three segments of Roeder Ave. and one segment of Cornwall Ave. would operate at LOS F by 2026; four onsite intersections of Roeder Ave. and up to two intersections of Chestnut St. would also operate at LOS F. Some offsite roadway segments would also operate at LOS F, including up to four segments of Holly St. Up to ten offsite intersections would operate at LOS F by 2026 under the Redevelopment Alternatives (see DEIS Section 3.12.2 for further details on operational impacts).

In order to accommodate traffic from redevelopment, additional improvements (beyond those assumed under the Redevelopment Alternatives) would be required (see DEIS Section 3.12.3 Mitigation Measures and **Section 3.12.4** of this SDEIS). These improvements include roadway and intersection improvements, eliminating gaps in the pedestrian and bicycle network, provision of transit and non-motorized facilities, and strategies to reduce the number of vehicles traveling to and from the site.

Non-Motorized

A new sidewalk and pedestrian/bicycle trail system between the site, downtown Bellingham, Western Washington University, off-site local and regional trail networks, and other surrounding neighborhoods would be provided under the Redevelopment Alternatives. At full buildout, between 9,500 and 17,500 daily pedestrian/bicycle trips would be generated under the Redevelopment Alternatives. The Redevelopment Alternatives would also generate between 2,900 and 5,200 new daily transit trips by 2026.

Rail

The anticipated increase in vehicular and non-motorized trips under the DEIS Alternatives would increase the potential for conflicts and safety issues at at-grade rail crossings. Relocation of the BNSF railway under Alternatives 1 and 2/2A would reduce these conflicts and safety issues. Alternatives 1 and 2/2A would also include the construction of new bridges over the railroad which would provide direct emergency access to the areas south of the Whatcom Waterway as certain intersections would not be blocked by rail operations.

Parking

Redevelopment under the DEIS Alternatives would generate an increased demand for parking. It is assumed that the DEIS Alternatives would provide between approximately 2,500 and 15,560 onsite parking spaces at full buildout, which would meet the maximum parking demand under all of the DEIS Alternatives. No significant impacts to the off-site parking supply would be expected.

Shipping and Boating Traffic

Under the DEIS Alternatives, a marina (ranging between 460 and 600 slips) would be developed within the remediated ASB area and temporary moorage facilities would be developed in the Whatcom Waterway. Navigation opportunities in the Inner Whatcom Waterway for smaller vessels would be improved and use by larger industrial vessels would decrease. Navigation uses in other adjacent aquatic areas (I & J Waterway and adjacent to the Bellingham Shipping Terminal) would likely remain consistent with the existing conditions; however, use by small boats would increase. Increases in boat traffic would not be expected to significantly impact public/tribal access or navigation uses.

Preferred Alternative

As described in Chapter 2, levels of redevelopment under the Preferred Alternative would be within the range of redevelopment assumed for DEIS Alternatives 1 - 3 (refer to **Table 2.3-2** and **Table 2.3-3** in Chapter 2 for further details). Onsite street improvements under the Preferred Alternative are based on a modified street grid for long-term redevelopment of the Waterfront

District. The modified grid would be rotated at the top of the bluff that currently divides the Waterfront District from the existing downtown in order to provide circulation through the site and efficient connections to downtown and surrounding areas, as well as, cost-effective engineering solutions for bridging the bluff and the BNSF railroad corridor.

Similar to the DEIS Alternatives, both on and off-site transportation improvements are assumed to be in place under the Preferred Alternative. Key new connections to the existing roadway network are assumed, including new bridge connections at Commercial St., Log Pond Dr., Cornwall Ave. and Bay St., improvements at Central Ave. at Roeder Ave. and a roundabout or traffic signal at the Wharf St./N. State St./N. Forest St. intersection. Onsite streets would be constructed to allow access and circulation through the site. For a summary of the proposed roadway improvements under the Preferred Alternative (see **Table 2-4** in Chapter 2 of this SDEIS and **Appendix M**).

Travel Forecasts

The background travel forecasts were estimated using the same method and assumptions as described in the DEIS (see Section 3.12.1). Traffic generated by the Preferred Alternative was distributed and assigned to the study area using the City's travel demand model. The process for estimating trip generation applies the same method as described in the DEIS. **Table 3.12-1** provides a summary of the estimated AM and PM peak hour vehicle trip generation under the Preferred Alternative and compares it to DEIS Alternative 2/2A, the medium density redevelopment scenario.

Table 3.12-1
ESTIMATED VEHICLE TRIP GENERATION SUMMARY

	AM Peak Hour Net New Vehicle Trips[1]			PM Peak Hour Net New Vehicle Trips[1]		
Scenario	**Total**	**In**	**Out**	**Total**	**In**	**Out**
Preferred Alternative						
Net New Trips 2016[2]	**1,791**	1,272	519	**1,975**	641	1,334
Net New Trips 2026[2]	**4,229**	3,144	1,085	**4,806**	1,465	3,341
DEIS Alternative 2/2A – Medium Density						
Net New Trips 2016[2]	**1,551**	946	604	**1,746**	704	1,042
Net New Trips 2026[2]	**3,940**	2,751	1,188	**4,538**	1,541	2,997

Source: The Transpo Group (July 2007 and September 2008)

1. Vehicle trips were estimated based on person trips for each land use.
2. The net new trips account for the existing trips on-site including the Georgia Pacific (GP) Tissue Mill which was closed in 2007. With the GP closure, the existing site trip generation likely decreased.

Compared to DEIS Alternative 2/2A, the net new peak hour trips for the Preferred Alternative would be higher. The higher trip generation is due to the fact that the Preferred Alternative would have less residential use and more employment uses which generate more trips per square foot. However, due to the changes in the mix of land uses (less residential and more employment uses) the Preferred Alternative would have less outbound traffic during the AM peak hour and less inbound traffic during the PM peak hour. The PM peak hour period is the focus of the transportation analysis, as it represents the worst case assessment of transportation operations.

Construction Impacts

Construction impacts under the Preferred Alternative would be similar to those discussed under the DEIS Alternatives. Construction traffic would impact the existing street system and would consist of truck traffic bringing soil, equipment and material to the site, as well as construction employees commuting to and from the site. There could be intermittently heavy truck traffic particularly during the grading process onsite; it is estimated that grading operations would require a similar or lesser amount of soil material to be imported to the site under DEIS Alternatives 1 - 3. Therefore, impacts to the existing street network associated with truck traffic during grading operations would be similar to or less than those identified for DEIS Alternatives 1 - 3. Truck traffic would likely use existing truck routes in the City, and could temporarily increase conflicts between trucks and other travel modes as part of the initial infrastructure construction period and periodically over the entire long-term buildout of the project. On an overall basis, construction traffic volumes would be less than operational traffic volumes (see the DEIS Section 3.12.2 for more information). It should be noted that the majority of grading activity could occur in the initial stage of infrastructure construction; therefore, the number of construction truck trips could be more intensive during this stage.

Operational Impacts

The operational impacts of the Preferred Alternative are compared to the DEIS No Action Alternative and Alternative 2 for both 2016 and 2026. Operational impacts are evaluated using the same methodologies applied in the DEIS; in addition, the on and offsite improvements identified in **Chapter 2** of this SDEIS are assumed to be in place as part of the Preferred Alternative (on a phased basis for 2016 and the 2026; see **Table 2-4**).

2016

By 2016, the Preferred Alternative would generate approximately 1,975 net new PM peak hour vehicle trips, which would be slightly higher than the number of trips to be generated by DEIS Alternative 2. The Preferred Alternative is assumed to provide substantial onsite street improvements by 2016 that would result in new intersections (refer to **Table 2-4** in Chapter 2 of this SDEIS for a summary of these improvements).

Street System

The Preferred Alternative 2016 PM peak hour travel forecasts were used to evaluate roadways and intersections and to gain an understanding of how the street system would operate. The discussion is consistent with the DEIS and focuses on key roadway segments and intersections identified in the DEIS as potentially impacted by the project. **Figure 3.12-1** presents PM peak hour traffic volumes on the onsite street system and in the site vicinity at 2016 (**Appendix M** to this SDEIS provides information on the operations of all study area roadways and intersections).

Impacts to the street system are measured by determining roadway and intersection LOS. **Table 3.12-2** provides a comparison of the onsite roadway and intersection operations under DEIS Alternative 2, the No Action Alternative and the Preferred Alternative.

As shown in **Table 3.12-2**, with the addition of the Preferred Alternative 2016 traffic, all of the onsite roadways would continue to meet the City of Bellingham's LOS E standard.

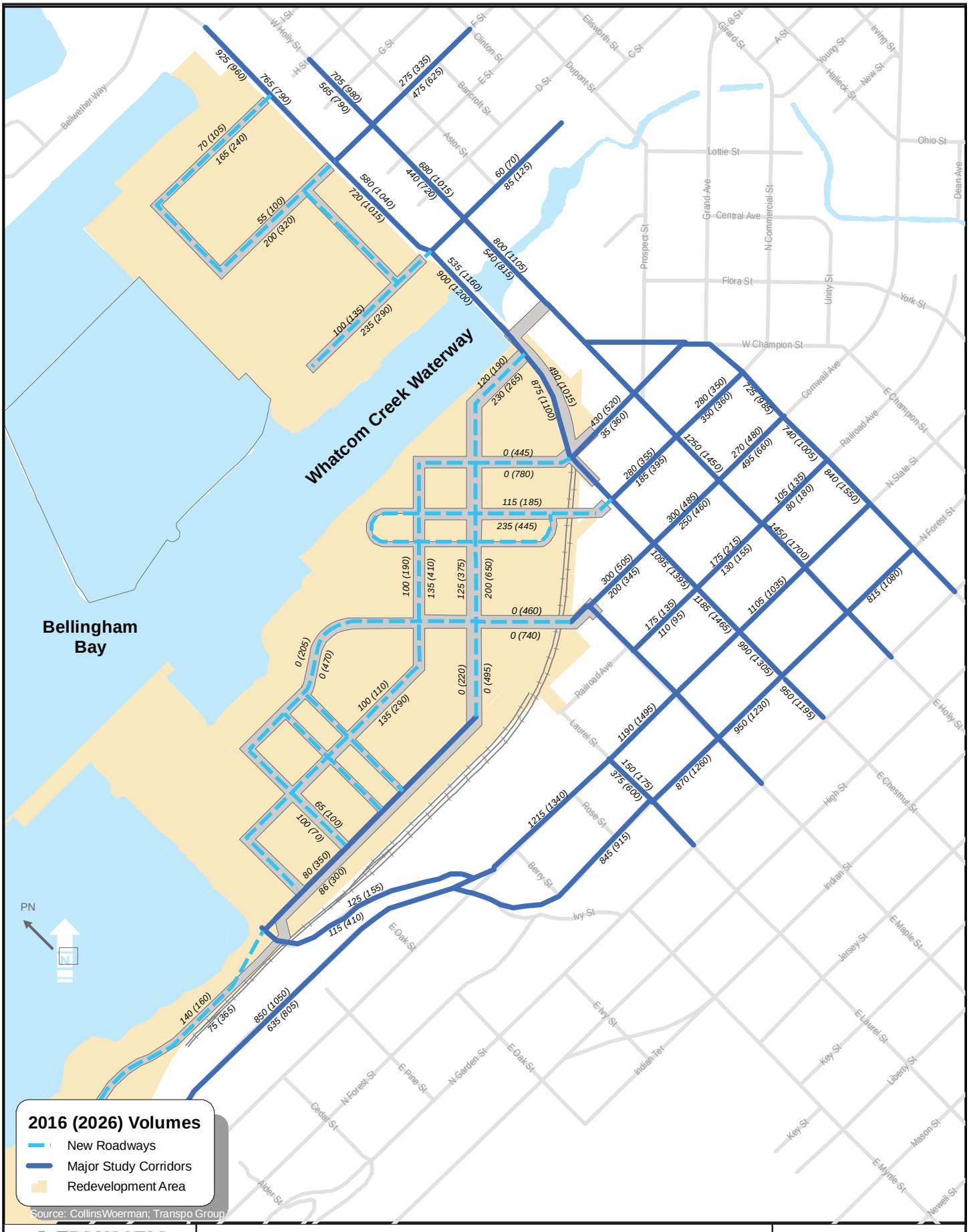

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Figure 3.12-1
Preferred Alternative - PM Peak Hour Traffic Volumes

New Whatcom Redevelopment EIS

Table 3.12-2
2016 DEIS ALTERNATIVE 2, NO ACTION ALTERNATIVE AND PREFERRED ALTERNATIVE – PM PEAK HOUR ONSITE ROADWAY AND INTERSECTION OPERATIONS

	DEIS No-Action			DEIS Alternative 2			Preferred Alternative		
Roadways[1]	**LOS[2]**	**Volume**	**V/C[3]**	**LOS[2]**	**Volume**	**V/C[3]**	**LOS[2]**	**Volume**	**V/C[3]**
Roeder Ave. – Broadway St. to F St. (SEB)	D	765	0.82	D	800	0.85	D	815	0.87
Roeder Ave. – Broadway St. to F St. (NWB)	D	780	0.83	D	750	0.80	D	770	0.82
Roeder Ave. – F St. to C St. (SEB)	C	680	0.72	C	695	0.74	D	775	0.83
Roeder Ave. – F St. to C St. (NWB)	B	615	0.66	B	585	0.62	A	540	0.58
Roeder Ave. – C St. to Central Ave. (SEB)	C	675	0.72	D	815	0.87	E	900	0.96
Roeder Ave. – C St. to Central Ave. (NWB)	C	665	0.71	B	580	0.62	A	535	0.57
Roeder Ave. –Central Ave. to Bay St. (SEB)	D	800	0.85	D	815	0.87	D	825	0.88
Roeder Ave. – Central Ave. to Bay St. (NWB)	A	460	0.49	A	355	0.38	A	360	0.38
Cornwall Ave. – Wharf St. to Maple St. (NEB)	D	710	0.87	A	75	0.09	A	75	0.09
Cornwall Ave. –Maple St. to Chestnut St. (NEB)	D	710	0.87	B	500	0.62	B	555	0.68
Intersections[1,7]	**LOS[2]**	**Delay[4]**	**V/C[5] or WM[6]**	**LOS[2]**	**Delay[4]**	**V/C[5] or WM[6]**	**LOS[2]**	**Delay[4]**	**V/C[5] or WM[6]**
1. Roeder Ave./Hilton Ave.	F	84	NB	F	>200	NB	F	>200	NB
2. Roeder Ave./F St.	D	48	0.69	D	49	0.74	D	49	0.76
3. Roeder Ave./C St.[8]	F	114	NB/SB	F	>200	SB	C	24	0.62
4. Roeder Ave./Central Ave.[9]	F	>200	NB/SB	F	>200	NB	B	16	0.80
5. West Chestnut St./Bay St./Roeder Ave.	F	>200	SBL	F	>200	SBL	F	>200	SB
7. East Chestnut St./Cornwall Ave.	E	57	1.09	C	21	0.82	D	39	0.98

Source: The Transpo Group (August 2007 and September 2008)

Notes: SEB = south-eastbound; NWB = north-westbound; NEB = north-eastbound

1. Operations are shown for those locations presented in the DEIS. A summary of all location operations is provided in **Appendix M.**
2. Level of service, based on 2000 *Highway Capacity Manual* methodology.
3. Volume-to-capacity ratio reported for roadway segments where capacity is based on City of Bellingham Concurrency Model.
4. Average delay in seconds per vehicle.
5. Volume-to-capacity ratio reported for signalized intersections.
6. Worst movement for unsignalized intersections.
7. The intersection operations for locations 1, 2, and 3 would be the same for the Preferred Alternative and Straight Street Grid Option.
8. The Preferred Alternative includes installation of a traffic signal at this location as well as turn lanes on C St.
9. The Preferred Alternative includes installation of a traffic signal as well as closure of Central Ave. between Roeder Ave. and Holly St.

Table 3.12-3 provides a comparison of off-site roadway and intersection operations under DEIS Alternative 2, the No Action Alternative, and the Preferred Alternative (see **Appendix M** to this SDEIS for all study area location operations).

Table 3.12-3
2016 DEIS ALTERNATIVE 2, NO ACTION ALTERNATIVE, PREFERRED ALTERNATIVE – PM PEAK HOUR OFF-SITE ROADWAY AND INTERSECTION OPERATIONS

	DEIS No-Action			DEIS Alternative 2			Preferred Alternative		
Roadways[1]	**LOS[2]**	**Volume**	**V/C[3]**	**LOS[2]**	**Volume**	**V/C[3]**	**LOS[2]**	**Volume**	**V/C[3]**
Holly St. – Broadway St. to F St. (SEB)	B	560	0.69	C	585	0.72	B	570	0.70
Holly St. – Broadway St. to F St. (NWB)	D	675	0.83	D	710	0.87	D	705	0.87
Holly St. – F St. to Central Ave. (SEB)	A	475	0.58	A	475	0.58	A	440	0.54
Holly St. – F St. to Central Ave. (NWB)	D	715	0.88	E	740	0.91	E	800	0.98
Holly St. – Central Ave. to Champion St. (SEB)	B	535	0.66	B	570	0.70	D	710	0.87
Holly St. – Central Ave. to Champion St. (NWB)	E	775	0.95	E	810	1.00	E	778	0.96
Cornwall Ave. – Chestnut St. to Holly St. (NEB)	A	290	0.36	A	215	0.26	A	230	0.28
Intersections[1,7]	**LOS[2]**	**Delay[4]**	**V/C[5] or WM[6]**	**LOS[2]**	**Delay[4]**	**V/C[5] or WM[6]**	**LOS[2]**	**Delay[4]**	**V/C[5] or WM[6]**
1. Meridian St./Birchwood Ave.	E	65	0.87	E	63	0.87	E	64	0.88
2. Meridian St./Squalicum Way	D	42	0.63	D	40	0.63	D	45	0.64
6. West Holly St./F St.	C	25	0.67	C	27	0.74	C	32	0.78
7. West Holly St./ C St.[7]	F	127	SB	F	>200	SB	C	27	0.54
8. Cornwall Ave./Flora St./York St.	C	21	0.75	B	20	0.73	C	22	0.76
11. East Chestnut St./Railroad Ave.	F	168	SB	F	98	SB	F	>200	SB
15. Lakeway Dr./Ellis St./Jersey St./East Holly St.	D	37	0.85	D	37	0.85	D	38	0.86
16. Lakeway Dr./I-5 Southbound Ramps	D	38	0.93	D	43	0.96	E	56	1.03
17. Lakeway Dr./King St.	D	47	0.78	D	46	0.77	D	47	0.78
18. Lakeway Dr./Lincoln St.	D	47	0.90	D	46	0.89	D	47	0.90
19. Iowa St./Moore St./I-5 Northbound Ramps	D	47	0.99	D	46	0.98	D	46	0.99
21. North State St./James St./Iowa St.	F	>200	2.59	F	>200	2.79	F	>200	2.80
22. North State St./Ohio St.	D	37	0.85	D	40	0.91	D	40	0.87
24. North State St./East Laurel St.	D	27	EB	F	>200	WB	B	14	WB
25. North Forest St./ North State St./Boulevard St./Wharf St.[8]	N/A	N/A	N/A	N/A	N/A	N/A	B	13	N/A
a. North Forest St./North State St./Boulevard St.	D	28	SBL	D	34	SBL	N/A	N/A	N/A
b. North State St./Wharf St.	C	21	EB	E	36	EB	N/A	N/A	N/A
26. North Forest St./East Laurel St.	C	20	EB	F	>200	EB	E	37	EB
28. South Samish Way/Elwood Ave./Lincoln St.	C	34	0.85	D	38	0.88	D	39	0.89

Source: The Transpo Group (August 2007 and September 2008)

Notes: SEB = south-eastbound; NWB = north-westbound; NEB = north-eastbound

1. Operations are shown for those locations presented in the DEIS. A summary of all study location operations is provided in **Appendix M.**
2. Level of service, based on 2000 *Highway Capacity Manual* methodology.
3. Volume-to-capacity ratio reported for roadway segments where capacity is based on City of Bellingham Concurrency Model.
4. Average delay in seconds per vehicle.
5. Volume-to-capacity ratio reported for signalized intersections.
6. Worst movement for unsignalized intersections. Not applicable (N/A) for roundabout control intersections.
7. The Preferred Alternative assumes installation of a traffic signal and turn lanes.
8. This intersection operates as two separate intersections in the field; therefore, the analysis was conducted as such. Roundabout control was assumed for the Preferred Alternative. Not applicable (N/A) means that the intersection configuration does not exist.

Roadway operations for the Preferred Alternative would be similar to DEIS Alternative 2. When compared to the No Action Alternative, roadway operations for the Preferred Alternative would improve at some locations due to the proposed onsite roadway improvements.

The following two site access location intersections along Chestnut St. and Roeder Ave. would continue to operate at LOS F with the addition of Preferred Alternative 2016 traffic:

- Roeder Ave./Hilton Ave. (1)
- West Chestnut St./Bay St./Roeder Ave. (5)

When compared with DEIS Alternative 2, the Preferred Alternative would improve operations at the C St. and Central Ave. intersections with Roeder Ave. due to the assumed installation of traffic signals. These improvements are now considered part of the Preferred Alternative.

As shown in **Table 3.12-3**, all of the offsite roadways would continue to meet the City's LOS E Standard under the Preferred Alternative; however, traffic under the Preferred Alternative would worsen LOS F operations at the following intersections:

- Chestnut St./Railroad Ave. (1)
- State St./James St./Iowa St. (21)

These two intersections would also have LOS F operations under DEIS Alternative 2 and the No Action Alternative. It should also be noted that some intersection operations would improve with the Preferred Alternative due to the assumed intersection improvements that would be provided.

Non-Motorized

The Preferred Alternative would provide an extensive pedestrian and bicycle network with sidewalks and bicycle facilities along onsite roadways, as well as a trail system that connects to existing trails in the site vicinity. The redevelopment would focus on creating a pedestrian environment through the use of techniques such as street narrowing, textured paving and sidewalks, landscaping and street trees, and street furniture. Commercial St. would be designed as a "Green St." which would include an open space component flanked by streets on each side. One side of the "Green St." would focus on the movement of vehicular traffic with sidewalks and bicycle lanes, while the other side would serve as a slower speed environment oriented towards pedestrians.

Redevelopment under the Preferred Alternative would provide connections to offsite non-motorized facilities; however, future enhancements to offsite facilities would be necessary to facilitate walking and biking between the site and downtown. As an example, improvements to Wharf St., from Cornwall Ave. to State St. would be recommended, including wider shoulders and bicycle lanes, which would improve bicycle and pedestrian accessibility.

The Preferred Alternative is projected to generate approximately 5,800 daily pedestrian/bicycle trips at 2016, which would be similar to DEIS Alternative 2. Non-motorized impacts would also be similar to those discussed under DEIS Alternative 2.

Transit

The Preferred Alternative assumes an extension of existing and planned future transit service onsite via Hilton Ave. and F St. within the Marine Trades Area and Commercial St. and Log Pond Dr./Cornwall Ave. within the area south of the Whatcom Waterway. The Preferred Alternative would generate a similar amount of transit ridership as Alternative 2 and would contain a similar passenger loading ratio of approximately 1.23 (less than the Whatcom Transit Authority's standard of 1.25). The transit system would need to be modified to incorporate stops and service onsite to support redevelopment and transit demand.

Rail

Relocation of the BNSF railroad is assumed to occur under the Preferred Alternative by 2016. Four at-grade crossing would remain including Wharf St./Pine St., F St., C St., and Central Ave. The C St. crossing would be signalized. The Preferred Alternative would generate a similar level of vehicular and non-motorized trips when compared to Alternative 2 and therefore, potential conflicts and safety issues would also be similar. At-grade crossings would increase delays to vehicular traffic that must stop as trains pass through the area.

The relocation of the railroad corridor would create safer rail conditions and less potential conflicts onsite. Construction of the Commercial St. bridge would provide emergency access to the areas south of the Whatcom Waterway. All at-grade crossings would remain within the Marine Trades Area, which could result in delay for emergency access when trains are crossing. These impacts would be similar to those identified in the DEIS.

Parking

It is estimated that the Preferred Alternative would provide 5,455 parking spaces on the site by 2016. **Table 3.12-4** provides a summary of the parking demand and assumed supply for the Preferred Alternative. Similar to the DEIS, parking was analyzed by redevelopment areas (parking sub-areas) to take into account shared parking opportunities that might occur among different redevelopment areas.

Table 3.12-4
PREFERRED ALTERNATIVE 2016 PARKING DEMAND AND SUPPLY

Parking Sub-Area	Hourly Parking Demand[1]	Assumed Parking Supply	Recommended Supply Range[2]		Parking Surplus/ Deficiency Range	
Marine Trades	2,210	2,918	2,431	2,542	487	377
Downtown/Log Pond (1)	849	932	934	976	-2	-44
Downtown/Log Pond (2)	742	762	816	853	-54	-91
Shipping Terminal	188	252	207	216	45	35
Cornwall Beach	455	591	501	523	90	68
Total	**4,444**	**5,455**	**4,888**	**5,111**	**567**	**344**

Source: Collins Woerman and The Transpo Group (September 2008)

1. Hourly parking demand represents the maximum hourly demand within the parking sub-area.
2. Recommended supply is 10 to 15 percent more than the parking demand to reduce vehicles re-circulating through the parking areas.

The hourly parking demand under the Preferred Alternative is estimated to be approximately 4,440 vehicles, which would be accommodated by the overall assumed parking supply on the site. Each parking sub-area would provide sufficient parking with the exception of the Downtown/Long Pond area. However, a surplus would exist in adjacent parking sub-areas so this deficiency could be accommodated onsite. It is assumed that adopted standards for the onsite parking supply would require that each future redevelopment project accommodate its parking demand (see **Appendix D** Preliminary Development Regulations for identification of possible parking supply ratios by land use.). Some users of the site could park offsite when visiting multiple locations in the area; however, based on the off-site parking supply and the likelihood that a majority of the vehicles would park onsite, there would be minimal impacts to offsite parking spaces.

2026

By 2026, the Preferred Alternative would generate approximately 4,800 net new PM peak hour vehicle trips, which would be slightly higher than those to be generated by DEIS Alternative 2. The Preferred Alternative is assumed to provide additional street improvements on the site by 2026 resulting in additional intersections (refer to **Table 2-4** in Chapter 2 of this SDEIS for a summary of these improvements).

Street System

Figure 3.12-1 presents PM peak hour traffic volumes for the street system onsite and in the site vicinity for the Preferred Alternative under 2026 conditions. **Table 3.12-5** provides a comparison of onsite roadway and intersection operations under DEIS Alternative 2, the No Action Alternative, and the Preferred Alternative.

As shown in **Table 3.12-5**, when compared to the No Action Alternative, the Preferred Alternative would worsen LOS F conditions at the following onsite locations:

- Roeder Ave. between Broadway St. and F St. in the northwest bound direction
- Roeder Ave. between C St. and Central Ave. in the southeast bound direction
- Roeder Ave./Hilton Ave.
- Roeder Ave./F St.

In addition, operations under the Preferred Alternative would degrade from acceptable conditions to LOS F along the following roadways:

- Roeder Ave. between Broadway St. and F St. in the southeast bound direction
- Roeder Ave. between F St. and C St. in both directions
- Roeder Ave. between C St. and Central Ave. in the northwest bound direction
- Roeder Ave. between Central Ave. and Bay St. in both directions

Compared to DEIS Alternative 2 and the No Action Alternative, roadway operations along Roeder Ave. would be worse under the Preferred Alternative due to additional redevelopment within the Marine Trades Area. However, intersection operations would improve at several locations due to proposed traffic control improvements, including traffic signals at C St., Central Ave. and Bay St., and access improvements at Cornwall Ave., and Commercial St.

Table 3.12-6 provides a comparison of off-site roadway and intersection operations at 2026.

As shown in **Table 3.12-6**, when compared to the No Action Alternative, the Preferred Alternative would impact the following off-site locations by degrading acceptable operations to LOS F:

- Holly St. between Central Ave. and Champion St. in the southeast bound direction
- West Holly St./F St.
- North State St./Ohio St.

Table 3.12-5
2026 NO-ACTION, ALTERNATIVE 2 AND PREFERRED ALTERNATIVE—PM PEAK HOUR ON-SITE ROADWAY AND INTERESECTION OPERATIONS

	DEIS No-Action			DEIS Alternative 2			Preferred Alternative		
Roadways[1]	**LOS[2]**	**Volume**	**V/C[3]**	**LOS[2]**	**Volume**	**V/C[3]**	**LOS[2]**	**Volume**	**V/C[3]**
Roeder Ave. – Broadway St. to F St. (SEB)	E	895	0.95	E	940	1.00	**F**	**960**	**1.02**
Roeder Ave. – Broadway St. to F St. (NWB)	**F**	**1,400**	**1.49**	**F**	**1,045**	**1.11**	**F**	**1,230**	**1.31**
Roeder Ave. – F St. to C St. (SEB)	E	855	0.91	E	905	0.96	**F**	**1,020**	**1.09**
Roeder Ave. – F St. to C St. (NWB)	E	865	0.92	E	920	0.98	**F**	**1,040**	**1.11**
Roeder Ave. – C St. to Central Ave. (SEB)	**F**	**990**	**1.06**	**F**	**1,070**	**1.14**	**F**	**1,200**	**1.28**
Roeder Ave. – C St. to Central Ave. (NWB)	E	870	0.93	**F**	**1,005**	**1.07**	**F**	**1,160**	**1.24**
Roeder Ave. –Central Ave. to Bay St. (SEB)	E	910	0.97	D	810	0.86	**F**	**1,285**	**1.37**
Roeder Ave. – Central Ave. to Bay St. (NWB)	C	665	0.71	C	690	0.74	**F**	**1,015**	**1.08**
Central Ave. – Laurel St. to Roeder Ave. (NEB)	-	-	-	C	630	0.77	-	-	-
Commercial St. – Laurel St. to Maple St. (NEB)	-	-	-	C	585	0.72	-	-	-
Cornwall Ave. – Wharf St. to Maple St. (NEB)	**F**	**1,035**	**1.27**	A	130	0.16	A	190	0.23
Cornwall Ave. –Maple St. to Chestnut St. (NEB)	**F**	**1,035**	**1.27**	D	680	0.84	E	785	0.97
Intersections[1,7]	**LOS[2]**	**Delay[4]**	**V/C[5] or WM[6]**	**LOS[2]**	**Delay[4]**	**V/C[5] or WM[6]**	**LOS[2]**	**Delay[4]**	**V/C[5] or WM[6]**
1. Roeder Ave./Hilton Ave.	F	>200	NB	F	>200	NB	F	>200	NB
2. Roeder Ave./F St.	F	100	0.90	F	100	1.01	F	166	1.21
3. Roeder Ave./C St.[8]	F	>200	NB/SB	F	>200	NB/SB	C	26	0.87
4. Roeder Ave./Central Ave. [9]	F	>200	NB/SB	F	>200	NB/SB	C	21	0.95
5. West Chestnut St./Bay St./Roeder Ave.[10]	F	>200	SBL	F	>200	NB/SB	D	39	0.90
6. West Chestnut St./Commercial St.[11]	F	>200	1.47	E	68	1.10	C	30	0.91
7. East Chestnut St./Cornwall Ave.	F	>200	NB	F	>200	NB	E	80	1.13

Source: The Transpo Group (August 2007 and September 2008)

Notes: **Bold:** Indicates locations operating below existing LOS standards. SEB = south-eastbound; NWB = north-westbound; NEB = north-eastbound

1. Operations are shown for those locations presented in the DEIS. A summary of all study location operations is provided in **Appendix M**.
2. Level of service, based on 2000 *Highway Capacity Manual* methodology.
3. Volume-to-capacity ratio reported for roadway segments.
4. Average delay in seconds per vehicle.
5. Volume-to-capacity ratio reported for signalized intersections.
6. Worst movement for unsignalized intersections.
7. The intersection operations for locations 1, 2, and 3 would be the same for the Preferred Alternative and Straight Street Grid Option.
8. The Preferred Alternative includes installation of a traffic signal at this location as well as turn lanes on C St..
9. The Preferred Alternative includes installation of a traffic signal as well as closure of Central Ave. between Roeder Ave. and Holly St.
10. The Preferred Alternative includes installation of a traffic signal at this location and provision of turn lanes.
11. The Preferred Alternative includes upgrading the existing traffic signal and provision of turn lanes on-site.

Table 3.12-6
2026 DEIS ALTERNATIVE 2, NO ACTION ALTERNATIVE AND PREFERRED ALTERNATIVE – PM PEAK HOUR OFF-SITE ROADWAY AND INTERSECTION OPERATIONS

	DEIS No-Action			DEIS Alternative 2			Preferred Alternative		
Roadways[1]	**LOS[2]**	**Volume**	**V/C[3]**	**LOS[2]**	**Volume**	**V/C[3]**	**LOS[2]**	**Volume**	**V/C[3]**
Holly St. – Broadway St. to F St. (SEB)	E	775	0.95	**F**	**900**	**1.11**	E	800	0.98
Holly St. – Broadway St. to F St. (NWB)	**F**	**895**	**1.10**	E	780	0.96	**F**	**980**	**1.21**
Holly St. – F St. to Central Ave. (SEB)	D	680	0.84	D	690	0.85	D	720	0.89
Holly St. – F St. to Central Ave. (NWB)	**F**	**980**	**1.21**	**F**	**945**	**1.16**	**F**	**1,105**	**1.36**
Holly St. – Central Ave. to Champion St. (SEB)	E	775	0.95	E	800	0.98	**F**	**890**	**1.09**
Holly St. – Central Ave. to Champion St. (NWB)	**F**	**1,100**	**1.35**	**F**	**1,115**	**1.37**	**F**	**990**	**1.22**
Cornwall Ave. –Chestnut St. to Holly St. (NEB)	**F**	**1,015**	**1.25**	A	335	0.41	A	395	0.49
Intsections[1]	**LOS[2]**	**Delay[4]**	**V/C[5] or WM[6]**	**LOS[2]**	**Delay[4]**	**V/C[5] or WM[6]**	**LOS[2]**	**Delay[4]**	**V/C[5] or WM[6]**
1. Meridian St./Birchwood Ave.	F	128	1.01	F	109	1.02	F	126	1.04
2. Meridian St./Squalicum Way	D	53	0.73	E	75	0.79	E	68	0.79
6. West Holly St./F St.	C	33	0.89	D	54	0.96	F	89	1.14
7. West Holly St./ C St.[7]	F	>200	NB/SB	F	>200	NB/SB	C	32	0.83
8. Cornwall Ave./Flora St./York St.	D	41	0.93	D	46	1.01	D	53	1.00
11. East Chestnut St./Railroad Ave.	F	>200	SB	F	>200	SB	F	>200	SB
15. Lakeway Dr./Ellis St./Jersey St./East Holly St.	D	55	0.96	E	64	0.98	E	62	1.00
16. Lakeway Dr./I-5 Southbound Ramps	F	98	1.16	F	88	1.17	F	104	1.17
17. Lakeway Dr./King St.	E	69	0.84	E	66	0.87	E	69	0.83
18. Lakeway Dr./Lincoln St.	E	68	1.07	E	65	1.04	E	69	1.02
19. Iowa St./Moore St./I-5 Northbound Ramps	E	74	1.11	E	79	1.10	E	66	1.08
21. North State St./James St./Iowa St.	F	>200	2.98	F	>200	3.12	F	>200	3.04
22. North State St./Ohio St.	E	67	1.03	F	110	1.13	F	145	1.27
24. North State St./East Laurel St.	F	81	WB	F	>200	WB	C	24	WB
25. North Forest St./ North State St./Boulevard St./Wharf St.[8]	N/A	N/A	N/A	N/A	N/A	N/A	E	58	N/A
a. North Forest St./North State St./Boulevard St.	F	51	SBL	F	54	SBL	N/A	N/A	N/A
b. North State St./Wharf St.	E	39	EB	F	>200	EB	N/A	N/A	N/A
26. North Forest St./East Laurel St.	F	95	EB	F	>200	EB	F	>200	EB
28. South Samish Way/Elwood Ave./Lincoln St.	E	64	1.07	E	68	1.10	E	70	1.11

Source: The Transpo Group (August 2007 and September 2008)

Notes: **Bold:** Indicates locations operating below existing LOS standards. SEB = south-eastbound; NWB = north-westbound; NEB = north-eastbound

1. Operations are shown for those locations presented in the DEIS. A summary of all study location operations is provided in **Appendix M**.
2. Level of service, based on 2000 *Highway Capacity Manual* methodology.
3. Volume-to-capacity ratio reported for roadway segments.
4. Average delay in seconds per vehicle.
5. Volume-to-capacity ratio reported for signalized intersections.
6. Worst movement for unsignalized intersections. Not applicable (N/A) for roundabout control intersections.
7. The Preferred Alternative includes installation of a traffic signal and turn lanes.
8. This intersection operates as two separate intersections in the field; therefore, the analysis was conducted as such. Roundabout control was assumed for the Preferred Alternative. Not applicable (N/A) means that the intersection configuration does not exist.

In addition to the locations discussed above, the Preferred Alternative would worsen roadway operations to LOS F at the following locations:

- Holly St. between Broadway St. and F St. in the northwest bound direction
- Holly St. between F St. and Central Ave. in the northwest bound direction
- Holly St. between Central Ave. and Champion St. in the northwest bound direction
- East Chestnut St./Railroad Ave.
- Lakeway Dr./I-5 southbound ramps
- North State St./James St./Iowa St.
- North Forest St./East Laurel St.

Roadway operations along Holly St. would worsen under the Preferred Alternative due to additional redevelopment proposed within the Marine Trades Area. Intersection operations would improve at several locations due to traffic control and site access improvements as part of the Preferred Alternative. In addition, the elimination of the previously considered Laurel St. bridge would improve operations at the State St./Laurel St. intersection.

Non-Motorized

By 2026, the Preferred Alternative is projected to generate approximately 14,000 daily pedestrian/bicycle trips, which would be similar to those evaluated under DEIS Alternative 2. As discussed under the 2016 condition, redevelopment under the Preferred Alternative would provide an extensive pedestrian and bicycle friendly environment. Non-motorized impacts would similar to those discussed under DEIS Alternative 2.

Transit

As discussed under the 2016 condition, the Preferred Alternative assumes an extension of the existing and planned future transit service onsite. By 2026, it is estimated that the Preferred Alternative would generate a similar amount of ridership as DEIS Alternative 2 (4,200 daily trips). As under DEIS Alternative 2, the passenger loading ratio would be approximately 1.55 which would exceed WTA's standard of 1.25. This could be considered an impact to the transit system. An increase in transit service in the vicinity of the site, as well as service and stops on site would be needed to support future growth and transit demand.

Rail

The location of rail crossings for the Preferred Alternative in 2026 would be the same as 2016 conditions. The relocation of the BNSF railroad would create safer rail conditions onsite. The Commercial St. bridge and construction of the Bay St. and Log Pond Dr. bridges by 2026 would provide additional crossings over the railroad tracks and emergency access to the areas south of the Whatcom Waterway. In general, rail impacts would be similar to those discussed in the DEIS for Alternative 2.

Parking

By 2026, it is estimated that the Preferred Alternative would provide 12,892 parking spaces onsite. **Table 3.12-7** summarizes the parking demand and assumed supply for the Preferred Alternative.

Table 3.12-7
PREFERRED ALTERNATIVE 2026 PARKING DEMAND AND SUPPLY

Parking Sub-Area	Hourly Parking Demand[1]	Assumed Parking Supply	Recommended Supply Range[2]		Parking Surplus/ Deficiency Range	
Marine Trades	2,701	3,532	2,971	3,106	561	426
Downtown/Log Pond (1)	3,197	3,943	3,517	3,677	426	266
Downtown/Log Pond (2)	2,925	3,226	3,218	3,364	8	-138
Shipping Terminal	1,163	1,601	1,279	1,337	322	263
Cornwall Beach	455	591	501	523	90	68
Total	**10,441**	**12,892**	**11,485**	**12,007**	**1,407**	**885**

Source: Collins Woerman and The Transpo Group (August 2007)

1. Hourly parking demand represents the maximum hourly demand within the redevelopment area.
2. Recommended supply is 10 to 15 percent more than the parking demand to reduce vehicles re-circulating through the parking areas.

As shown in **Table 3.12-7**, the hourly parking demand of approximately 10,440 would be accommodated by the overall assumed parking supply onsite. Each parking sub-area would provide sufficient parking with the exception of the Downtown/Log Pond sub-area. However, there would be a surplus in all adjacent parking sub-areas so this deficiency could be accommodated onsite. No parking impacts are anticipated for the Preferred Alternative at 2026. In addition, impacts to offsite parking would be minimal given the off-site parking supply and likelihood that the majority of site users would park onsite.

Straight Street Grid Option

Redevelopment under the Straight Street Grid Option would include the same level of land use redevelopment (land use mix and density) as under the Preferred Alternative. Similar to DEIS Alternatives 1 - 3, the Straight Street Grid Option would feature a rectilinear roadway system that is intended to serve as an extension of the existing downtown grid. A bridge connection across the railroad tracks would not be provided at Commercial St., as assumed under DEIS Alternatives 1 - 3 and the Preferred Alternative. A reconstructed bridge would provide a connection at Cornwall Ave., however. Similar to under the Preferred Alternative, a roundabout (or traffic signal) would be constructed at the Wharf St./State St. intersection under this option. Refer to **Table 2-5** in Chapter 2 for a summary of the roadway improvements assumed under the Straight Street Grid Option.

Travel Forecasts

Similar to the Preferred Alternative, operational impacts under the Straight Street Grid Option are evaluated using the same methodologies applied in the DEIS. Further, due to the similarity of the land use assumptions, the Straight Street Grid Option is assumed to have the same trip generation characteristics as those discussed under the Preferred Alternative. Refer to **Table 3.12-1** for the applicable trip generation summary.

Construction Impacts

Construction impacts under the Straight Street Grid Option would be similar to those discussed under the Preferred Alternative and the DEIS Alternatives.

Operational Impacts

2016

By 2016, the Straight Street Grid Option would generate approximately 1,975 net new PM peak hour vehicle trips, which would be slightly higher than the number of trips generated by DEIS Alternative 2. The Straight Street Grid Option is assumed to provide substantial street improvements by 2016 (refer to **Table 2-5** in Chapter 2 for a summary of assumed improvements in 2016 and 2026 under this option).

Street System

The Straight Street Grid Option would be anticipated to have similar offsite operations as the Preferred Alternative. Onsite operations would also be similar with the exception of a few key locations within the Downtown Waterfront, Log Pond, Cornwall Beach, and Shipping Terminal areas due to a variation in the onsite roadway system and site access locations. See **Figure 3.12-2** for an illustration of PM peak hour traffic volumes on the onsite street system and in the site vicinity at 2016.

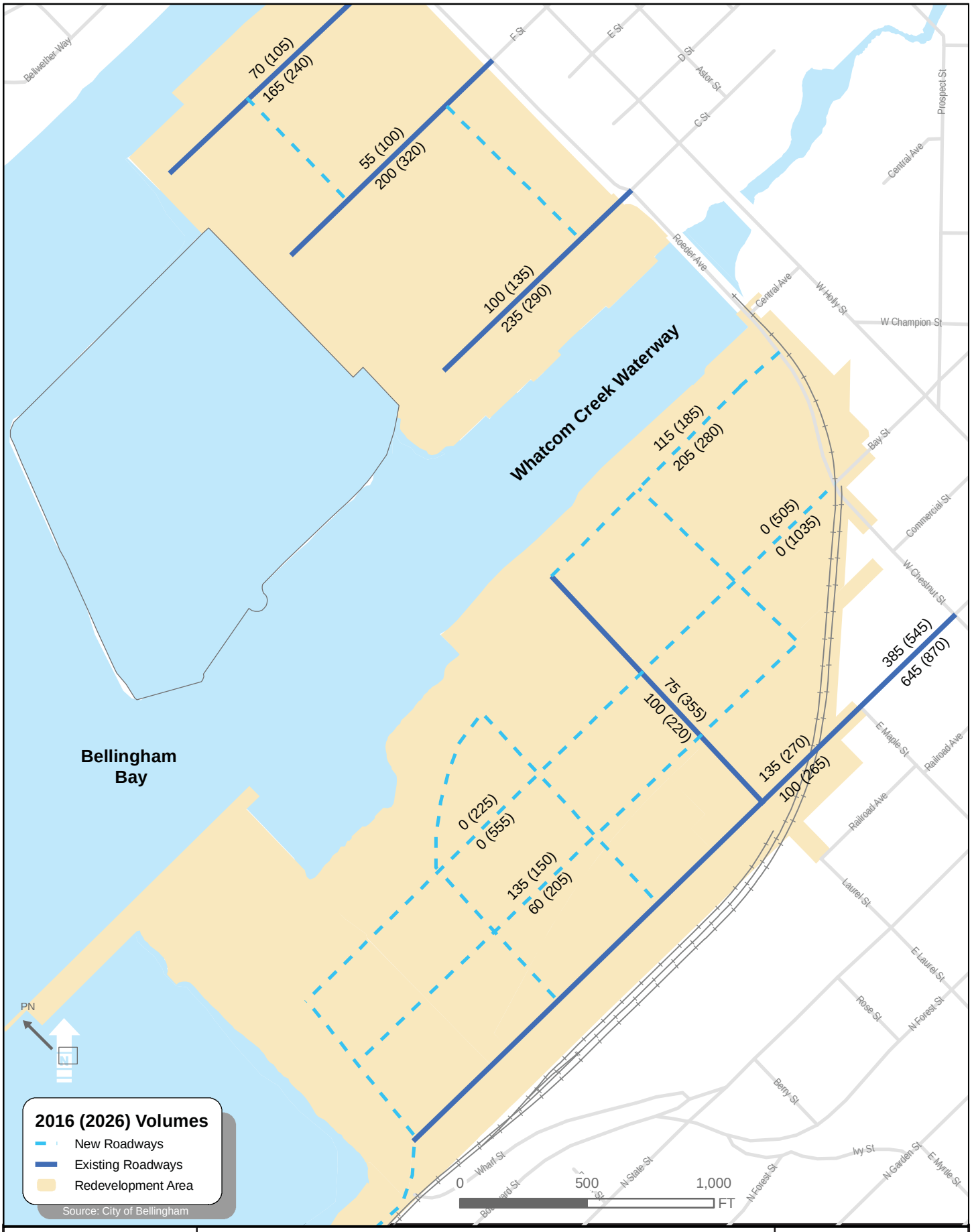
The main difference between the Straight Street Grid Option and the Preferred Alternative would be that site access from Chestnut St. would be provided from Central Ave. and Cornwall Ave., as opposed to Central Ave. and Commercial St. **Table 3.12-8** provides a comparison of the intersection operations of the Straight Street Grid Option and the Preferred Alternative for the four intersections where the difference in site access could result in an operational change. It should be noted that roadway operations along Roeder Ave./Chestnut St. would be similar to the Preferred Alternative and would meet the City's LOS E standard.

Table 3.12-8
2016 PREFERRED ALTERNATIVE AND STRAIGHT STREET GRID OPTION – PM PEAK HOUR ONSITE INTERSECTION OPERATIONS

	Preferred Alternative			Straight Street Grid		
Intersections[1]	**LOS[2]**	**Delay[3]**	**V/C[4] or WM[5]**	**LOS[2]**	**Delay[3]**	**V/C[4] or WM[5]**
4. Roeder Ave./Central Ave.[6]	B	16	0.80	C	21	0.69
5. West Chestnut St./Bay St./Roeder Ave.	F	>200	SB	F	>200	SBL
6. West Chestnut St./Commercial St.	B	16	0.71	B	13	0.61
7. East Chestnut St./Cornwall Ave.	D	39	0.98	D	36	0.98

Source: The Transpo Group (September 2008)
Notes: SEB = south-eastbound; NWB = north-westbound; NEB = north-eastbound
1. Operations are shown for the site access locations along Chestnut St. which would be affected by the difference in roadway systems.
2. Level of service, based on 2000 *Highway Capacity Manual* methodology.
3. Average delay in seconds per vehicle.
4. Volume-to-capacity ratio reported for signalized intersections.
5. Worst movement for unsignalized intersections.
6. The Preferred Alternative and Straight St. Grid Option assume a traffic signal at this location.

As shown in **Table 3.12-8**, the Straight Street Grid Option and Preferred Alternative would have similar intersection operations. For both roadway systems, the West Chestnut St./Bay St./Roeder Ave. intersection would operate at LOS F due to background growth and project-related traffic.



BLUMEN CONSULTING GROUP, INC

Figure 3.12-2
Straight Street Grid - PM Peak Hour Traffic Volumes

New Whatcom Redevelopment EIS

Non-Motorized

The Straight Street Grid Option is assumed to provide a similar pedestrian environment and bicycle network as the Preferred Alternative; it would also generate the same level of daily pedestrian/bicycle trips. As a result, the non-motorized impacts of the Straight Street Grid Option would also be expected to be minimal.

Transit

The Straight Street Grid Option is anticipated to result in similar transit-related impacts as the Preferred Alternative.

Rail

Similar to the Preferred Alternative, the Straight Street Grid Option would include relocation of the BNSF railway onsite and a new signal crossing at C St. to improve safety. The Straight Street Grid is anticipated to have similar impacts as the Preferred Alternative except that Cornwall Ave. at Maple St. would be the only crossing over the railroad, instead of at Commercial St. at 2016.

Parking

The Straight Street Grid Option assumes the same level of parking supply onsite as was described under the Preferred Alternative. As a result, parking-related impacts at 2016 would be the same as those under the Preferred Alternative. However, specific provisions for onsite parking have not been defined under this Option.

2026

Similar to the Preferred Alternative, by 2026, the Straight Street Grid Option would generate approximately 4,800 net new PM peak hour vehicle trips, which would be slightly higher than those to be generated by DEIS Alternative 2. The Straight Street Grid Option is also assumed to provide additional street improvements on the site by 2026 (refer to **Table 2-5** in Chapter 2 for a summary of these improvements).

Street System

As under the 2016 condition, the Straight Street Grid Option would be anticipated to have similar offsite operations as the Preferred Alternative at 2026. Onsite operations would also be similar, with a few exceptions at key site access locations (refer to **Figure 3.12-2** for an illustration of onsite and off-site PM peak hour traffic volumes at 2026).

The main difference between the Straight Street Grid and Preferred Alternative at 2026 is that Chestnut St. would provide site access via three locations (Central Ave., Bay St., and Cornwall Ave.), while the Preferred Alternative would provide access via four locations (Central Ave., Bay St., Commercial St., and Log Pond Dr./Cornwall Ave.). **Table 3.12-9** provides a comparison of intersection operations of the Straight Street Grid Option and Preferred Alternative at the four intersections where the differences in site access could result in operational changes.

Table 3.12-9
2026 PREFERRED ALTERNATIVE AND STRAIGHT STREET GRID OPTION – PM PEAK HOUR ONSITE INTERSECTION OPERATIONS

	Preferred Alternative			Straight Street Grid		
Intersections[1]	**LOS[2]**	**Delay[3]**	**V/C[4] or WM[5]**	**LOS[2]**	**Delay[3]**	**V/C[4] or WM[5]**
4. Roeder Ave./Central Ave.[6]	C	21	0.95	C	27	0.90
5. West Chestnut St./Bay St./Roeder Ave.[6]	D	39	0.90	F	98	1.23
6. West Chestnut St./Commercial St.	C	30	0.91	B	14	0.67
7. East Chestnut St./Cornwall Ave.	E	80	1.13	F	139	1.30

Source: The Transpo Group (September 2008)
Notes: SEB = south-eastbound; NWB = north-westbound; NEB = north-eastbound
1. Operations are shown for the site access locations along Chestnut St. which would be affected by the difference in roadway systems.
2. Level of service, based on 2000 *Highway Capacity Manual* methodology.
3. Average delay in seconds per vehicle.
4. Volume-to-capacity ratio reported for signalized intersections.
5. Worst movement for unsignalized intersections.
6. The Preferred Alternative and Straight Street Grid Option assume a traffic signal at this location.

As shown in **Table 3.12-9**, the Preferred Alternative would have better operations at both the West Chestnut St./Bay St./Roeder Ave. and the East Chestnut/Cornwall Ave. intersections. The poor operations with the Straight Street Grid would result because fewer site access locations would be provided under this option. In addition, since the land use assumptions (mix and density of uses) would be the same as the Preferred Alternative, it is noted that roadway operations along Roeder Ave./Chestnut St. are anticipated to be similar to the Preferred Alternative. Therefore, the Straight Street Grid Option would also not meet the City's LOS E standard along portions of Roeder Ave.

Non-Motorized

The Straight Street Grid Option is assumed to provide a similar pedestrian environment and bicycle network as the Preferred Alternative. In addition, it would generate the same level of daily pedestrian/bicycle trips. Therefore, similar to the Preferred Alternative, the non-motorized impacts of the Straight Street Grid Option in 2026 would be expected to be minimal.

Transit

The Straight Street Grid Option is anticipated to result in similar transit ridership levels as the Preferred Alternative and would, therefore, have similar impacts on transit service.

Rail

The Straight Street Grid Option is anticipated to have similar impacts to those discussed under the Preferred Alternative at 2026, except that Cornwall Ave. at Maple St. and the Bay St. bridge would be the only crossings over the railroad (there would be no Commercial St. bridge).

Parking

The Straight Street Grid Option assumes the same level of parking supply onsite as is described under Preferred Alternative. As a result, parking-related impacts at 2026 would be the same as those described under the Preferred Alternative. However, specific provisions for onsite parking have not been defined under this Option.

Phasing and Roadway Network Capacity Analysis

As the New Whatcom site is redeveloped, infrastructure improvements would be needed to accommodate the added traffic generated by the project. Both the Preferred Alternative and Straight Street Grid Option assume that transportation infrastructure improvements would be completed on a phased basis over the course of the buildout period (see **Table 2-4** and **2-5** in Chapter 2 of this SDEIS for details). The following analysis determines whether the assumed improvements can accommodate the forecasted traffic volumes under both the Preferred Alternative and Straight Street Grid Option.

The capacity of the roadway network to effectively accommodate traffic is based on the total outbound PM peak hour vehicular capacity (the peak direction of travel during the PM peak hour). The outbound direction generates the highest demand during the PM peak hour for the assumed set of land uses. This capacity can be defined by the maximum number of outbound weekday PM peak hour trips that could be accommodated with the assumed infrastructure improvements.

Preferred Alternative

Table 3.12-10 provides a summary of the estimated total outbound PM peak hour trips for the Preferred Alternative.

Table 3.12-10
PREFERRED ALTERNATIVE ESTIMATED TOTAL OUTBOUND PM PEAK HOUR VEHICLE TRIPS[1]

Redevelopment Area	2016	2026
Marine Trades	900	1,070
Downtown Waterfront, Log Pond, Shipping Terminal Cornwall Beach	760	2,490
Total	**1,460**	**3,560**

Source: The Transpo Group (July 2007 and September 2008)
1. Vehicle trips were estimated based on person trips for each land use.

Table 3.12-11 provides a summary of the potential phasing of on and offsite improvements and the associated vehicle and redevelopment capacity by redevelopment area.

Table 3.12-11
PREFERRED ALTERNATIVE PHASING OF TRANSPORTATION INFRASTRUCTURE IMPROVEMENTS AND ASSOCIATED REDEVELOPMENT CAPACITY[1]

Street Sequence	On-Site / Access Improvement	Off-Site / Access Improvements[2]	PM Peak Hour Outbound Vehicle Capacity[3]	Approximate Redevelopment in Millions of sf[4]
Marine Trades Area				
	Existing Street Network[5]		**520**	**0.8**
1	Upgrade Hilton Ave. and C St. Build Maple St. between Hilton Ave. and F St.	Signalize C St. intersections with Roeder Ave. and Holly St.. Provide turn lanes along C St..	550	0.9
2[6,7]	Upgrade F St. and build Chestnut St. from F St. to C St..		900	1.4
Downtown Waterfront, Log Pond, Shipping Terminal, and Cornwall Beach Areas				
	Existing Street Network[5]		**950**	**1.7**
1	Build Bloedel Ave. and convert Central Ave. between Holly St. and Roeder Ave. to pedestrian access only	Signalize intersection at Central Ave. / Roeder Ave.	1,225	2.2
2		Build roundabout at Wharf/State /Boulevard intersection	1,575	2.8
3	Build Paper Ave. and connect from Bay St. to Log Pond Dr.		1,575	2.8
4	Extend Paper Ave. from Log Pond Dr. to Cornwall Ave.		1,575	2.8
5	Construct Commercial Street Bridge extend to Paper Ave.		1,950	3.5
6[6,7]	Demolish Cornwall Bridge and relocate BNSF Railroad. Rebuild temporary Bloedel Ave. and Log Pond Dr. connections.		1,200	2.2
7	Build Log Pond Dr. bridge connection to existing Cornwall Ave.	Upgrade the Maple St. corridor, including intersection traffic control improvements at Cornwall Ave., State St. and Forest St.	2,100	3.8
8	Build Log Pond Dr. between Paper Ave. and Oak St. / Ivy St.		2,100	3.8
9[7]	Rebuild Bay Street Bridge Extend Bloedel Ave. to Cornwall Ave.	Signalize intersection at Bay St. /Chestnut St.	2,600	4.7

Source: Collins Woerman and The Transpo Group (September 2008)

1. The infrastructure phasing outlined addresses the Marine Trades Area separate from the Downtown Waterfront, Log Pong, Shipping Terminal, and Cornwall Beach Areas.
2. The off-site improvements represent those improvements assumed to be provided to support the redevelopment.
3. Outbound vehicle trips represent peak direction of travel during the PM peak hour. This capacity represents the maximum number of weekday PM peak hour trips that could be accommodated without additional infrastructure.
4. Approximate square-footage is provided for reference and is based on the estimated PM peak hour outbound vehicle trips. Square-footage is related to the specific redevelopment area(s) noted and not for the total New Whatcom site.
5. Existing Street network assumes roadway and intersections as they currently exist with no improvements or upgrades.
6. Street Sequences 1 through 6 represent the core street network of the Preferred Alternative.
7. Shading indicates street sequence which would complete 2016 and 2026 roadway networks.

Marine Trades Area

As shown in **Table 3.12-11**, the existing street network could accommodate some level of redevelopment within the Marine Trades Area. In addition, the Preferred Alternatives assumed infrastructure improvements (with a capacity of up to 900 trips) would accommodate the 2016

land use densities and associated traffic generation of approximately 900 total outbound PM peak hour trips. However, additional improvements would be necessary to accommodate 2026 land use densities and associated traffic generation of 1,070 total outbound PM peak hour vehicle trips (see **Section 3.12.4** Mitigation Measures later in this section for identification of additional improvements required to support full redevelopment in this area of the site).

Downtown Waterfront, Log Pond, Shipping Terminal, and Cornwall Beach Areas

As shown in **Table 3.12-11**, the existing street network and assumed infrastructure improvements could accommodate the 2016 and 2026 Preferred Alternative land use densities for these redevelopment areas without additional offsite or site access improvements. However, it should be noted that although the existing street network could accommodate the proposed 2016 redevelopment (950 trip capacity and 760 trips generated) an internal roadway network would be needed to support these land use densities and adequately provide circulation and access.

Street sequences 1 through 6 represent the core street network of the Preferred Alternative, which would be assumed to be completed by 2016. The core street network has a capacity of approximately 1,200 outbound vehicle trips at 2016 which would be sufficient to accommodate the anticipated 2016 buildout of these areas and the associated 760 total outbound PM peak hour trips. In addition to the core street network, it is assumed that non-motorized, transit, and rail improvements would also be added to the existing street network. (It is noted that the street network capacity would decrease between sequences 5 and 6 due to the closure of Cornwall Ave. and the demolition of the Cornwall Ave. bridge.)

By 2026, these redevelopment areas would generate approximately 2,490 outbound PM peak hour vehicle trips. With the additional improvements assumed under street sequences 7 through 9, the infrastructure network would have a capacity of approximately 2,600 outbound vehicle trips which would be sufficient to accommodate the anticipated 2026 buildout and associated outbound PM peak hour trips; however, additional off-site improvements would be required to mitigate operational impacts at certain study area intersections (see **Section 3.12.4** later in this section for identification of additional improvements required to support full redevelopment).

Onsite Roadway System

The evaluation of internal onsite intersections focuses on major locations within the site, since detailed information on specific onsite land use and building locations and access driveways cannot be determined at this point. The internal intersections within the Marine Trades Area are not included in the analysis due to the fact that internal traffic volumes in this area would be low and internal intersections would not require traffic signals. As specific development is identified for the Marine Trades Area, internal intersections would be evaluated to ensure safe and acceptable operations.

The following describes the internal intersection improvements that would be necessary to support the land use densities within the Downtown Waterfront, Log Pond, Shipping Terminal and Cornwall Beach redevelopment areas. These improvements expand on the roadway improvements assumed as part of the Preferred Alternative and described in **Table 2-4** in Chapter 2.

- **Bloedel Ave./Bay St.** – At this intersection, side-street stop control along Bloedel Ave. with associated turn lanes should be provided. With additional density and construction of the Bay St. bridge by 2026, traffic signal control and left-turn lanes on all approaches should be provided.

- **Bloedel Ave./Commercial St.** – At this intersection, side-street stop control along Bloedel Ave. with associated turn lanes should be provided. With additional onsite density by 2026, traffic signal control and left-turn lanes on all approaches should be provided.

- **Cornwall Ave./Wharf St.** – At this intersection, side-street stop control along Cornwall Ave. should be provided. No additional improvements would be necessary in 2026.

- **Paper Ave./Log Pond Dr.** – A traffic signal should be installed at this intersection. This intersection would not be constructed by 2016, but is assumed to be in place by 2026.

- **Bloedel Ave./Log Pond Dr.** – A traffic signal and turn lanes along Bloedel Ave. should be provided at this intersection. This intersection would not be constructed by 2016, but is assumed to be in place by 2026.

- **Paper Ave./Oak St.** – All-way stop control should be provided at this intersection. This intersection would not be constructed by 2016, but is assumed to be in place by 2026.

- **Cornwall Ave./Oak St.** – Side-street stop control along Oak St. should be provided at this intersection. This intersection would not be constructed by 2016, but is assumed to be in place by 2026.

The list above is intended as a guide for future traffic control and channelization within the Downtown Waterfront, Log Pond, Shipping Terminal, and Cornwall Beach redevelopment areas. As specific parcels within these areas are developed, traffic control and channelization would be confirmed to ensure safe and acceptable operations.

Straight Street Grid Option

The Straight Street Grid Option assumes the same land use density as the Preferred Alternative; as a result, the estimated total outbound PM peak hour trips would be the same as described under the Preferred Alternative (refer to **Table 3.12-10**). **Table 3.12-12**, provides a summary of the assumed phasing of on and off-site improvements and the associated vehicle and redevelopment capacity.

Table 3.12-12
STRAIGHT STREET GRID PHASING OF TRANSPORTATION IMPROVEMENTS AND ASSOCIATED REDEVELOPMENT CAPACITY[1]

Phase[1,2]	On-Site Improvement	Off-Site Improvements[2]	PM Peak Hour Outbound Vehicle Capacity[3]	Approximate Development in Millions of sf[4]
Marine Trades Area				
	Existing Street Network[5]		**520**	**0.8**
1[7]	Upgrade Hilton Ave. and C St. Build Maple St. between Hilton Ave. and F St.	Signalized C St. intersections with Roeder Ave. and Holly St. Provide turn lanes along C St.	900	1.4
	Upgrade F St. and build Chestnut St. from F St. to C St.			
Downtown Waterfront, Log Pond, Shipping Terminal, and Cornwall Beach Areas				
	Existing Street Network[5]		**950**	**1.7**
1[7]	Extend Central Ave. to Laurel St. and convert Central Ave. between Holly St. and Roeder Ave. to pedestrian access only	Signalize intersection at Central Ave. / Roeder Ave.	1,575	2.8
	Improve Wharf/State Intersection	Build Roundabout at Wharf/State/Boulevard intersection		
	Re-build Cornwall Bridge and relocate BNSF Railroad			
2[7]	Build Bay Street Bridge Extend to Laurel St.	Signalize intersection at Bay St./ Chestnut St.	2,075	3.7

Source: City of Bellingham and The Transpo Group (September 2008)

1. The infrastructure phasing outlined pertains only to the Downtown Waterfront, Log Pond, Shipping Terminal, and Cornwall Beach Areas.
2. The off-site improvements represent those improvements assumed to be provided to support the redevelopment.
3. Outbound vehicle trips represent peak direction of travel during the PM peak hour. This capacity represents the maximum number of weekday PM peak hour trips that could be accommodated without additional infrastructure.
4. Approximate square-footage is provided for reference and is based on the estimated PM peak hour outbound vehicle trips. Square-footage is related to the specific redevelopment area(s) noted and not for the total New Whatcom site.
5. Existing street network assumes roadway and intersections as they currently exist with no improvements or upgrades.
6. Phase 1 completed by 2016 and Phase 2 completed by 2026.
7. Onsite connector roads would be constructed as part of these phases; however, detailed phasing of the internal roadway system for the Straight Street Grid Option has not been formulated to date.

Marine Trades Area

The Straight Street Grid Option would feature the same land use densities within the Marine Trades area as the Preferred Alternative. Therefore, additional improvements, similar to those discussed under the Preferred Alternative, would be needed to accommodate buildout at 2026.

Downtown Waterfront, Log Pond, Shipping Terminal, and Cornwall Beach Areas

The existing street network and assumed infrastructure improvements would have a capacity of 1,575 vehicle trips in 2016, which would be sufficient to handle the assumed 2016 land use densities and associated 760 outbound PM peak hour vehicle trips, however, assumed infrastructure improvements under Phase 2 would only have a capacity of 2,075 vehicle trips, which would not be able to accommodate the estimated total outbound PM peak hour trips at 2026. To accommodate the full redevelopment, additional access improvements would be needed, such as the construction of the Commercial St. or Laurel St. bridges, and/or the

implementation of transportation demand management strategies to reduce the outbound PM peak hour trips by approximately 20 percent.

Onsite Roadway System

As described under the Preferred Alternative, the intent of internal intersection improvements would be to provide adequate access and circulation throughout the site. The evaluation of internal onsite intersections focuses on major locations within the site, since detailed information on specific land use and building locations is unknown. Similar to the Preferred Alternative, the Marine Trades Area is not included in this analysis.

The following internal intersection improvements would be necessary to support the land use densities within the Downtown Waterfront, Log Pond, Shipping Terminal, and Cornwall Beach redevelopment areas. These improvements expand on the roadway improvements assumed as part of the Straight Street Grid Option and described in **Table 2-5** in Chapter 2.

- **Laurel St./Bay St**.– At this intersection, side-street stop control along Laurel St. with associated turn lanes should be provided. With additional density and the construction of the Bay St. bridge by 2026, traffic signal control and left-turn lanes on all approaches should be provided.

- **Commercial St./Laurel St.** – Side-street stop control along Commercial St. with turn lanes along Laurel St. should be provided by 2016. With additional density by 2026, traffic signal control and left-turn lanes on all approaches should be provided.

- **Cornwall Ave./Laurel St.** – Side-street stop control along Laurel St. should be provided. No additional improvements would be necessary in 2026.

- **Cornwall Ave./Wharf St.** – At this intersection, side-street stop control along Cornwall Ave. should be provided. No additional improvements would be necessary in 2026.

- **Bay St./Oak St.** – All-way stop control should be provided at this intersection. No additional improvements would be necessary in 2026.

- **Cornwall Ave./Oak St.** – Side-street stop control along Oak St. should be provided at this intersection. No additional improvements would be necessary in 2026.

3.12.3 Conclusion

Redevelopment of the New Whatcom site under the Preferred Alternative would result in an increase in net new trips to and from the site. Similar to DEIS Alternative 2, onsite and offsite roadway and intersection operations would vary by 2026; certain roadways and intersections would exhibit a decline in LOS, while others would improve due to assumed improvements, including new access connections, traffic control, and channelization at various locations. Assumed onsite access improvements under the Preferred Alternative would create the necessary vehicle capacity to support the buildout of 6 million square feet of mixed uses and the number of PM peak hour vehicle trips that would be generated to/from the site (see **Table 3.12-11**). Additional offsite improvements would be needed, however, to address congestion and operational deficiencies, particularly along Roeder Ave./Chestnut St. and Holly St.

The proposed parking supply assumed under the Preferred Alternative would be sufficient to accommodate the peak parking demand that would result from redevelopment on the New Whatcom site. Non-motorized, transit and rail impacts would be similar to those discussed under the DEIS Alternatives; significant impacts would not be expected.

Under the Straight Street Grid Option, redevelopment would result in a similar amount of net new trips to and from the site as the Preferred Alternative. At a few adjacent intersections, operations would be worse under the Straight Street Grid Option due to the need for additional site access locations to accommodate the full buildout of the site (6 million square feet). Additionally, assumed onsite access improvements under the Straight Street Grid Option would not provide the necessary vehicle capacity to accommodate land use buildout and the number of PM peak hour vehicle trips generated to/from the site (see **Table 3.12-12**). Additional access improvements would be needed. Similar to under the Preferred Alternative, additional offsite improvements would be needed to address congestion and operational deficiencies.

Non-motorized, transit, rail and parking impacts under the Straight Street Grid Option would be similar to those discussed under the Preferred Alternative.

3.12.4 Mitigation Measures

Mitigation measures to address the probable significant impacts of Alternatives 1 - 3 and the No Action Alternative were identified in the DEIS (see DEIS Section 3.12.3 and DEIS Table 3.12-15). Mitigation measures include improvements and strategies to eliminate or decrease the potential for significant impacts from New Whatcom redevelopment, as well as measures to better accommodate anticipated growth throughout the downtown area over the next 20 years. These measures, outlined in the DEIS, would also apply to the Preferred Alternative.

Measures incorporated into the Preferred Alternative include construction of an extensive infrastructure network featuring both at-grade and bridge connections to the existing street system. In addition, the Preferred Alternative would include a new park and trail system, providing enhanced opportunities for pedestrian and bicycle modes. The Preferred Alternative would result in less onsite and offsite impacts in 2016 and 2026 as compared to the DEIS Alternatives and, therefore would require fewer mitigation measures. This is due to the set of infrastructure improvements assumed as part of the Preferred Alternative. Refer to **Table 15** of the Transportation Report (**Appendix M**) for a specific comparison of the mitigation measures outlined for the DEIS Alternatives and those that pertain to the Preferred Alternative. In addition, assumed onsite access improvements would create the necessary vehicle capacity to support buildout of 6 million square feet of mixed uses (it should be noted that the Straight Street Grid Option assumed access improvements would not provide such capacity).

Specific measures to mitigate onsite and offsite impacts of the Preferred Alternative and Straight Street Grid Option would be necessary to effectively accommodate redevelopment of the site. The potential timing of these mitigation measures is discussed below.

Onsite Mitigation Measures

- Onsite operational analysis indicates that the Roeder Ave./Hilton Ave. and Chestnut St./Bay St. intersections would require improvements by 2016 to ensure safe and efficient traffic operations. The Roeder Ave./Hilton Ave. improvements could include the installation of a traffic signal and turn lanes, provision of a refuge/merge lane for left

turns from Hilton Ave. onto Roeder Ave., or restriction of left turns from Hilton Ave by 2016. The Chestnut St./Bay St. improvements could include installation of a traffic signal and turn lanes by 2016.

- To accommodate the assumed redevelopment levels beyond 2016, additional Roeder Ave. improvements would be necessary. Roeder Ave./Chestnut St. from Hilton Ave. to Cornwall Ave. would require widening to provide two lanes per direction and turn lanes at major intersections. In addition, a southbound left turn lane would be needed along F St. at its intersection with Roeder Ave. It should be noted that the City is currently evaluating additional options to improve Roeder Ave. beyond street widening in order to accommodate future traffic growth along this corridor.

In addition, the following onsite mitigation measure was identified for the Straight Street Grid Option:

- Operational analysis indicates that the Chestnut St./Bay St. and Chestnut St./Cornwall Ave. intersections would have poor operations in 2026. The Chestnut St./Bay St. intersection includes intersection improvements as part of the Straight Street Grid Option; therefore, additional site access locations (such as at Commercial St.) would be needed to improve intersection operations and accommodate 2026 land use densities. To improve operations at the Chestnut St./Cornwall Ave. intersection, an additional northbound turn lane would be needed.

Offsite Mitigation Measures

In addition to onsite improvements, certain offsite improvements would be necessary to support the land use densities proposed under the Preferred Alternative and the Straight Street Grid Option. In some cases, improvements will be required to accommodate future growth in the area, with or without the New Whatcom redevelopment. The following improvements would be necessary by 2016:

- Chestnut St./Railroad Ave. – A traffic signal at this intersection should be provided. This improvement would also be needed under the lower amount of industrial land uses of the DEIS No Action Alternative; therefore, it is recommended that this improvement be constructed during the early phases of development.

- Wharf St. – It is recommended that this roadway be improved to provide wide shoulders or bicycle lanes and sidewalks to enhance pedestrian and bicycle use.

The following improvements would be necessary by 2026:

- Forest St./Laurel St. – A traffic signal and turn lanes should be provided. The City is planning to enhance multi-modal access and increase pedestrian safety along Forest St., which could eliminate the need for this mitigation measure or change the specific improvements that would be needed. This mitigation measure should be re-evaluated as the City plans their specific improvements.

- Holly St. – This street should be widened to provide additional capacity in the northbound direction from Broadway St. to Champion St. The City is also exploring improvements along this corridor, as well as Roeder St.

- Holly St./F St. – A northbound left turn lane on F St. should be provided.

- Bay St. – Pedestrian and bicycle facilities along this roadway from Champion St. to Chestnut St. should be provided to enhance non-motorized access to and from the site.

As discussed in the DEIS, improvements are needed along Lakeway Dr., State St., and Forest St. corridors to accommodate future traffic volumes as part of the Preferred Alternative and future growth in the area. In addition, certain intersections with James St., Ohio St., and Iowa St. all need additional turn lanes to provide acceptable intersection operations. However, these locations are constrained by adjoining properties and alternative concepts should be explored.

In addition, the Washington State Department of Transportation is currently evaluating future improvements to the I-5 corridor and interchanges within the City, including Lakeway Dr. and Iowa St.

Financial responsibilities for the above mitigation requirements and specific implementation strategies for the mitigation improvements noted above would be determined as part of the Development Agreement between the Port and the City.

3.12.5 Significant Unavoidable Adverse Impacts

Similar to the DEIS, the Preferred Alternative would result in future redevelopment of the site which would contribute to increases in travel demands and congestion along the onsite and off-site street system. The redevelopment would also increase traffic access and circulation in the area. This added congestion would contribute to measurably poorer performance of the transportation network, in terms of increased delays along several of the corridors and at some specific intersections. The increase in traffic and higher volumes of pedestrians and bicycles would potentially result in more conflict points and increased hazards to safety. With the implementation of the identified mitigation measures, significant unavoidable adverse impacts would be prevented or substantially lessened.