

APPENDIX B1: TRANSPORTATION TECHNICAL MEMORANDUM





TECHNICAL MEMORANDUM

DATE: September 17, 2012

TO: Ken Carter
City of Carnation
City Manager

FROM: Jennifer Barnes, PE, Heffron Transportation *JAB*
Marni Heffron, PE, PTOE, Heffron Transportation

RE: **Transportation Technical Memorandum**
Tolt Avenue/SR 203 Corridor Plan
SvR Project No. 11033

The purpose of this memorandum is to present the existing transportation conditions on State Route (SR) 203 (Tolt Avenue) through the City of Carnation, and to assess the potential effect that the proposed concepts defined in the corridor study and action plan would have on mobility and safety throughout the corridor.

Existing Corridor Description

Figure 1 shows the Tolt Avenue (SR 203) corridor. Tolt Avenue is a 2-lane roadway that serves as the primary north-south artery through the City of Carnation. It connects between Carnation and Duvall to the north and Fall City to the south. Tolt Hill Road intersects with Tolt Avenue to the south of the Carnation city limits, providing a direct connection to SR 202/SR 520 and the Seattle, Bellevue and Redmond metropolitan areas. Truck traffic comprises about 3 to 5% of total traffic during the PM peak hour, but can be higher during other times of day. It is designated as a regionally significant state highway, which is the designation for all state transportation facilities that are not designated as Highways of Statewide Significance (HSS).

Inside the city limits, Tolt Avenue has a posted speed limit of 30 miles per hour (mph). The intersection of Tolt Avenue/Entwistle Street is signalized. All other intersections along Tolt Avenue within the city are stop-controlled on the minor (east-west) legs. A pedestrian crossing signal is also provided across Tolt Avenue at Morrison Street.



Figure 1
STUDY AREA





Sidewalk is present on the west side of the Tolt Avenue between NE 40th Street and NE 55th Street; on the east side, sidewalk is present between Tolt Middle School and Morrison Street. Between Morrison Street and Eugene Street, curb bulbs are present on both sides of each intersection. The curb bulbs are about 10 feet wide, and extend to the edge of the roadway travel lanes. The curb bulbs include pedestrian ramps on both the Tolt Avenue and minor street sides. Marked crosswalks are provided across the minor streets, but no marked crosswalks are provided across Tolt Avenue except at the Entwistle Street and Morrison Street intersections.

On the west side of the road between the south sidewalk termini and John McDonald Park Road, there are 8 to 10-foot wide shoulders. On the east side of the road south of Tolt Middle School, the shoulder is narrow (less than 6 feet). Between John McDonald Park Road and Tolt Hill Road (milepost [MP] 5.20), there are narrow shoulders (less than 6 feet) on both sides of the road; the Tolt River Bridge has a separated sidewalk on the west side. There are no bicycle facilities provided along the Tolt Avenue corridor.

Overview of Corridor Plan

The *Tolt Avenue/SR 203 Corridor Plan* project will set a comprehensive 2030 vision for the corridor and provide an action plan for implementation and funding. Information gathered during the project's Visioning Phase identified improvements that allow Tolt Avenue to function as a Complete Street, with equal consideration for pedestrian, bicycle, transit and vehicle modes of transportation. Proposed concepts include infrastructure that will encourage the use of downtown Carnation as a community gathering place and allow pedestrians and bicyclists to travel more safely and comfortably, while still accommodating the vehicular traffic that travels on SR 203 between destinations within and beyond Carnation.

Vehicular Operations

This section describes existing vehicle operations along Tolt Avenue, as well as future (2035) operations with and without potential corridor study concepts.

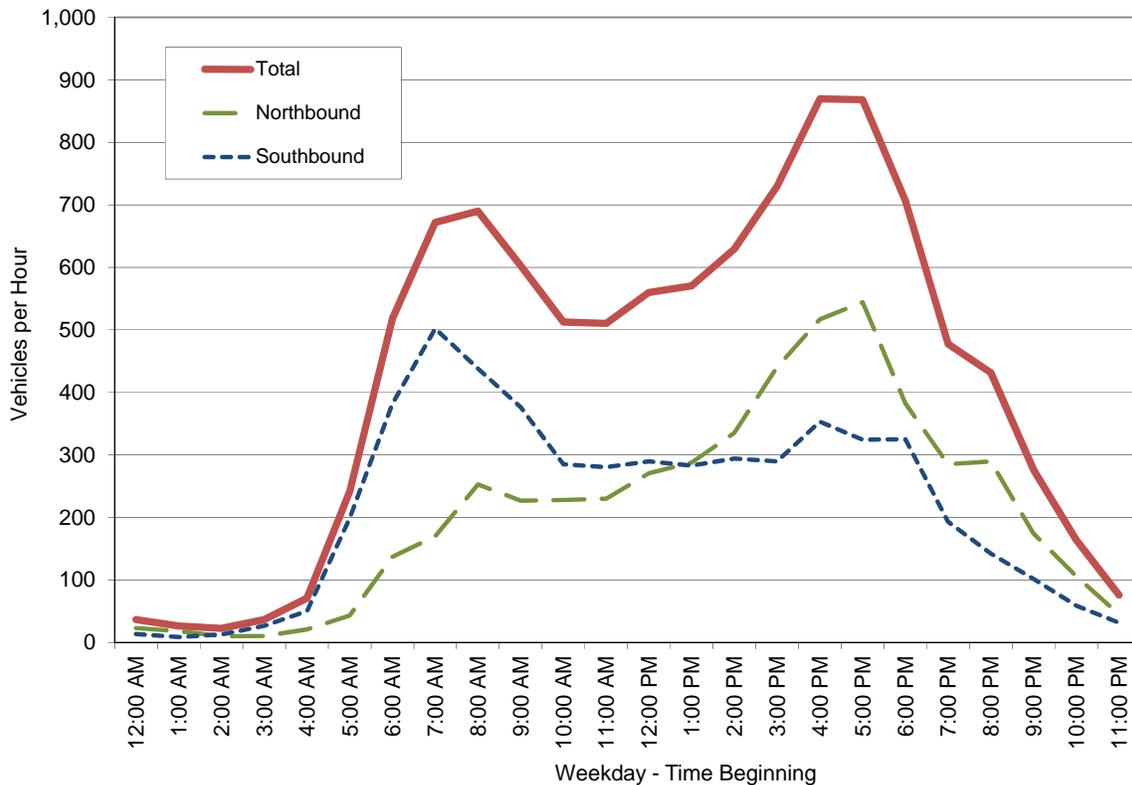
Traffic Volumes

Existing (2012) Volumes

Hourly traffic data were collected on Tolt Avenue, south of Eugene Street, by All Traffic Data Services, Inc. for five days beginning June 18, 2012. The counts indicated that the current Average Weekday Daily Traffic (AWDT) on Tolt Avenue is 10,300 vehicles per day. The hourly data were compiled to confirm the times of day in which the peak traffic periods occur. Figure 2

shows the hourly volumes for a typical weekday. The data indicate a traditional daily traffic pattern, with distinct peaks occurring during the AM and PM periods. Higher volumes occur in the southbound direction during the AM peak period, and in the northbound direction during the PM peak period. The highest vehicles volumes of the day, about 870 vehicles per hour, occur during the PM peak period.

Figure 2. Existing (2012) Weekday Hourly Vehicle Volumes on Tolt Avenue



Source: All Traffic Data, counts taken the week of June 18, 2012.

Figure 3 shows PM peak hour intersection turning movement volumes at key Tolt Avenue intersections. Turning movement counts were conducted at Morrison Street, Commercial Street, Eugene Street, and NE 40th Street/Blanche Street on May 16, 2012 by All Traffic Data Services, Inc. Turning movement volumes at Entwistle Street were estimated based upon 2007 traffic count data provided by the Washington State Department of Transportation (WSDOT) and field observation, and were balanced against the adjacent intersection counts.



All traffic counts collected for the Tolt Avenue corridor analysis are provided in Attachment A.

Four of the intersections (Morrison Street, Commercial Street, Entwistle Street, and NE 40th Street/Blanche Street) are defined as key intersections in the transportation element of the City's *Comprehensive Plan*.¹ The fifth analysis intersection, Eugene Street, was included as an analysis intersection because it provides access to and from a small shopping center that serves as a downtown activity center. It should be noted that the west leg of this intersection is not a public street; it is an access driveway for the shopping center.

The intersection of SR 203/Tolt Hill Road was not included as a study intersection because it is located outside of the Carnation city limits. However, this intersection has previously been studied by WSDOT. Relevant operational and safety information about the SR 203/Tolt Hill Road intersection obtained from the previous WSDOT studies is included in this memorandum; WSDOT materials related to the SR 203/Tolt Hill Road analysis are provided in Attachment B.

Future (2035) Traffic Volumes

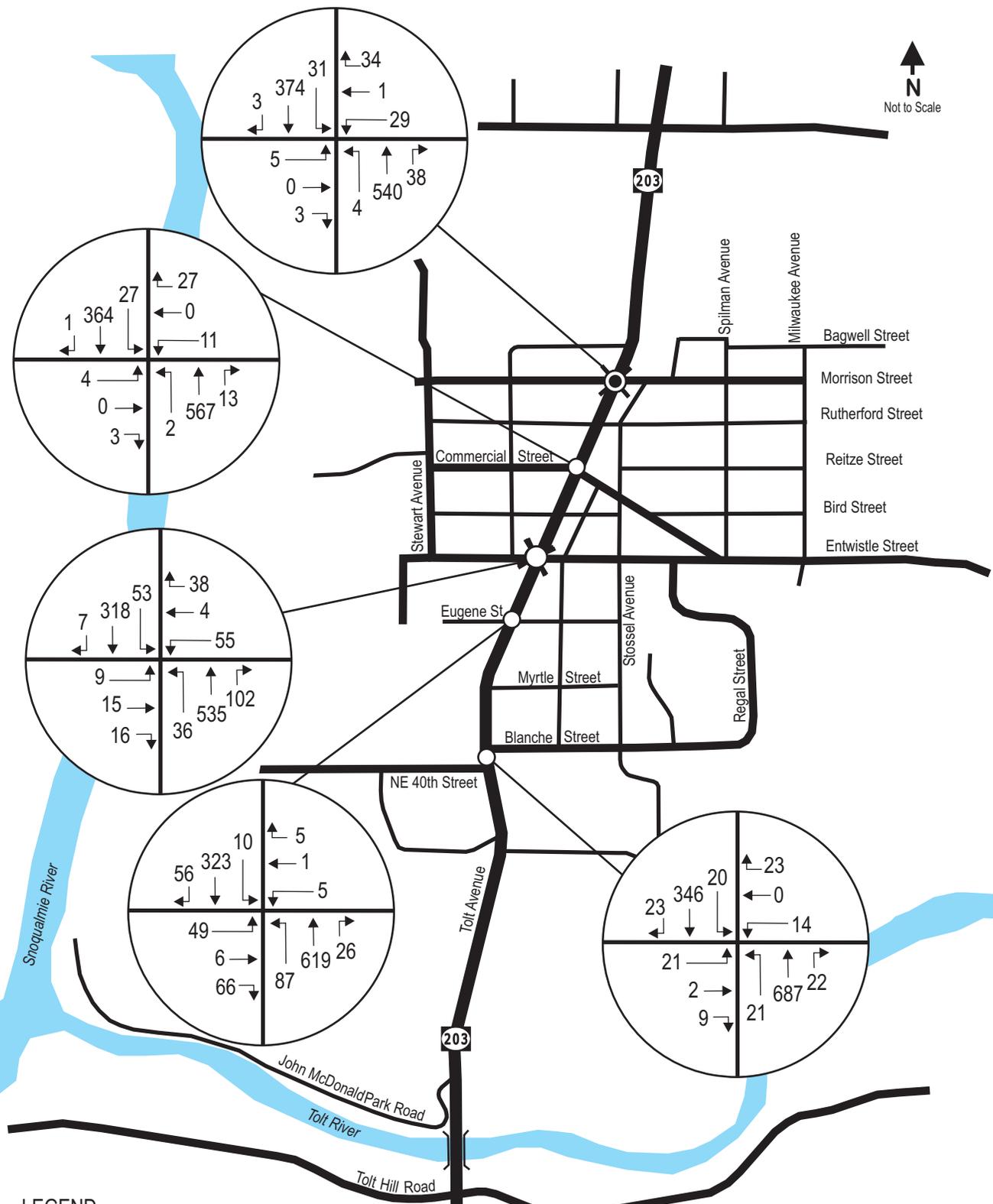
Future analysis was conducted for the future planning year of 2035. Estimates of 2035 vehicle volumes were based upon future forecasts for Tolt Avenue obtained from the Puget Sound Regional Council (PSRC). The PSRC forecasts are based upon their regional model of the Preferred Alternative for *Transportation 2040*,² which analyzes long-range land use forecasts, and includes future development expected to occur locally as well as regionally.³ The PSRC traffic volume forecasts indicated an expected average annual vehicle growth of about 1.0%, between 2006 and 2035.

To estimate expected 2035 vehicle volumes, the 1.0% average annual growth rate was applied to the existing (2012) volumes. This results in an expected AWDT of 12,950 on Tolt Avenue. Figure 4 shows the PM peak hour intersection turning movement volumes for projected 2035 conditions.

¹ City of Carnation, *Comprehensive Plan, Transportation Element*, September 2011.

² Puget Sound Regional Council, *Transportation 2040: Toward a Sustainable Transportation System*, May 20, 2010.

³ Puget Sound Regional Council, *Travel model forecasts for SR 203, north of Tolt Hill Road*, provided by Kris Overby to Jennifer Barnes, Heffron Transportation, on March 20, 2012.

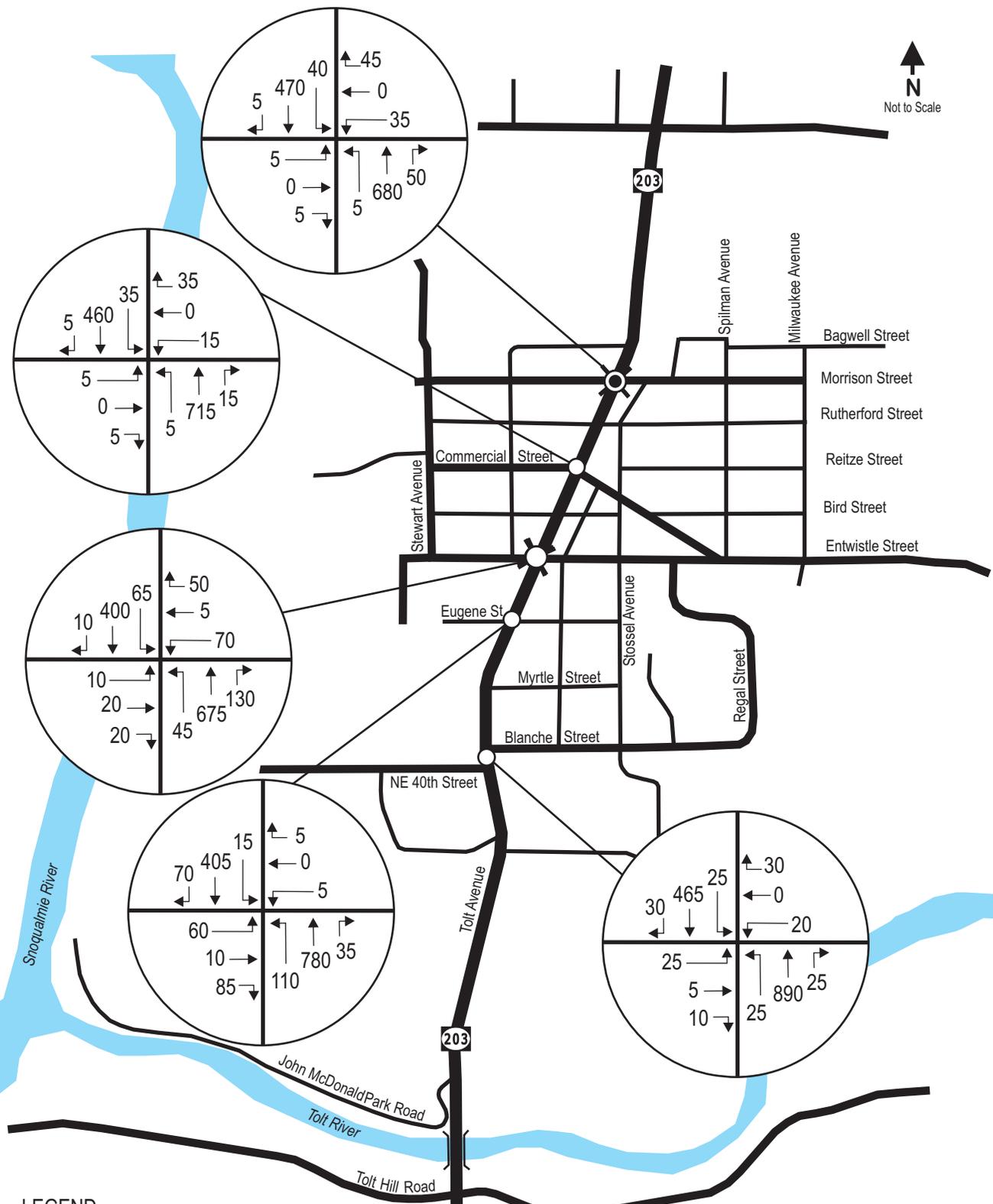


- LEGEND**
- Traffic Signal
 - Pedestrian Signal
 - ←XX PM Peak Hour Volume

Figure 3
**EXISTING (2012) INTERSECTION VOLUMES
 PM PEAK HOUR**



Source: All Traffic Data Services, Inc.; Heffron Transportation, Inc.



- LEGEND**
- Traffic Signal
 - Pedestrian Signal
 - ←XX PM Peak Hour Volume

Figure 4
FUTURE (2035) INTERSECTION VOLUMES
PM PEAK HOUR





Level of Service

Level of service (LOS) analysis was performed at the study area intersections for the PM peak hour conditions. Level of service is a qualitative measure used to characterize traffic operating conditions. Six letter designations, “A” through “F,” are used to define level of service. LOS A and B represent the lowest level of traffic congestion, and LOS C and D represent intermediate traffic flow with some delay. LOS E indicates that traffic conditions are at or approaching congested conditions and LOS F indicates that traffic conditions are at a high level of congestion with unstable traffic flow. The City of Carnation has adopted a standard of LOS D for city intersections.⁴ SR 203 has been designated as a Tier 2 regionally significant highway by the PSRC,⁵ and as such, it has a standard of LOS D that has been established by the PSRC.⁶ Levels of service for the study area intersections were analyzed using methodologies presented in the *Highway Capacity Manual*.⁷

Level of service for intersections is defined in terms of the average delay per vehicle in seconds. For a signalized or all-way stop-controlled intersection, level of service is based upon average delay for all vehicles traveling through the intersection. The level of service for a one-way or two-way stop-controlled intersection is determined by the average delay for each minor (stop-controlled) movement, which is related to the availability of gaps in the main street's traffic flow and the ability of a driver to enter or pass through those gaps. Table 1 shows the level of service criteria for signalized and unsignalized intersections, as defined in the *Highway Capacity Manual*. Stop-controlled intersections have different level of service threshold values than signalized intersections, primarily because drivers expect different levels of performance from different types of transportation facilities. In general, stop-controlled intersections are expected to carry lower volumes of traffic than signalized intersections. Therefore, for the same LOS, a smaller amount of delay is acceptable at stop-controlled intersections than for signalized intersections.

⁴ City of Carnation, September 2011.

⁵ Puget Sound Regional Council, Regionally Significant State Highways, King County, September 17, 2009.

⁶ Washington State Department of Transportation, Level of Service Standards for Washington State Highways, January 1, 2010.

⁷ Transportation Research Board. Highway Capacity Manual. Special Report 209. Washington, DC, 2010.



Table 1. Level of Service Criteria

Level of Service	Average Delay Per Vehicle		General Description
	Signalized	Unsignalized	
A	≤ 10.0 seconds	≤ 10.0 seconds	Free flow
B	10.1 – 20.0 seconds	10.1 – 15.0 seconds	Stable flow (slight delays)
C	20.1 – 35.0 seconds	15.1 – 25.0 seconds	Stable flow (acceptable delays)
D	35.1 – 55.0 seconds	25.1 – 35.0 seconds	Approaching unstable flow (tolerable delay)
E	55.1 – 80.0 seconds	35.1 – 50.0 seconds	Unstable flow (approaching intolerable delay)
F	> 80.0 seconds	> 50.0 seconds	Forced flow (jammed)

Source: Transportation Research Board, Highway Capacity Manual, 2010.

Table 2 summarizes PM peak hour level of service at the study intersections for existing and projected 2035 conditions, with existing intersection geometry.

Existing Level of Service

Tolt Avenue within the Carnation City Limits

As shown in Table 2, all study intersections except Tolt Avenue/Eugene Street are operating at LOS C or better under existing conditions. At Tolt Avenue/Eugene, stop-controlled left-turn movements are currently operating at LOS F in the eastbound direction and LOS E in the westbound direction.

SR 203/Tolt Hill Road Intersection

Level of service analysis previously completed by WSDOT at the SR 203/Tolt Hill Road intersection was also reviewed. The analysis indicated that in 2006, this intersection operated at LOS F, with an average delay of 79.0 seconds per vehicle on eastbound Tolt Hill Road.⁸ Since traffic volumes on SR 203 have increased since 2006, it is expected that the SR 203/Tolt Hill Road continues to operate at LOS F during the PM peak hour under existing conditions. All materials provided by WSDOT that are related to the SR 203/Tolt Hill Road analysis are included in Attachment B.

⁸ Washington State Department of Transportation, SR 203 and Tolt Hill Road/NE 32nd Street Intersection, MP 5.20, Traffic Analysis, memorandum prepared by Rick Roberts and Bing Nguyen, April 18, 2006.

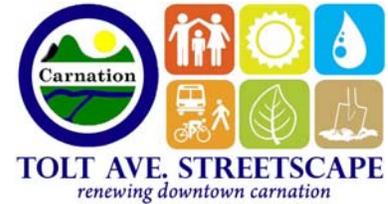


Table 2. Level of Service – Existing and Projected Future Conditions – PM Peak Hour

Intersection	Existing (2012) Conditions		Future (2035) Conditions	
	LOS	Delay	LOS	Delay
Signalized Intersection				
Tolt Avenue/Entwistle Street	A	8.3	B	10.6
Two-Way Stop-Controlled Intersections				
Tolt Avenue/Morrison Street				
Eastbound movement (stop control)	C	22.2	D	30.1
Westbound movement (stop control)	C	20.1	D	31.1
Northbound movement (free)	A	0.1	A	0.1
Southbound movement (free)	A	8.9	A	9.6
Tolt Avenue/Commercial Street				
Eastbound movement (stop control)	C	21.1	E	37.6
Westbound movement (stop control)	C	18.5	D	34.6
Northbound movement (free)	A	0.1	A	0.1
Southbound movement (free)	A	1.0	A	1.4
Tolt Avenue/Eugene Street				
Eastbound left-through (stop control)	F	54.0	F	>200
Eastbound right (stop control)	B	11.1	B	12.3
Westbound left (stop control)	E	44.8	F	105.1
Westbound right-through (stop control)	C	16.4	C	15.4
Northbound movement (free)	A	2.0	A	2.9
Southbound movement (free)	A	0.4	A	0.6
Tolt Avenue/NE 40th Street/Blanche Street				
Eastbound movement (stop control)	C	23.1	E	40.8
Westbound movement (stop control)	C	19.9	D	31.4
Northbound movement (free)	A	0.5	A	0.7
Southbound movement (free)	A	0.8	A	1.1

Source: Heffron Transportation, July 2012.

1. Level of service.
2. Average seconds of delay per vehicle.

Future (2035) Level of Service

Tolt Avenue within the Carnation City Limits

In 2035, the signalized Tolt Avenue/Entwistle Street intersection is projected to operate at LOS B and all movements at Tolt Avenue/Morrison Avenue are expected to remain at LOS D or better.



Future traffic growth is projected to cause the eastbound stop-controlled movement at Tolt Avenue/Commercial Street to drop to LOS E during the PM peak hour. As shown previously on Figure 4, the projected 2035 PM peak hour east-west volumes at this intersection are relatively low (about 10 eastbound and 50 westbound vehicles during the PM peak) and would not meet warrants for signalization. However, if delay for left-turning vehicles reaches unacceptable levels during peak traffic conditions, drivers have the option of utilizing the city street grid and choosing an alternate route to Entwistle Street so that they can turn or cross at the signalized intersection.

Future traffic growth is also expected to further degrade operation of the eastbound and westbound stop-controlled movements at Tolt Avenue/Eugene Street, which are operating at LOS E/F under existing conditions. A northbound left-turn lane is being considered at the Eugene Street intersection. Analysis indicates that addition of this lane would not really affect the overall intersection level of service, because the delay is experienced on the east and west intersection approaches. However, addition of the northbound left-turn lane would reduce delay for through-vehicles, by taking vehicles waiting to turn left into the shopping center parking lot out of the vehicle travel lanes. It could also have potential safety benefits, discussed later in this memorandum.

Analysis indicates that construction of a northbound receiving lane on the north side of Tolt Avenue/Eugene Street would improve operation of the eastbound and westbound movements to LOS D or better through 2035. This would allow outbound vehicles from the shopping center driveway to make a two-stage left turn, pulling first across the southbound travel lane into the receiving lane, and then merging into the northbound travel lane when there is an adequate gap. Since the majority of the minor street traffic volume occurs at the shopping center driveway, improving operation for that movement would provide enough additional capacity to improve operation for the westbound intersection movement as well.

Alternatively, there is another route available for eastbound vehicles exiting the shopping center (which comprise the majority of east-west traffic at this intersection) that allows them to utilize the signalized intersection at Entwistle Street. There is an alley, parallel to Tolt Avenue, which connects the shopping center parking lot directly to Entwistle Street. If delay for eastbound left-turning vehicles reaches unacceptable levels, drivers may choose this alternate exit route and turn left at the signal. The alley is visible, but could also be signed to call drivers' attention to the alternate route. This would require coordination between the City and the property owner. Westbound vehicles at Eugene Street can also opt to use the street grid system and enter Tolt Avenue at Entwistle Street, if peak hour delay reaches unacceptable levels.



Future traffic growth is projected to cause the eastbound stop-controlled movement at Tolt Avenue/NE 40th Street to drop to LOS E during the PM peak hour. As shown previously on Figure 4, the projected 2035 PM peak hour eastbound volume at this intersection is relatively low (40 eastbound vehicles during the PM peak hour) and would not meet warrants for signalization. It is a possible that a mini-roundabout could improve eastbound-westbound operation while still maintaining northbound-southbound operations at acceptable levels; however, this would require acquisition of additional right-of-way.

It is noted that this intersection is currently operating at LOS C; while the eastbound movement is projected to drop to LOS E by 2035, this level would not be expected to occur for many years. The City has a planned future roadway connection that would complete the local street grid, and provide an alternate route between the park and downtown Carnation, providing potential relief for the Tolt Avenue/NE 40th Street intersection.

Figure 5 shows future roadway connections that the City of Carnation has identified to support future local traffic growth.⁹ The Larson Avenue NE connector would connect Entwistle Street and NE 40th Street, providing an alternate north-south route to the west of Tolt Avenue, and allowing motorists to bypass the Tolt Avenue/NE 40th Street intersection. Completion of this project would be expected to relieve potential congestion at the intersection in two different ways. First, it would accommodate local north-south trips between destinations in western Carnation without requiring drivers to travel on Tolt Avenue at all. Second, for drivers proceeding farther north on Tolt Avenue than Entwistle, the Larson Avenue NE connection would provide a route to Entwistle Street, where drivers could choose to turn left at the signalized intersection.

NE 40th Street serves as the main entrance to Tolt McDonald Park. With the City's existing roadway network, vehicles accessing the park must travel through the Tolt Avenue/NE 40th Street intersection. Special events held at the park (such as concerts or other summer events) can also generate higher levels of traffic congestion at Tolt Avenue/NE 40th Street. Depending the day and time of an event, this may or may not coincide with the weekday PM peak hour. The planned Larson Avenue NE connection would also relieve congestion in these situations, by allowing for more than one route between the park and the surrounding roadway network. In addition, it would provide easier access to downtown Carnation from the park, because drivers would not need to turn left on Tolt Avenue to head downtown.

⁹ City of Carnation, September 2011.



LEGEND

-  Traffic Signal
-  Pedestrian Signal
-  Planned Future Road Connection

Figure 5
**FUTURE PLANNED CITY
ROADWAY CONNECTIONS**





Although average delay at the minor stop-controlled movement would be expected to increase as traffic volumes increase, analysis indicates that the two-lane width of Tolt Avenue would accommodate future traffic volumes projected through 2035. With or without implementation of the corridor plan concepts, expected east-west vehicle volumes on the minor intersection legs are relatively low; they would not justify widening of Tolt Avenue, nor would they likely meet warrants for additional traffic signals. With the exception of the eastbound traffic at Tolt Avenue/NE 40th street, peak period delay at the stop-controlled movements could be relieved by some drivers choosing alternate routes that would allow them to cross or turn on to Tolt Avenue at the signalized Entwistle intersection. Once the planned Larson Avenue NE connection is completed, vehicles, bicyclists and pedestrians on NE 40th Street would also have an alternate route to/from downtown Carnation. Thus, this planned project would not only support the *Tolt Avenue/SR 203 Corridor Plan*, it would complement it by finishing the city's street system for all potential users. The Tolt Avenue/Entwistle Street intersection, projected at LOS B under 2035 conditions, would have adequate excess capacity to accommodate increased east-west demand that could result from locally-generated traffic more fully utilizing the city's street grid system.

It should also be noted that with the corridor study and action plan, vehicles stopping for pedestrians at marked crosswalks could create additional gaps for vehicles turning into and out of minor stop-controlled streets along the corridor. This could potentially result in better levels of service for these movements than what has been projected.

SR 203/Tolt Hill Road Intersection

As described previously, level of service analysis previously completed by WSDOT indicated that SR 203/Tolt Hill Road is currently operating at LOS F during the PM peak hour. Without improvement, operation is expected to further degrade as traffic volumes on SR 203 grow. The WSDOT analysis indicated that either signalization or installation of a roundabout would address level of service issues at this intersection; signalization was projected to improve the intersection to LOS C in 2025, and a roundabout was projected to improve the intersection to LOS A. Of the two options, a roundabout was determined to provide better operational and safety improvement, but this option would likely require more right-of-way, and could be more constrained by nearby environmentally sensitive areas.¹⁰ Improvement of SR 203/Tolt Hill Road is not currently programmed. A concept plan completed for this intersection indicated that improvement of the intersection meets WSDOT priority criteria (though is unfunded), and recommended that more detailed design studies be conducted to determine the most appropriate improvement.¹¹ All

¹⁰ Washington State Department of Transportation, April 18, 2006.

¹¹ Washington State Department of Transportation, SR 203 Pilot Study, Corridor Concept Plan. Prepared by Makers, Transpo Group, and Langlow Associates, 2005.



materials provided by WSDOT that are related to the SR 203/Tolt Hill Road analysis are included in Attachment B.

Either of the potential improvements identified at SR 203/Tolt Hill Road would complement the *Tolt Avenue/SR 203 Corridor Plan* by improving operation and safety at the south end of the corridor, and also providing a strong visual cue to motorists and bicyclists that they are entering Carnation.

Safety Conditions

Collision data obtained from WSDOT for the site vicinity were assessed to determine the existing traffic safety conditions in the area. Table 3 summarizes the most recent data available, recorded from January 1, 2006 through August 31, 2011 (over 5½ years).

Speed measurements were also performed on Tolt Avenue, to the south of Eugene Street, as part of the machine counts that were conducted during the week of June 18, 2012. The speed measurements indicated that the 85th-percentile speeds¹² in both directions ranged from 28 to 31 mph on all days measured; the overall 85th-percentile speed for the corridor was measured right at the speed limit of 30 mph. The data indicated that in the northbound direction, about 3 to 5% of total vehicles exceeded the speed limit during weekdays. In the southbound direction, 10 to 17% exceeded the speed limit. The difference may be attributed to the location of the counters, where northbound traffic was inbound toward downtown, and southbound traffic was outbound. A higher proportion of total traffic exceeded the speed limit on Saturday (over 7% northbound and 17% southbound) when traffic volumes were lower. The 95th-percentile speeds ranged from 30 to 34 mph; the 95th-percentile speed for the overall corridor was 33 mph. This data indicate that the majority of drivers traveling through Carnation on Tolt Avenue drive within the speed limit, but speeding does regularly occur. The data also indicate that vehicles heading out of the city may be more likely to exceed the speed limit than inbound drivers.¹³ Speed data collected for this study is provided in Attachment C.

The possibility that more drivers are speeding near and outside the city limits is also supported by a speed study conducted by WSDOT in 2006 near Tolt Hill Road. This study found that vehicle speeds at this location greatly exceeded the 30 mph speed limit, with measured 85th

¹² The 85th-percentile speed is the speed that is exceeded by 15% of the vehicles. It is typically used by agencies to establish the appropriate speed limit for a street or highway.

¹³ Traffic speeds were measure by All Traffic Data during the week of June 18, 2012.



percentile speeds of 50 mph in the northbound direction and 43 mph in the southbound direction (see Attachment B).¹⁴

Table 3 shows that collisions have occurred at locations spread out through the corridor and have not been concentrated at any one location. This indicates no unusual safety conditions related to specific intersection or roadway geometry. The highest number of collisions (average 1.9 collisions per year) has occurred at Tolt Avenue/Tolt Hill Road, outside of the Carnation city limits, which is not unusual for a high volume intersection. Based on the WSDOT study described above, it is also possible that more speeding is occurring on SR 203 at this location. As described previously, WSDOT has studied the possibility of improving this intersection, either by building a roundabout or adding turn lanes and a traffic signal. In addition to improving operations, either of these improvements would also improve safety conditions at Tolt Avenue/Tolt Hill Road.

Within Carnation, the highest number of collisions (average 1.1 collisions per year) occurred at Tolt Avenue/Eugene Street. Four of the six collisions were related to left turns. This is not unusual at locations where stop-controlled movements are experiencing high levels of delay; drivers on the minor legs may try to take inadequate gaps in the mainline vehicle traffic to cross or turn on to the major street. The other two collisions were northbound rear end collisions. As discussed previously, addition of a northbound left-turn lane is under consideration at this location. While addition of the lane would not be expected to noticeably affect the overall intersection level of service, it could enhance safety and reduce delay to through-vehicles by taking vehicles waiting to turn left into the shopping center parking lot out of the vehicle travel lanes. This would reduce the potential for rear end collisions at this location.

Corridor-wide, over one-third of the total collisions that have occurred have been rear end collisions. In addition, of the collision classified as “Other”, the majority involved collisions with fixed objects or parked cars. These types of collisions are generally the result of drivers not paying attention and/or being unaware that they are approaching conditions in which they need to be prepared to stop or slow down. None of the collisions that were reported during the study period resulted in a fatality. Four collisions involved a pedestrian or bicyclist; these collisions were also spread out along the corridor.

Landscaping proposed with the corridor study and action plan would be expected to have a calming effect on roadway operations, providing a visual cue to drivers that they have arrived

¹⁴ Washington State Department of Transportation, April 18, 2006.



somewhere. The presence of sidewalks, crosswalks, and bicycle lanes (or sharrows) will also provide strong visual cues that pedestrians and bicyclists are also travelers along the corridor. Not only would these elements reduce the potential for conflict between vehicles, pedestrians and bicyclists, but slowing of vehicle traffic would also reduce the potential for conflict.

Table 3. Historical Collision Summary Along Tolt Avenue (1/1/2006 – 8/31/2011)

Tolt Avenue Intersection	Collision Type								Total for 5.7 Years	Avg/Year
	Head-On	Rear-End	Side-Swipe	Right Turn	Left Turn	Right Angle	Ped/Cycle	Other		
NE 55 th Street	0	0	1	0	0	0	0	0	1	0.2
Morrison Street	1	0	0	0	1	0	1	2	5	0.9
Rutherford Street	0	1	0	0	0	0	0	0	1	0.2
Commercial Street	0	2	0	0	1	1	0	1	5	0.9
Bird Street	0	1	0	0	0	0	1	1	3	0.5
Entwistle Street	0	1	0	0	3	0	0	0	4	0.7
Eugene Street	0	2	0	0	4	0	0	0	6	1.1
Blanche Street	0	2	0	0	0	0	1	0	3	0.5
NE 40 th Street	0	2	0	0	0	0	0	2	4	0.7
Tolt Hill Road	0	3	0	1	2	0	0	5	11	1.9
Tolt Avenue Roadway Segment	Collision Type								Total for 5.7 Years	Avg/Year
	Head-On	Rear-End	Side-Swipe	Right Turn	Left Turn	Right Angle	Ped/Cycle	Other		
NE 55 th Street – Morrison Street	0	2	0	0	0	0	0	0	2	0.4
Rutherford Street – Commercial Street	0	1	0	0	0	0	0	0	1	0.2
Bird Street – Entwistle Street	0	1	0	0	0	0	0	0	1	0.2
Entwistle Street – Eugene Street	0	1	0	0	0	0	0	1	2	0.4
Eugene Street – Myrtle Street	0	3	0	0	1	0	0	1	5	0.9
Myrtle Street – Blanche Street	0	0	0	0	0	0	0	1	1	0.2
NE 40 th Street – John McDonald Park Road	0	1	0	0	0	0	1	3	5	0.9
Total	1	23	1	1	12	1	4	17	60	

Source: Washington State Department of Transportation, May 2012; compiled by Heffron Transportation, June 2012.



Transit Characteristics

Bus service in Carnation is provided by King County Metro (Metro) Route 224. Bus stops are located at Tolt Avenue/Bird Street and Tolt Avenue/NE 40th Street. This route provides two-directional weekday service during the AM period (from about 6:00 A.M. to 11:00 A.M.) and the PM peak period (from about 3:00 P.M. to 7:30 P.M.). Route 224 provides service between Carnation and Fall City to the south, and Stillwater, Duval and Redmond to the north/northeast. This route terminates at the Redmond Transit Center, where passengers can transfer to or from routes that serve other regional destinations.

The corridor study and action plan is expected to improve conditions for transit users. As described previously, vehicles traveling on Tolt Avenue are expected to be easily accommodated by a two-lane road section through the future analysis year of 2035; this would include buses that are traveling among the other vehicular traffic. Proposed pedestrian amenities along the corridor will also improve conditions for passengers walking to and from the bus stop and waiting for the bus.

Non-Motorized Characteristics

Figure 6 shows major facilities that generate pedestrian and bicycle traffic within and near the Tolt Avenue corridor. Generators of non-motorized traffic include parks, schools, the library, bus stops, and local attractions such as Remlinger Farm, and Harold Berry Farm. The Snoqualmie Valley Trail is a major regional trail that is 31.5 miles long, connecting Duvall, Carnation, Fall City, Snoqualmie, North Bend, and Rattlesnake Lake (where it then connects to the John Wayne Pioneer Trail). Tolt McDonald Park also has numerous trails, including one along the Tolt River that connects to the Snoqualmie Valley Trail. The Carnation Central Business District is also considered a non-motorized traffic generator, as it serves as the community's center, with local businesses that appeal to both local citizens and visitors to the area. The weekly Farmer's Market and other special events also occur in central downtown area. It is expected that even if people drive to the downtown area and park, that they would walk between destinations once they get there.

As discussed previously, sidewalks are present along much of the Tolt Avenue corridor within the city limits. Shoulders of varying width are present at the south end of the corridor. City staff has indicated that sidewalk lighting along much of the corridor is inadequate. Marked crosswalks are provided at most minor street crossings along Tolt Avenue. While sidewalks vary in quality and width along the length of the corridor, they do accommodate north-south pedestrian travel

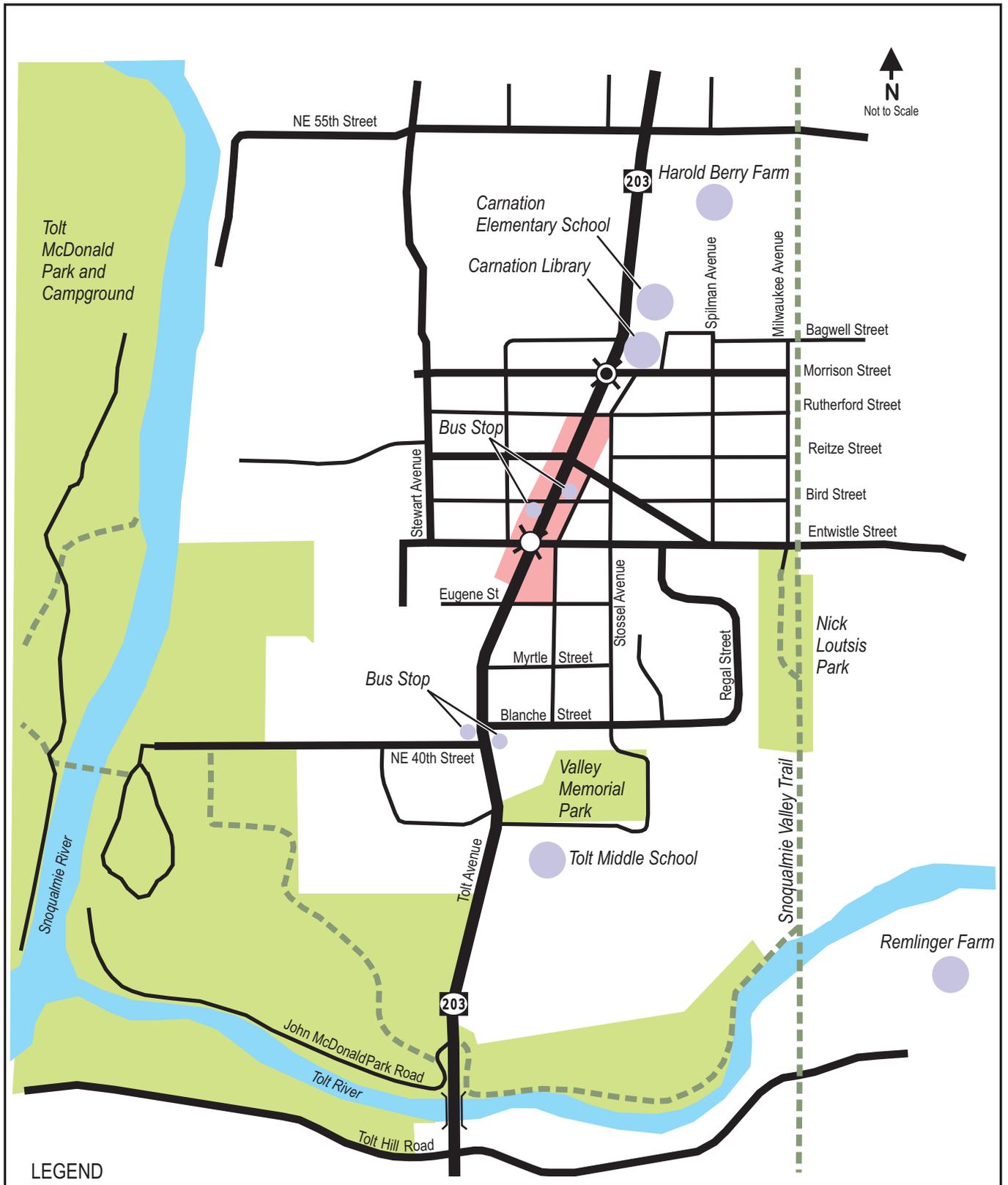


along each side of Tolt Avenue. However, there very few marked crosswalks across Tolt Avenue. Only four locations have crosswalks within the study corridor: there is one crosswalk at the south side of Tolt Middle School, one at Blanche Street (near the bus stop), one on each side of the signalized Entwistle intersection, and one at the Morrison Street pedestrian signal. For pedestrians who want to cross Tolt Avenue but are not near one of these intersections, they must decide either to walk to the nearest crosswalk (which could be several blocks away) or cross at an unmarked location. Crosswalk confusion is exacerbated by the existing curb ramps that lead to Tolt Avenue, but then are not connected to a crosswalk. In addition to creating uncertainty for pedestrians, the low number of crosswalks also limits the number of visual cues to drivers along the corridor that they should be aware of pedestrians.

Based upon the traffic count data collected in June 2012, the number of bicyclists traveling along Tolt Avenue ranged from about 100 to 300 per day. No bicycle lanes or markings for shared facilities are present along the corridor. In addition, the curb bulbs that are currently in place in downtown Carnation are about 10 feet wide, extending to the edge of the traveled way. The curb bulbs force the bicyclists into the general purpose lane that they must share with vehicles. (It is possible for bicyclists to weave into the parking lane at mid-block, and into the roadway travel lane at intersections, but weaving into and out of vehicular traffic flows raises more safety issues than just staying in the roadway travel lane).

The corridor study and action plan is expected to improve conditions for bicyclists. An off-street bicycle facility, bicycle lanes and/or sharrows proposed with the corridor study and action plan would improve safety conditions for bicyclists. An off-street facility would allow bicyclists to travel separately from vehicle traffic, and could potentially attract additional bicyclists who are not comfortable riding in general purpose highway lanes, mixed with trucks and other vehicular traffic, or adjacent to vehicle traffic in on-street bicycle lanes. Sharrows would not provide physical separation between bicycles and vehicles, but would indicate to bicyclists that they are welcome to travel along the corridor, and remind drivers that they need to share the road.

Wide sidewalks, improved lighting, and pedestrian amenities proposed with the corridor study and action plan would improve conditions for pedestrians. Provision of crosswalks at regular intervals would not only help direct pedestrians to where it would be safest to cross, but would remind drivers that pedestrians may be crossing the roadway.



LEGEND

-  Traffic Signal
-  Pedestrian Signal
-  Central Business District (CBD)
-  Park
-  Trail
-  Non-motorized Generator

Figure 6

NON-MOTORIZED TRAFFIC GENERATORS





Effect of Potential Plan Components on Transportation

The corridor study and action plan proposes to maintain two vehicle travel lanes (one in each direction) on Tolt Avenue. Analysis presented in this memorandum indicates that two lanes would be adequate to accommodate existing and projected future (through 2035) traffic volumes on the corridor. Plan components related to mobility and safety for pedestrians, bicyclists and motorists within the Tolt Avenue corridor, as described in this report, are summarized as follows:

- A northbound left-turn lane is being considered at the Eugene Street intersection, where eastbound and westbound left-turn movements are currently operating at LOS E/F, and projected to be a high LOS F by 2035. Analysis indicates that addition of this lane would not really affect the overall intersection level of service, because the delay is experienced on the east and west intersection approaches. However, while addition of the lane would not be expected to noticeably affect the overall intersection level of service, it could enhance safety and reduce delay to through-vehicles by taking vehicles waiting to turn left into the shopping center parking lot out of the vehicle travel lanes. This would reduce the potential for rear end collisions at this location.
- Analysis indicates that construction of a northbound receiving lane on the north side of Tolt Avenue/Eugene Street would improve operation of the eastbound and westbound movements to LOS D or better through 2035. This would allow outbound vehicles from the shopping center driveway to make a two-stage left turn, pulling first across the southbound travel lane into the receiving lane, and then merging into the northbound travel lane when there is an adequate gap. Since the majority of the minor street traffic volume occurs at the shopping center driveway, improving operation for that movement would provide enough additional capacity to improve operation for the westbound intersection movement as well.
- Alternatively, there is an existing alley that is parallel to Tolt Avenue, which connects the shopping center parking lot directly to Entwistle Street. If delay for eastbound left-turning vehicles reaches unacceptable levels, drivers may choose this alternate exit route and turn left at the signal. The alley is visible, but could also be signed to call drivers' attention to the alternate route. This would require coordination between the City and the property owner. Westbound vehicles at Eugene Street can also opt to use the street grid system and enter Tolt Avenue at Entwistle Street, if peak hour delay reaches unacceptable levels. The signalized Tolt Avenue/Entwistle Street intersection is projected to operate at LOS B in 2035 so would have adequate capacity to accommodate increased east-west demand.
- At Tolt Avenue/NE 40th Street/Blanche Street, the relatively low east-west volumes make it unlikely that the intersection would meet traffic signal warrants. It is a possible that a mini-roundabout could improve eastbound-westbound operation while still



maintaining northbound-southbound operations at acceptable levels; however, this would require acquisition of additional right-of-way. It is noted that this intersection is currently operating at LOS C; while the eastbound movement is projected to drop to LOS E by 2035, this level would not be expected to occur for many years. The most effective solution at this intersection would be completion of the City's planned Larson Avenue NE connector, which would eliminate some local trips from the Tolt Avenue/NE 40th Street intersection. It would accommodate local north-south trips between destinations in western Carnation without requiring motorists to travel on Tolt Avenue at all. For drivers proceeding farther north on Tolt Avenue than Entwistle, the Larson Avenue NE connection would also provide a route to Entwistle Street, where drivers could choose to turn left at the signalized intersection.

- The City's planned Larson Avenue NE connection would complement the *Tolt Avenue/SR 203 Corridor Plan*. This project would complete the city street grid, and would provide an alternate route for pedestrians, bicyclists and motorists traveling between downtown Carnation and Tolt McDonald Park.
- Vehicles stopping for pedestrians at marked crosswalks could also create additional gaps for vehicles turning into and out of minor stop-controlled streets along the corridor. This could potentially result in better levels of service for these movements than what has been projected.
- Landscaping proposed with the corridor study and action plan would be expected to have a calming effect on roadway operations, providing a visual cue to drivers that they have arrived somewhere. The presence of sidewalks, crosswalks, and bicycle lanes (or sharrows) will also provide strong visual cues that pedestrians and bicyclists are also travelers along the corridor. Not only would these elements reduce the potential for conflict between vehicles, pedestrians and bicyclists, but slowing of vehicle traffic would also reduce the potential for conflict.
- The corridor study and action plan is expected to improve conditions for transit users. As described previously, vehicles traveling on Tolt Avenue are expected to be easily accommodated by a two-lane road section through the future analysis year of 2035; this would include buses that are traveling among the other vehicular traffic. Proposed pedestrian amenities along the corridor will also improve conditions for passengers walking to and from the bus stop and waiting for the bus.
- An off-street bicycle facility, bicycle lanes and/or sharrows proposed with the corridor study and action plan would improve safety conditions for bicyclists. An off-street facility would allow bicyclists to travel separately from vehicle traffic, and could potentially attract additional bicyclists who are not comfortable riding in general purpose highway lanes, mixed with trucks and other vehicular traffic, or adjacent to vehicle traffic in on-street bicycle lanes. Sharrows would not provide that physical



separation, but would indicate to bicyclists that they are welcome to travel along the corridor, and remind drivers that they need to share the road.

- Wide sidewalks, improved lighting, and pedestrian amenities proposed with the corridor study and action plan would improve conditions for pedestrians. Provision of crosswalks at regular intervals would not only help direct pedestrians to where it would be safest to cross, but would remind drivers that pedestrians may be crossing the roadway.
- WSDOT has identified a need for improvement of SR 203/Tolt Hill Road. Although improvement of this intersection is currently unfunded, either of the potential improvements identified at this intersection (roundabout or signalization) would complement the *Tolt Avenue/SR 203 Corridor Plan* by improving operation and safety at the south end of the corridor, and also providing a strong visual cue to motorists and bicyclists that they are entering Carnation.

Consistency with Policies

Local, regional, and state transportation policies were reviewed for consistency with the proposed corridor study and action plan concepts:

- Concept alternatives proposed during the visioning phase are consistent with City of Carnation transportation policies, as defined in the transportation element of the *Comprehensive Plan*.¹⁵ Policies under Goal T-3 specifically call for reducing the pedestrian barrier created by Tolt Avenue, and creating a pedestrian-oriented downtown area. This goal explicitly recognizes pedestrian and bicycle travel as a basic means of transportation. Policies under Goal T-2 call for development of a balanced, safe, and efficient multimodal transportation system that serves all persons, special needs populations, and activities in the community.
- Concept alternatives proposed during the visioning phase are consistent with the PSRC's *Transportation 2040 Long Range Plan*,¹⁶ which encourages more efficient transportation systems through multimodal improvements in Urban Growth Areas, as well as implementation of Complete Streets practices.
- Concept alternatives proposed during the visioning phase are consistent with principles set forth in WSDOT's *Main Street Highways Report*,¹⁷ which proposes a

¹⁵ City of Carnation, September 2011.

¹⁶ Puget Sound Regional Council, May 20, 2010.

¹⁷ Washington State Department of Transportation, 2012 Report to the Joint Transportation Committee, Main Street Highways report per 2011-13 Transportation Budget Chapter 367, Section 310(10), December 1, 2011.



grant program that would help cities fund improvements to highways that also function as a city's main street. The purpose of the program is to encourage street designs that safely and effectively meet the needs of all users, including bicyclists, pedestrians, motorists, and public transportation users. The program is also intended to protect and preserve community environment and character. Sample construction elements that are specified include crossing improvements, streetscape, gateway treatments, sidewalks, lighting, Americans with Disabilities Act (ADA) facilities, bicycle facilities, and traffic calming measures. The grant program was facilitated by the Washington State Legislature under House Bill (HB) 1071, which was signed into law on May 5, 2011. This law requires that WSDOT establish a Complete Streets Grant Program.

Attachments:

Attachment A: Traffic Counts

Attachment B: WSDOT Data/Studies Related to SR 203/Tolt Hill Road intersection

Attachment C: Speed Counts



Attachment A

Traffic Counts

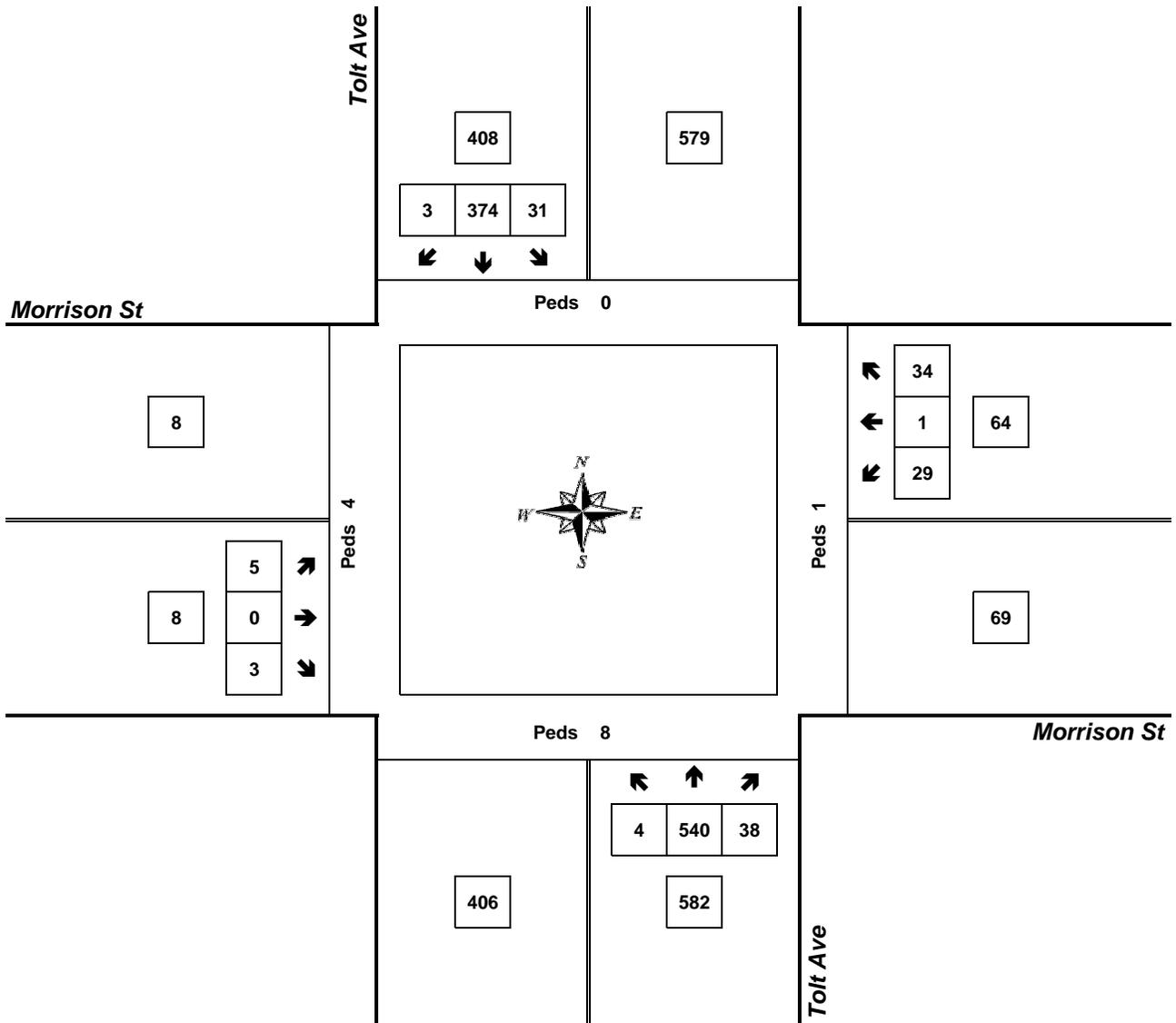
Peak Hour Summary



Mark Skaggs
(206) 251-0300

Tolt Ave & Morrison St

4:30 PM to 5:30 PM
Wednesday, May 16, 2012



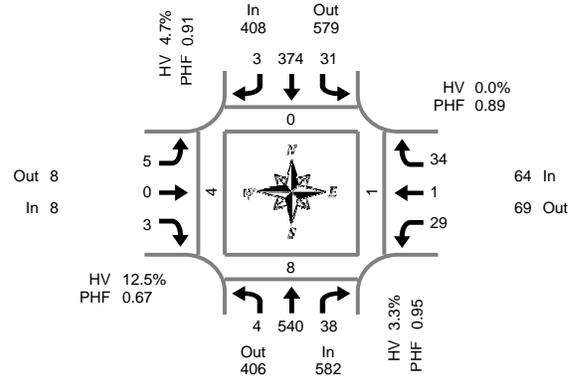
Approach	PHF	HV%	Volume
EB	0.67	12.5%	8
WB	0.89	0.0%	64
NB	0.95	3.3%	582
SB	0.91	4.7%	408
Intersection	0.96	3.7%	1,062

Count Period: 4:00 PM to 6:00 PM

Total Vehicle Summary



Mark Skaggs
(206) 251-0300



Tolt Ave & Morrison St

Wednesday, May 16, 2012
4:00 PM to 6:00 PM

15-Minute Interval Summary

4:00 PM to 6:00 PM

Interval Start Time	Northbound Tolt Ave				Southbound Tolt Ave				Eastbound Morrison St				Westbound Morrison St				Interval Total	Pedestrians Crosswalk			
	L	T	R	HV	L	T	R	HV	L	T	R	HV	L	T	R	HV		North	South	East	West
4:00 PM	0	118	6	7	9	87	1	14	2	0	1	0	5	1	4	2	234	0	2	0	1
4:15 PM	0	129	6	4	4	83	1	14	0	0	1	0	9	0	9	0	242	0	1	0	0
4:30 PM	0	135	6	6	8	98	0	9	1	0	0	0	11	0	6	0	265	0	3	0	1
4:45 PM	2	136	10	4	9	103	0	4	1	0	1	0	6	0	10	0	278	0	0	0	1
5:00 PM	1	126	13	0	7	82	2	2	2	0	1	0	6	0	12	0	252	0	3	0	0
5:15 PM	1	143	9	9	7	91	1	4	1	0	1	1	6	1	6	0	267	0	2	1	2
5:30 PM	1	159	10	5	7	69	0	1	0	0	2	0	5	1	9	0	263	0	0	0	1
5:45 PM	3	128	14	4	8	81	1	2	0	0	1	0	3	0	6	0	245	0	0	0	0
Total Survey	8	1,074	74	39	59	694	6	50	7	0	8	1	51	3	62	2	2,046	0	11	1	6

Peak Hour Summary

4:30 PM to 5:30 PM

By Approach	Northbound Tolt Ave				Southbound Tolt Ave				Eastbound Morrison St				Westbound Morrison St				Total	Pedestrians Crosswalk			
	In	Out	Total	HV	In	Out	Total	HV	In	Out	Total	HV	In	Out	Total	HV		North	South	East	West
Volume	582	406	988	19	408	579	987	19	8	8	16	1	64	69	133	0	1,062	0	8	1	4
%HV	3.3%				4.7%				12.5%				0.0%				3.7%				
PHF	0.95				0.91				0.67				0.89				0.96				

By Movement	Northbound Tolt Ave				Southbound Tolt Ave				Eastbound Morrison St				Westbound Morrison St				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	4	540	38	582	31	374	3	408	5	0	3	8	29	1	34	64	1,062
PHF	0.50	0.94	0.73	0.95	0.86	0.91	0.38	0.91	0.63	0.00	0.75	0.67	0.66	0.25	0.71	0.89	0.96

Rolling Hour Summary

4:00 PM to 6:00 PM

Interval Start Time	Northbound Tolt Ave				Southbound Tolt Ave				Eastbound Morrison St				Westbound Morrison St				Interval Total	Pedestrians Crosswalk			
	L	T	R	HV	L	T	R	HV	L	T	R	HV	L	T	R	HV		North	South	East	West
4:00 PM	2	518	28	21	30	371	2	41	4	0	3	0	31	1	29	2	1,019	0	6	0	3
4:15 PM	3	526	35	14	28	366	3	29	4	0	3	0	32	0	37	0	1,037	0	7	0	2
4:30 PM	4	540	38	19	31	374	3	19	5	0	3	1	29	1	34	0	1,062	0	8	1	4
4:45 PM	5	564	42	18	30	345	3	11	4	0	5	1	23	2	37	0	1,060	0	5	1	4
5:00 PM	6	556	46	18	29	323	4	9	3	0	5	1	20	2	33	0	1,027	0	5	1	3

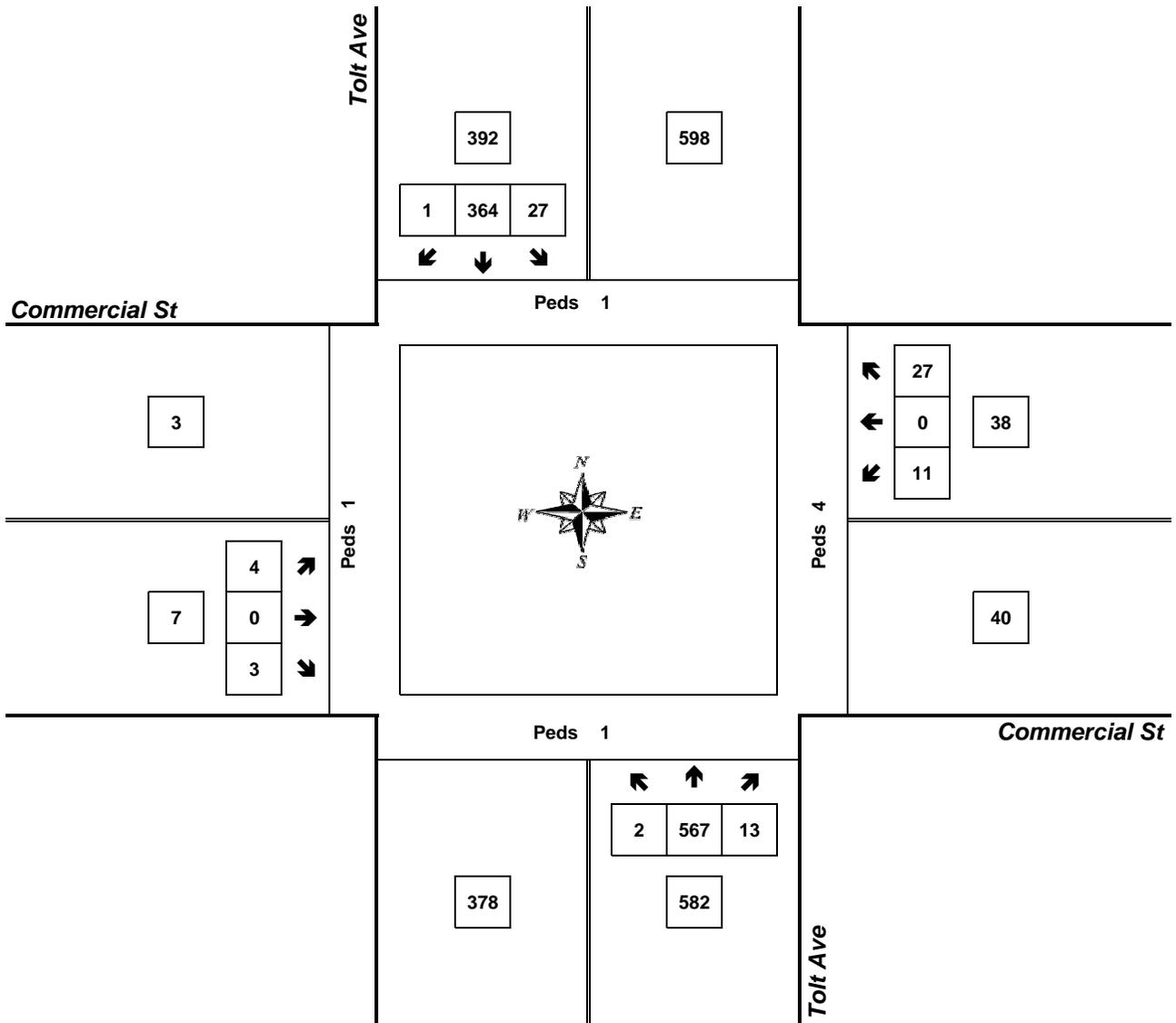
Peak Hour Summary



Mark Skaggs
(206) 251-0300

Tolt Ave & Commercial St

4:30 PM to 5:30 PM
Wednesday, May 16, 2012



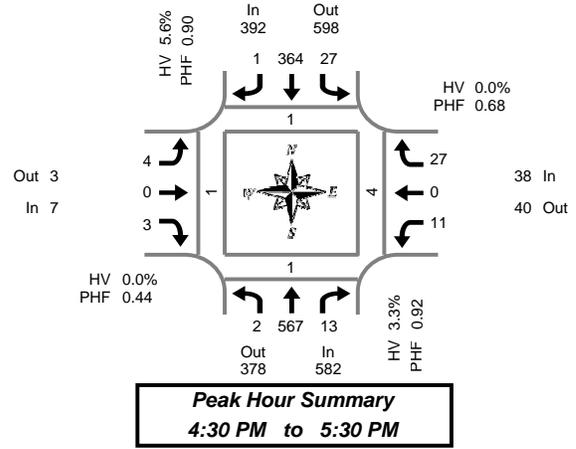
Approach	PHF	HV%	Volume
EB	0.44	0.0%	7
WB	0.68	0.0%	38
NB	0.92	3.3%	582
SB	0.90	5.6%	392
Intersection	0.97	4.0%	1,019

Count Period: 4:00 PM to 6:00 PM

Total Vehicle Summary



Mark Skaggs
(206) 251-0300



Tolt Ave & Commercial St

Wednesday, May 16, 2012
4:00 PM to 6:00 PM

15-Minute Interval Summary

4:00 PM to 6:00 PM

Interval Start Time	Northbound Tolt Ave				Southbound Tolt Ave				Eastbound Commercial St				Westbound Commercial St				Interval Total	Pedestrians Crosswalk			
	L	T	R	HV	L	T	R	HV	L	T	R	HV	L	T	R	HV		North	South	East	West
4:00 PM	1	125	4	8	3	81	2	10	1	1	0	0	4	0	6	0	228	0	0	1	1
4:15 PM	1	129	7	6	2	97	1	18	0	0	3	0	4	0	7	0	251	3	0	4	3
4:30 PM	0	135	1	6	9	100	0	10	2	0	2	0	2	0	8	0	259	0	0	0	0
4:45 PM	1	144	4	4	7	98	0	6	2	0	1	0	0	0	5	0	262	0	1	2	1
5:00 PM	0	136	2	0	4	82	1	3	0	0	0	0	4	0	10	0	239	0	0	2	0
5:15 PM	1	152	6	9	7	84	0	3	0	0	0	0	5	0	4	0	259	1	0	0	0
5:30 PM	2	157	5	4	4	72	1	1	3	0	1	0	4	0	10	0	259	0	0	3	1
5:45 PM	1	142	3	5	7	77	2	2	1	0	3	0	1	0	3	0	240	0	0	0	0
Total Survey	7	1,120	32	42	43	691	7	53	9	1	10	0	24	0	53	0	1,997	4	1	12	6

Peak Hour Summary

4:30 PM to 5:30 PM

By Approach	Northbound Tolt Ave				Southbound Tolt Ave				Eastbound Commercial St				Westbound Commercial St				Total	Pedestrians Crosswalk			
	In	Out	Total	HV	In	Out	Total	HV	In	Out	Total	HV	In	Out	Total	HV		North	South	East	West
Volume	582	378	960	19	392	598	990	22	7	3	10	0	38	40	78	0	1,019	1	1	4	1
%HV	3.3%				5.6%				0.0%				0.0%				4.0%				
PHF	0.92				0.90				0.44				0.68				0.97				

By Movement	Northbound Tolt Ave				Southbound Tolt Ave				Eastbound Commercial St				Westbound Commercial St				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	2	567	13	582	27	364	1	392	4	0	3	7	11	0	27	38	1,019
PHF	0.50	0.93	0.54	0.92	0.75	0.91	0.25	0.90	0.50	0.00	0.38	0.44	0.55	0.00	0.68	0.68	0.97

Rolling Hour Summary

4:00 PM to 6:00 PM

Interval Start Time	Northbound Tolt Ave				Southbound Tolt Ave				Eastbound Commercial St				Westbound Commercial St				Interval Total	Pedestrians Crosswalk			
	L	T	R	HV	L	T	R	HV	L	T	R	HV	L	T	R	HV		North	South	East	West
4:00 PM	3	533	16	24	21	376	3	44	5	1	6	0	10	0	26	0	1,000	3	1	7	5
4:15 PM	2	544	14	16	22	377	2	37	4	0	6	0	10	0	30	0	1,011	3	1	8	4
4:30 PM	2	567	13	19	27	364	1	22	4	0	3	0	11	0	27	0	1,019	1	1	4	1
4:45 PM	4	589	17	17	22	336	2	13	5	0	2	0	13	0	29	0	1,019	1	1	7	2
5:00 PM	4	587	16	18	22	315	4	9	4	0	4	0	14	0	27	0	997	1	0	5	1

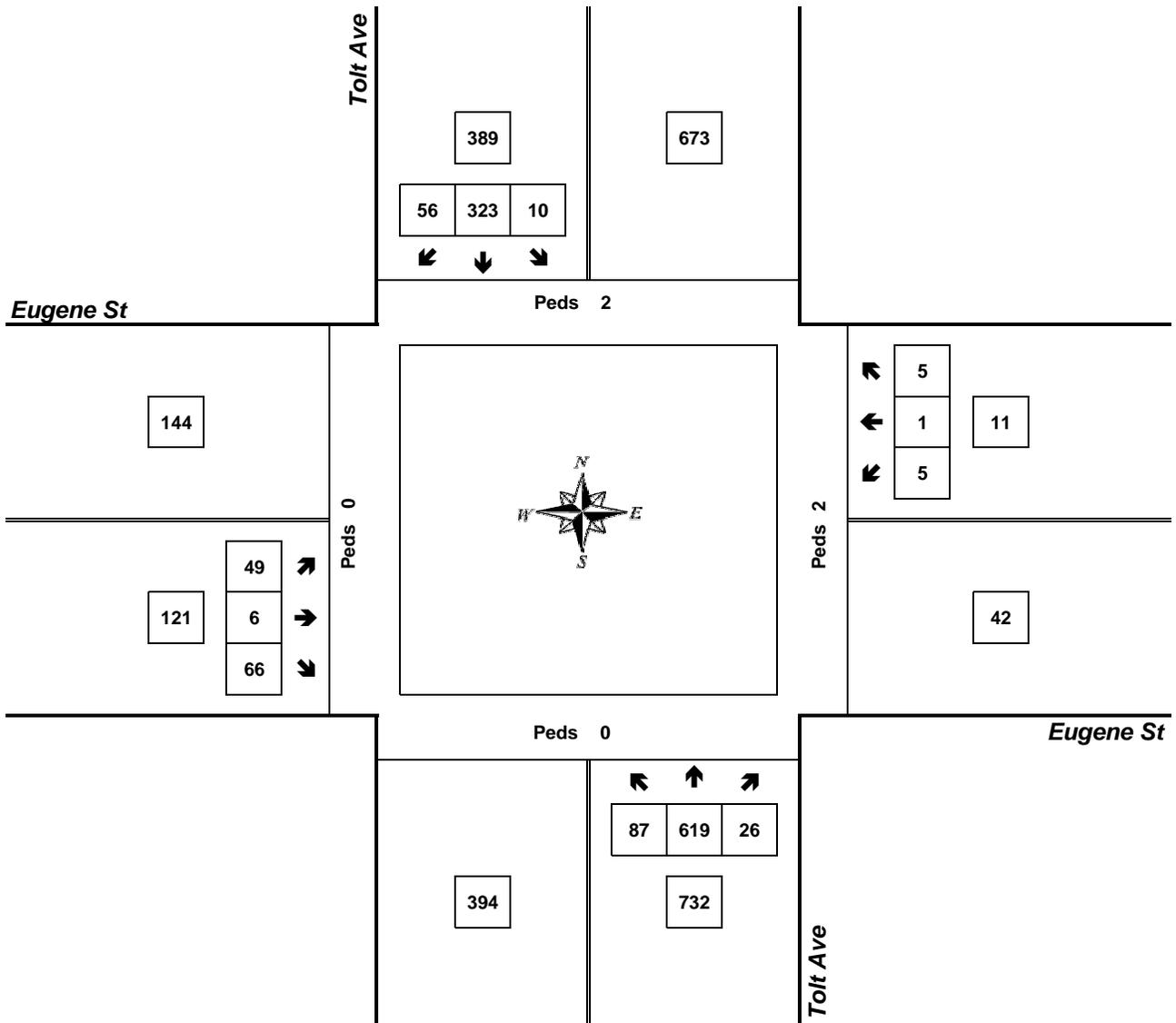
Peak Hour Summary



Mark Skaggs
(206) 251-0300

Tolt Ave & Eugene St

5:00 PM to 6:00 PM
Wednesday, May 16, 2012



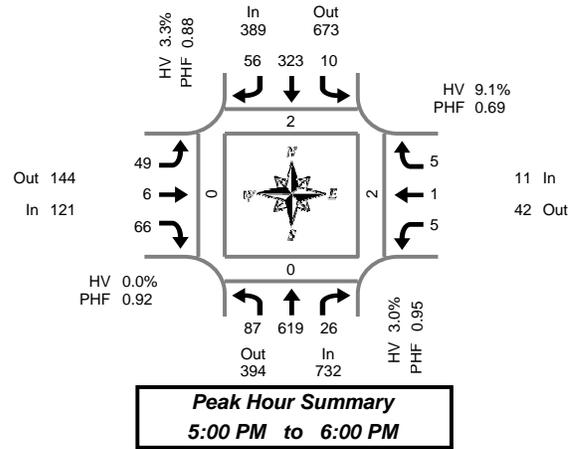
Approach	PHF	HV%	Volume
EB	0.92	0.0%	121
WB	0.69	9.1%	11
NB	0.95	3.0%	732
SB	0.88	3.3%	389
Intersection	0.97	2.9%	1,253

Count Period: 4:00 PM to 6:00 PM

Total Vehicle Summary



Mark Skaggs
(206) 251-0300



Tolt Ave & Eugene St

Wednesday, May 16, 2012
4:00 PM to 6:00 PM

15-Minute Interval Summary

4:00 PM to 6:00 PM

Interval Start Time	Northbound Tolt Ave				Southbound Tolt Ave				Eastbound Eugene St				Westbound Eugene St				Interval Total	Pedestrians Crosswalk			
	L	T	R	HV	L	T	R	HV	L	T	R	HV	L	T	R	HV		North	South	East	West
4:00 PM	14	118	8	9	2	80	12	11	14	2	9	0	0	2	3	0	264	2	2	1	0
4:15 PM	11	129	4	4	3	103	9	18	5	0	10	0	0	0	3	0	277	0	2	6	2
4:30 PM	11	134	5	9	1	102	10	11	12	0	7	0	2	0	1	0	285	0	0	0	0
4:45 PM	12	143	6	2	2	79	18	5	10	1	11	0	1	1	0	0	284	1	0	0	1
5:00 PM	21	138	5	3	3	93	15	5	15	2	13	0	2	0	2	1	309	0	0	2	0
5:15 PM	23	162	7	10	2	84	12	3	14	2	16	0	0	0	1	0	323	1	0	0	0
5:30 PM	20	163	7	4	3	70	17	1	11	1	21	0	2	0	2	0	317	0	0	0	0
5:45 PM	23	156	7	5	2	76	12	4	9	1	16	0	1	1	0	0	304	1	0	0	0
Total Survey	135	1,143	49	46	18	687	105	58	90	9	103	0	8	4	12	1	2,363	5	4	9	3

Peak Hour Summary

5:00 PM to 6:00 PM

By Approach	Northbound Tolt Ave				Southbound Tolt Ave				Eastbound Eugene St				Westbound Eugene St				Total	Pedestrians Crosswalk			
	In	Out	Total	HV	In	Out	Total	HV	In	Out	Total	HV	In	Out	Total	HV		North	South	East	West
Volume	732	394	1,126	22	389	673	1,062	13	121	144	265	0	11	42	53	1	1,253	2	0	2	0
%HV	3.0%				3.3%				0.0%				9.1%				2.9%				
PHF	0.95				0.88				0.92				0.69				0.97				

By Movement	Northbound Tolt Ave				Southbound Tolt Ave				Eastbound Eugene St				Westbound Eugene St				Total
	L	T	R	Total													
Volume	87	619	26	732	10	323	56	389	49	6	66	121	5	1	5	11	1,253
PHF	0.95	0.95	0.93	0.95	0.83	0.87	0.82	0.88	0.82	0.75	0.79	0.92	0.63	0.25	0.63	0.69	0.97

Rolling Hour Summary

4:00 PM to 6:00 PM

Interval Start Time	Northbound Tolt Ave				Southbound Tolt Ave				Eastbound Eugene St				Westbound Eugene St				Interval Total	Pedestrians Crosswalk			
	L	T	R	HV	L	T	R	HV	L	T	R	HV	L	T	R	HV		North	South	East	West
4:00 PM	48	524	23	24	8	364	49	45	41	3	37	0	3	3	7	0	1,110	3	4	7	3
4:15 PM	55	544	20	18	9	377	52	39	42	3	41	0	5	1	6	1	1,155	1	2	8	3
4:30 PM	67	577	23	24	8	358	55	24	51	5	47	0	5	1	4	1	1,201	2	0	2	1
4:45 PM	76	606	25	19	10	326	62	14	50	6	61	0	5	1	5	1	1,233	2	0	2	1
5:00 PM	87	619	26	22	10	323	56	13	49	6	66	0	5	1	5	1	1,253	2	0	2	0

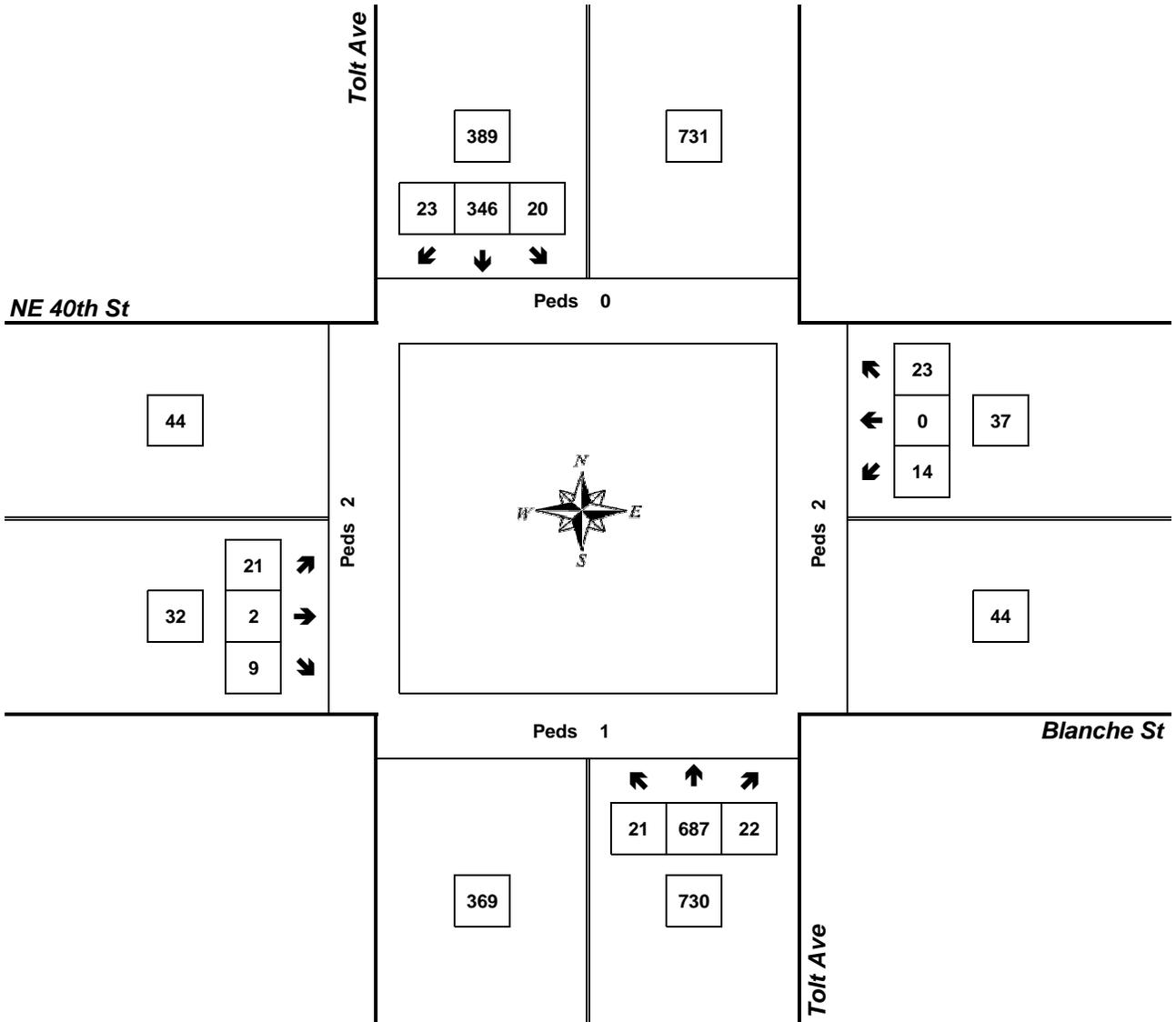
Peak Hour Summary



Mark Skaggs
(206) 251-0300

Tolt Ave & Blanche St

5:00 PM to 6:00 PM
Wednesday, May 16, 2012



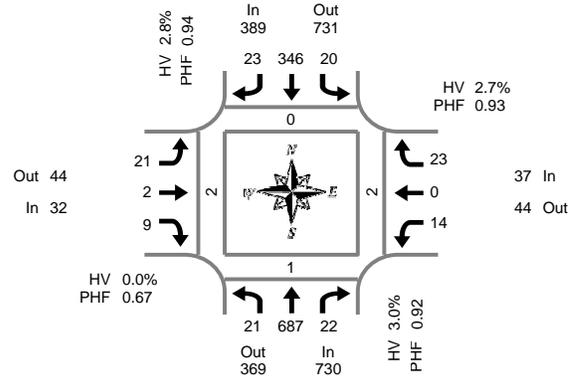
Approach	PHF	HV%	Volume
EB	0.67	0.0%	32
WB	0.93	2.7%	37
NB	0.92	3.0%	730
SB	0.94	2.8%	389
Intersection	0.96	2.9%	1,188

Count Period: 4:00 PM to 6:00 PM

Total Vehicle Summary



Mark Skaggs
(206) 251-0300



Peak Hour Summary
5:00 PM to 6:00 PM

Tolt Ave & Blanche St

Wednesday, May 16, 2012
4:00 PM to 6:00 PM

15-Minute Interval Summary

4:00 PM to 6:00 PM

Interval Start Time	Northbound Tolt Ave				Southbound Tolt Ave				Eastbound NE 40th St				Westbound Blanche St				Interval Total	Pedestrians Crosswalk			
	L	T	R	HV	L	T	R	HV	L	T	R	HV	L	T	R	HV		North	South	East	West
4:00 PM	7	132	4	8	7	79	3	9	4	0	2	0	1	0	0	1	239	0	0	1	1
4:15 PM	1	145	6	5	10	100	3	17	2	0	2	0	3	0	3	0	275	0	0	4	1
4:30 PM	9	150	10	8	6	97	6	14	4	1	1	1	3	1	4	0	292	0	0	0	1
4:45 PM	6	155	7	3	2	82	7	5	1	0	0	0	4	1	6	0	271	0	0	0	1
5:00 PM	4	149	3	3	3	95	6	4	11	1	0	0	5	0	4	0	281	0	0	0	0
5:15 PM	6	179	3	11	7	90	5	2	4	1	0	0	4	0	6	0	305	0	1	0	0
5:30 PM	7	184	8	3	5	83	4	1	5	0	4	0	2	0	8	1	310	0	0	0	0
5:45 PM	4	175	8	5	5	78	8	4	1	0	5	0	3	0	5	0	292	0	0	2	2
Total Survey	44	1,269	49	46	45	704	42	56	32	3	14	1	25	2	36	2	2,265	0	1	7	6

Peak Hour Summary

5:00 PM to 6:00 PM

By Approach	Northbound Tolt Ave				Southbound Tolt Ave				Eastbound NE 40th St				Westbound Blanche St				Total	Pedestrians Crosswalk			
	In	Out	Total	HV	In	Out	Total	HV	In	Out	Total	HV	In	Out	Total	HV		North	South	East	West
Volume	730	369	1,099	22	389	731	1,120	11	32	44	76	0	37	44	81	1	1,188	0	1	2	2
%HV	3.0%				2.8%				0.0%				2.7%				2.9%				
PHF	0.92				0.94				0.67				0.93				0.96				

By Movement	Northbound Tolt Ave				Southbound Tolt Ave				Eastbound NE 40th St				Westbound Blanche St				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	21	687	22	730	20	346	23	389	21	2	9	32	14	0	23	37	1,188
PHF	0.75	0.93	0.69	0.92	0.71	0.91	0.72	0.94	0.48	0.50	0.45	0.67	0.70	0.00	0.72	0.93	0.96

Rolling Hour Summary

4:00 PM to 6:00 PM

Interval Start Time	Northbound Tolt Ave				Southbound Tolt Ave				Eastbound NE 40th St				Westbound Blanche St				Interval Total	Pedestrians Crosswalk			
	L	T	R	HV	L	T	R	HV	L	T	R	HV	L	T	R	HV		North	South	East	West
4:00 PM	23	582	27	24	25	358	19	45	11	1	5	1	11	2	13	1	1,077	0	0	5	4
4:15 PM	20	599	26	19	21	374	22	40	18	2	3	1	15	2	17	0	1,119	0	0	4	3
4:30 PM	25	633	23	25	18	364	24	25	20	3	1	1	16	2	20	0	1,149	0	1	0	2
4:45 PM	23	667	21	20	17	350	22	12	21	2	4	0	15	1	24	1	1,167	0	1	0	1
5:00 PM	21	687	22	22	20	346	23	11	21	2	9	0	14	0	23	1	1,188	0	1	2	2

All Traffic Data Services Inc.
 2225 NE 27th St
 Renton, WA 98056
 Ph. 206-251-0300

Site Code: 01

SR 203 S/O EUGENE ST

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi	Not Classed	Mon Total								
																06/18/12	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12 PM	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
06/18/12	0	22	2	0	1	0	0	1	1	0	1	0	0	1	29								
01:00	1	7	3	0	0	0	0	0	0	1	0	0	0	0	12								
02:00	0	8	0	0	0	0	0	1	0	0	0	0	0	0	9								
03:00	0	5	2	0	0	0	0	0	0	0	0	0	0	0	7								
04:00	0	9	3	0	0	0	0	1	0	0	0	0	0	1	14								
05:00	0	24	7	1	6	0	0	1	0	0	0	0	0	0	39								
06:00	3	59	26	10	17	2	0	4	0	0	0	0	0	6	127								
07:00	6	79	24	2	10	0	0	5	0	0	0	0	0	18	144								
08:00	2	136	35	10	15	0	0	5	2	1	0	0	0	14	220								
09:00	4	122	45	3	15	5	0	4	0	0	0	0	0	22	220								
10:00	1	116	46	3	20	2	0	4	2	0	0	1	0	11	206								
11:00	3	127	40	2	19	1	0	4	0	0	0	0	0	13	209								
12 PM	3	151	46	1	17	3	0	4	1	1	0	0	0	13	240								
13:00	4	154	43	5	23	2	0	4	0	0	0	0	0	22	257								
14:00	4	204	54	5	26	2	0	5	0	1	0	0	0	28	329								
15:00	4	277	72	2	27	1	0	8	2	1	0	0	0	35	429								
16:00	7	289	82	1	28	4	0	12	0	0	0	1	0	36	460								
17:00	7	340	97	2	32	1	0	2	1	1	0	0	0	42	525								
18:00	4	293	60	0	23	1	0	3	1	0	0	0	0	22	407								
19:00	1	208	38	1	9	2	1	4	2	1	0	0	0	15	282								
20:00	1	157	35	0	12	0	0	3	1	0	0	0	0	4	213								
21:00	0	91	28	0	5	0	0	1	0	0	0	0	0	1	126								
22:00	0	48	14	0	2	1	0	3	0	0	0	0	0	0	68								
23:00	0	25	4	0	2	0	0	0	0	0	0	0	0	1	32								
Percent	1.2%	64.1%	17.5%	1.0%	6.7%	0.6%	0.0%	1.7%	0.3%	0.2%	0.0%	0.0%	0.0%	6.6%									
AM Peak	07:00	08:00	10:00	06:00	10:00	09:00	0.0%	07:00	08:00	01:00	00:00	10:00	0.0%	09:00									
Vol.	6	136	46	10	20	5	19:00	5	2	1	1	1	1	22									
PM Peak	16:00	17:00	17:00	13:00	17:00	16:00	19:00	16:00	15:00	12:00	12:00	16:00	16:00	17:00									
Vol.	7	340	97	5	32	4	1	12	2	1	1	1	1	42									

All Traffic Data Services Inc.
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 Renton, WA 98056
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Site Code: 01

SR 203 S/O EUGENE ST

Start Time	Bikes		Cars & Trailers		2 Axle Long		Buses		2 Axle 6 Tire		3 Axle Single		4 Axle Single		<5 Axle Double		5 Axle Double		>6 Axle Double		<6 Axle Multi		6 Axle Multi		>6 Axle Multi		Not Classed		Tue Total
06/19/12	0	12	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15
01:00	1	11	5	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	19
02:00	0	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8
03:00	0	5	3	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9	
04:00	0	12	3	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20	
05:00	1	24	3	3	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	41	
06:00	1	64	25	8	13	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	128	
07:00	1	102	33	3	12	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	182	
08:00	4	118	37	7	23	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	244	
09:00	3	120	50	1	16	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	222	
10:00	2	131	34	2	16	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	204	
11:00	4	134	45	5	22	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	204	
12 PM	3	156	39	3	14	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	235	
13:00	6	175	56	5	15	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	234	
14:00	2	198	57	12	24	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	301	
15:00	7	274	63	3	28	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	328	
16:00	12	330	88	1	25	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	431	
17:00	7	354	89	2	28	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	531	
18:00	7	304	63	0	16	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	542	
19:00	6	186	37	1	21	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	428	
20:00	5	148	24	0	10	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	273	
21:00	2	125	26	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	196	
22:00	0	77	27	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	159	
23:00	0	30	4	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	108	
Percent	1.5%	63.3%	16.6%	1.1%	6.1%	0.8%	0.1%	1.5%	0.3%	0.3%	0.3%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.3%	0.3%	0.0%	0.0%	0.0%	0.1%	8.3%			
AM Peak	08:00	11:00	09:00	06:00	08:00	10:00	11:00	08:00	06:00	06:00	06:00	11:00	08:00	06:00	06:00	08:00	06:00	06:00	06:00	06:00	06:00	07:00	07:00	07:00	07:00	08:00	08:00		
Vol.	4	134	50	8	23	4	1	7	2	2	2	1	7	2	2	2	2	2	2	2	2	1	1	1	1	43			
PM Peak	16:00	17:00	17:00	14:00	15:00	15:00	13:00	17:00	14:00	13:00	13:00	13:00	17:00	14:00	13:00	13:00	13:00	13:00	13:00	13:00	13:00	18:00	18:00	18:00	13:00	16:00			
Vol.	12	354	89	12	28	6	1	9	3	3	3	1	9	3	3	3	3	3	3	3	3	1	1	1	1	67			

All Traffic Data Services Inc.
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SR 203 S/O EUGENE ST

Start Time	Bikes		Cars & Trailers		2 Axle Long		Buses		2 Axle 6 Tire		3 Axle Single		4 Axle Single		<5 Axle Double		5 Axle Double		>6 Axle Double		<6 Axle Multi		6 Axle Multi		>6 Axle Multi		Not Classed		Wed Total
06/20/12	0	20	5	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	29	
01:00	0	15	5	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	23	
02:00	0	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10	
03:00	0	2	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	
04:00	0	16	2	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20	
05:00	0	24	6	1	8	0	0	0	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	43		
06:00	2	75	27	10	14	2	0	0	14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	14	151		
07:00	2	91	28	2	12	3	0	0	12	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	22	167		
08:00	4	140	30	9	28	4	0	0	28	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	30	252		
09:00	8	137	38	1	13	3	2	0	13	3	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	28	239		
10:00	5	151	39	1	13	2	0	0	13	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	18	234		
11:00	8	135	41	6	17	0	0	0	17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	22	238		
12 PM	6	161	49	3	16	2	0	0	16	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	23	266		
13:00	9	176	39	6	19	8	1	0	19	8	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	31	297		
14:00	9	195	71	8	18	3	0	0	18	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	38	350		
15:00	12	272	75	2	28	3	0	0	28	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	35	435		
16:00	28	342	100	2	33	6	0	0	33	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	53	569		
17:00	17	362	96	2	27	4	0	0	27	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	49	569		
18:00	10	237	40	1	13	3	0	0	13	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	57	364		
19:00	7	210	45	0	18	1	0	0	18	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9	293		
20:00	8	347	62	0	8	1	0	0	8	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20	450		
21:00	4	143	35	0	6	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	192		
22:00	0	83	12	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	98		
23:00	0	29	12	0	3	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	45		
Percent	2.6%	63.1%	16.1%	1.0%	5.6%	0.8%	0.1%	1.4%	0.2%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	8.6%			
AM Peak	09:00	10:00	11:00	06:00	08:00	08:00	09:00	06:00	07:00	11:00																	08:00		
Vol.	8	151	41	10	28	4	2	6	3	5																	30		
PM Peak	16:00	17:00	16:00	14:00	16:00	13:00	13:00	17:00	13:00	16:00	13:00	13:00	13:00	13:00	13:00	13:00	13:00	13:00	16:00	16:00	16:00	13:00	13:00	13:00	17:00	18:00			
Vol.	28	362	100	8	33	8	1	10	1	3	1	1	1	1	1	1	1	1	3	3	3	1	1	1	1	57			

All Traffic Data Services Inc.
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SR 203 S/O EUGENE ST

NB

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi	Not Classed	Thu Total
06/21/12	0	20	4	0	0	0	0	0	0	0	0	0	0	0	24
01:00	0	10	1	0	1	0	0	0	0	0	0	0	0	0	12
02:00	1	7	1	0	1	0	0	0	0	0	0	0	0	1	12
03:00	0	9	3	0	0	0	0	0	1	0	0	0	0	0	13
04:00	0	18	3	0	0	0	0	1	0	0	0	0	0	0	22
05:00	0	30	6	1	6	0	0	1	1	0	0	0	0	0	45
06:00	0	60	33	9	18	0	0	3	0	1	0	0	0	10	134
07:00	3	94	26	3	17	2	2	2	1	0	0	0	0	16	166
08:00	6	143	53	10	18	3	1	6	1	1	0	0	0	34	275
09:00	6	144	40	1	15	2	1	4	2	0	0	0	1	19	235
10:00	6	159	44	7	20	2	0	3	0	0	2	0	0	15	258
11:00	6	136	40	2	22	2	0	3	1	0	0	1	2	19	234
12 PM	11	209	51	2	15	3	0	6	0	4	0	0	0	30	331
13:00	11	193	42	0	15	1	1	7	0	0	1	0	0	19	290
14:00	15	204	58	12	16	1	1	8	0	1	0	0	1	36	353
15:00	20	276	94	1	40	3	0	8	1	0	2	0	2	47	494
16:00	18	312	81	1	27	0	0	6	0	1	0	0	1	61	508
17:00	17	356	82	2	23	2	0	13	1	0	1	0	0	65	562
18:00	11	271	54	2	14	0	0	3	1	1	0	0	0	25	382
19:00	7	226	45	0	12	0	0	4	1	0	0	0	0	13	308
20:00	6	178	37	0	12	0	0	1	0	0	0	0	0	7	241
21:00	5	136	28	0	7	1	0	0	0	0	0	0	0	5	182
22:00	1	80	17	0	4	1	0	2	0	0	0	0	0	6	111
23:00	0	46	5	0	1	0	0	0	0	0	0	0	0	0	52

Percent	2.9%	63.3%	16.2%	1.0%	5.8%	0.5%	0.1%	1.5%	0.2%	0.2%	0.1%	0.0%	0.1%	8.2%
AM Peak	08:00	10:00	08:00	08:00	11:00	08:00	07:00	08:00	09:00	06:00	10:00	11:00	11:00	08:00
Vol.	6	159	53	10	22	3	2	6	2	1	2	1	2	34
PM Peak	15:00	17:00	15:00	14:00	15:00	12:00	13:00	17:00	15:00	12:00	15:00	15:00	15:00	17:00
Vol.	20	356	94	12	40	3	1	13	1	4	2	2	2	65

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SR 203 S/O EUGENE ST

NB

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi	Not Classed	Sat Total
06/23/12	0	34	11	0	1	0	0	0	0	0	0	0	0	0	46
01:00	0	19	6	0	2	0	0	0	0	0	0	0	0	1	28
02:00	0	19	3	0	1	0	0	0	0	0	0	0	0	1	24
03:00	0	9	5	0	1	0	0	0	0	0	0	0	0	0	15
04:00	0	8	6	0	0	0	0	1	0	0	0	0	0	0	15
05:00	0	15	5	0	2	0	0	1	0	0	0	0	0	0	23
06:00	0	35	17	1	2	0	0	0	0	0	0	1	0	0	56
07:00	0	51	23	0	10	0	0	2	0	0	0	0	0	1	87
08:00	0	91	27	0	3	0	0	4	0	0	0	0	0	7	133
09:00	4	105	31	0	13	1	0	1	0	0	0	0	0	13	168
10:00	1	167	71	0	20	1	0	3	0	0	0	0	0	21	284
11:00	3	180	46	0	18	1	0	3	0	0	0	0	0	24	275
12 PM	5	211	51	1	14	0	0	3	0	1	0	0	0	30	316
13:00	4	223	47	0	18	2	0	4	2	0	0	0	0	30	330
14:00	3	235	39	1	16	3	0	1	0	0	0	0	0	25	323
15:00	11	235	68	0	11	2	0	5	1	0	0	0	0	30	363
16:00	5	210	51	0	11	0	0	6	0	0	1	0	0	13	297
17:00	1	161	47	0	13	1	0	2	0	0	0	0	0	17	242
18:00	2	167	30	0	15	1	0	4	0	1	0	0	0	18	238
19:00	1	144	35	0	11	0	0	2	0	0	0	0	0	1	194
20:00	3	133	29	0	7	0	0	2	0	0	0	0	0	5	179
21:00	1	105	28	0	6	0	0	0	0	0	0	0	0	4	144
22:00	1	102	22	0	1	0	0	0	0	0	0	0	0	4	130
23:00	0	81	10	0	2	0	0	0	0	0	0	0	0	1	94
Percent	1.1%	68.4%	17.7%	0.1%	4.9%	0.3%	0.0%	1.1%	0.1%	0.0%	0.0%	0.0%	0.0%	6.1%	
AM Peak	09:00	11:00	10:00	06:00	10:00	09:00		08:00				06:00	08:00	11:00	
Vol.	4	180	71	1	20	1		4				1	1	24	
PM Peak	15:00	14:00	15:00	12:00	13:00	14:00		16:00	13:00	12:00	16:00				
Vol.	11	235	68	1	18	3		6	2	1	1			30	
Grand Total	505	18626	4876	254	1694	179	23	434	67	61	12	8	17	2250	29006
Percent	1.7%	64.2%	16.8%	0.9%	5.8%	0.6%	0.1%	1.5%	0.2%	0.2%	0.0%	0.0%	0.1%	7.8%	

All Traffic Data Services Inc.
 2225 NE 27th St
 Renton, WA 98056
 Ph. 206-251-0300

Site Code: 01

SR 203 S/O EUGENE ST

SB	Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi	Not Classed	Mon Total
	06/18/12	0	9	2	0	0	0	0	0	0	0	0	0	0	0	11
	01:00	0	9	0	0	0	0	0	1	0	0	0	0	0	1	11
	02:00	0	9	1	0	0	0	0	1	0	0	0	0	0	0	11
	03:00	0	13	7	0	5	1	0	2	0	0	0	0	0	0	28
	04:00	0	32	9	0	2	0	0	0	0	0	0	0	0	1	44
	05:00	2	127	41	1	14	0	0	3	2	0	0	0	0	1	191
	06:00	1	272	82	1	22	3	0	5	0	0	0	0	0	10	396
	07:00	6	350	86	8	33	2	1	12	1	2	0	0	0	26	527
	08:00	1	281	81	5	21	1	0	9	5	0	0	1	0	21	426
	09:00	7	218	64	9	26	2	0	5	1	0	1	0	0	21	354
	10:00	0	165	46	2	20	1	0	5	2	0	0	0	0	14	255
	11:00	1	153	45	0	14	2	1	2	0	0	1	0	0	15	234
	12 PM	1	149	42	6	19	1	0	4	0	0	0	1	1	15	239
	13:00	5	168	37	2	18	1	0	7	0	0	0	0	1	17	256
	14:00	5	174	43	5	18	0	0	4	1	2	0	0	1	27	280
	15:00	5	191	34	1	16	0	0	7	4	2	0	0	0	33	293
	16:00	3	161	50	14	24	0	0	7	1	0	0	0	0	38	298
	17:00	2	163	51	2	20	2	0	2	0	0	0	0	0	26	268
	18:00	4	166	24	0	11	1	0	3	0	0	0	0	0	16	225
	19:00	1	99	19	0	6	1	0	1	0	0	0	1	0	16	144
	20:00	0	77	16	0	5	0	0	2	0	0	0	0	0	7	107
	21:00	0	71	19	0	1	0	0	1	0	0	0	0	0	1	93
	22:00	0	29	3	0	3	0	0	0	0	1	0	0	0	1	37
	23:00	0	22	2	0	3	0	0	0	0	0	0	0	0	1	28
Percent		0.9%	65.3%	16.9%	1.2%	6.3%	0.4%	0.0%	1.7%	0.4%	0.1%	0.0%	0.1%	0.1%	6.5%	
AM Peak	09:00	7	350	86	9	33	3	1	12	5	2	1	1	1	26	
PM Peak	13:00	5	191	51	14	24	2	4	7	4	2	1	1	1	38	

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 Renton, WA 98056
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Site Code: 01

SR 203 S/O EUGENE ST

SB	Start Time	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi	Not Classed	Tue Total
	06/19/12	14	1	0	0	0	0	0	0	0	0	0	0	0	15
	01:00	4	3	0	0	1	0	0	0	0	0	0	0	0	9
	02:00	9	1	0	0	0	0	0	0	0	0	0	0	0	10
	03:00	11	5	0	4	0	0	0	1	0	0	0	0	1	22
	04:00	35	15	1	3	0	0	2	0	0	0	0	0	2	58
	05:00	131	41	0	19	0	0	2	0	0	0	0	0	4	198
	06:00	257	82	1	26	0	0	6	0	0	0	0	0	7	379
	07:00	349	71	9	32	3	0	8	1	0	0	0	0	19	496
	08:00	292	81	5	23	1	0	7	4	0	1	0	3	39	462
	09:00	248	68	12	31	4	0	7	0	1	2	0	0	20	396
	10:00	155	44	1	18	0	0	6	2	0	0	0	0	12	238
	11:00	163	42	2	24	2	0	7	2	1	0	0	0	10	255
	12 PM	186	48	4	19	0	0	4	0	1	0	0	0	19	285
	13:00	147	46	4	19	2	0	4	0	1	0	0	0	21	248
	14:00	180	47	3	29	0	0	3	1	0	1	0	1	25	293
	15:00	199	34	1	25	1	0	10	3	0	0	0	0	40	317
	16:00	185	47	9	22	2	0	4	0	0	0	0	0	47	326
	17:00	193	48	1	14	2	0	4	0	1	0	0	0	46	320
	18:00	161	36	0	11	2	0	1	0	0	0	0	0	29	252
	19:00	130	31	2	13	0	0	2	1	0	0	0	0	14	199
	20:00	86	26	1	5	0	0	1	0	0	0	0	0	5	133
	21:00	83	11	0	4	0	0	1	0	0	0	0	0	2	101
	22:00	40	7	1	1	0	0	1	0	1	0	0	0	0	51
	23:00	15	5	0	1	0	0	0	0	0	0	0	0	0	21
Percent		64.4%	16.5%	1.1%	6.7%	0.4%	0.0%	1.6%	0.3%	0.1%	0.1%	0.0%	0.1%	7.1%	
AM Peak	08:00	07:00	06:00	09:00	07:00	09:00		07:00	08:00	09:00	09:00		08:00	08:00	
Vol.	6	349	82	12	32	4		8	4	1	2		3	39	
PM Peak	18:00	15:00	12:00	16:00	14:00	13:00		15:00	15:00	12:00	14:00		14:00	16:00	
Vol.	12	199	48	9	29	2		10	3	1	1		1	47	

All Traffic Data Services Inc.
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Site Code: 01

SR 203 S/O EUGENE ST

SB	Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi	Not Classed	Wed Total
	06/20/12	0	10	2	0	0	0	0	0	0	0	0	0	0	1	13
	01:00	0	7	1	0	0	0	0	0	0	0	0	0	0	2	10
	02:00	0	9	2	0	1	0	0	2	0	1	0	0	0	1	16
	03:00	0	8	8	1	5	0	0	1	0	0	0	0	0	0	23
	04:00	0	29	9	0	5	0	0	2	0	1	0	0	0	2	48
	05:00	2	128	45	1	16	0	0	3	0	0	0	0	0	4	199
	06:00	1	260	77	1	22	0	1	2	0	1	0	0	0	13	378
	07:00	7	323	99	10	36	3	0	8	2	0	0	0	0	25	513
	08:00	8	297	68	2	32	3	0	6	3	2	0	0	0	33	454
	09:00	4	229	59	13	19	3	0	6	1	1	0	1	0	28	364
	10:00	11	215	59	2	15	1	0	5	1	0	0	0	0	16	325
	11:00	6	199	54	2	22	1	0	3	0	1	0	0	0	19	307
	12 PM	6	167	54	3	18	3	0	5	1	0	1	0	0	16	274
	13:00	21	187	51	3	17	0	0	6	0	1	0	0	1	28	315
	14:00	13	166	47	7	19	0	0	7	0	0	0	0	0	23	282
	15:00	14	167	39	1	23	1	0	2	1	0	0	0	0	45	293
	16:00	12	202	46	8	27	1	0	5	1	0	0	0	2	51	355
	17:00	14	191	52	0	17	2	0	7	0	0	0	0	0	38	321
	18:00	17	309	60	0	20	3	0	7	0	0	0	0	0	58	474
	19:00	9	131	30	0	13	0	0	0	0	0	0	0	0	14	197
	20:00	10	108	19	0	6	1	1	0	0	0	0	0	0	21	166
	21:00	2	73	17	0	4	0	0	1	0	0	0	0	0	2	99
	22:00	0	46	13	0	1	0	0	0	0	0	0	0	0	1	61
	23:00	0	25	9	0	3	0	0	0	0	0	0	0	0	0	37
Percent		2.8%	63.1%	16.7%	1.0%	6.2%	0.4%	0.0%	1.4%	0.2%	0.1%	0.0%	0.0%	0.1%	8.0%	
AM Peak	10:00	11	323	99	13	36	3	1	8	3	2	0	0	1	33	08:00
PM Peak	13:00	21	180	60	8	27	3	1	7	1	1	1	1	2	58	18:00

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SR 203 S/O EUGENE ST

SB	Start Time	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Not Classed	Thu Total
	06/21/12	7	3	0	1	0	0	0	1	0	0	0	0	0	12
	01:00	7	0	0	0	0	0	0	0	0	0	0	0	0	7
	02:00	7	2	0	0	0	0	1	1	0	0	0	0	0	11
	03:00	14	8	2	6	0	0	1	0	0	0	0	0	2	33
	04:00	32	7	0	3	0	0	1	0	0	0	0	0	1	44
	05:00	136	45	1	14	0	0	1	0	0	0	0	1	3	202
	06:00	253	88	1	24	0	0	8	1	0	0	0	0	14	391
	07:00	327	91	13	32	2	0	12	1	1	0	0	0	29	512
	08:00	276	71	2	22	1	1	7	2	0	0	0	1	28	417
	09:00	253	52	8	21	2	0	12	3	0	0	0	0	22	380
	10:00	198	52	1	20	1	0	8	0	1	0	1	0	20	310
	11:00	186	47	4	23	1	0	4	0	1	0	0	0	21	294
	12 PM	199	57	2	14	2	0	8	2	0	0	0	0	35	327
	13:00	209	56	2	19	1	0	4	1	0	0	0	0	18	317
	14:00	206	37	3	32	3	0	10	0	0	0	0	0	32	334
	15:00	162	41	0	18	3	0	6	4	0	0	0	0	42	285
	16:00	248	55	11	22	1	0	4	0	0	0	0	0	58	413
	17:00	208	45	2	22	5	1	8	0	1	0	0	0	64	369
	18:00	181	41	0	16	1	0	2	0	0	0	0	0	36	285
	19:00	139	26	0	11	0	0	3	0	0	0	0	0	17	202
	20:00	108	18	0	7	0	0	3	0	0	0	0	0	10	155
	21:00	78	17	0	5	0	0	0	0	0	0	0	0	6	106
	22:00	44	10	0	3	0	0	0	0	0	0	0	0	6	63
	23:00	27	5	0	2	0	0	0	0	0	0	0	0	1	35
Percent		63.7%	15.9%	0.9%	6.1%	0.4%	0.0%	1.9%	0.3%	0.1%	0.0%	0.0%	0.0%	8.4%	
AM Peak	10:00	07:00	07:00	07:00	07:00	07:00	08:00	07:00	09:00	07:00	07:00	10:00	05:00	07:00	
Vol.	8	327	91	13	32	2	1	12	3	1	1	1	1	29	
PM Peak	16:00	16:00	12:00	16:00	14:00	17:00	17:00	14:00	15:00	17:00	17:00			17:00	
Vol.	14	248	57	11	32	5	1	10	4	1				64	

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SR 203 S/O EUGENE ST

SB	Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi	Not Classed	Fri Total
	06/22/12	0	13	4	0	1	0	0	0	0	0	0	0	0	1	19
	01:00	0	7	1	0	0	0	0	1	0	0	0	0	0	0	9
	02:00	0	13	3	0	0	0	0	1	0	0	0	0	0	1	18
	03:00	0	8	5	0	5	0	0	2	0	0	0	0	0	1	21
	04:00	1	28	4	0	1	0	0	0	0	0	0	0	0	1	35
	05:00	1	130	36	1	15	0	0	3	0	0	0	0	0	2	188
	06:00	1	231	70	1	20	0	0	11	0	1	1	0	0	13	349
	07:00	4	331	88	13	32	1	0	5	0	2	0	0	2	27	505
	08:00	2	243	62	2	18	0	0	11	3	2	1	0	1	27	372
	09:00	4	234	58	8	25	4	0	7	3	0	1	0	1	22	367
	10:00	5	196	53	3	14	2	0	6	1	0	0	0	0	17	297
	11:00	5	209	51	7	21	5	0	8	3	0	0	0	0	26	335
	12 PM	9	203	58	3	21	3	0	9	0	0	0	0	1	34	341
	13:00	6	240	62	12	26	1	0	7	0	0	0	0	0	29	383
	14:00	2	218	62	1	31	2	0	11	0	1	0	0	0	21	350
	15:00	6	218	46	0	16	2	0	5	0	0	1	0	0	40	334
	16:00	7	213	48	2	19	3	0	3	0	0	0	1	0	60	356
	17:00	4	220	60	2	23	3	0	2	0	0	0	0	0	38	352
	18:00	1	168	38	0	15	0	0	6	0	1	0	0	0	16	245
	19:00	2	138	23	0	13	4	0	2	0	0	0	0	0	13	195
	20:00	0	84	25	2	8	0	0	1	0	0	0	0	0	3	123
	21:00	0	85	25	0	4	0	0	0	0	0	0	0	0	2	116
	22:00	0	57	10	0	2	0	0	0	0	0	0	0	0	1	70
	23:00	0	29	9	1	1	0	0	0	0	0	0	0	0	0	40
Percent		1.1%	64.9%	16.6%	1.1%	6.1%	0.6%	0.0%	1.9%	0.2%	0.1%	0.1%	0.0%	0.1%	7.3%	
AM Peak		10:00	07:00	07:00	07:00	07:00	11:00		06:00	08:00	07:00	06:00		07:00	07:00	
Vol.		5	331	88	13	32	5		11	3	2	1		2	27	
PM Peak		12:00	13:00	13:00	13:00	14:00	19:00		14:00		14:00	15:00	14:00	12:00	16:00	
Vol.		9	240	62	12	31	4		11		1	1	1	1	60	

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SR 203 S/O EUGENE ST

SB	Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi	Not Classed	Sat Total
	06/23/12	0	20	2	0	0	0	0	0	0	0	0	0	0	0	22
	01:00	0	9	3	0	0	0	0	0	0	0	0	0	0	0	12
	02:00	0	4	0	0	0	0	0	0	0	0	0	0	0	1	5
	03:00	0	11	2	0	0	0	0	0	0	0	0	0	0	0	13
	04:00	0	14	4	0	3	0	0	0	0	0	0	0	0	0	21
	05:00	0	27	7	1	2	0	0	0	0	0	0	0	0	1	38
	06:00	1	71	28	0	6	0	0	1	0	0	0	0	0	0	107
	07:00	0	115	38	2	7	0	0	5	0	0	0	0	0	4	171
	08:00	3	179	46	0	16	0	0	8	0	0	1	0	0	8	261
	09:00	4	224	46	0	20	0	0	2	1	0	0	0	0	15	312
	10:00	0	238	55	0	15	0	0	2	0	0	0	0	0	18	328
	11:00	8	224	56	2	23	0	0	4	1	0	0	0	0	27	345
	12 PM	7	219	47	1	18	0	0	5	1	0	0	0	0	30	328
	13:00	4	239	41	1	16	0	0	0	0	0	1	0	0	29	331
	14:00	4	247	32	3	12	0	0	6	0	0	0	0	0	25	329
	15:00	4	194	50	4	15	1	0	3	1	1	0	0	0	31	304
	16:00	2	205	41	0	8	0	0	3	0	0	0	0	0	21	280
	17:00	2	153	38	2	15	0	0	2	0	0	0	0	0	19	231
	18:00	5	153	17	0	13	1	0	0	0	0	0	0	0	14	203
	19:00	1	117	33	0	9	1	0	1	0	0	0	0	0	6	168
	20:00	2	131	23	1	6	0	0	2	0	0	0	0	1	7	173
	21:00	0	88	24	1	2	0	0	0	0	0	0	0	0	5	120
	22:00	0	75	15	0	1	0	0	0	0	0	0	0	0	2	93
	23:00	0	50	11	0	2	0	0	0	0	0	0	0	0	0	63
Percent		1.1%	70.6%	15.5%	0.4%	4.9%	0.1%	0.0%	1.0%	0.1%	0.0%	0.0%	0.0%	0.0%	6.2%	
AM Peak	11:00	8	238	56	2	23	1	0	8	1	0	1	0	0	27	11:00
PM Peak	12:00	7	247	50	4	18	1	0	6	1	1	1	1	1	31	15:00
Grand Total		508	19895	4998	295	1862	116	6	489	72	33	13	7	18	2234	30546
Percent		1.7%	65.1%	16.4%	1.0%	6.1%	0.4%	0.0%	1.6%	0.2%	0.1%	0.0%	0.0%	0.1%	7.3%	



Attachment B
WSDOT Data/Studies Related to
SR 203/Tolt Hill Road intersection

C8 – Tolt Hill Road Intersection

■ Context

The intersection of Tolt Hill Road with SR 203 is the south entry to the City of Carnation. SR 203 carries approximately 9,500 vehicles per day (vpd) north of the intersection and 7,000 vpd south of the intersection. A relatively high percentage of the traffic on SR 203 is trucks. The west leg of Tolt Hill Road carries 3,200 vpd. The east leg of the intersection provides access to Remlinger Farms and carries 300 vpd.

The intersection is located just south of the existing bridge over the Tolt River. The intersection and its approaches are above the surrounding properties and flood plain. These features constrain potential improvements at the intersection.



Figure 38. Current conditions, looking north.

■ Analysis

Options to improve safety and traffic operations at the intersection include construction of a roundabout, installation of a traffic signal, and other spot improvements. A roundabout would require shifting the intersection slightly



Figure 39. Roundabout concept at the Tolt Hill Road intersection.

to the south to provide adequate distance from the bridge. This would require acquisition of right-of-way and would impact the adjacent properties. The benefits of a roundabout are that it would slow traffic and provide a gateway/transition area from the City of Carnation and the rural highway.

The intersection meets traffic signal warrants and is on the WSDOT signal and channelization priority arrays. It would be desirable to construct left turn lanes on the northbound and southbound approaches of SR 203. The distance between the intersection and the bridge and would restrict the southbound left turn lane. Channelization improvements would also require raising the adjacent areas to the grade of the roadway.

A crosswalk or other pedestrian enhancements should be considered. Currently pedestrians to/from Carnation can use the walkway on the west side of the bridge. At the south end of the bridge, the walkway terminates at a guard rail. A crossing of the north leg of the intersection would allow pedestrians to connect between NE 32nd Street (the Remlinger Farms access) and McDonald Park in the city. This could be implemented with a signal or roundabout. Additional signing also would help make pedestrians more visible at this intersection.

■ **Recommendations**

Detailed design studies should be conducted to determine if a signal/turn lanes or a roundabout are the best solutions for the intersection. The design studies would cover traffic operation, safety, property impacts, environmental impacts, and costs.

■ **Implementation**

This intersection is already identified in WSDOT's signal and channelization priority arrays and could be funded through WSDOT programs and supplemented by other regional and state funds, depending on costs and available funding.

■ **Costs, Benefits and Priority**

Project costs will be relatively high compared to other intersection/operations improvement projects due to right-of-way, environmental impacts and topography. The project would address existing safety issues and would help reduce travel speeds at the south end of the City of Carnation.

0 50 100
SCALE IN FEET



TOLT RIVER

STEEL TRUSS

CONCRETE GIRDER

SR 203

REINFORCED EARTH WALLS

72" CULVERT

RIGHT OF WAY

STREAM

TOLT HILL RD

YIELD

YIELD

YIELD

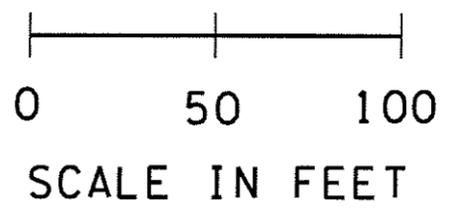
YIELD

FILE NAME C:\data\projects\Tolt Hill XL2847\design\sheet_ait7.dgn		REGION NO. STATE		FED.AID PROJ.NO.		PLOT 1	
TIME 9:22:05 AM		10 WASH					
DATE 5/2/2006		JOB NUMBER				SHEET	
PLOTTED BY rillingm		CONTRACT NO.		LOCATION NO.		OF	
DESIGNED BY M. RILLING				XL-2847		SHEETS	
ENTERED BY M. RILLING							
CHECKED BY M. NEWMAN							
PROJ. ENGR. D. EDWARDS							
REGIONAL ADM. L. ENG		REVISION		DATE BY		CHANN ALTERNATIVE 7	



SR 203
TOLT HILL ROAD NE VICINITY
INTERSECTION

CHANN ALTERNATIVE 7



TOLT RIVER

STEEL TRUSS

CONCRETE GIRDER

REINFORCED EARTH WALLS

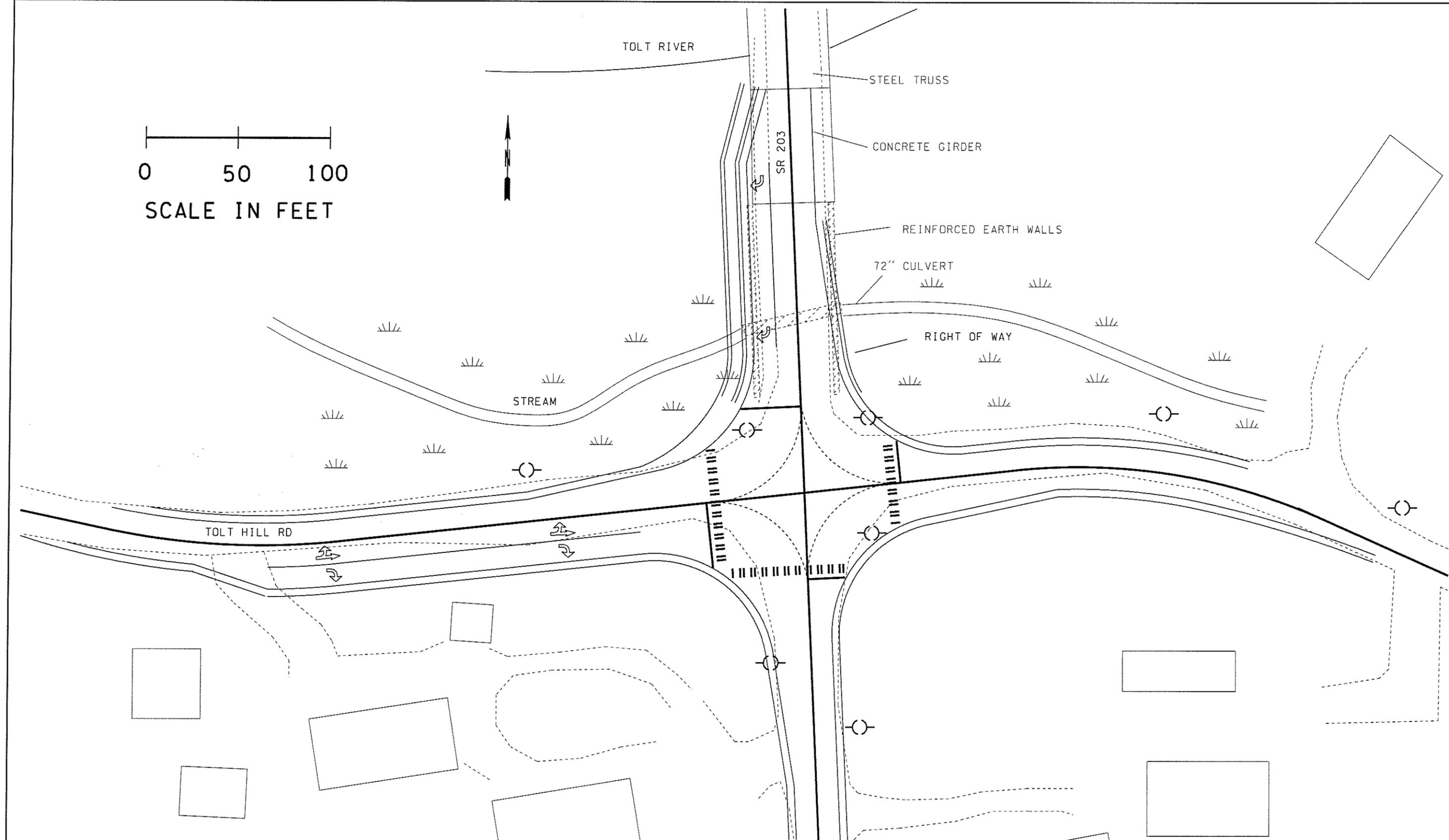
72" CULVERT

RIGHT OF WAY

STREAM

SR 203

TOLT HILL RD



FILE NAME C:\data\projects\Tolt Hill XL2847\design\sheet_alt6.dgn		REGION NO. 10		STATE WASH	FED.AID PROJ.NO.	Washington State Department of Transportation	SR 203 TOLT HILL ROAD NE VICINITY INTERSECTION	CHANN ALTERNATIVE 6	PLOT 1
TIME 9:13:12 AM	DATE 5/2/2006	JOB NUMBER		LOCATION NO. XL-2847	SHEET				
PLOTTED BY rillingm	DESIGNED BY M. RILLING	CONTRACT NO.		DATE	P.E. STAMP BOX	DATE	P.E. STAMP BOX	OF	SHEETS
ENTERED BY M. RILLING	CHECKED BY M. NEWMAN	REVISION	DATE	BY					

April 18, 2006

TO: Dave Edwards / Mike Newman, MS 117

FROM: Rick Roberts / Binh Nguyen, MS 120

SUBJECT: SR203 and Tolt Hill Road/NE 32nd St. Intersection
MP 5.20
Traffic Analysis

Per your request, Northwest Region Traffic Office has performed the traffic analysis for the subject intersection. The SR203 and Tolt Hill Road/NE 32nd Street is currently a Two Way Stop Control (TWSC) intersection with SR203 being the 30mph major road. The intersection is located at MP 5.20 on SR 203 and currently ranks 49 out of 331 in the WSDOT Signal Priority Array (SPA). The subject intersection is also located within the High Accident Corridor (HAC) on SR203 from MP 4.98 to MP 5.96 based on WSDOT 2006 HAC and HAL database.

The traffic turning movement counts were conducted on 04/04/06 for both AM and PM peak hours. Existing PM peak counts were used in the analysis to represent a worse situation as the PM peak counts appear to be higher (AM peak counts were used for spot checking only). The current ADT on SR203 is 8000. Existing TWSC, signalized, and roundabout alternative were being evaluated for the year of 2010 and 2025 at an average growth rate of 3% based on PSRC Model.

The analysis yields the following results and design parameters:

Year	TWSC ¹		Signalized ²		Roundabout ²	
	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)
Existing	F	79.0				
2010			B	14.4	A	3.7
2025			C	25.7	A	6.7

¹ Results based on worst approach (EB Tolt Hill Rd.)

² Results based on average delay for all approaches.

Signalized alternative:

- Actuated signal system with standard lane widths and striping.
- 200-ft left-turn lane storage for the west leg – Tolt Hill Rd. eastbound.

- 100-ft right-turn pocket storage for the north leg – SR203 southbound.

Roundabout alternative:

- Single circulating lane
- Single lane for all approaches
- Inscribed Circle Diameter (ICD): 130 ft minimum.

As the analysis results indicate, the current TWSC causes long delays for the eastbound movement on Tolt Hill Road at LOS F. To alleviate the congestive problem, to minimize number of accidents and the severity level, and to provide a viable solution for the subject intersection in the future years, either signalized or roundabout alternative with the listed parameters would address the deficiency of the intersection. The roundabout alternative, however, would provide better LOS with shorter delays and potentially lesser severity accidents.

In addition to the cost-benefit evaluation, the following aspects should be considered when selecting the final alternative:

- Safety: the intersection is located within the HAC, it experienced a total of 10 accidents from 2002 to 2005, five property damage collisions, one possible injury, three evident injuries, and one disable injury. The selected alternative should address or reduce the number and severity of the accidents.
- Speed: the current posted speed for SR 203 through the intersection is 30mph. However, a recent speed study indicated that 85th percentile speeds are 50mph for NB and 42.8mph for SB. This could be the major contributing factor to the accidents. The selected alternative should effectively reduce the average travel speed through the intersection.
- Environmental: the adjacent sensitive stream constraints the availability of roadway widening or shifting to the north side. The selected alternative should minimize the impacts to the sensitive areas.
- Design Vehicle: this is a known truck route; as such, the design vehicle should be WB-67.

Thank you for the opportunity to perform the analysis and provide input on this project. If you have any questions or need additional information, please contact Rick Roberts at 206-440-4352 or Binh Nguyen at 206-440-4362.

RBR:btn

Attachment:

Existing and Projected Traffic Volumes
Synchro Reports
aaSidra Reports
Speed Studies

cc: File

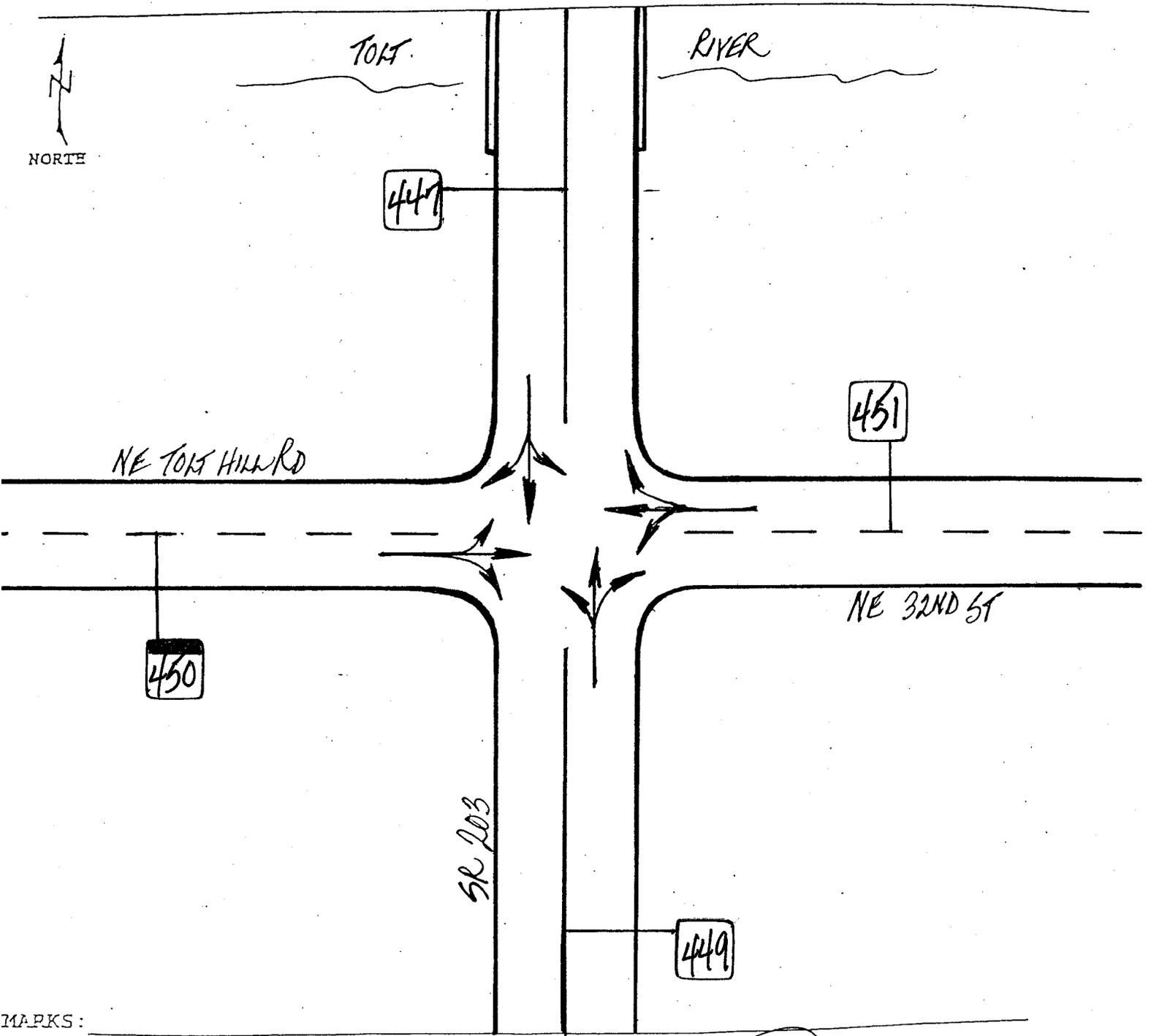


Washington State
Department of Transportation

TRAFFIC STATION SKETCH

CS 1750 SR # 203 MP 5.20 DATE 09/28/11

STATION LOCATION SR 203 JCT NE TOLT HILL RD / NE 32ND ST



MARKS:

[Handwritten Signature]
SIGNATURE



TRAFFIC STATION SKETCH

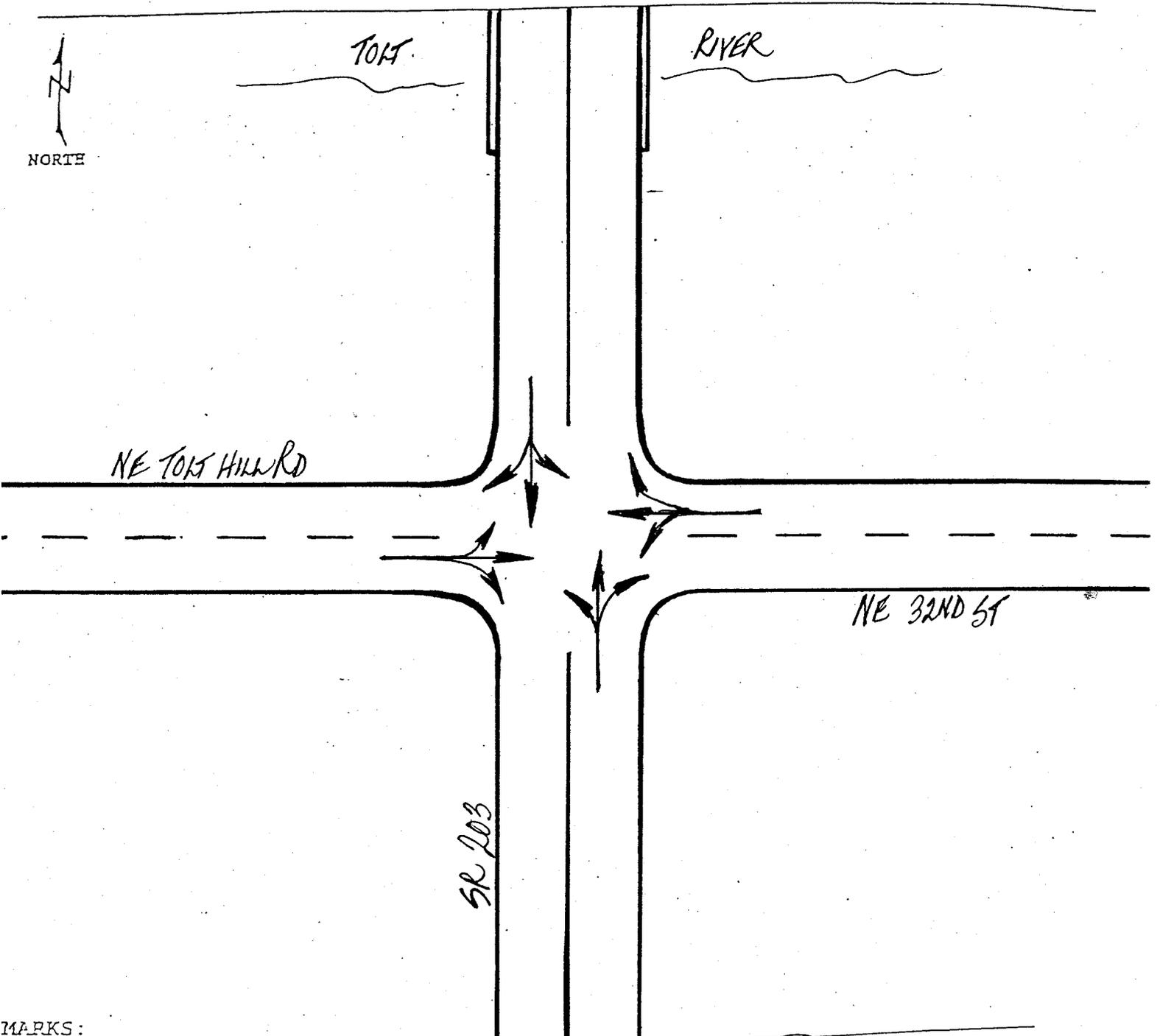
CS 1750

SR # 203

MP 5.20

DATE 10-12-11

STATION LOCATION SR 203 JCT NE TOLT HILL RD / NE 32ND ST



MARKS:

[Handwritten Signature]
SIGNATURE

WASHINGTON STATE DEPT. OF TRANSPORTATION

Northwest Region - Traffic Studies

LOCATION: SR 203 Jct NE TOLT HILL RD / NE 32ND ST
 DIRECTION: WEST LEG - EASTBOUND
 MILEPOST: 5.20 COUNTER # 5450

Site: 203520WLEB

Seven Day Volume, per Channel
 Channel: NE TOLT HILL RD

Interval Begin	Thu 9/29/2011	Fri 9/30/2011	Sat 10/1/2011	Sun 10/2/2011	Mon 10/3/2011	Tue 10/4/2011	Wed 10/5/2011	Mon - Fri Average	Week Average
12:00 AM	10	6	12	16	6	5	10	7.4	9.3
1:00 AM	3	8	9	14	4	7	4	5.2	7.0
2:00 AM	6	5	6	9	5	3	3	4.4	5.3
3:00 AM	3	3	4	8	1	1	4	2.4	3.4
4:00 AM	3	5	5	3	2	6	3	3.8	3.9
5:00 AM	9	11	11	5	11	12	13	11.2	10.3
6:00 AM	36	30	38	8	34	43	43	37.2	33.1
7:00 AM	41	51	107	12	49	57	48	49.2	52.1
8:00 AM	50	49	228	43	49	55	66	53.8	77.1
9:00 AM	95	59	258	121	58	89	61	72.4	105.9
10:00 AM	66	70	277	179	72	72	69	69.8	115.0
11:00 AM	85	100	240	155	76	68	87	83.2	115.9
12:00 PM	137	119	139	143	87	104	76	104.6	115.0
1:00 PM	121	110	143	157	94	96	77	99.6	114.0
2:00 PM	129	115	131	155	105	138	116	120.6	127.0
3:00 PM	219	153	150	149	154	122	167	163.0	159.1
4:00 PM	230	210	144	140	206	206	190	208.4	189.4
5:00 PM	246	214	118	118	211	205	206	216.4	188.3
6:00 PM	173	167	103	91	144	176	153	162.6	143.9
7:00 PM	132	116	71	47	95	110	111	112.8	97.4
8:00 PM	71	92	63	33	62	67	81	74.6	67.0
9:00 PM	55	63	48	29	50	55	43	53.2	49.0
10:00 PM	32	48	35	22	20	28	27	31.0	30.3
11:00 PM	18	26	32	9	12	12	12	16.0	17.3
Totals	1970	1830	2372	1666	1607	1737	1670	1762.8	1836.0
Peak Hours									
12:00 AM - 12:00 PM	9:00 AM	11:00 AM	10:15 AM	10:15 AM	10:45 AM	9:45 AM	11:00 AM	11:00 AM	10:15 AM
Volume	95	100	323	182	77	90	87	83.2	126.3
Factor	0.77	0.81	0.83	0.84	0.96	0.66	0.81	0.90	0.88
12:00 PM - 12:00 AM	4:45 PM	4:45 PM	3:30 PM	1:15 PM	4:45 PM	4:15 PM	4:45 PM	4:45 PM	4:45 PM
Volume	270	232	151	164	220	216	212	227.8	198.7
Factor	0.91	0.88	0.86	0.95	0.87	0.89	0.91	0.93	0.94

WASHINGTON STATE DEPT. OF TRANSPORTATION

Northwest Region - Traffic Studies

LOCATION: SR 203 Jct NE TOLT HILL RD / NE 32ND ST
 DIRECTION: EAST LEG - WESTBOUND
 MILEPOST: 5.20 COUNTER # 5451

Site: 203520ELWB

Seven Day Volume, per Channel
 Channel: NE 32ND ST

Interval Begin	Thu 9/29/2011	Fri 9/30/2011	Sat 10/1/2011	Sun 10/2/2011	Mon 10/3/2011	Tue 10/4/2011	Wed 10/5/2011	Mon - Fri Average	Week Average
12:00 AM	0	0	0	2	0	0	0	0.0	0.3
1:00 AM	0	0	0	0	0	0	0	0.0	0.0
2:00 AM	0	0	2	0	0	0	0	0.0	0.3
3:00 AM	0	0	1	0	0	0	0	0.0	0.1
4:00 AM	0	0	0	0	1	1	2	0.8	0.6
5:00 AM	1	1	3	0	1	3	2	1.6	1.6
6:00 AM	2	3	4	0	2	6	3	3.2	2.9
7:00 AM	5	7	23	3	6	25	7	10.0	10.9
8:00 AM	14	13	68	13	7	11	5	10.0	18.7
9:00 AM	10	13	73	30	11	8	9	10.2	22.0
10:00 AM	24	9	79	31	8	11	25	15.4	26.7
11:00 AM	24	17	79	53	15	10	17	16.6	30.7
12:00 PM	26	34	113	62	27	32	26	29.0	45.7
1:00 PM	30	28	124	102	20	29	28	27.0	51.6
2:00 PM	36	35	131	120	24	22	20	27.4	55.4
3:00 PM	35	29	105	127	22	17	10	22.6	49.3
4:00 PM	30	19	96	135	17	15	20	20.2	47.4
5:00 PM	29	25	57	99	14	13	11	18.4	35.4
6:00 PM	12	19	51	45	10	8	2	10.2	21.0
7:00 PM	8	9	5	8	2	2	4	5.0	5.4
8:00 PM	0	9	5	4	0	0	2	2.2	2.9
9:00 PM	0	2	1	0	0	1	0	0.6	0.6
10:00 PM	0	0	0	0	0	0	0	0.0	0.0
11:00 PM	1	0	1	1	0	0	0	0.2	0.4
Totals	287	272	1021	835	187	214	193	230.6	429.9
Peak Hours									
12:00 AM - 12:00 PM	10:00 AM	11:00 AM	10:30 AM	11:00 AM	11:00 AM	7:45 AM	9:45 AM	11:00 AM	11:00 AM
Volume	24	17	88	53	15	30	25	16.6	30.7
Factor	0.67	0.53	0.81	0.83	0.63	0.38	0.52	0.83	0.93
12:00 PM - 12:00 AM	3:30 PM	2:30 PM	1:45 PM	4:15 PM	12:00 PM	12:30 PM	1:00 PM	12:00 PM	1:45 PM
Volume	44	41	145	153	27	40	28	29.0	57.1
Factor	0.85	0.79	0.95	0.91	0.96	0.77	0.88	0.81	0.88

WASHINGTON STATE DEPT. OF TRANSPORTATION

Northwest Region - Traffic Studies

LOCATION: SR 203 Jct NE TOLT HILL RD / NE 32ND ST
 DIRECTION: SOUTH LEG - NORTHBOUND
 MILEPOST: 5.20 COUNTER # 5449

Site: 203520SLNB

Seven Day Volume, per Channel
 Channel: NB SR 203

Interval Begin	Thu 9/29/2011	Fri 9/30/2011	Sat 10/1/2011	Sun 10/2/2011	Mon 10/3/2011	Tue 10/4/2011	Wed 10/5/2011	Mon - Fri Average	Week Average
12:00 AM	20	17	40	51	15	16	12	16.0	24.4
1:00 AM	6	11	27	27	20	8	14	11.8	16.1
2:00 AM	6	16	19	19	10	8	7	9.4	12.1
3:00 AM	5	6	14	14	2	8	5	5.2	7.7
4:00 AM	14	16	14	11	18	12	15	15.0	14.3
5:00 AM	45	51	27	21	34	53	48	46.2	39.9
6:00 AM	178	149	84	34	165	158	137	157.4	129.3
7:00 AM	184	181	166	73	155	159	176	171.0	156.3
8:00 AM	206	193	349	125	152	204	190	189.0	202.7
9:00 AM	190	182	335	213	192	179	188	186.2	211.3
10:00 AM	171	207	403	251	175	179	151	176.6	219.6
11:00 AM	188	198	370	322	189	188	163	185.2	231.1
12:00 PM	216	243	376	342	214	162	202	207.4	250.7
1:00 PM	254	268	386	364	261	190	201	234.8	274.9
2:00 PM	288	306	332	366	226	237	261	263.6	288.0
3:00 PM	395	410	391	409	336	330	358	365.8	375.6
4:00 PM	521	501	404	345	380	388	472	452.4	430.1
5:00 PM	515	405	292	344	445	410	414	437.8	403.6
6:00 PM	302	298	288	331	285	283	290	291.6	296.7
7:00 PM	209	198	220	224	133	157	145	168.4	183.7
8:00 PM	135	126	150	171	113	95	113	116.4	129.0
9:00 PM	92	117	111	90	53	90	93	89.0	92.3
10:00 PM	51	89	85	53	52	46	36	54.8	58.9
11:00 PM	40	40	67	40	25	24	31	32.0	38.1
Totals	4231	4228	4950	4240	3650	3584	3722	3883.0	4086.4
Peak Hours									
12:00 AM - 12:00 PM	8:30 AM	7:30 AM	9:45 AM	11:00 AM	10:45 AM	8:00 AM	7:15 AM	8:30 AM	10:45 AM
Volume	212	210	425	322	201	204	200	196.4	232.0
Factor	0.90	0.91	0.89	0.83	0.84	0.93	0.86	0.97	0.99
12:00 PM - 12:00 AM	4:30 PM	4:00 PM	3:45 PM	2:45 PM	5:00 PM	4:45 PM	4:00 PM	4:30 PM	4:15 PM
Volume	565	501	414	411	445	432	472	464.0	436.6
Factor	0.94	0.96	0.86	0.91	0.90	0.96	0.91	0.98	0.98

WASHINGTON STATE DEPT. OF TRANSPORTATION

Northwest Region - Traffic Studies

LOCATION: SR 203 Jct NE TOLT HILL RD / NE 32ND ST
 DIRECTION: NORTH LEG - SOUTHBOUND
 MILEPOST: 5.20 COUNTER # 5447

Site: 203520NLSB

Seven Day Volume, per Channel
 Channel: SB SR 203

Interval Begin	Thu 9/29/2011	Fri 9/30/2011	Sat 10/1/2011	Sun 10/2/2011	Mon 10/3/2011	Tue 10/4/2011	Wed 10/5/2011	Mon - Fri Average	Week Average
12:00 AM	7	13	21	26	10	19	11	12.0	15.3
1:00 AM	6	4	16	15	8	9	11	7.6	9.9
2:00 AM	11	19	7	16	17	17	16	16.0	14.7
3:00 AM	27	22	15	7	22	20	29	24.0	20.3
4:00 AM	54	37	22	16	54	47	62	50.8	41.7
5:00 AM	168	182	48	28	177	166	177	174.0	135.1
6:00 AM	422	418	162	67	429	415	432	423.2	335.0
7:00 AM	583	537	273	137	519	569	568	555.2	455.1
8:00 AM	537	461	406	216	459	467	480	480.8	432.3
9:00 AM	410	419	428	308	372	373	378	390.4	384.0
10:00 AM	350	342	537	366	306	290	265	310.6	350.9
11:00 AM	292	332	594	403	254	266	283	285.4	346.3
12:00 PM	321	364	727	457	287	260	259	298.2	382.1
1:00 PM	340	374	710	365	284	264	248	302.0	369.3
2:00 PM	334	369	662	426	305	303	253	312.8	378.9
3:00 PM	468	419	449	369	313	336	365	380.2	388.4
4:00 PM	440	478	337	325	287	373	383	392.2	374.7
5:00 PM	377	413	293	300	286	273	316	333.0	322.6
6:00 PM	317	329	243	253	228	216	189	255.8	253.6
7:00 PM	202	195	224	156	137	130	140	160.8	169.1
8:00 PM	119	127	140	109	79	85	89	99.8	106.9
9:00 PM	86	89	98	43	53	51	71	70.0	70.1
10:00 PM	45	82	98	42	32	25	37	44.2	51.6
11:00 PM	30	49	52	17	19	12	18	25.6	28.1
Totals	5946	6074	6562	4467	4937	4986	5080	5404.6	5436.0
Peak Hours									
12:00 AM - 12:00 PM	7:15 AM	7:15 AM	11:00 AM	11:00 AM	7:15 AM	7:00 AM	7:15 AM	7:15 AM	7:15 AM
Volume	609	555	594	403	538	569	586	567.0	472.1
Factor	0.89	0.88	0.88	0.87	0.92	0.91	0.82	0.96	0.95
12:00 PM - 12:00 AM	3:30 PM	3:45 PM	12:15 PM	12:00 PM	4:15 PM	4:15 PM	3:30 PM	3:30 PM	3:00 PM
Volume	479	508	737	457	320	379	387	402.2	388.4
Factor	0.87	0.93	0.94	0.83	0.78	0.89	0.86	0.97	0.94

WASHINGTON STATE DEPT OF TRANSPORTATION

Site Code : 20305201

PAGE: 1

LOCATION : SR 203

FILE: 20305201

JCT : NE TOLT HILL RD/NE 32ND

MILEPOST : 5.20

Movements by: Primary

DATE: 10/12/11

Time Begin	From West			From North			From East			From South			Vehicle Total
	RT	THRU	LT	RT	THRU	LT	RT	THRU	LT	RT	THRU	LT	
6:30	1	0	13	37	76	0	0	1	0	0	29	3	160
6:45	0	0	6	29	85	2	0	0	0	0	38	4	164
HR TOTAL	1	0	19	66	161	2	0	1	0	0	67	7	324
7:00 AM	4	0	8	39	101	2	0	0	0	0	26	4	184
7:15	1	0	15	47	64	0	1	0	1	1	32	7	169
7:30	4	0	12	37	94	2	1	0	1	1	36	5	193
7:45	2	0	11	29	92	5	2	0	0	0	40	7	188
HR TOTAL	11	0	46	152	351	9	4	0	2	2	134	23	734
8:00 AM	1	0	21	44	94	4	0	1	0	0	34	3	202
8:15	1	1	11	30	84	3	0	0	0	1	36	8	175
DAY TOTAL	14	1	97	292	690	18	4	2	2	3	271	41	1435

PEAK PERIOD ANALYSIS FOR THE PERIOD: 6:30 AM - 8:30 AM

DIRECTION FROM	START PEAK HOUR	PEAK HR FACTOR	..... VOLUMES .....				.... PERCENTS ...		
			Right	Thru	Left	Total	Right	Thru	Left
West	7:15 AM	0.76	8	0	59	67	12	0	88
North	7:30 AM	0.91	140	364	14	518	27	70	3
East	7:15 AM	0.88	4	1	2	7	57	14	29
South	7:30 AM	0.91	2	146	23	171	1	85	13

Entire Intersection

West	7:30 AM	0.73	8	1	55	64	12	2	86
North		0.91	140	364	14	518	27	70	3
East		0.63	3	1	1	5	60	20	20
South		0.91	2	146	23	171	1	85	13

WASHINGTON STATE DEPT OF TRANSPORTATION

Site Code : 20305204

PAGE: 1

LOCATION : SR 203

FILE: 20305204

JCT : NE TOLT HILL RD/NE 32ND

MILEPOST : 5.20

Movements by: Primary

DATE: 10/06/11

Time Begin	From West			From North			From East			From South			Vehicle Total
	RT	THRU	LT	RT	THRU	LT	RT	THRU	LT	RT	THRU	LT	
10:15	3	3	9	24	49	1	1	0	1	1	24	3	119
10:30	1	5	12	23	46	1	4	0	0	3	34	2	131
DAY TOTAL	4	8	21	47	95	2	5	0	1	4	58	5	250

PEAK PERIOD ANALYSIS FOR THE PERIOD: 10:15 AM - 10:45 AM

DIRECTION FROM	START PEAK HOUR	PEAK HR FACTOR	..... VOLUMES .....			.... PERCENTS ...		
			Right	Thru	Left	Right	Thru	Left

WASHINGTON STATE DEPT OF TRANSPORTATION

Site Code : 20305203

PAGE: 1

LOCATION : SR 203

FILE: 20305203

JCT : NE TOLT HILL RD/NE 32ND

MILEPOST : 5.20

Movements by: Primary

DATE: 10/12/11

Time Begin	From West			From North			From East			From South			Vehicle Total
	RT	THRU	LT	RT	THRU	LT	RT	THRU	LT	RT	THRU	LT	
4:00 PM	4	0	34	22	67	0	1	0	0	1	90	4	223
4:15	3	0	38	31	71	3	3	0	0	2	96	6	253
4:30	4	0	48	14	66	0	0	0	1	2	104	4	243
4:45	9	2	45	19	60	2	3	0	1	1	106	3	251
HR TOTAL	20	2	165	86	264	5	7	0	2	6	396	17	970
5:00 PM	7	0	47	22	59	3	1	0	0	2	116	3	260
5:15	5	0	50	20	61	6	3	0	0	1	118	5	269
5:30	7	2	45	25	80	4	5	2	2	1	105	2	280
5:45	4	0	40	10	56	0	4	0	0	0	81	3	198
HR TOTAL	23	2	182	77	256	13	13	2	2	4	420	13	1007
DAY TOTAL	43	4	347	163	520	18	20	2	4	10	816	30	1977

PEAK PERIOD ANALYSIS FOR THE PERIOD: 4:00 PM - 6:00 PM

DIRECTION FROM	START PEAK HOUR	PEAK HR FACTOR	..... VOLUMES .....				.... PERCENTS ...		
			Right	Thru	Left	Total	Right	Thru	Left
West	4:45 PM	0.98	28	4	187	219	13	2	85
North	4:45 PM	0.83	86	260	15	361	24	72	4
East	4:45 PM	0.47	12	2	3	17	71	12	18
South	4:30 PM	0.94	6	444	15	465	1	95	3

Entire Intersection

West	4:45 PM	0.98	28	4	187	219	13	2	85
North		0.83	86	260	15	361	24	72	4
East		0.47	12	2	3	17	71	12	18
South		0.93	5	445	13	463	1	96	3



Attachment C

Speed Counts

NB

Start Time	18-Jun-12 Mon	16	21	26	31	36	41	46	51	56	61	66	71	76	Mon Total	85th
06:18/12	1	2	8	16	2	0	0	0	0	0	0	0	0	0	29	30
01:00	0	1	2	7	1	1	0	0	0	0	0	0	0	0	12	30
02:00	0	0	3	3	3	0	0	0	0	0	0	0	0	0	9	32
03:00	0	0	0	5	2	0	0	0	0	0	0	0	0	0	7	32
04:00	1	1	4	5	3	0	0	0	0	0	0	0	0	0	14	31
05:00	0	1	9	23	6	0	0	0	0	0	0	0	0	0	39	30
06:00	7	8	34	67	10	1	0	0	0	0	0	0	0	0	127	30
07:00	20	22	50	45	6	1	0	0	0	0	0	0	0	0	144	29
08:00	22	37	79	74	7	1	0	0	0	0	0	0	0	0	220	29
09:00	25	13	86	86	9	1	0	0	0	0	0	0	0	0	220	29
10:00	17	23	87	71	7	0	1	0	0	0	0	0	0	0	206	29
11:00	18	18	90	72	11	0	0	0	0	0	0	0	0	0	209	29
12 PM	25	24	93	90	7	1	0	0	0	0	0	0	0	0	240	29
13:00	31	22	103	93	8	0	0	0	0	0	0	0	0	0	257	29
14:00	42	70	132	83	2	0	0	0	0	0	0	0	0	0	329	28
15:00	37	36	189	156	11	0	0	0	0	0	0	0	0	0	429	29
16:00	54	41	202	154	8	1	0	0	0	0	0	0	0	0	460	29
17:00	53	57	249	157	9	0	0	0	0	0	0	0	0	0	525	28
18:00	23	32	180	163	9	0	0	0	0	0	0	0	0	0	407	29
19:00	17	39	113	104	9	0	0	0	0	0	0	0	0	0	282	29
20:00	7	18	73	98	17	0	0	0	0	0	0	0	0	0	213	30
21:00	2	15	39	66	4	0	0	0	0	0	0	0	0	0	126	29
22:00	0	4	25	31	7	1	0	0	0	0	0	0	0	0	68	30
23:00	1	1	11	18	1	0	0	0	0	0	0	0	0	0	32	29

Peak Vol.	16:00	14:00	17:00	18:00	20:00	01:00	10:00	17:00
	54	70	249	163	17	1	1	525

Daily

15th Percentile : 18 MPH
 50th Percentile : 24 MPH
 85th Percentile : 29 MPH
 95th Percentile : 30 MPH
 Mean Speed(Average) : 23 MPH
 10 MPH Pace Speed : 21-30 MPH
 Number in Pace : 3548
 Percent in Pace : 77.1%
 Number of Vehicles > 55 MPH : 0
 Percent of Vehicles > 55 MPH : 0.0%

All Traffic Data Services Inc.
 2225 NE 27th St
 Renton, WA 98056
 Ph. 206-251-0300

Site Code: 01

SR 203 S/O EUGENE ST

NB

Start Time	19-Jun-12 Tue	16	20	21	25	26	30	31	35	36	40	41	45	46	50	51	55	56	60	61	65	66	70	71	75	76	799	Total	85th
06/19/12	0	0	0	3	3	9	3	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15	31
01:00	1	4	2	2	0	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	19	29
02:00	0	1	3	3	0	3	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	30
03:00	0	0	3	3	4	4	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9	31
04:00	0	0	4	4	11	11	5	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20	32	
05:00	4	4	17	17	10	5	1	5	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	41	30	
06:00	11	11	42	42	56	8	0	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	128	29	
07:00	23	19	71	71	63	6	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	182	29	
08:00	61	33	95	95	48	6	0	6	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	244	27	
09:00	30	18	88	88	80	5	0	5	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	222	29	
10:00	15	9	75	75	93	11	0	11	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	204	29	
11:00	29	34	91	91	72	9	0	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	235	29	
12 PM	29	31	110	110	61	3	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	234	28	
13:00	29	32	135	135	98	7	0	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	301	29	
14:00	40	68	132	132	81	7	0	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	328	28	
15:00	56	80	156	156	127	12	0	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	431	28	
16:00	105	71	200	200	141	13	0	13	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	531	28	
17:00	66	85	229	229	157	5	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	542	28	
18:00	34	35	167	167	173	18	0	18	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	428	29	
19:00	18	20	82	82	137	16	0	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	273	30	
20:00	8	12	53	53	112	10	0	10	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	196	30	
21:00	2	14	62	62	68	12	0	12	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	159	30	
22:00	1	3	29	29	64	10	0	10	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	108	30	
23:00	0	0	9	9	24	3	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	36	30	

Peak Vol.	16:00	17:00	17:00	17:00	18:00	18:00	18:00	18:00	02:00	08:00	17:00
	105	85	229	229	173	173	18	18	1	1	542

Daily

15th Percentile : 17 MPH
 50th Percentile : 24 MPH
 85th Percentile : 29 MPH
 95th Percentile : 30 MPH
 Mean Speed(Average) : 23 MPH
 10 MPH Pace Speed : 21-30 MPH
 Number in Pace : 3562
 Percent in Pace : 72.8%
 Number of Vehicles > 55 MPH : 0
 Percent of Vehicles > 55 MPH : 0.0%

All Traffic Data Services Inc.
 2225 NE 27th St
 Renton, WA 98056
 Ph. 206-251-0300

Site Code: 01

SR 203 S/O EUGENE ST

NB

Start Time	20-Jun-12 Wed	16	21	26	31	36	41	46	51	56	61	66	71	76	Wed Total	85th
06/20/12	2	0	4	15	6	0	1	1	0	0	0	0	0	0	29	33
01:00	0	1	6	13	3	0	0	0	0	0	0	0	0	0	23	30
02:00	0	0	2	6	2	0	0	0	0	0	0	0	0	0	10	31
03:00	0	0	2	3	3	0	0	0	0	0	0	0	0	0	8	33
04:00	0	2	7	8	3	0	0	0	0	0	0	0	0	0	20	30
05:00	4	2	9	20	8	0	0	0	0	0	0	0	0	0	43	31
06:00	12	8	35	70	22	4	0	0	0	0	0	0	0	0	151	31
07:00	28	19	49	66	5	0	0	0	0	0	0	0	0	0	167	29
08:00	39	29	99	75	10	0	0	0	0	0	0	0	0	0	252	29
09:00	28	24	90	87	9	1	0	0	0	0	0	0	0	0	239	29
10:00	25	16	88	94	10	1	0	0	0	0	0	0	0	0	234	29
11:00	32	23	105	74	4	0	0	0	0	0	0	0	0	0	238	28
12 PM	30	39	123	71	3	0	0	0	0	0	0	0	0	0	266	28
13:00	39	36	109	106	6	0	1	0	0	0	0	0	0	0	297	29
14:00	76	67	132	68	6	0	1	0	0	0	0	0	0	0	350	27
15:00	44	58	177	146	8	2	0	0	0	0	0	0	0	0	435	29
16:00	76	75	258	148	9	2	1	0	0	0	0	0	0	0	569	28
17:00	63	108	240	154	4	0	0	0	0	0	0	0	0	0	569	28
18:00	83	37	164	74	4	1	1	0	0	0	0	0	0	0	364	27
19:00	17	58	150	62	6	0	0	0	0	0	0	0	0	0	293	27
20:00	62	192	167	27	2	0	0	0	0	0	0	0	0	0	450	24
21:00	5	11	84	84	8	0	0	0	0	0	0	0	0	0	192	29
22:00	3	7	40	43	4	1	0	0	0	0	0	0	0	0	98	29
23:00	2	3	15	19	6	0	0	0	0	0	0	0	0	0	45	30

Peak Vol.	18:00	20:00	16:00	16:00	06:00	06:00	00:00	00:00	16:00
83	192	258	22	4	1	1	1	1	569

Daily

15th Percentile : 16 MPH
 50th Percentile : 23 MPH
 85th Percentile : 28 MPH
 95th Percentile : 30 MPH
 Mean Speed(Average) : 22 MPH
 10 MPH Pace Speed : 21-30 MPH
 Number in Pace : 3688
 Percent in Pace : 69.0%
 Number of Vehicles > 55 MPH : 0
 Percent of Vehicles > 55 MPH : 0.0%

NB

Start Time	21-Jun-12 Thu	16	20	21	25	26	30	31	35	36	40	41	45	46	50	51	55	56	60	61	65	66	70	71	75	76	799	Total	85th
06/21/12	0	2	2	5	5	13	13	1	1	2	2	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	24	34
01:00	0	1	1	3	3	6	6	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12	30
02:00	2	2	1	1	1	4	4	3	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12	31
03:00	1	2	3	3	3	4	4	3	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13	31
04:00	1	2	4	4	4	8	8	7	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	22	33
05:00	1	3	11	11	11	23	23	7	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	45	30
06:00	12	10	25	25	14	22	22	14	14	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	134	30
07:00	20	23	64	64	47	47	47	11	11	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	166	29
08:00	39	31	108	108	88	88	88	9	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	275	29
09:00	20	15	91	91	94	94	13	13	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	235	29
10:00	22	30	109	109	88	88	9	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	258	29
11:00	28	29	97	97	73	73	7	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	234	29
12 PM	42	50	146	146	84	84	9	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	331	28
13:00	27	40	110	110	106	106	7	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	290	29
14:00	47	89	153	153	61	61	2	2	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	353	26
15:00	55	56	211	211	161	161	11	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	494	29
16:00	90	64	177	177	174	174	3	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	508	28
17:00	141	97	208	208	108	108	8	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	562	27
18:00	36	31	155	155	144	144	16	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	382	29
19:00	14	27	100	100	156	156	11	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	308	29
20:00	17	25	96	96	97	97	6	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	241	29
21:00	8	11	70	70	82	82	10	10	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	182	29
22:00	8	3	23	23	68	68	8	8	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	111	30
23:00	0	2	10	10	31	31	8	8	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	52	31

Peak Vol.	17:00	17:00	15:00	15:00	16:00	16:00	18:00	18:00	00:00	00:00	17:00
Vol.	141	97	211	211	174	174	16	16	1	2	562

Daily

15th Percentile : 17 MPH
 50th Percentile : 24 MPH
 85th Percentile : 29 MPH
 95th Percentile : 30 MPH

Mean Speed(Average) : 23 MPH
 10 MPH Pace Speed : 21-30 MPH
 Number in Pace : 3772
 Percent in Pace : 71.9%
 Number of Vehicles > 55 MPH : 0
 Percent of Vehicles > 55 MPH : 0.0%

NB

Start Time	22-Jun-12	16	21	26	31	36	41	46	51	56	61	66	71	76	Fri	Total	85th
	Fri	20	25	30	35	40	45	50	55	60	65	70	75	999			
06/22/12	1	0	6	22	7	1	0	0	0	0	0	0	0	0	37	32	
01:00	0	0	9	8	0	0	0	0	0	0	0	0	0	0	17	29	
02:00	1	0	2	4	4	0	0	0	0	0	0	0	0	0	11	33	
03:00	2	0	0	5	1	0	0	0	0	0	0	0	0	0	8	30	
04:00	0	1	2	15	5	0	0	0	0	0	0	0	0	0	23	32	
05:00	4	3	8	19	5	0	0	0	0	0	0	0	0	0	39	30	
06:00	11	13	22	55	18	0	0	0	0	0	0	0	0	0	119	30	
07:00	28	17	62	59	6	1	0	0	0	0	0	0	0	0	173	29	
08:00	31	35	115	69	8	0	0	0	0	0	0	0	0	0	258	28	
09:00	16	28	92	66	9	1	0	1	0	0	0	0	0	0	213	29	
10:00	21	25	85	77	4	0	0	0	0	0	0	0	0	0	212	29	
11:00	36	85	126	50	6	0	0	0	0	0	0	0	0	0	303	27	
12 PM	35	55	143	86	3	0	0	0	0	0	0	0	0	0	322	28	
13:00	35	36	142	82	4	1	0	0	0	0	0	0	0	0	300	28	
14:00	38	42	122	116	8	0	0	0	0	0	0	0	0	0	326	29	
15:00	99	70	184	110	10	0	1	0	0	0	0	0	0	0	474	28	
16:00	104	65	204	124	10	0	0	0	0	0	0	0	0	0	507	28	
17:00	51	41	207	162	10	0	0	1	0	0	0	0	0	0	472	29	
18:00	33	43	150	127	14	0	0	0	0	0	0	0	0	0	367	29	
19:00	10	27	105	108	8	0	0	0	0	0	0	0	0	0	258	29	
20:00	6	15	60	86	11	0	0	0	0	0	0	0	0	0	178	30	
21:00	5	6	51	69	8	0	0	0	0	0	0	0	0	0	139	30	
22:00	2	2	37	57	13	0	0	0	0	0	0	0	0	0	111	30	
23:00	0	4	16	27	4	0	0	0	0	0	0	0	0	0	51	30	

Peak Vol.	16:00	11:00	17:00	17:00	17:00	06:00	00:00	15:00	09:00	16:00
	104	85	207	207	18	1	1	1	1	507

Daily

15th Percentile : 17 MPH
 50th Percentile : 24 MPH
 85th Percentile : 29 MPH
 95th Percentile : 30 MPH
 Mean Speed(Average) : 23 MPH
 10 MPH Pace Speed : 21-30 MPH
 Number in Pace : 3553
 Percent in Pace : 72.2%
 Number of Vehicles > 55 MPH : 0
 Percent of Vehicles > 55 MPH : 0.0%

Start Time	23-Jun-12												Total	85th		
	Sat	20	21	26	31	36	41	46	51	56	61	66			71	76	Sat
06/23/12	0	1	8	33	4	0	0	0	0	0	0	0	0	0	46	30
01:00	1	1	10	12	3	0	1	0	0	0	0	0	0	0	28	30
02:00	1	0	3	16	4	0	0	0	0	0	0	0	0	24	31	
03:00	0	1	1	11	1	1	0	0	0	0	0	0	0	15	30	
04:00	0	0	1	12	1	1	0	0	0	0	0	0	0	15	30	
05:00	0	1	4	12	4	1	1	0	0	0	0	0	0	23	33	
06:00	0	7	21	23	5	0	0	0	0	0	0	0	0	56	30	
07:00	1	12	27	36	11	0	0	0	0	0	0	0	0	87	30	
08:00	10	9	47	57	10	0	0	0	0	0	0	0	0	133	30	
09:00	16	16	49	78	9	0	0	0	0	0	0	0	0	168	29	
10:00	25	22	111	105	20	1	0	0	0	0	0	0	0	284	29	
11:00	25	22	104	109	13	1	0	1	0	0	0	0	0	275	29	
12 PM	41	29	113	122	11	0	0	0	0	0	0	0	0	316	29	
13:00	40	36	121	115	17	1	0	0	0	0	0	0	0	330	29	
14:00	37	30	102	134	19	1	0	0	0	0	0	0	0	323	29	
15:00	41	36	143	123	20	0	0	0	0	0	0	0	0	363	29	
16:00	18	31	105	129	14	0	0	0	0	0	0	0	0	297	29	
17:00	19	6	96	107	14	0	0	0	0	0	0	0	0	242	29	
18:00	24	25	70	100	18	1	0	0	0	0	0	0	0	238	30	
19:00	2	11	52	103	24	1	1	0	0	0	0	0	0	194	30	
20:00	6	11	64	81	15	1	1	0	0	0	0	0	0	179	30	
21:00	5	14	58	60	7	0	0	0	0	0	0	0	0	144	29	
22:00	4	5	47	61	13	0	0	0	0	0	0	0	0	130	30	
23:00	1	2	18	55	18	0	0	0	0	0	0	0	0	94	31	
Peak Vol.	41	12:00	13:00	15:00	19:00	03:00	01:00	11:00							15:00	
			36	143	24	1	1	1							363	

Daily

15th Percentile : 20 MPH
 50th Percentile : 25 MPH
 85th Percentile : 30 MPH
 95th Percentile : 32 MPH

Mean Speed(Average) : 24 MPH
 10 MPH Pace Speed : 21-30 MPH
 Number in Pace : 3069
 Percent in Pace : 76.6%
 Number of Vehicles > 55 MPH : 0
 Percent of Vehicles > 55 MPH : 0.0%

Grand Total 3152 3470 11179 10013 1122 51 15 4 0 0 0 0 0 0 29006

TOTAL STATS

15th Percentile : 17 MPH
50th Percentile : 24 MPH
85th Percentile : 29 MPH
95th Percentile : 30 MPH
Mean Speed(Average) : 23 MPH
10 MPH Pace Speed : 21-30 MPH
Number in Pace : 21192
Percent in Pace : 73.1%
Number of Vehicles > 55 MPH : 0
Percent of Vehicles > 55 MPH : 0.0%

All Traffic Data Services Inc.
 2225 NE 27th St
 Renton, WA 98056
 Ph. 206-251-0300

Site Code: 01

SR 203 S/O EUGENE ST

SB

Start Time	18-Jun-12 Mon	20	21	25	26	30	31	35	40	41	45	50	51	55	60	65	70	75	76	999	Mon Total	85th
06/18/12	3	0	0	0	4	4	4	4	0	0	0	0	0	0	0	0	0	0	0	0	11	33
01:00	1	0	1	1	3	5	5	1	1	0	0	0	0	0	0	0	0	0	0	0	11	35
02:00	0	0	2	2	6	3	3	0	0	0	0	0	0	0	0	0	0	0	0	0	11	32
03:00	1	2	1	1	17	7	7	0	0	0	0	0	0	0	0	0	0	0	0	0	28	32
04:00	7	2	2	2	25	8	8	0	0	0	0	0	0	0	0	0	0	0	0	0	44	31
05:00	11	10	16	112	39	3	3	0	0	0	0	0	0	0	0	0	0	0	0	0	191	32
06:00	24	32	53	203	83	1	83	0	0	0	0	0	0	0	0	0	0	0	0	0	396	32
07:00	43	41	176	241	25	1	25	0	0	0	0	0	0	0	0	0	0	0	0	0	527	29
08:00	30	39	131	195	31	0	31	0	0	0	0	0	0	0	0	0	0	0	0	0	426	30
09:00	27	36	89	179	21	2	21	0	2	0	0	0	0	0	0	0	0	0	0	0	354	30
10:00	29	19	63	121	23	0	23	0	0	0	0	0	0	0	0	0	0	0	0	0	255	30
11:00	27	19	58	114	14	2	14	0	2	0	0	0	0	0	0	0	0	0	0	0	234	30
12 PM	34	7	52	113	32	1	32	0	1	0	0	0	0	0	0	0	0	0	0	0	239	30
13:00	31	25	61	113	24	2	24	0	2	0	0	0	0	0	0	0	0	0	0	0	256	30
14:00	34	24	93	115	14	0	14	0	0	0	0	0	0	0	0	0	0	0	0	0	280	29
15:00	42	25	81	117	25	3	25	0	3	0	0	0	0	0	0	0	0	0	0	0	293	30
16:00	51	22	63	142	18	0	18	0	0	1	0	0	1	0	0	0	0	0	0	0	298	30
17:00	36	20	42	133	34	3	34	0	3	0	0	0	0	0	0	0	0	0	0	0	268	30
18:00	31	20	43	103	27	1	27	0	1	0	0	0	0	0	0	0	0	0	0	0	225	30
19:00	25	15	34	56	14	0	14	0	0	0	0	0	0	0	0	0	0	0	0	0	144	30
20:00	15	12	21	47	12	0	12	0	0	0	0	0	0	0	0	0	0	0	0	0	107	30
21:00	6	7	16	54	10	0	10	0	0	0	0	0	0	0	0	0	0	0	0	0	93	30
22:00	3	4	8	18	4	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	37	30
23:00	3	1	6	10	8	0	8	0	0	0	0	0	0	0	0	0	0	0	0	0	28	33
Peak Vol.	16:00	51	07:00	41	07:00	176	06:00	83	05:00	3	16:00	1	16:00	1	07:00	527						

Daily

15th Percentile : 18 MPH
 50th Percentile : 26 MPH
 85th Percentile : 30 MPH
 95th Percentile : 33 MPH
 Mean Speed(Average) : 24 MPH
 10 MPH Pace Speed : 21-30 MPH
 Number in Pace : 3353
 Percent in Pace : 70.5%
 Number of Vehicles > 55 MPH : 0
 Percent of Vehicles > 55 MPH : 0.0%

All Traffic Data Services Inc.
 2225 NE 27th St
 Renton, WA 98056
 Ph. 206-251-0300

Site Code: 01

SR 203 S/O EUGENE ST

SB

Start	19-Jun-12	16	21	26	31	36	41	46	51	56	61	66	71	76	Tue	85th
Time	Tue	20	25	30	35	40	45	50	55	60	65	70	75	999	Total	
06/19/12	0	0	4	9	1	0	0	1	0	0	0	0	0	0	15	30
01:00	3	1	3	1	1	0	0	0	0	0	0	0	0	0	9	29
02:00	0	0	4	3	2	1	0	0	0	0	0	0	0	0	10	33
03:00	1	0	3	15	3	0	0	0	0	0	0	0	0	0	22	30
04:00	5	5	11	26	11	0	0	0	0	0	0	0	0	0	58	31
05:00	17	8	37	113	22	1	0	0	0	0	0	0	0	0	198	30
06:00	20	33	70	209	46	1	0	0	0	0	0	0	0	0	379	30
07:00	36	37	167	228	28	0	0	0	0	0	0	0	0	0	496	29
08:00	54	47	172	170	18	1	0	0	0	0	0	0	0	0	462	29
09:00	34	35	123	174	28	2	0	0	0	0	0	0	0	0	396	30
10:00	25	14	48	119	32	0	0	0	0	0	0	0	0	0	238	30
11:00	23	25	59	123	24	1	0	0	0	0	0	0	0	0	255	30
12 PM	48	23	104	101	8	1	0	0	0	0	0	0	0	0	285	29
13:00	37	26	59	110	15	1	0	0	0	0	0	0	0	0	248	30
14:00	34	36	116	94	13	0	0	0	0	0	0	0	0	0	293	29
15:00	51	23	105	125	11	2	0	0	0	0	0	0	0	0	317	29
16:00	59	32	79	133	20	3	0	0	0	0	0	0	0	0	326	30
17:00	58	21	58	141	41	0	1	0	0	0	0	0	0	0	320	30
18:00	37	24	46	96	48	1	0	0	0	0	0	0	0	0	252	32
19:00	22	13	27	106	26	5	0	0	0	0	0	0	0	0	199	31
20:00	14	12	18	70	16	2	1	0	0	0	0	0	0	0	133	30
21:00	11	13	22	42	10	3	0	0	0	0	0	0	0	0	101	30
22:00	3	6	12	20	9	0	1	0	0	0	0	0	0	0	51	32
23:00	2	1	2	14	1	1	0	0	0	0	0	0	0	0	21	30

Peak	16:00	08:00	08:00	07:00	18:00	19:00	17:00	00:00	07:00
Vol.	59	47	172	228	48	5	1	1	496

Daily

15th Percentile : 17 MPH
 50th Percentile : 26 MPH
 85th Percentile : 30 MPH
 95th Percentile : 33 MPH
 Mean Speed(Average) : 24 MPH
 10 MPH Pace Speed : 21-30 MPH
 Number in Pace : 3591
 Percent in Pace : 70.6%
 Number of Vehicles > 55 MPH : 0
 Percent of Vehicles > 55 MPH : 0.0%

All Traffic Data Services Inc.
 2225 NE 27th St
 Renton, WA 98056
 Ph. 206-251-0300

Site Code: 01

SR 203 S/O EUGENE ST

SB

Start Time	20-Jun-12 Wed	16	21	25	26	30	31	35	40	45	50	55	60	65	70	75	999	Wed Total	85th
06:00	1	1	1	1	7	7	2	2	1	0	0	0	0	0	0	0	0	13	32
01:00	2	1	0	3	3	3	3	3	1	0	0	0	0	0	0	0	0	10	34
02:00	1	0	2	2	11	11	2	2	0	0	0	0	0	0	0	0	0	16	30
03:00	2	1	1	13	13	13	5	5	1	0	0	0	0	0	0	0	0	23	33
04:00	5	1	7	27	27	27	8	8	0	0	0	0	0	0	0	0	0	48	31
05:00	8	11	23	116	116	116	40	40	1	0	0	0	0	0	0	0	0	199	32
06:00	26	21	52	212	212	212	64	64	3	0	0	0	0	0	0	0	0	378	31
07:00	43	40	163	220	220	220	45	45	2	0	0	0	0	0	0	0	0	513	30
08:00	44	30	133	221	221	221	24	24	2	0	0	0	0	0	0	0	0	454	30
09:00	39	33	106	164	164	164	21	21	1	0	0	0	0	0	0	0	0	364	29
10:00	28	21	90	164	164	164	21	21	1	0	0	0	0	0	0	0	0	325	30
11:00	31	24	80	139	139	139	31	31	2	0	0	0	0	0	0	0	0	307	30
12 PM	31	31	79	112	112	112	21	21	0	0	0	0	0	0	0	0	0	274	30
13:00	43	22	101	129	129	129	16	16	4	0	0	0	0	0	0	0	0	315	29
14:00	43	23	100	106	106	106	10	10	0	0	0	0	0	0	0	0	0	282	29
15:00	56	24	94	103	103	103	16	16	0	0	0	0	0	0	0	0	0	293	29
16:00	60	33	92	147	147	147	23	23	0	0	0	0	0	0	0	0	0	355	29
17:00	43	29	64	160	160	160	23	23	2	0	0	0	0	0	0	0	0	321	30
18:00	95	33	157	168	168	168	20	20	1	0	0	0	0	0	0	0	0	474	29
19:00	30	26	58	69	69	69	13	13	1	0	0	0	0	0	0	0	0	197	29
20:00	36	21	53	53	53	53	3	3	0	0	0	0	0	0	0	0	0	166	28
21:00	12	5	28	44	44	44	10	10	0	0	0	0	0	0	0	0	0	99	30
22:00	6	8	15	29	29	29	3	3	0	0	0	0	0	0	0	0	0	61	29
23:00	1	3	7	18	18	18	7	7	1	0	0	0	0	0	0	0	0	37	32

Peak Vol.	18:00	07:00	07:00	07:00	08:00	06:00	13:00	07:00
95	40	163	221	64	4	513	07:00	513

Daily

15th Percentile : 17 MPH
 50th Percentile : 26 MPH
 85th Percentile : 30 MPH
 95th Percentile : 33 MPH
 Mean Speed(Average) : 24 MPH
 10 MPH Pace Speed : 21-30 MPH
 Number in Pace : 3941
 Percent in Pace : 71.3%
 Number of Vehicles > 55 MPH : 0
 Percent of Vehicles > 55 MPH : 0.0%

All Traffic Data Services Inc.
 2225 NE 27th St
 Renton, WA 98056
 Ph. 206-251-0300

Site Code: 01

SR 203 S/O EUGENE ST

SB

Start Time	21-Jun-12 Thu	16	20	21	25	26	30	31	35	40	36	41	45	50	46	51	55	60	56	61	65	66	70	71	75	76	999	Total	85th
06/21/12 01:00	1	1	3	1	2	2	2	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12	33
02:00	0	0	1	1	2	2	3	3	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	35
03:00	1	1	6	3	3	3	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11	27	
04:00	5	1	4	4	17	17	17	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	33	31	
05:00	5	3	4	4	24	24	24	7	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	44	31	
06:00	14	9	18	18	107	107	107	53	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	202	33	
07:00	27	31	51	51	234	234	234	48	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	391	30	
08:00	46	49	177	177	208	208	208	32	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	512	29	
09:00	45	30	136	136	181	181	181	25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	417	29	
10:00	32	24	122	122	180	180	180	21	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	380	30	
11:00	24	27	69	69	167	167	167	23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	310	30	
12 PM	37	27	82	82	130	130	130	16	2	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	294	29	
13:00	52	29	91	91	124	124	124	28	3	3	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	327	30	
14:00	40	24	98	98	134	134	134	19	2	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	317	29	
15:00	47	25	151	151	98	98	98	12	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	334	29	
16:00	52	25	66	66	126	126	126	15	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	285	29	
17:00	70	27	110	110	179	179	179	27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	413	30	
18:00	80	26	89	89	149	149	149	25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	369	29	
19:00	46	21	64	64	123	123	123	29	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	285	30	
20:00	26	16	39	39	93	93	93	27	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	202	30	
21:00	17	11	31	31	68	68	68	26	2	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	155	31	
22:00	13	6	24	24	47	47	47	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	106	30	
23:00	9	9	4	4	34	34	34	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	63	30	
23:00	1	5	8	8	15	15	15	5	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	35	31	

Peak Vol.	17:00	07:00	07:00	07:00	05:00	12:00	14:00	07:00
80	49	177	177	177	53	3	1	512

Daily

15th Percentile : 17 MPH
 50th Percentile : 26 MPH
 85th Percentile : 30 MPH
 95th Percentile : 33 MPH
 Mean Speed(Average) : 24 MPH
 10 MPH Pace Speed : 21-30 MPH
 Number in Pace : 3893
 Percent in Pace : 70.7%
 Number of Vehicles > 55 MPH : 0
 Percent of Vehicles > 55 MPH : 0.0%

All Traffic Data Services Inc.
 2225 NE 27th St
 Renton, WA 98056
 Ph. 206-251-0300

Site Code: 01

SR 203 S/O EUGENE ST

SB

Start Time	22-Jun-12	16	21	26	31	36	41	46	51	56	61	66	71	76	Fri Total	85th
06/22/12	4	0	4	8	3	0	0	0	0	0	0	0	0	0	19	30
01:00	1	0	1	4	3	0	0	0	0	0	0	0	0	0	9	32
02:00	3	1	3	10	1	0	0	0	0	0	0	0	0	0	18	30
03:00	2	1	1	10	5	2	0	0	0	0	0	0	0	0	21	34
04:00	5	3	5	15	5	2	0	0	0	0	0	0	0	0	35	32
05:00	9	9	26	107	36	1	0	0	0	0	0	0	0	0	188	32
06:00	29	24	49	195	52	0	0	0	0	0	0	0	0	0	349	30
07:00	45	58	155	210	35	1	1	0	0	0	0	0	0	0	505	30
08:00	34	31	138	152	17	0	0	0	0	0	0	0	0	0	372	29
09:00	39	31	104	165	28	0	0	0	0	0	0	0	0	0	367	30
10:00	29	23	78	147	20	0	0	0	0	0	0	0	0	0	297	30
11:00	43	38	120	113	19	2	0	0	0	0	0	0	0	0	335	29
12 PM	51	42	100	123	24	1	0	0	0	0	0	0	0	0	341	29
13:00	40	33	110	177	23	0	0	0	0	0	0	0	0	0	383	30
14:00	37	19	88	176	28	2	0	0	0	0	0	0	0	0	350	30
15:00	51	31	58	154	38	2	0	0	0	0	0	0	0	0	334	30
16:00	77	33	56	149	39	2	0	0	0	0	0	0	0	0	356	30
17:00	47	17	52	174	60	2	0	0	0	0	0	0	0	0	352	31
18:00	23	20	44	123	33	2	0	0	0	0	0	0	0	0	245	30
19:00	21	25	44	82	20	3	0	0	0	0	0	0	0	0	195	30
20:00	10	11	14	70	16	2	0	0	0	0	0	0	0	0	123	30
21:00	10	9	22	63	11	0	0	1	0	0	0	0	0	0	116	30
22:00	3	6	9	41	11	0	0	0	0	0	0	0	0	0	70	31
23:00	3	4	11	18	4	0	0	0	0	0	0	0	0	0	40	30

Peak Vol.	16:00	07:00	07:00	07:00	17:00	19:00	07:00	21:00	07:00
77	58	155	155	155	60	3	1	1	505

Daily

15th Percentile : 18 MPH
 50th Percentile : 26 MPH
 85th Percentile : 30 MPH
 95th Percentile : 33 MPH
 Mean Speed(Average) : 24 MPH
 10 MPH Pace Speed : 21-30 MPH
 Number in Pace : 3778
 Percent in Pace : 69.7%
 Number of Vehicles > 55 MPH : 0
 Percent of Vehicles > 55 MPH : 0.0%

All Traffic Data Services Inc.
 2225 NE 27th St
 Renton, WA 98056
 Ph. 206-251-0300

Site Code: 01

SR 203 S/O EUGENE ST

SB

Start Time	23-Jun-12 Sat	16	21	26	31	36	41	46	51	56	61	66	71	76	Sat Total	85th
06:23/12	0	1	1	13	7	0	0	0	0	0	0	0	0	0	22	33
01:00	0	2	2	4	2	2	0	0	0	0	0	0	0	0	12	35
02:00	1	0	1	1	1	0	0	0	1	0	0	0	0	0	5	32
03:00	1	0	2	6	4	0	0	0	0	0	0	0	0	0	13	32
04:00	0	2	6	8	5	0	0	0	0	0	0	0	0	0	21	32
05:00	4	3	0	23	7	1	0	0	0	0	0	0	0	0	38	32
06:00	13	7	18	44	25	0	0	0	0	0	0	0	0	0	107	32
07:00	16	13	14	93	32	3	0	0	0	0	0	0	0	0	171	32
08:00	16	24	27	150	39	5	0	0	0	0	0	0	0	0	261	31
09:00	29	33	56	140	52	2	0	0	0	0	0	0	0	0	312	31
10:00	37	18	64	167	40	2	0	0	0	0	0	0	0	0	328	30
11:00	42	39	60	166	38	0	0	0	0	0	0	0	0	0	345	30
12 PM	44	17	87	146	33	1	0	0	0	0	0	0	0	0	328	30
13:00	46	24	63	157	41	0	0	0	0	0	0	0	0	0	331	30
14:00	40	33	67	148	38	3	0	0	0	0	0	0	0	0	329	30
15:00	32	25	73	126	42	5	1	0	0	0	0	0	0	0	304	31
16:00	34	17	54	130	39	5	0	1	0	0	0	0	0	0	280	31
17:00	30	26	49	90	33	3	0	0	0	0	0	0	0	0	231	31
18:00	21	15	25	101	38	3	0	0	0	0	0	0	0	0	203	32
19:00	15	19	17	68	46	3	0	0	0	0	0	0	0	0	168	33
20:00	20	14	35	80	21	3	0	0	0	0	0	0	0	0	173	30
21:00	12	10	28	57	12	1	0	0	0	0	0	0	0	0	120	30
22:00	6	11	17	43	16	0	0	0	0	0	0	0	0	0	93	31
23:00	4	2	13	34	8	1	1	0	0	0	0	0	0	0	63	31
Peak Vol.	46	39	87	167	52	5	1	1	02:00	1	16:00	1	11:00	1	11:00	345

Daily

15th Percentile : 18 MPH
 50th Percentile : 27 MPH
 85th Percentile : 31 MPH
 95th Percentile : 34 MPH
 Mean Speed(Average) : 25 MPH
 10 MPH Pace Speed : 21-30 MPH
 Number in Pace : 2774
 Percent in Pace : 65.1%
 Number of Vehicles > 55 MPH : 0
 Percent of Vehicles > 55 MPH : 0.0%

Grand Total 3563 2510 7486 13844 2975 154 9 3 2 0 0 0 0 0 30546

TOTAL STATS

15th Percentile : 18 MPH
50th Percentile : 26 MPH
85th Percentile : 30 MPH
95th Percentile : 33 MPH
Mean Speed(Average) : 24 MPH
10 MPH Pace Speed : 21-30 MPH
Number in Pace : 21330
Percent in Pace : 69.8%
Number of Vehicles > 55 MPH : 0
Percent of Vehicles > 55 MPH : 0.0%