



720 SW Washington St.
Suite 500
Portland, OR 97205
503.243.3500
www.dksassociates.com

MEMORANDUM

DATE: July 12, 2016

TO: John Lewis, City of Oregon City

FROM: Carl D. Springer, P.E. PTOE, Julie Sosnovske, P.E., Richard Nasiombe

SUBJECT: Washington Street/12th Street Intersection Traffic Analysis, Long-Term Solutions P# 16084-000

This memorandum presents our findings regarding the long-term traffic control solutions at the intersection of Washington Street and 12th Street in Oregon City.

DKS Associates previously provided a short-term field and safety audit review of this location that identified possible quick response measures to help mitigate the recent spike in vehicle crashes. Those findings were presented in a memorandum to the City dated May 31, 2016.¹

Background

The Washington Street/12th Street intersection is a two-way stop controlled intersection, with stop control on 12th Street. For purposes of this memorandum, 12th Street is referred to as having east-west orientation and Washington Street is referred to as having north-south orientation. There is also a flashing signal showing yellow on Washington Street and red on 12th Street. There are vertical curves on both Washington Street and 12th Street. Curb extensions were installed on the west side of Washington Street in 2003 in order to move the stop bar on 12th Street closer to the intersection and provide additional sight distance for vehicles on 12th Street. In 2014 the curb extension at the southwest corner was removed to accommodate turning movements.

Traffic signal warrants were evaluated at this intersection on several occasions, including in 2010 and 2014. Each time, the traffic signal warrants were closer to being met. In the 2010 analysis, no warrants were met, however, in the 2014 analysis one warrant was met and four warrants were anticipated to be met by 2035 (eight-hour warrant, four-hour warrant, peak-hour warrant and crash experience warrant). The warrant analysis results are summarized in Table 1 on the next page. The previous memos on this topic are included in the appendix.

Recently, six collisions occurred at the intersections within a six week period.² These events prompted further attention to the intersection. DKS Associates was directed to prepare a field review and safety audit (Task 1) to determine some low-cost, near-term improvements that could be made (such as trim vegetation and modifying

¹ Memorandum to John Lewis, City of Oregon City, from DKS Associates, Washington Street at 12th Street Safety Audit – New-Term Recommendations, May 31, 2016.

² Based on information provided by City staff, per email dated April 26, 2016 from John Lewis to DKS staff.



signage). In addition, we were asked to update the traffic signal warrant analysis and to assess an alternative traffic control treatment. The findings of this additional analysis are the subject of this memorandum.

To update the signal warrants evaluation, traffic volume data was collected at Washington Street at 12th Street. The counts were collected for two conditions: with and without barricades on Washington Street. The barricades prohibited left turns from Washington Street, and restricted the 12th Street approaches to right-turns in and out only.³

Summary

Traffic Signal Warrant Review Update

Based on updated traffic counts (without the barriers in place), the 12th Street/Washington Street intersection meets two traffic signal warrants in 2016 and is expected to meet two more by next year (2017). The results shown in Table 1 highlight which warrants are met and includes results from the previous studies discussed above.

Given these results, the installation of a traffic signal is warranted. If it is determined that a traffic signal should not be installed immediately, traffic volumes and collision data should continue to be monitored.

Table 1: Traffic Signal Warrant Summary (2016 and 2035)

<i>Warrant</i>	<i>Description</i>	<i>2010</i>	<i>2014</i>	<i>2016</i>	<i>2035</i>	<i>Year Expected to Meet</i>
1	Eight-Hour Vehicular Volume	No	No	No	Yes	2017
2	Four-Hour Vehicular Volume	No	No	Yes	Yes	
3	Peak Hour		No	No	Yes	2017
4	Pedestrian		No	No	No	
5	School Crossing		No	No	No	
6	Coordinated Signal System		No	No	No	
7	Crash Experience	No	Yes	Yes	Yes	
8	Roadway Network		No	No	No	
9	Intersection Near a Grade Crossing		No	No	No	
<i>Total</i>	<i>Number of Warrants Met</i>	<i>0</i>	<i>1</i>	<i>2</i>	<i>4</i>	

³ AM and PM peak hour intersection turn movement counts were collected on May 17, 2016, at the intersections of 14th Street/Washington Street, 12th Street/Washington Street and 7th Street/Washington Street, when barriers in place at the 12th Street/Washington Street intersection, restricting left-turns off of Washington Street and left and through movements off of 12th Street. 14-hour turn movement counts were also collected at the 12th Street/Washington Street intersection on June 1, 2016, with no barriers in place.



Turn Restriction Impacts

Another potential solution the City is considering is a permanent median on Washington Street at the 12th Street intersection, which would restrict left turn movements from Washington Street to 12th Street as well as left turns and through movements from 12th Street.

Following the most recent crashes at this intersection, the City installed temporary barricades on Washington Street to prohibit left-turns on all approaches and also to prohibit through movements on 12th Street crossing Washington Street. Traffic counts were taken while the barricades were in place, and after they were removed to compare these two control cases. The intersection operations were evaluated for both cases. It was found that a modest amount of traffic, six to twelve percent, shifted to adjacent intersections, and the overall operations were acceptable in all cases. However, since most of the fronting development is commercial in nature and since the volume shift is expected to be relatively minor, no overall negative safety or traffic flow impacts are expected.

Therefore, as an alternative to installing traffic signal controls, installing permanent barricades to effectively prohibit these same movements would not adversely impact the overall local circulation system and operations.

2016 Traffic Signal Warrant Analysis

The Manual on Uniform Traffic Control Devices (MUTCD) includes nine traffic signal warrants that must be evaluated to determine whether a traffic signal is warranted at a given location. While one or more of the warrants must be met in order to install a traffic control signal, an engineering study must indicate that installing a traffic control signal will improve the overall safety and operation of the intersection. The study must present a careful analysis of traffic operations, pedestrian and bicyclist needs, as well as other factors. Engineering judgment must be applied to determine whether a traffic signal is an appropriate solution.

The nine traffic signal warrants were evaluated at the study intersection for 2016 traffic volume conditions. Turn movement counts were conducted for the 12th Street/Washington Street intersection on June 1, 2016.⁴

Each of the traffic signal warrants were evaluated for 2016 and 2035 traffic volume conditions. Based on engineering judgment, 25 percent of right turning minor street traffic was removed for warrant analysis. It is typical to remove some portion of right-turns when evaluating signal warrants, since right-turns typically benefit less from the protection of the signal. The number of right-turns removed is subject to engineering judgement since there are a number of factors that determine how many right-turns can safely turn without signal protection. Some factors that were considered at this location were the grades of both intersecting streets and availability of sight distance from 12th Street to Washington Street. If the right turning vehicles were not removed (or if the number of right-turns removed from the calculation was reduced to 15 percent), two additional warrants would be met (Warrants 1 and 3). The results of these analyses were summarized in Table 1. A discussion related to each signal warrant follows (note that italics represent MUTCD text).

⁴ Traffic counts conducted from 6:00 AM to 8:00 PM on June 1, 2016 at 12th Street/Washington Street, Oregon City, Oregon.



Warrant 1 – Eight-Hour Vehicular Volume (Met in Approximately 2017)

This warrant includes two conditions, one of which must be met for each of eight hours:

- *Condition A: Minimum Vehicular Volume (intended for application at locations where a large volume of intersecting traffic is the principal reason to consider installing a traffic signal)*
- *Condition B: Interruption of Continuous Traffic (intended for application at locations where Condition A is not satisfied and where the traffic volume on a major street is so heavy that traffic on a minor intersecting street suffers excessive delay or conflict in entering or crossing the major street)*

If either of these conditions is met with 100 percent of major and minor street volumes, the warrant is considered to be met. If neither condition is met with 100 percent of major and minor street volumes, a combination warrant is possible. The combination warrant requires that both condition A and condition B are met at 80 percent for both major and minor street volumes.

The intersection does not meet Warrant 1 in 2016, but could meet it as soon as 2017. It will definitely meet it in 2035. In 2017, the warrant would likely be met based on Condition B (interruption of continuous traffic) for nine hours of the day (one more than the minimum required eight hours). In 2035 the warrant is expected to be met based on both Condition A (minimum vehicular volume) and Condition B.

Warrant 2 – Four-Hour Vehicular Volume (Met)

The Four-Hour Vehicular Volume signal warrant conditions are intended to be applied where the volume of intersecting traffic is the principal reason to consider installing a traffic control signal. For each of 4 hours of an average day, the plotted points representing the vehicles per hour on the major street (total of both approaches) and the corresponding vehicles per hour on the higher-volume minor-street approach (one direction only) all fall above the applicable curve in Figure 4C-1.

This warrant is currently met, meeting the conditions for five hours of the day (four are required).

Warrant 3 – Peak Hour (Met in Approximately 2017)

The Peak Hour signal warrant is intended for use at a location where traffic conditions are such that for a minimum of one hour of an average day, the minor-street traffic suffers undue delay when entering or crossing the major street.

This warrant is not met under 2016 traffic volume conditions, although it is very close. It may be met as soon as 2017 and is expected to easily be met under 2035 traffic volume conditions.

Warrant 4 – Pedestrian (2016 – Not Met, 2035 – No Forecasts Available)

The Pedestrian Volume signal warrant is intended for application where the traffic volume on a major street is so heavy that pedestrians experience excessive delay in crossing the major street.



There were not enough pedestrians to meet the minimum threshold for this warrant for any hour of the day. Since forecasted pedestrian volumes were not available for 2035, only 2016 volumes were evaluated. Therefore, this warrant is not met.

Warrant 5 – School Crossing (Not Applicable)

The School Crossing signal warrant is intended for application where the fact that schoolchildren cross the major street is the principal reason to consider installing a traffic control signal. For purposes of this warrant, the word “schoolchildren” includes elementary through high school students.

There is not an active elementary, middle or high school in the immediate vicinity of the 12th Street/Washington Street intersection. Therefore, this warrant is not met.

Warrant 6 – Coordinated Signal System (Not Applicable)

Progressive movement in a coordinated signal system sometimes necessitates installing traffic control signals at intersections where they would not otherwise be needed in order to maintain proper platooning of vehicles.

The 12th Street/Washington Street intersection is not located within a coordinated signal system. Therefore, this warrant is not met.

Warrant 7 – Crash Experience (Met)

The Crash Experience signal warrant conditions are intended for application where the severity and frequency of crashes are the principal reasons to consider installing a traffic control signal. A traffic signal should be considered if all of the following criteria are met:

- A. Adequate trial of alternatives with satisfactory observance and enforcement has failed to reduce the crash frequency; and*
- B. Five or more reported crashes, of types susceptible to correction by a traffic control signal, have occurred within a 12-month period; and*
- C. For each of any 8 hours of an average day, the vehicles per hour given in both of the 80 percent columns of Warrant 1 Condition A or Condition B*

Each of these conditions is addressed below:

Condition A: Alternatives that have been tested include reconstruction of the intersection in 2003 to improve the approach grades and install curb extensions on the west side of Washington Street to move the stop bar on 12th Street closer to the intersection in order to improve sight distance. Crash data prior to 2003 is not currently available on ODOT’s website, however, DKS records indicate eight angle/turning collisions occurred in 1999 and five in 2000. When compared with the total angle/turning collisions in recent years following the improvements (See Table 2 below for years 2011 – 2015), it appears that collisions of this type have not substantially decreased.

Condition B: Table 2 below summarizes the number of crashes that are either angle or turning collisions, which could potentially be corrected with the installation of a traffic signal. As shown, five or



more crashes of these types have been observed at the intersection during four of the previous five years. In 2011, eight angle or turning crashes were related to the eastbound approach, which would benefit the most from a traffic signal at this location due to the approach grade.

Table 2: Collisions of Types Susceptible to Correction by Traffic Signal Installation (2011-2015)

<i>Crash Type</i>	<i>2011</i>	<i>2012</i>	<i>2013</i>	<i>2014</i>	<i>2015</i>
Angle	7	6	8	11	3
Turning	3	1	0	1	0
Total Angle/Turning	10	7	8	12	3
Angle/Turning related to eastbound approach	8	4	2	5	1

Condition C: This condition is met for 2016 traffic volume conditions.

Since all three conditions are met in 2016, this warrant is met. In addition, an intersection crash analysis was also conducted and is summarized below.

Intersection Crash Analysis

The intersection crash analysis was performed using the last five years of available data for the years (2011 to 2015).⁵ Over this time period 46 crashes were recorded for this intersection, including one fatality involving a pedestrian. This translates to an intersection crash rate of 1.78 crashes per million entering vehicles (MEV). Over the most recent three-year period (2013-2015), the crash rate is 1.75 crashes per MEV. Intersection crash rates greater than 1.0 per million TEV are generally considered indicators that a further investigation into the cause of the crashes is needed to determine whether the crashes could be related to a geometric or design issue.

Since the crash rate at this location is above 1.0, a more in depth crash analysis was conducted. Most of the crashes occurred during the day under dry conditions, and the cause of these crashes was cited as either “turn” or “angle.” A summary of the crash types reported between 2013 and 2015 is as follows:

- Ten (10) crashes involved drivers traveling eastbound on 12th Street and failing to yield the right of way to the drivers traveling on Washington Street.
- Thirteen (13) crashes involved drivers traveling westbound on 12th Street and failing to yield the right of way to the drivers traveling on Washington Street.
- Four (4) crashes were rear-end crashes, with at least three of those on Washington Street (one did not indicate direction).
- One (1) vehicle hit a fixed object.

While collision data for 2016 was not available from ODOT, the Oregon City Police Department provided 2016 records, indicating that at least six collisions occurred at this intersection in 2016.

⁵ Crash data supplied by the Oregon Department of Transportation for January 2011 through December 2015.



Warrant 8 – Roadway Network (Not Applicable)

Installing a traffic control signal at some intersections might be justified to encourage concentration and organization of traffic flow on a roadway network.

Warrant 9 – Intersection Near a Grade Crossing (Not Applicable)

The Intersection Near a Grade Crossing signal warrant is intended for use at a location where none of the conditions described in the other eight traffic signal warrants are met, but the proximity to the intersection of a grade crossing on an intersection approach controlled by a STOP or YIELD sign is the principal reason to consider installing a traffic control signal.

Traffic Operations

In addition to traffic signal warrants, traffic operations at the study intersection were evaluated for both 2016 and 2035 traffic volume conditions. Intersection performance measures and required operating standards are summarized in the appendix. Since the 12th Street/Washington Street intersection is included in Metro's Regional Center, there are no mobility standards for the minor street approach at an unsignalized intersection.

The results are summarized in Table 3. As shown, the intersection operates at Level of Service (LOS) F for the minor street approach in both 2016 and 2035, however, mobility standards only consider the volume-to-capacity ratio of the worst major street approach. While the estimated volume far exceeds the capacity for several minor street movements in 2035, resulting in excessive delay and v/c (volume-to-capacity) ratios on minor street approaches, the v/c ratios on the major street approaches are well within standards. However, when delays are long for minor street vehicles, they may accept shorter (and potentially unsafe) gaps in order to turn or cross mainline traffic.

Table 3: Intersection Operations at 12th Street/Washington Street without Traffic Signal Controls (PM Peak Hour)

Year	Level of Service for Major Street / Minor Street Approach*	Volume to Capacity Ratio of Worst Major Street Approach
2016	A/F	0.14
2035	B/F	0.25

**Major street is Washington Street/minor street is 12th Street*

2016 Signal Warrant Analysis Conclusion

Based on this analysis, two warrants were determined to be met currently (Warrants 2 and 7) and additional volume warrants are likely to be met by 2017 (Warrants 1 and 3). Installation of a traffic signal at 12th Street/Washington Street should be considered based on the results of this analysis and the fact that collisions continue to occur at this intersection. If it is determined that a traffic signal should not be installed immediately, traffic volumes and collision data should continue to be monitored. It is likely that a traffic signal will meet additional traffic volume related warrants at this location in the near future.



Alternative Traffic Control Option: Evaluation of Turn Restrictions at Washington Street/12th Street

Following recent collisions at the Washington Street/12th Street intersection, the City of Oregon City installed temporary barricades restricting 12th Street to allow right-in/right-out only at Washington Street.⁶ As an alternative to installing a full traffic signal, the city asked DKS to evaluate the potential impacts associated with constructing permanent median on Washington Street. Traffic counts were taken for two cases: with and without the temporary barricades, to measure the actual impact of a permanent installation. Intersection operations were evaluated (see Table 4) at the following intersections, both with and without the turn restrictions in place:

- Washington Street/7th Street
- Washington Street/12th Street
- Washington Street/14th Street

Table 4: Intersection Operations Without and With Turn Restrictions in Place at Washington Street/12th Street

Intersection	Traffic Control	Mobility Standard ⁷	AM Peak Hour				PM Peak Hour			
			No Turn Restrictions		With Turn Restrictions		No Turn Restrictions		With Turn Restrictions	
			LOS	V/C	LOS	V/C	LOS	V/C	LOS	V/C
7 th St/Washington St	Signalized	LOS D/LOS E v/c <=0.99	A	0.49	A	0.48	B	0.67	B	0.62
12 th St/Washington St	Two-Way Stop	LOS E/LOS F	A/E * 0.18		N/A		A/F* 0.14		N/A	
14 th St/Washington St	Signalized	LOS E/LOS F v/c <=0.99	B	0.70	C	0.87	C	0.73	C	0.79
Signalized: LOS = Level of Service of Intersection V/C = Volume-to-Capacity Ratio of Intersection (Sum of Critical Movements)			Two-Way or All-Way Stop Controlled: LOS = Level of Service of Major Street/Minor Street V/C = Volume-to-Capacity Ratio of Worst Major Street Approach							

Bold/Red indicates mobility standard not met

* Washington Street is major street/12th Street is minor street

For this study, only first hour volumes were analyzed. None of the second hour volumes conditions would apply to any of the study intersections since none of the study intersections are expected to exceed the mobility standards for the first hour during any of the analysis scenarios.

As shown in Table 4, operations worsened slightly at the 14th Street/Washington Street intersection and operations improved slightly at the 7th Street/Washington Street intersection with the turn restrictions in place.

⁶ Barricades were in place between April 27th and May 18th, 2016.

⁷ Oregon City Municipal Code, Section 12.04.205 – Mobility Standards. For intersections on the Regional Transportation Plan's (RTP) designated Arterial and Throughway Network, a v/c ratio < 0.99 shall be maintained for both the first and second hour. There is no performance standard for minor street approaches.



Traffic volumes decreased slightly at the 12th Street/Washington Street intersection (by about six percent in the a.m. peak hour and three percent in the p.m. peak hour) and 7th Street/Washington Street intersection (no noticeable change in the a.m. peak hour and about 6 percent in the p.m. peak hour). Traffic volumes increased at the 14th Street/Washington Street intersection by about 12 percent in the a. m. peak hour and by about six percent in the p.m. peak hour.

If the turn restrictions were to be implemented on a permanent basis, adjacent intersections would continue to operate acceptably, at least in the near term, since the analysis was based on existing volumes. However, there will be some out-of-direction travel as well as perceived impacts by various transportation users and by residents and businesses along the routes that are affected.

Conclusion

The 12th Street/Washington Street intersection has been flagged by the City of Oregon City as a safety concern. We evaluated two control options to address the observed safety issues. We found that both options could be installed, and are likely to improve safety conditions at this intersection.

Option 1: Install A Traffic Signal: Our analysis confirms that the crash rate is a above average for this type of facility and that traffic signal warrants are met. Installation of a traffic signal at this location is likely to improve safety, particularly for minor street (12th Street) traffic that is turning onto or crossing Washington Street.

Option 2: Install Permanent Median Barrier on Washington Street at 12th Street: This analysis also considered the potential impacts of installing a raised median, thereby restricting left turns from Washington Street as well as left turns and crossing maneuvers from 12th Street. This option would cause some out-of-direction travel, and some transportation system users would be negatively affected, but is not expected to have a significant negative overall effect on the local transportation system.

Trade-offs Between The Two Options

- There is a significant cost difference between the two options, with a traffic signal costing about \$500,000 - \$700,000, while a median could likely be installed for less than \$50,000.
- There is one safety issue a traffic signal could improve upon compared to the median option. The limited sight distance for vehicles turn from eastbound 12th Street onto southbound Washington Street would remain the same with the median option. However, with a traffic signal, this approach could be signed “no right-turn on red”. A traffic signal would allow a protected right turn when the signal is green for 12th Street traffic.
- The traffic signal controls provide a higher level of awareness and protection for pedestrian crossings compared to a median barrier.

Please contact either of us with any questions regarding this study.



720 SW Washington St.
Suite 500
Portland, OR 97205
503.243.3500
www.dksassociates.com

APPENDIX

Intersection Performance Measures and Operating Standards

2016 PM Peak Hour Traffic Counts

2035 PM Peak Hour Traffic Counts

Hourly Major/Minor Street Traffic Volumes

Signal Warrant Analysis Summaries

Collision Data

Synchro Output

Previous Studies

Intersection Performance Measures

Level of service (LOS) ratings and volume-to-capacity (V/C) ratios are two commonly used performance measures that provide a good picture of intersection operations. In addition, they are often incorporated into agency mobility standards.

Level of service (LOS): A “report card” rating (A through F) based on the average delay experienced by vehicles at the intersection.⁸ LOS A, B, and C indicate conditions where traffic moves without significant delays over periods of peak hour travel demand. LOS D and E are progressively worse operating conditions. LOS F represents conditions where average vehicle delay has become excessive and demand has exceeded capacity.

Volume-to-capacity (V/C) ratio: A decimal representation (typically between 0.00 and 1.00) of the proportion of capacity that is being used at a turn movement, approach leg, or intersection. It is determined by dividing the peak hour traffic volume by the hourly capacity of a given intersection or movement. A lower ratio indicates smooth operations and minimal delays. As the ratio approaches 1.00, congestion increases and performance is reduced. If the ratio is greater than 1.00, the turn movement, approach leg, or intersection is oversaturated and usually results in excessive queues and long delays.

Required Operating Standards

The City of Oregon City’s mobility standards are defined in the Oregon City Municipal Code⁹, which is included in the Appendix. The relevant standards that apply to the study intersections (all three study intersections are within Metro’s Regional Center designation¹⁰) are as follows:

- For intersections within the regional center, the following mobility standards apply:
 1. During the first hour, a maximum v/c ratio of 1.10 shall be maintained. For signalized intersections, this standard applies to the intersection as a whole. For unsignalized intersections, this standard applies to movements on the major street. There is no performance standard for the minor street approaches.
 2. During the second hour, a maximum v/c ratio of 0.99 shall be maintained at signalized intersections. For signalized intersections, this standard applies to the intersection as a whole. For unsignalized intersections, this standard applies to movements on the major street. There is no performance standard for the minor street approaches.
 3. Intersections located on the Regional Center boundary shall be considered within the Regional Center.

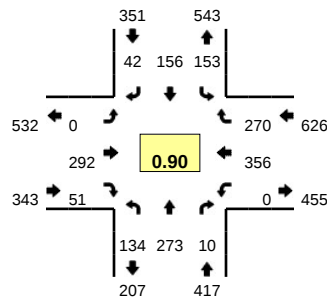
⁸ A description of Level of Service (LOS) is provided in the appendix and includes a list of the delay values (in seconds) that correspond to each LOS designation.

⁹ Oregon City Municipal Code, Section 12.04.205 – Mobility Standards.

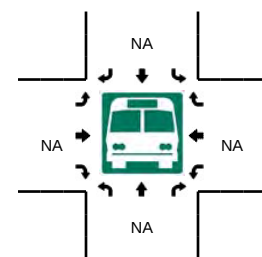
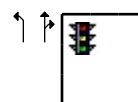
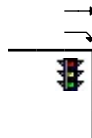
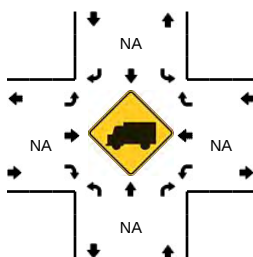
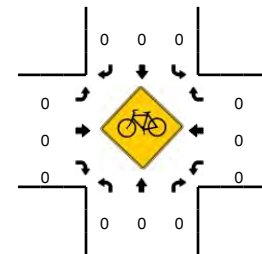
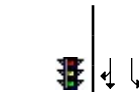
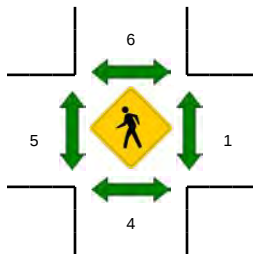
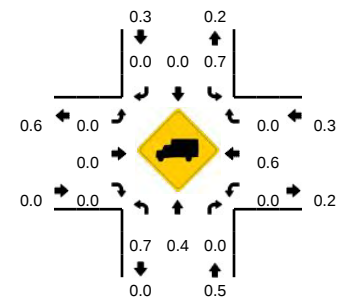
¹⁰ Metro.

LOCATION: Washington St -- 7th St
CITY/STATE: Oregon City, OR

QC JOB #: 13811907
DATE: Wed, Jun 01 2016



Peak-Hour: 7:20 AM -- 8:20 AM
Peak 15-Min: 7:45 AM -- 8:00 AM

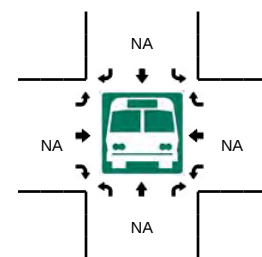
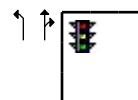
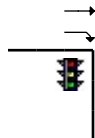
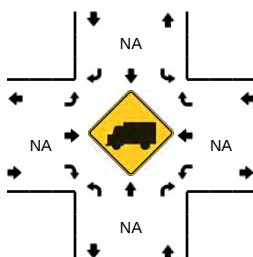
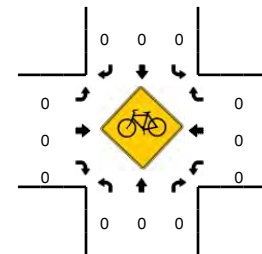
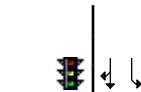
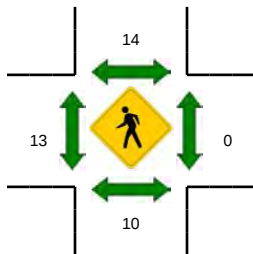
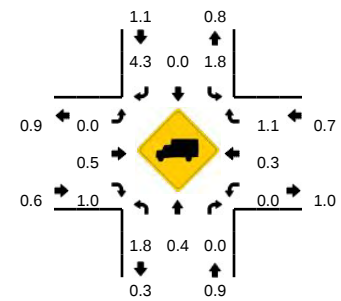
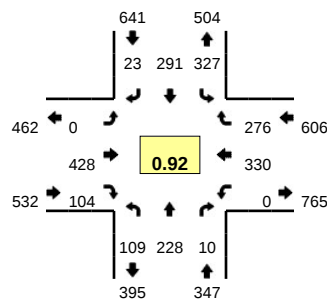


5-Min Count Period Beginning At	Washington St (Northbound)				Washington St (Southbound)				7th St (Eastbound)				7th St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	7	17	0	0	5	1	1	0	0	12	6	0	0	28	25	0	102	
7:05 AM	11	15	0	0	7	7	2	0	0	22	5	0	0	19	21	0	109	
7:10 AM	14	24	0	0	9	4	0	0	0	7	2	0	0	46	18	0	124	
7:15 AM	10	20	0	0	11	6	2	0	0	21	0	0	0	26	15	0	111	
7:20 AM	11	25	1	0	15	9	1	0	0	22	4	0	0	34	16	0	138	
7:25 AM	6	21	1	0	2	9	4	0	0	22	6	0	0	38	25	0	134	
7:30 AM	14	22	1	0	12	11	4	0	0	21	3	0	0	28	16	0	132	
7:35 AM	14	15	0	0	4	17	3	0	0	18	4	0	0	31	24	0	130	
7:40 AM	7	13	0	0	13	16	4	0	0	21	8	0	0	34	27	0	143	
7:45 AM	14	29	1	0	8	19	5	0	0	21	3	0	0	32	29	0	161	
7:50 AM	18	31	2	0	22	13	6	0	0	37	3	0	0	20	16	0	168	
7:55 AM	9	33	2	0	10	8	3	0	0	29	4	0	0	28	28	0	154	1606
8:00 AM	14	21	0	0	26	16	2	0	0	19	3	0	0	16	22	0	139	1643
8:05 AM	7	21	1	0	8	14	5	0	0	31	6	0	0	29	20	0	142	1676
8:10 AM	4	21	1	0	18	11	4	0	0	24	3	0	0	36	30	0	152	1704
8:15 AM	16	21	0	0	15	13	1	0	0	27	4	0	0	30	17	0	144	1737
8:20 AM	13	15	2	0	9	12	1	0	0	28	3	0	0	32	19	0	134	1733
8:25 AM	10	13	2	0	23	11	3	0	0	25	6	0	0	22	17	0	132	1731
8:30 AM	17	22	1	0	10	10	3	0	0	23	5	0	0	13	13	0	117	1716
8:35 AM	10	15	0	0	9	7	3	0	0	26	5	0	0	22	26	0	123	1709
8:40 AM	16	18	0	0	14	15	2	0	0	30	2	0	0	23	22	0	142	1708
8:45 AM	12	11	0	0	14	11	3	0	0	20	4	0	0	23	21	0	119	1666
8:50 AM	8	17	0	0	9	10	3	0	0	22	1	0	0	25	24	0	119	1617
8:55 AM	5	18	5	0	13	11	2	0	0	25	8	0	0	16	21	0	124	1587
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
All Vehicles	164	372	20	0	160	160	56	0	0	348	40	0	0	320	292	0	1932	
Heavy Trucks	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	4	
Pedestrians	8				12				8				4				32	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Railroad																		
Stopped Buses																		

Comments:

LOCATION: Washington St -- 7th St
CITY/STATE: Oregon City, OR

QC JOB #: 13811908
DATE: Wed, Jun 01 2016



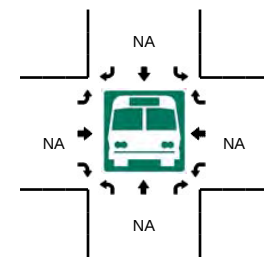
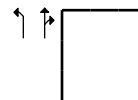
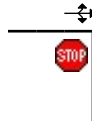
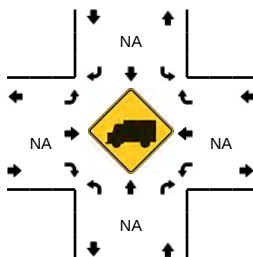
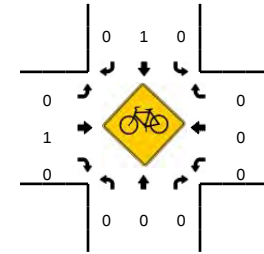
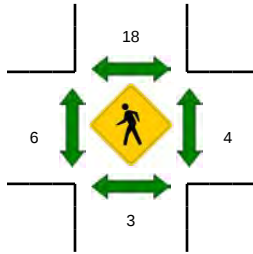
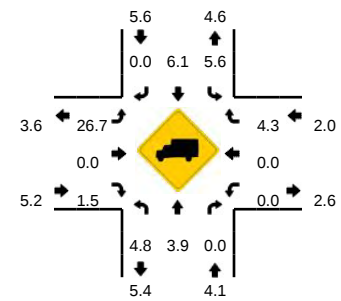
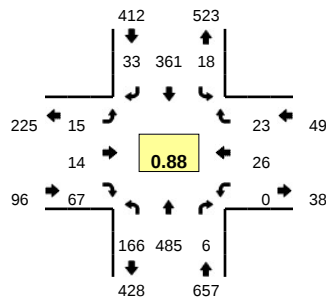
5-Min Count Period Beginning At	Washington St (Northbound)				Washington St (Southbound)				7th St (Eastbound)				7th St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	6	14	0	0	29	20	1	0	0	33	9	0	0	28	25	0	165	1913 1909 1940 1958 1981 2043 2066 2090 2114 2090 2088
4:05 PM	3	22	0	0	27	20	2	0	0	30	6	0	0	21	25	0	156	
4:10 PM	6	12	0	0	31	24	4	0	0	40	5	0	0	24	20	0	166	
4:15 PM	7	11	2	0	26	22	1	0	0	44	13	0	0	23	18	0	167	
4:20 PM	11	10	0	0	13	19	7	0	0	39	5	0	0	23	13	0	140	
4:25 PM	8	9	0	0	26	20	2	0	0	40	6	0	0	31	14	0	156	
4:30 PM	6	6	1	0	25	21	2	0	0	30	9	0	0	25	19	0	144	
4:35 PM	10	15	0	0	17	17	1	0	0	41	7	0	0	31	15	0	154	
4:40 PM	10	17	0	0	35	29	3	0	0	38	8	0	0	26	28	0	194	
4:45 PM	9	13	2	0	22	13	5	0	0	36	8	0	0	32	23	0	163	
4:50 PM	8	18	0	0	29	25	2	0	0	26	12	0	0	18	21	0	159	
4:55 PM	5	14	1	0	21	13	2	0	0	30	5	0	0	33	25	0	149	
5:00 PM	10	15	0	0	38	31	3	0	0	25	3	0	0	24	12	0	161	
5:05 PM	11	32	1	0	25	23	0	0	0	37	4	0	0	32	22	0	187	
5:10 PM	17	20	0	0	20	27	1	0	0	32	8	0	0	23	36	0	184	
5:15 PM	7	25	1	0	23	22	3	0	0	41	10	0	0	38	20	0	190	
5:20 PM	10	11	0	0	37	30	2	0	0	40	15	0	0	34	23	0	202	
5:25 PM	6	23	3	0	22	24	0	0	0	37	13	0	0	26	25	0	179	
5:30 PM	3	16	1	0	34	34	1	0	0	39	11	0	0	13	16	0	168	
5:35 PM	13	24	1	0	21	20	1	0	0	47	7	0	0	31	25	0	190	
5:40 PM	10	16	0	0	24	26	1	0	0	33	10	0	0	25	33	0	178	
5:45 PM	10	12	3	0	17	21	5	0	0	35	7	0	0	32	25	0	167	
5:50 PM	6	20	0	0	24	17	3	0	0	25	6	0	0	19	15	0	135	
5:55 PM	7	10	4	0	20	22	3	0	0	28	12	0	0	25	16	0	147	
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	136	224	4	0	320	316	24	0	0	452	132	0	0	380	316	0	2304	
Heavy Trucks	4	0	0		4	0	0		0	4	0		0	0	4		16	
Pedestrians		8				32				12				0			52	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Railroad																		
Stopped Buses																		

Comments:

LOCATION: Washington St -- 12th St
CITY/STATE: Oregon City, OR

QC JOB #: 13827205
DATE: Wed, Jun 01 2016

Peak-Hour: 7:20 AM -- 8:20 AM
Peak 15-Min: 7:45 AM -- 8:00 AM

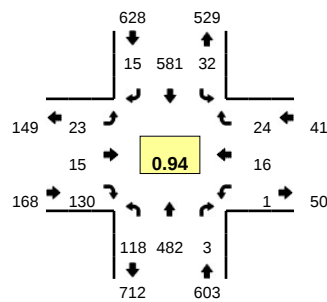


5-Min Count Period Beginning At	Washington St (Northbound)				Washington St (Southbound)				12th St (Eastbound)				12th St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
6:50 AM	12	29	1	0	0	15	1	0	0	0	4	0	0	3	2	0	67	
6:55 AM	13	32	0	0	0	10	1	0	0	1	2	0	0	1	2	0	62	642
7:00 AM	8	27	0	0	0	10	1	0	0	1	3	0	0	2	2	0	54	670
7:05 AM	9	45	0	0	2	15	3	0	0	0	1	0	1	5	2	0	83	709
7:10 AM	13	40	0	0	5	15	0	0	2	1	4	0	0	3	1	0	84	747
7:15 AM	10	34	0	0	2	16	0	0	0	2	1	0	0	2	2	0	69	769
7:20 AM	12	33	1	0	2	23	4	0	1	1	2	0	0	2	1	0	82	796
7:25 AM	13	42	0	0	6	21	1	0	0	2	3	0	0	3	4	0	95	845
7:30 AM	17	32	0	0	1	32	1	0	0	1	2	0	0	6	1	0	93	901
7:35 AM	18	34	0	0	1	27	2	0	1	0	2	0	0	2	2	0	89	920
7:40 AM	9	32	1	0	1	31	1	0	2	1	7	0	0	1	1	0	87	930
7:45 AM	18	55	0	0	2	36	1	0	2	0	7	0	0	4	2	0	127	992
7:50 AM	12	36	1	0	1	45	2	0	2	0	8	0	0	1	2	0	110	1035
7:55 AM	15	42	0	0	1	30	6	0	2	2	8	0	0	1	1	0	108	1081
8:00 AM	15	48	2	0	1	31	4	0	2	1	14	0	0	3	2	0	123	1150
8:05 AM	10	44	1	0	1	30	1	0	1	2	4	0	0	0	5	0	99	1166
8:10 AM	16	47	0	0	1	26	4	0	0	1	5	0	0	2	1	0	103	1185
8:15 AM	11	40	0	0	0	29	6	0	2	3	5	0	0	1	1	0	98	1214
8:20 AM	10	33	2	0	0	32	0	0	0	3	10	0	0	2	1	0	93	1225
8:25 AM	10	37	0	0	3	35	3	0	1	1	6	0	0	4	2	0	102	1232
8:30 AM	6	30	0	0	2	20	3	0	0	0	6	0	0	4	2	0	73	1212
8:35 AM	8	42	0	0	2	20	3	0	0	2	6	0	0	1	4	0	88	1211
8:40 AM	11	37	0	0	3	23	0	0	1	0	7	0	0	2	1	0	85	1209
8:45 AM	10	30	0	0	3	26	0	0	0	1	5	0	0	3	1	0	79	1161
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
All Vehicles	180	532	4	0	16	444	36	0	24	8	92	0	0	24	20	0	1380	
Heavy Trucks	8	8	0	0	0	44	0	0	8	0	0	0	0	0	0	0	68	
Pedestrians	0	0	0	0	16	0	0	0	0	4	0	0	0	0	0	0	20	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Railroad																		
Stopped Buses																		

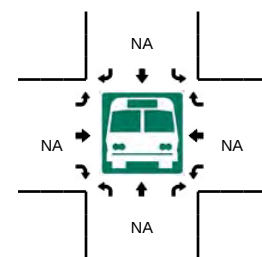
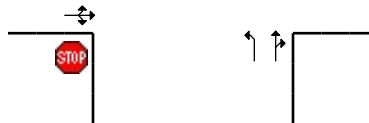
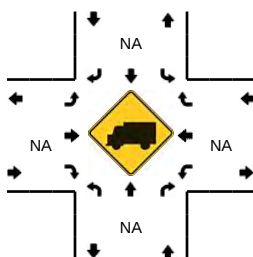
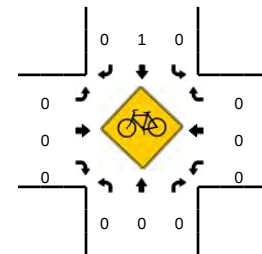
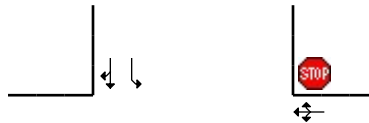
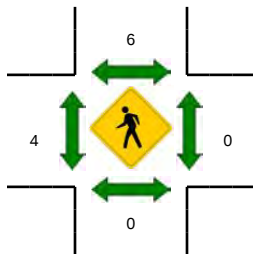
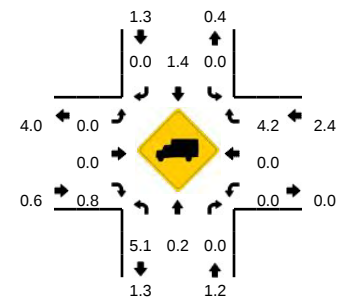
Comments:

LOCATION: Washington St -- 12th St
CITY/STATE: Oregon City, OR

QC JOB #: 13811911
DATE: Wed, Jun 01 2016



Peak-Hour: 4:45 PM -- 5:45 PM
Peak 15-Min: 5:00 PM -- 5:15 PM

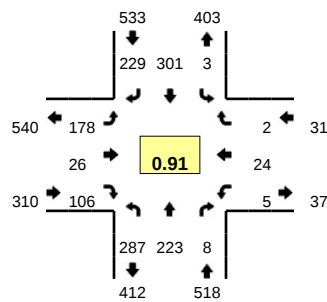


5-Min Count Period Beginning At	Washington St (Northbound)				Washington St (Southbound)				12th St (Eastbound)				12th St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:15 PM	6	22	0	0	4	46	1	0	1	4	11	0	0	1	4	0	100	1294
4:20 PM	7	22	0	0	0	37	1	0	1	1	12	0	0	1	2	0	84	1267
4:25 PM	5	24	0	0	7	38	2	0	3	2	8	0	0	2	3	0	94	1261
4:30 PM	6	21	0	0	3	40	2	0	2	3	9	0	0	2	0	0	88	1247
4:35 PM	2	33	1	0	2	41	0	0	2	4	17	0	0	1	0	0	103	1243
4:40 PM	10	32	0	0	2	42	2	0	0	3	10	0	1	0	1	0	103	1250
4:45 PM	12	37	0	0	3	44	3	0	2	0	15	0	0	4	3	0	123	1281
4:50 PM	10	39	0	0	3	41	2	0	6	1	12	0	0	1	1	0	116	1284
4:55 PM	7	28	1	0	0	39	1	0	3	0	12	0	0	0	3	0	94	1266
5:00 PM	10	36	0	0	1	61	1	0	0	3	15	0	1	1	1	0	130	1276
5:05 PM	13	43	2	0	2	45	2	0	2	0	9	0	0	4	1	0	123	1268
5:10 PM	14	56	0	0	4	45	2	0	2	1	3	0	0	1	3	0	131	1289
5:15 PM	8	40	0	0	3	54	0	0	0	1	15	0	0	3	3	0	127	1316
5:20 PM	8	41	0	0	3	47	1	0	0	4	11	0	0	0	1	0	116	1348
5:25 PM	9	41	0	0	2	61	0	0	2	0	8	0	0	0	1	0	124	1378
5:30 PM	3	32	0	0	3	50	0	0	4	2	9	0	0	0	3	0	106	1396
5:35 PM	15	35	0	0	1	59	1	0	1	2	12	0	0	0	2	0	128	1421
5:40 PM	9	54	0	0	7	35	2	0	1	1	9	0	0	2	2	0	122	1440
5:45 PM	9	30	0	0	5	54	1	0	2	6	5	0	0	1	1	0	114	1431
5:50 PM	8	32	0	0	5	39	0	0	4	7	11	0	0	2	2	0	110	1425
5:55 PM	10	26	2	0	1	34	0	0	0	3	15	0	1	1	3	0	96	1427
6:00 PM	8	23	0	0	6	36	0	0	3	5	8	0	1	3	2	0	95	1392
6:05 PM	6	23	0	0	3	34	2	0	1	4	7	0	0	2	2	0	84	1353
6:10 PM	13	45	0	0	3	32	0	0	1	7	8	0	0	4	2	0	115	1337
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
All Vehicles	148	540	8	0	28	604	20	0	16	16	108	0	4	24	20	0	1536	
Heavy Trucks	8	0	0	0	0	8	0	0	0	0	0	0	0	0	0	0	16	
Pedestrians	0	0	0	0	12	0	0	0	0	0	0	0	0	0	0	0	12	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Railroad																		
Stopped Buses																		

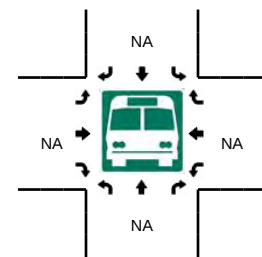
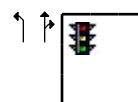
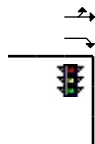
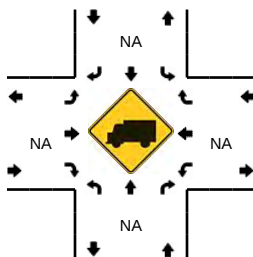
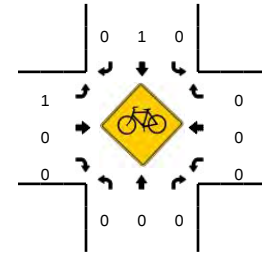
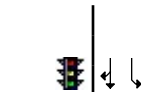
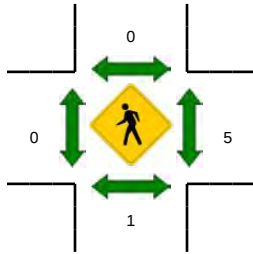
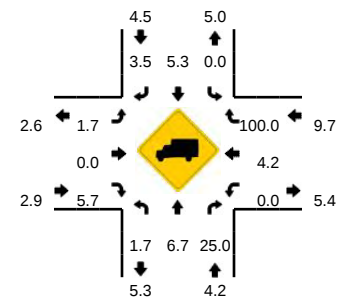
Comments:

LOCATION: Washington St -- 14th St
CITY/STATE: Oregon City, OR

QC JOB #: 13811909
DATE: Wed, Jun 01 2016



Peak-Hour: 7:20 AM -- 8:20 AM
Peak 15-Min: 7:45 AM -- 8:00 AM

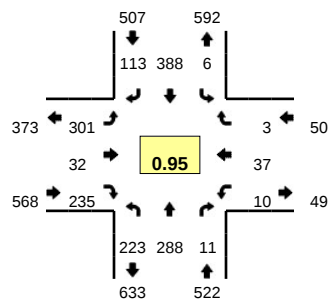


5-Min Count Period Beginning At	Washington St (Northbound)				Washington St (Southbound)				14th St (Eastbound)				14th St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	14	7	0	0	0	8	12	0	16	5	3	0	0	1	0	0	66	
7:05 AM	36	20	0	0	0	18	18	0	7	1	1	0	0	2	0	0	103	
7:10 AM	24	13	0	0	0	10	28	0	15	0	11	0	0	2	0	0	103	
7:15 AM	24	15	0	0	0	14	20	0	14	3	5	0	1	1	0	0	97	
7:20 AM	22	15	0	0	0	18	22	0	16	1	10	0	0	3	0	0	107	
7:25 AM	30	16	0	0	0	22	20	0	14	0	6	0	1	1	0	0	110	
7:30 AM	21	12	1	0	1	22	23	0	15	1	11	0	0	3	0	0	110	
7:35 AM	16	18	1	0	0	23	20	0	18	5	7	0	0	4	1	0	113	
7:40 AM	23	15	0	0	0	25	16	0	18	2	11	0	0	4	0	0	114	
7:45 AM	27	23	2	0	1	27	21	0	11	1	8	0	0	1	0	0	122	
7:50 AM	21	26	0	0	0	37	24	0	14	5	13	0	0	2	0	0	142	
7:55 AM	26	23	0	0	0	26	16	0	15	3	8	0	1	2	0	0	120	1307
8:00 AM	27	18	2	0	0	26	20	0	14	2	11	0	0	2	0	0	122	1363
8:05 AM	27	24	0	0	1	25	16	0	14	1	6	0	1	2	0	0	117	1377
8:10 AM	24	16	1	0	0	24	16	0	19	3	7	0	1	0	0	0	111	1385
8:15 AM	23	17	1	0	0	26	15	0	10	2	8	0	1	0	1	0	104	1392
8:20 AM	24	13	0	0	1	14	14	0	11	4	15	0	0	1	0	0	97	1382
8:25 AM	20	12	4	0	0	29	11	0	23	4	11	0	0	0	0	0	114	1386
8:30 AM	17	17	2	0	0	16	17	0	12	4	10	0	0	1	0	0	96	1372
8:35 AM	28	16	0	0	0	18	16	0	12	0	7	0	0	0	0	0	97	1356
8:40 AM	18	19	2	0	0	15	9	0	24	2	10	0	1	0	0	0	100	1342
8:45 AM	16	16	1	0	2	21	24	0	11	2	7	0	0	4	0	0	104	1324
8:50 AM	12	20	1	0	0	21	9	0	14	1	7	0	1	3	0	0	89	1271
8:55 AM	17	19	0	0	0	24	19	0	7	5	8	0	0	0	1	0	100	1251
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
All Vehicles	296	288	8	0	4	360	244	0	160	36	116	0	4	20	0	0	1536	
Heavy Trucks	0	8	8		0	36	8		0	0	4		0	4	0		68	
Pedestrians	0	0	0		0	0	0		0	0	0		0	0	0		0	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Railroad																		
Stopped Buses																		

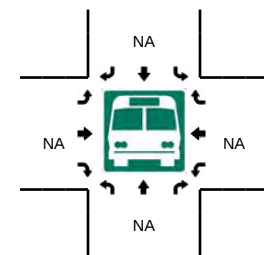
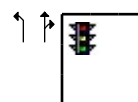
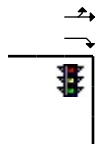
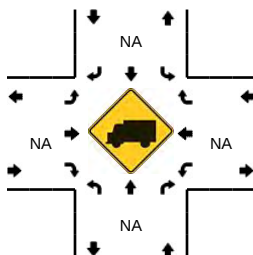
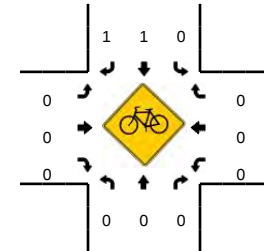
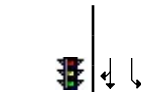
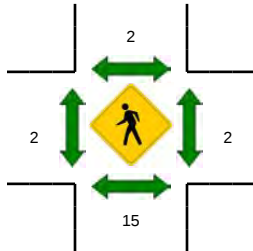
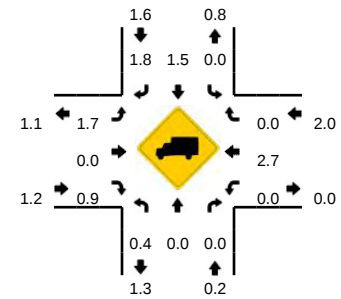
Comments:

LOCATION: Washington St -- 14th St
CITY/STATE: Oregon City, OR

QC JOB #: 13811910
DATE: Wed, Jun 01 2016



Peak-Hour: 4:45 PM -- 5:45 PM
Peak 15-Min: 5:10 PM -- 5:25 PM



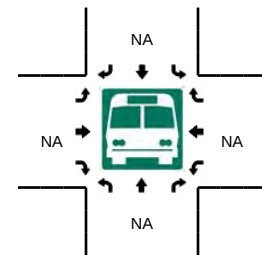
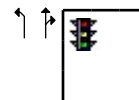
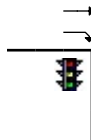
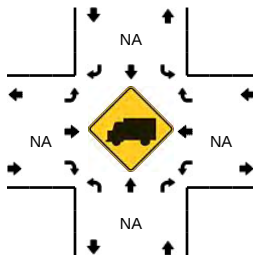
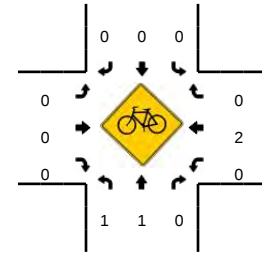
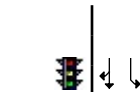
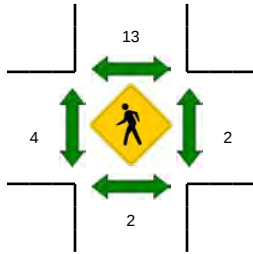
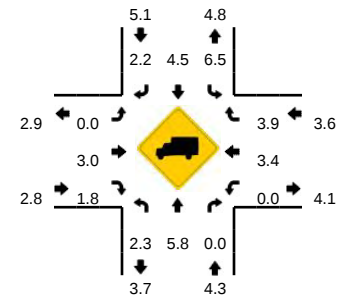
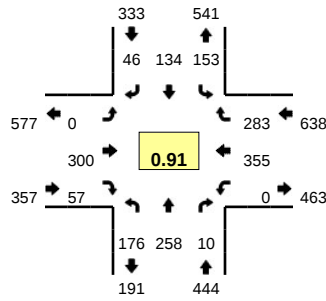
5-Min Count Period Beginning At	Washington St (Northbound)				Washington St (Southbound)				14th St (Eastbound)				14th St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	12	35	2	0	0	34	16	0	16	5	14	0	3	4	0	0	141	
4:05 PM	21	24	2	0	1	27	15	0	29	4	28	0	1	5	0	0	157	
4:10 PM	19	24	3	0	1	35	12	0	20	5	15	0	1	1	1	0	137	
4:15 PM	14	14	0	0	1	33	10	0	29	4	18	0	0	4	1	0	128	
4:20 PM	11	14	2	0	1	28	11	0	30	1	12	0	0	3	0	0	113	
4:25 PM	18	16	1	0	0	34	10	0	18	2	16	0	0	3	1	0	119	
4:30 PM	7	14	0	0	1	27	16	0	22	5	16	0	1	1	0	0	110	
4:35 PM	9	16	0	0	3	26	13	0	26	1	13	0	2	8	0	0	117	
4:40 PM	19	23	0	0	2	32	9	0	34	2	15	0	0	0	1	0	137	
4:45 PM	13	29	0	0	1	33	12	0	21	0	17	0	1	2	0	0	129	
4:50 PM	15	25	2	0	2	22	6	0	31	4	19	0	3	2	2	0	133	
4:55 PM	10	23	1	0	0	28	6	0	29	3	14	0	0	2	0	0	116	1537
5:00 PM	17	23	2	0	1	43	7	0	16	1	21	0	2	1	1	0	135	1531
5:05 PM	20	23	0	0	0	30	9	0	24	3	19	0	0	4	0	0	132	1506
5:10 PM	22	37	0	0	0	26	13	0	31	2	23	0	1	2	0	0	157	1526
5:15 PM	24	22	0	0	0	34	10	0	20	3	21	0	2	4	0	0	140	1538
5:20 PM	16	20	1	0	0	28	7	0	32	4	24	0	1	2	0	0	135	1560
5:25 PM	26	17	2	0	0	37	8	0	20	6	25	0	0	6	0	0	147	1588
5:30 PM	13	30	0	0	2	37	14	0	30	2	17	0	0	5	0	0	150	1628
5:35 PM	19	15	1	0	0	35	13	0	20	2	26	0	0	4	0	0	135	1646
5:40 PM	28	24	2	0	0	35	8	0	27	2	9	0	0	3	0	0	138	1647
5:45 PM	18	18	0	0	2	40	17	0	8	3	17	0	1	4	1	0	129	1647
5:50 PM	16	18	1	0	3	23	9	0	36	1	19	1	1	0	1	0	129	1643
5:55 PM	14	19	1	0	1	23	7	0	21	0	15	0	0	0	2	0	103	1630
Peak 15-Min Flowrates																		
	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	248	316	4	0	0	352	120	0	332	36	272	0	16	32	0	0	1728	
Heavy Trucks	0	0	0	0	0	8	4	0	0	0	0	0	0	0	0	0	12	
Pedestrians		24				8				4				0			36	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Railroad																		
Stopped Buses																		

Comments:

LOCATION: Washington St -- 7th St
CITY/STATE: Oregon City, OR

QC JOB #: 13811901
DATE: Tue, May 17 2016

Peak-Hour: 7:15 AM -- 8:15 AM
Peak 15-Min: 7:45 AM -- 8:00 AM



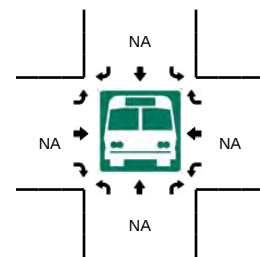
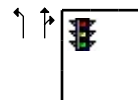
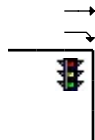
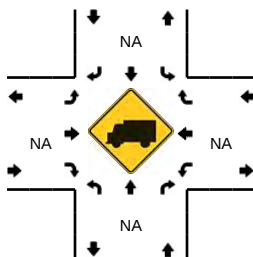
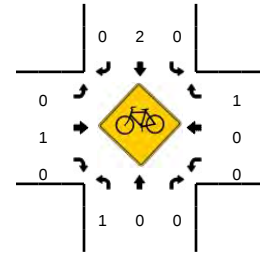
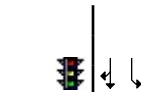
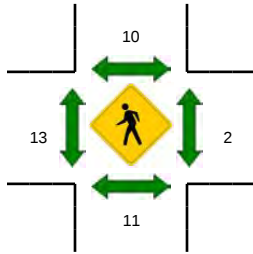
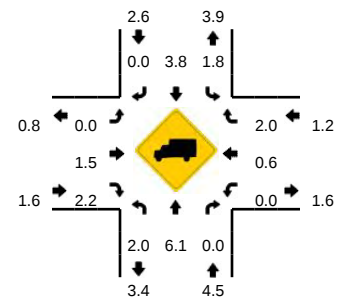
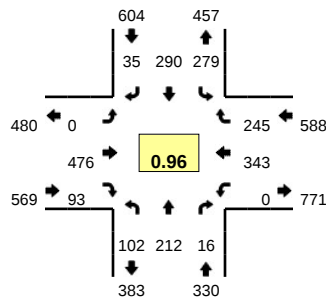
15-Min Count Period Beginning At	Washington St (Northbound)				Washington St (Southbound)				7th St (Eastbound)				7th St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	42	54	1	0	22	16	6	0	0	36	13	0	0	102	60	0	352	
7:15 AM	40	51	1	0	30	29	11	0	0	69	12	0	0	93	70	0	406	
7:30 AM	44	59	3	0	33	47	10	0	0	73	16	0	0	100	81	0	466	
7:45 AM	59	84	5	0	40	27	15	0	0	93	9	0	0	83	70	0	485	1709
8:00 AM	33	64	1	0	50	31	10	0	0	65	20	0	0	79	62	0	415	1772
8:15 AM	28	50	2	0	40	31	8	0	0	71	18	0	0	69	58	0	375	1741
8:30 AM	31	51	2	0	55	40	6	0	0	84	10	0	0	81	54	0	414	1689
8:45 AM	29	52	5	0	46	32	7	0	0	78	23	0	0	75	55	0	402	1606
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	236	336	20	0	160	108	60	0	0	372	36	0	0	332	280	0	1940	
Heavy Trucks	0	4	0	0	8	0	0	0	0	16	0	0	0	8	16	0	52	
Pedestrians	0	0	0	0	24	0	0	0	12	0	0	0	0	0	0	0	36	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Railroad	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Stopped Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Comments:

LOCATION: Washington St -- 7th St
CITY/STATE: Oregon City, OR

QC JOB #: 13811902
DATE: Tue, May 17 2016

Peak-Hour: 4:15 PM -- 5:15 PM
Peak 15-Min: 5:00 PM -- 5:15 PM

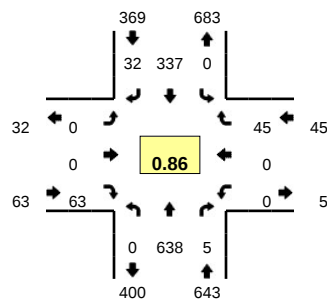


15-Min Count Period Beginning At	Washington St (Northbound)				Washington St (Southbound)				7th St (Eastbound)				7th St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	23	47	5	0	62	57	7	0	0	133	23	0	0	76	61	0	494	
4:15 PM	26	45	2	0	86	81	13	0	0	112	27	0	0	86	63	0	541	
4:30 PM	23	52	2	0	64	66	4	0	0	127	17	0	0	86	65	0	506	
4:45 PM	20	40	5	0	62	69	7	0	0	125	27	0	0	90	57	0	502	2043
5:00 PM	33	75	7	0	67	74	11	0	0	112	22	0	0	81	60	0	542	2091
5:15 PM	23	44	5	0	80	85	8	0	0	116	24	0	0	75	63	0	523	2073
5:30 PM	26	50	3	0	68	63	8	0	0	117	27	0	0	86	71	0	519	2086
5:45 PM	20	48	6	0	64	64	4	0	0	130	22	0	0	77	63	0	498	2082
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	132	300	28	0	268	296	44	0	0	448	88	0	0	324	240	0	2168	
Heavy Trucks	0	24	0		8	8	0		0	4	0		0	0	4		48	
Pedestrians		16			20					8				0			44	
Bicycles	1	0	0		0	0	0		0	0	0		0	0	0		1	
Railroad																		
Stopped Buses																		

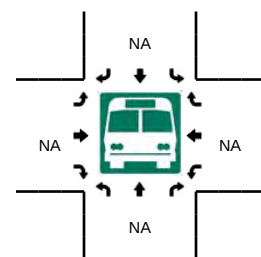
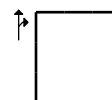
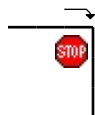
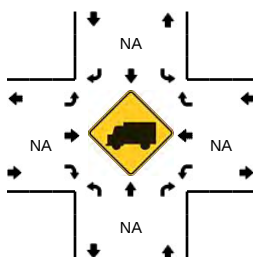
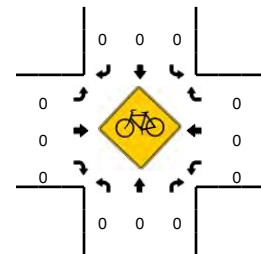
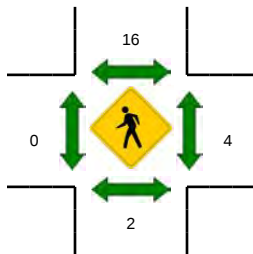
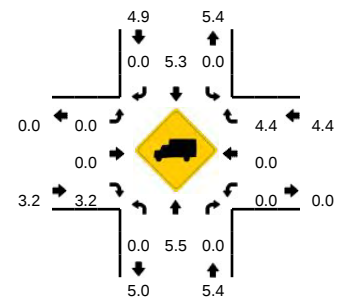
Comments:

LOCATION: Washington St -- 12th St
CITY/STATE: Oregon City, OR

QC JOB #: 13811903
DATE: Tue, May 17 2016



Peak-Hour: 7:15 AM -- 8:15 AM
Peak 15-Min: 7:45 AM -- 8:00 AM



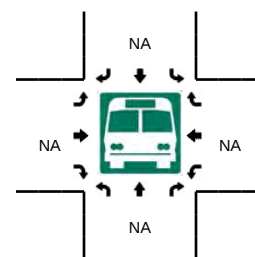
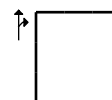
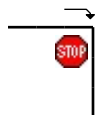
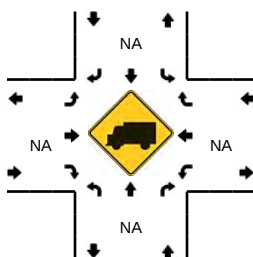
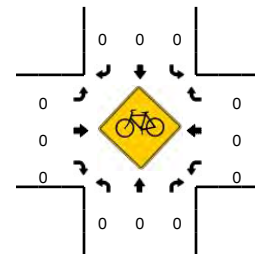
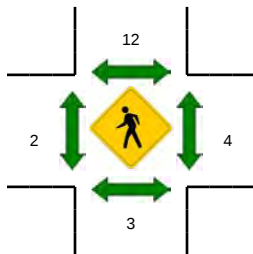
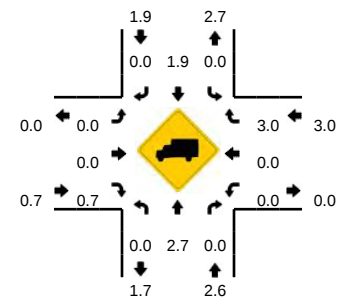
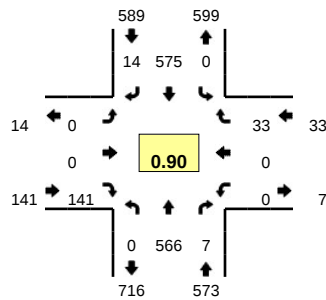
15-Min Count Period Beginning At	Washington St (Northbound)				Washington St (Southbound)				12th St (Eastbound)				12th St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	133	0	0	0	50	6	0	0	0	7	0	0	0	10	0	206	
7:15 AM	0	152	0	0	0	74	5	0	0	0	15	0	0	0	17	0	263	
7:30 AM	0	135	0	0	0	100	9	0	0	0	10	0	0	0	12	0	266	
7:45 AM	0	204	3	0	0	82	11	0	0	0	17	0	0	0	8	0	325	1060
8:00 AM	0	147	2	0	0	81	7	0	0	0	21	0	0	0	8	0	266	1120
8:15 AM	0	120	0	0	0	87	13	0	0	0	16	0	0	0	7	0	243	1100
8:30 AM	0	125	1	0	0	87	8	0	0	0	28	0	0	0	5	0	254	1088
8:45 AM	0	112	1	0	0	88	7	0	0	0	21	0	0	0	7	0	236	999
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	816	12	0	0	328	44	0	0	0	68	0	0	0	32	0	1300	
Heavy Trucks	0	40	0	0	0	8	0	0	0	0	4	0	0	0	8	0	60	
Pedestrians	0	0	0	0	0	4	0	0	0	0	0	0	0	12	0	0	16	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Railroad	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Stopped Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Comments:

LOCATION: Washington St -- 12th St
CITY/STATE: Oregon City, OR

QC JOB #: 13811904
DATE: Tue, May 17 2016

Peak-Hour: 5:00 PM -- 6:00 PM
Peak 15-Min: 5:00 PM -- 5:15 PM

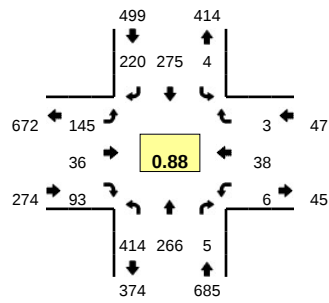


15-Min Count Period Beginning At	Washington St (Northbound)				Washington St (Southbound)				12th St (Eastbound)				12th St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	135	2	0	0	147	3	0	0	0	41	0	0	0	18	0	346	
4:15 PM	0	108	2	0	0	135	3	0	0	0	41	0	0	0	13	0	302	
4:30 PM	0	147	0	0	0	139	1	0	0	0	28	0	0	0	13	0	328	
4:45 PM	0	109	2	0	0	125	3	0	0	0	37	0	0	0	8	0	284	1260
5:00 PM	0	159	0	0	0	157	4	0	0	0	43	0	0	0	10	0	373	1287
5:15 PM	0	135	0	0	0	138	5	0	0	0	43	0	0	0	4	0	325	1310
5:30 PM	0	145	2	0	0	145	4	0	0	0	25	0	0	0	6	0	327	1309
5:45 PM	0	127	5	0	0	135	1	0	0	0	30	0	0	0	13	0	311	1336
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	636	0	0	0	628	16	0	0	0	172	0	0	0	40	0	1492	
Heavy Trucks	0	32	0	0	0	24	0	0	0	0	0	0	0	0	0	0	56	
Pedestrians	12				12					4				4			32	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Railroad																		
Stopped Buses																		

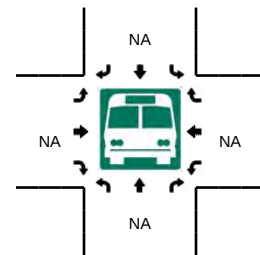
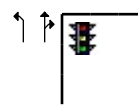
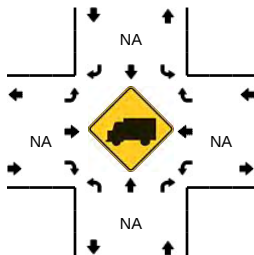
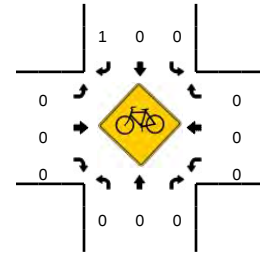
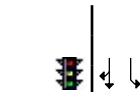
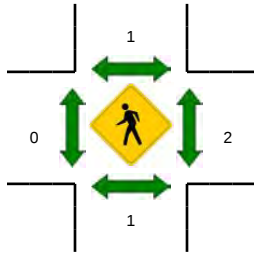
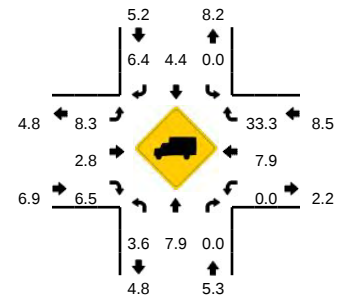
Comments:

LOCATION: Washington St -- 14th St
CITY/STATE: Oregon City, OR

QC JOB #: 13811905
DATE: Tue, May 17 2016



Peak-Hour: 7:15 AM -- 8:15 AM
Peak 15-Min: 7:45 AM -- 8:00 AM



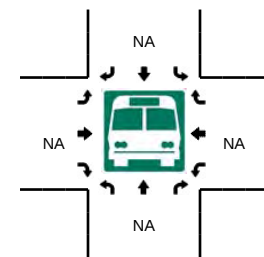
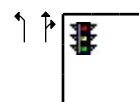
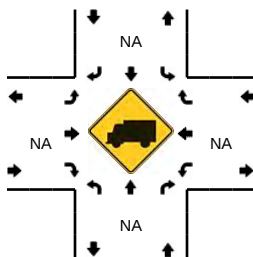
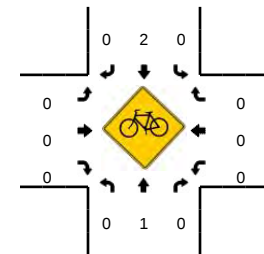
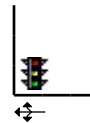
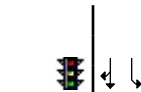
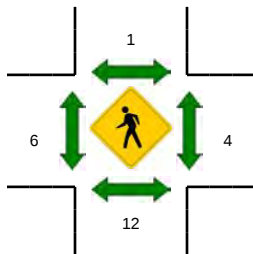
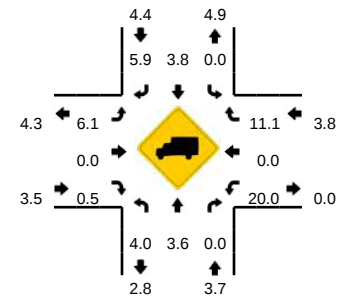
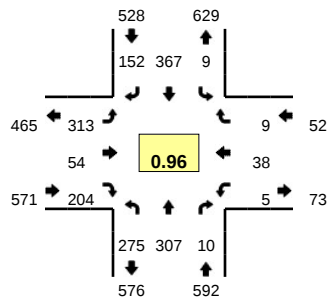
15-Min Count Period Beginning At	Washington St (Northbound)				Washington St (Southbound)				14th St (Eastbound)				14th St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	106	35	0	0	0	40	42	0	25	8	14	0	0	3	0	0	273	
7:15 AM	109	56	0	0	1	60	51	0	30	3	22	0	1	11	1	0	345	
7:30 AM	91	55	1	0	2	82	64	0	39	12	24	0	5	14	1	0	390	
7:45 AM	115	99	3	0	0	68	56	0	38	16	25	0	0	9	0	0	429	1437
8:00 AM	99	56	1	0	1	65	49	0	38	5	22	0	0	4	1	0	341	1505
8:15 AM	72	58	3	0	0	70	43	0	46	9	26	0	0	5	2	0	334	1494
8:30 AM	72	47	4	0	0	67	37	0	46	8	32	0	0	6	0	0	319	1423
8:45 AM	76	48	1	0	3	70	31	0	50	11	20	0	1	9	1	0	321	1315
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	460	396	12	0	0	272	224	0	152	64	100	0	0	36	0	0	1716	
Heavy Trucks	24	32	0	0	0	12	20	0	12	4	0	0	0	4	0	0	108	
Pedestrians	4				4								8				16	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Railroad																		
Stopped Buses																		

Comments:

LOCATION: Washington St -- 14th St
CITY/STATE: Oregon City, OR

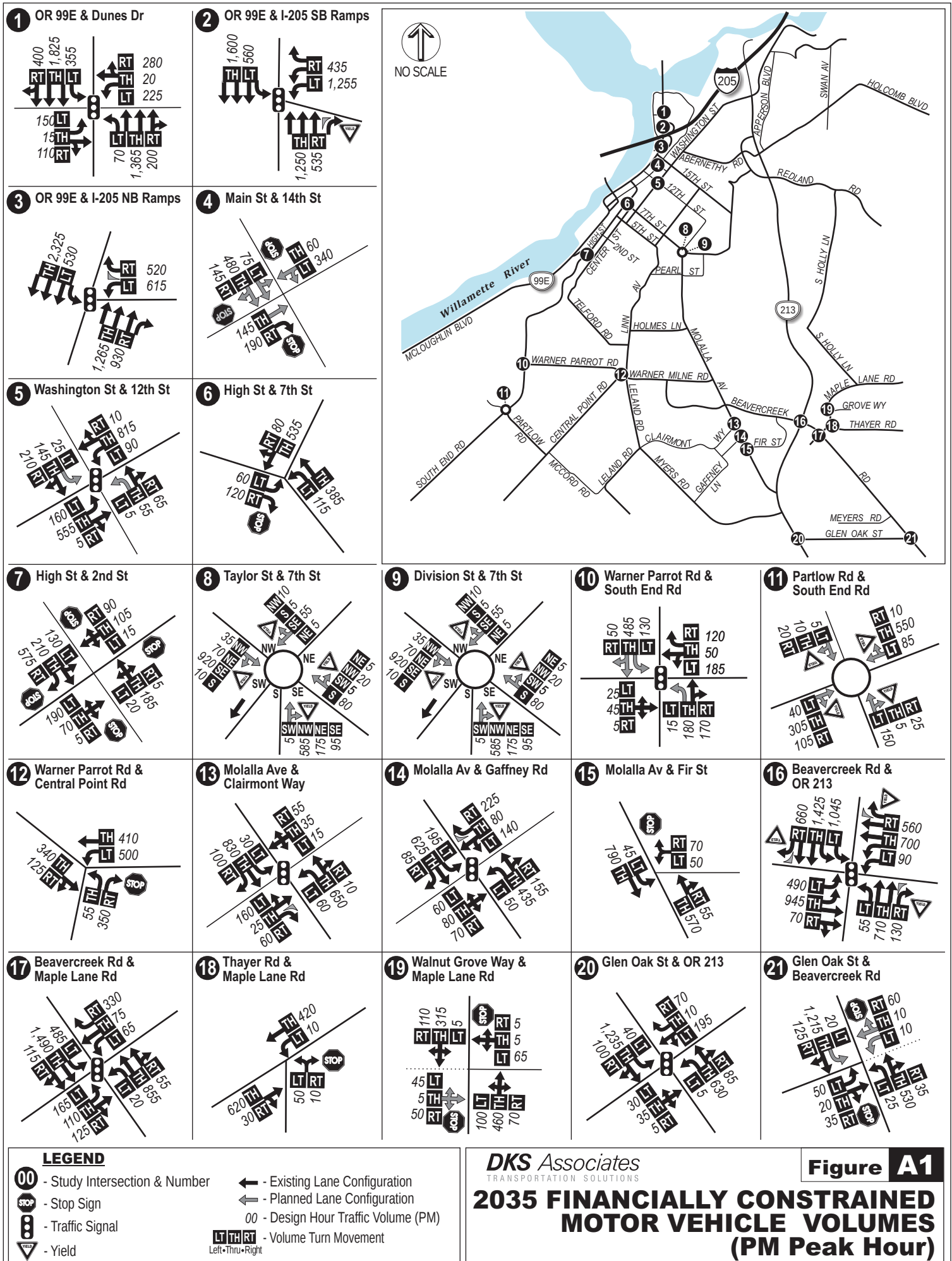
QC JOB #: 13811906
DATE: Tue, May 17 2016

Peak-Hour: 4:30 PM -- 5:30 PM
Peak 15-Min: 5:00 PM -- 5:15 PM



15-Min Count Period Beginning At	Washington St (Northbound)				Washington St (Southbound)				14th St (Eastbound)				14th St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	70	77	7	0	2	92	28	0	71	18	49	0	7	11	0	0	432	
4:15 PM	68	52	2	0	2	94	41	0	77	15	40	0	1	10	3	0	405	
4:30 PM	70	84	3	0	3	93	42	0	76	10	47	0	1	5	3	0	437	
4:45 PM	61	60	3	0	4	81	42	0	85	16	46	0	1	4	3	0	406	1680
5:00 PM	72	81	2	0	1	102	32	0	79	12	58	0	0	17	0	0	456	1704
5:15 PM	72	82	2	0	1	91	36	0	73	16	53	0	3	12	3	0	444	1743
5:30 PM	77	66	4	0	0	104	18	0	66	9	47	0	0	10	0	0	401	1707
5:45 PM	71	69	2	0	2	76	27	0	73	10	57	0	2	8	0	0	397	1698
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	288	324	8	0	4	408	128	0	316	48	232	0	0	68	0	0	1824	
Heavy Trucks	16	8	0	0	0	24	8	0	16	0	0	0	0	0	0	0	72	
Pedestrians		24				0				4				12			40	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Railroad																		
Stopped Buses																		

Comments:



12th Street/Washington Street											
ALL-VEHICLE VOLUMES		2016 Hourly Volumes						2035 Hourly Volumes			
Time Period	Hourly Total	Major	Min-WB	Min-EB	EB RTs	EB - 25% RT	Major	WB	EB	EB RTs	EB - 25% RT
6:00 AM	642	567	48	27	21	22	762	168	60	47	49
7:00 AM	1081	956	54	71	48	59	1284	189	159	108	132
8:00 AM	1112	964	48	100	74	82	1295	168	224	166	182
9:00 AM	801	715	34	52	33	44	961	119	116	74	98
10:00 AM	773	675	34	64	43	53	907	119	143	96	119
11:00 AM	962	838	37	87	51	74	1126	130	194	114	166
12:00 PM	1013	878	43	92	57	78	1180	151	206	128	174
1:00 PM	1034	906	40	88	60	73	1217	140	197	134	163
2:00 PM	1108	948	51	109	70	92	1274	179	244	157	204
3:00 PM	1302	1104	61	137	91	114	1483	214	306	204	255
4:00 PM	1266	1039	48	179	130	147	1396	168	400	291	327
5:00 PM	1427	1217	40	170	122	140	1635	140	380	273	312
6:00 PM	1016	836	48	132	83	111	1123	168	295	186	249
7:00 PM	690	597	27	66	46	55	802	95	148	103	122

12th Street/Washington Street				
		2016	2035	
Warrant Number	Title	Met?	Met?	Approximate Year Met
1	Eight-Hour Vehicular Volume	No	Yes	2017
2	Four-Hour Vehicular Volume	Yes	Yes	
3	Peak Hour	No	Yes	2017
4	Pedestrian	No	N/A	
5	School Crossing	No	N/A	
6	Coordinated Signal System	No	N/A	
7	Crash Experience	Yes	N/A	
8	Roadway Network	No	N/A	
9	Intersection Near a Grade Crossing	No	N/A	

12th Street/Washington Street																							
	Meets Warrant 1?		No																				
2016	Eight-Hour Vehicular Volume																						
		Hourly Volumes			Warrant 1 - Condition A						Warrant 1 - Condition B						Both A & B						
Hour	Hourly Totals	Major	Min-WB	Min-EB	Major	Min-WB	Min-EB	Maj/WB	Maj/EB	Maj/WB	Maj/EB	Major	Min-WB	Min-EB	Maj/WB	Maj/EB	Maj/WB	Maj/EB	WB	EB			
								100%	100%	80%	80%				100%	100%	80%	80%	A&B 80%	A&B 80%			
6:00 AM	642	567	48	22	100%	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No			
7:00 AM	1081	956	54	59	100%	No	No	No	No	No	No	100%	No	No	No	No	No	No	No	No			
8:00 AM	1112	964	48	82	100%	No	No	No	No	No	No	100%	No	100%	No	Yes	No	Yes	No	No			
9:00 AM	801	715	34	44	100%	No	No	No	No	No	No	80%	No	No	No	No	No	No	No	No			
10:00 AM	773	675	34	53	100%	No	No	No	No	No	No	80%	No	No	No	No	No	No	No	No			
11:00 AM	962	838	37	74	100%	No	No	No	No	No	No	100%	No	80%	No	No	No	Yes	No	No			
12:00 PM	1013	878	43	78	100%	No	No	No	No	No	No	100%	No	100%	No	Yes	No	Yes	No	No			
1:00 PM	1034	906	40	73	100%	No	No	No	No	No	No	100%	No	80%	No	No	No	Yes	No	No			
2:00 PM	1108	948	51	92	100%	No	No	No	No	No	No	100%	No	100%	No	Yes	No	Yes	No	No			
3:00 PM	1302	1104	61	114	100%	No	No	No	No	No	No	100%	80%	100%	No	Yes	Yes	Yes	No	No			
4:00 PM	1266	1039	48	147	100%	No	80%	No	No	No	Yes	100%	No	100%	No	Yes	No	Yes	No	Yes			
5:00 PM	1427	1217	40	140	100%	No	80%	No	No	No	Yes	100%	No	100%	No	Yes	No	Yes	No	Yes			
6:00 PM	1016	836	48	111	100%	No	No	No	No	No	No	100%	No	100%	No	Yes	No	Yes	No	No			
7:00 PM	690	597	27	55	100%	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No			
					Hours 100% Met =			0	0						0	7					2		
					Warrant Met			No	No						No	No					No		
					(Requires 8 hours met)																		
					Hours 80% Met					0	2						1	9					

12th Street/Washington Street

Meets Warrant 1? Yes

Eight-Hour Vehicular Volume

Hour	Hourly Totals	Hourly Volumes			Warrant 1 - Condition A						Warrant 1 - Condition B						Both A & B			
		Major	Min-WB	Min-EB	Major	Min-WB	Min-EB	Maj/WB	Maj/EB	Maj/WB	Maj/EB	Major	Min-WB	Min-EB	Maj/WB	Maj/EB	Maj/WB	Maj/EB	WB	EB
					100%	100%	No	100%	100%	80%	80%				100%	100%	80%	80%	A&B 80%	A&B 80%
7:00 AM		762	168	49	Yes		No	Yes	No	Yes	No	100%	100%	No	Yes	No	Yes	No	Yes	No
8:00 AM		1284	189	132	100%	100%	80%	Yes	No	Yes	Yes	100%	100%	100%	Yes	Yes	Yes	Yes	Yes	Yes
9:00 AM		1295	168	182	100%	100%	100%	Yes	Yes	Yes	Yes	100%	100%	100%	Yes	Yes	Yes	Yes	Yes	Yes
10:00 AM		961	119	98	100%		No	No	No	No	No	100%	100%	100%	Yes	Yes	Yes	Yes	No	No
11:00 AM		907	119	119	100%		No	No	No	No	No	100%	100%	100%	Yes	Yes	Yes	Yes	No	No
12:00 PM		1126	130	166	100%	80%	100%	No	Yes	Yes	Yes	100%	100%	100%	Yes	Yes	Yes	Yes	Yes	Yes
1:00 PM		1180	151	174	100%	100%	100%	Yes	Yes	Yes	Yes	100%	100%	100%	Yes	Yes	Yes	Yes	Yes	Yes
2:00 PM		1217	140	163	100%	80%	100%	No	Yes	Yes	Yes	100%	100%	100%	Yes	Yes	Yes	Yes	Yes	Yes
3:00 PM		1274	179	204	100%	100%	100%	Yes	Yes	Yes	Yes	100%	100%	100%	Yes	Yes	Yes	Yes	Yes	Yes
4:00 PM		1483	214	255	100%	100%	100%	Yes	Yes	Yes	Yes	100%	100%	100%	Yes	Yes	Yes	Yes	Yes	Yes
5:00 PM		1396	168	327	100%	100%	100%	Yes	Yes	Yes	Yes	100%	100%	100%	Yes	Yes	Yes	Yes	Yes	Yes
6:00 PM		1635	140	312	100%	80%	100%	No	Yes	Yes	Yes	100%	100%	100%	Yes	Yes	Yes	Yes	Yes	Yes
7:00 PM		1123	168	249	100%	100%	100%	Yes	Yes	Yes	Yes	100%	100%	100%	Yes	Yes	Yes	Yes	Yes	Yes
8:00 PM		802	95	122	100%	No	80%	No	No	No	Yes	100%	100%	100%	Yes	Yes	Yes	Yes	No	Yes

Hours 100% Met =
Warrant Met
(Requires 8 hours met)

8 9
Yes Yes

14 13
Yes Yes

22
Yes

Hours 80% Met

11 11

14 13

12th Street/Washington Street								
	Meets Warrant 2?	Yes						
Four-Hour Vehicular Volume								
		Hourly Volumes			Warrant 2			
Hour	Hourly Totals	Major	Minor WB	Minor EB	WB Meets Min Thresh?	EB Meets Min Thresh?	WB Meets?	EB Meets?
					* based on Max Major volume			
6:00 AM		762	168	49	Yes	No	No	No
7:00 AM		1284	189	132	Yes	Yes	Yes	Yes
8:00 AM		1295	168	182	Yes	Yes	Yes	Yes
9:00 AM		961	119	98	Yes	Yes	Yes	Yes
10:00 AM		907	119	119	Yes	Yes	Yes	Yes
11:00 AM		1126	130	166	Yes	Yes	Yes	Yes
12:00 PM		1180	151	174	Yes	Yes	Yes	Yes
1:00 PM		1217	140	163	Yes	Yes	Yes	Yes
2:00 PM		1274	179	204	Yes	Yes	Yes	Yes
3:00 PM		1483	214	255	Yes	Yes	Yes	Yes
4:00 PM		1396	168	327	Yes	Yes	Yes	Yes
5:00 PM		1635	140	312	Yes	Yes	Yes	Yes
6:00 PM		1123	168	249	Yes	Yes	Yes	Yes
7:00 PM		802	95	122	Yes	Yes	No	No
	Max=	1635					12	12
	Meets Warrant?						Yes	Yes
							(Requires 4 hours met)	

Figure 4C-1. Warrant 2, Four-Hour Vehicular Volume

MINOR STREET HIGHER-VOLUME APPROACH - VPH

MAJOR STREET—TOTAL OF BOTH APPROACHES—VEHICLES PER HOUR (VPH)

*Note: 115 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 80 vph applies as the lower threshold volume for a minor-street approach with one lane.

Warrant 4 Met?		No					
Pedestrian							
PEDESTRIAN VOLUMES	2016						
Time Period	North	South	East	West	Total	Hourly	Meets Minimum (107)?
6:00 AM	1	0	1	0	2		
6:15 AM	1	1	0	0	2		
6:30 AM	1	0	0	0	1		
6:45 AM	0	0	0	0	0	5	No
7:00 AM	1	0	0	0	1	4	No
7:15 AM	5	0	3	4	12	14	No
7:30 AM	2	1	1	1	5	18	No
7:45 AM	4	0	0	1	5	23	No
8:00 AM	5	1	0	0	6	28	No
8:15 AM	5	3	3	0	11	27	No
8:30 AM	2	1	0	0	3	25	No
8:45 AM	6	0	1	1	8	28	No
9:00 AM	3	0	5	3	11	33	No
9:15 AM	5	0	0	1	6	28	No
9:30 AM	3	0	2	1	6	31	No
9:45 AM	4	0	3	0	7	30	No
10:00 AM	1	1	2	0	4	23	No
10:15 AM	5	0	0	0	5	22	No
10:30 AM	3	0	1	0	4	20	No
10:45 AM	4	0	0	0	4	17	No
11:00 AM	1	0	0	1	2	15	No
11:15 AM	7	0	0	1	8	18	No
11:30 AM	2	1	2	0	5	19	No
11:45 AM	1	0	0	0	1	16	No
12:00 PM	6	0	1	1	8	22	No
12:15 PM	5	0	0	0	5	19	No
12:30 PM	6	0	0	2	8	22	No
12:45 PM	4	1	0	1	6	27	No
1:00 PM	5	0	0	0	5	24	No
1:15 PM	3	0	2	0	5	24	No
1:30 PM	2	0	1	2	5	21	No
1:45 PM	10	2	1	0	13	28	No
2:00 PM	12	0	2	2	16	39	No
2:15 PM	6	0	0	0	6	40	No
2:30 PM	13	0	1	2	16	51	No
2:45 PM	4	0	0	1	5	43	No
3:00 PM	10	1	1	0	12	39	No
3:15 PM	5	2	2	2	11	44	No
3:30 PM	2	0	1	0	3	31	No
3:45 PM	2	0	1	1	4	30	No
4:00 PM	2	0	1	0	3	21	No
4:15 PM	0	0	0	0	0	10	No
4:30 PM	0	0	0	0	0	7	No
4:45 PM	1	0	0	4	5	8	No
5:00 PM	3	0	0	0	3	8	No
5:15 PM	0	0	0	0	0	8	No
5:30 PM	2	0	0	0	2	10	No
5:45 PM	6	0	2	0	8	13	No
6:00 PM	4	0	0	0	4	14	No
6:15 PM	0	0	0	0	0	14	No
6:30 PM	1	0	0	0	1	13	No
6:45 PM	0	0	0	0	0	5	No
7:00 PM	4	0	1	0	5	6	No
7:15 PM	0	0	3	0	3	9	No
7:30 PM	1	0	0	0	1	9	No
7:45 PM	0	0	0	0	0	9	No
Meets Minimum Pedestrian Threshold (107 pph)?							0
Meets Warrant?							No

Meets Warrant 7?		Yes				
Crash Experience						
A.						
Alternatives have failed						
to reduce crash frequency	Meets?	Yes				
B.	Type	2010	2011	2012	3-year	
>=5 crashes in 12 months	Angle	8	11	3	22	
Correctable by Signal	Turning	0	1	0	1	
	Rear End	1	2	1	4	
	Fixed Object	1	1	0	2	
	Total (Angle/Turning)	8	12	3	23	
	Meets?	Yes				
C.						
Meets 8-hour Warrant 1 -A		No				
or 8-hour Warrant 1 - B		Yes				
	Meets?	Yes				

Meets Warrant 5?		No											
School Crossing													
This warrant is intended for application where the fact that schoolchildren cross the major street is the principal reason to consider installing a traffic control signal.													
Meets Warrant 6?		No											
Coordinated Signal System													
Meets Warrant 8?		No											
Roadway Network													
Meets Warrant 9?		No											
Intersection Near a Grade Crossing													

Based on Peak Hour Volume				
Intersection	Period	PM Peak TEV	Crashes	Crash Rate
12th/Washington	2013-2015	1,440	28	1.78
12th/Washington	2011-2015	1,440	46	1.75

Existing Conditions-Without Barricade
11: Washington St & 7th St

AM Peak Hour
HCM Signalized Intersection Capacity Analysis

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	292	51	0	356	270	134	273	10	153	156	42
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor		1.00	1.00		1.00	1.00	1.00	1.00		1.00	1.00	
Frpb, ped/bikes		1.00	0.97		1.00	0.97	1.00	1.00		1.00	0.99	
Flpb, ped/bikes		1.00	1.00		1.00	1.00	1.00	1.00		1.00	1.00	
Frt		1.00	0.85		1.00	0.85	1.00	0.99		1.00	0.97	
Flt Protected		1.00	1.00		1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1863	1544		1863	1541	1761	1852		1768	1793	
Flt Permitted		1.00	1.00		1.00	1.00	0.62	1.00		0.49	1.00	
Satd. Flow (perm)		1863	1544		1863	1541	1148	1852		913	1793	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	324	57	0	396	300	149	303	11	170	173	47
RTOR Reduction (vph)	0	0	30	0	0	158	0	1	0	0	11	0
Lane Group Flow (vph)	0	324	27	0	396	142	149	313	0	170	209	0
Confl. Peds. (#/hr)	6		4	4		6	5		1	1		5
Turn Type		NA	Perm		NA	Perm	Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases			2			6	8			4		
Actuated Green, G (s)		21.0	21.0		21.0	21.0	15.3	15.3		15.3	15.3	
Effective Green, g (s)		21.0	21.0		21.0	21.0	15.3	15.3		15.3	15.3	
Actuated g/C Ratio		0.47	0.47		0.47	0.47	0.35	0.35		0.35	0.35	
Clearance Time (s)		4.0	4.0		4.0	4.0	4.0	4.0		4.0	4.0	
Vehicle Extension (s)		4.7	4.7		4.7	4.7	2.5	2.5		2.5	2.5	
Lane Grp Cap (vph)		883	731		883	730	396	639		315	619	
v/s Ratio Prot		0.17			c0.21			0.17			0.12	
v/s Ratio Perm			0.02			0.09	0.13			c0.19		
v/c Ratio		0.37	0.04		0.45	0.19	0.38	0.49		0.54	0.34	
Uniform Delay, d1		7.4	6.2		7.8	6.8	10.9	11.4		11.7	10.7	
Progression Factor		1.00	1.00		1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.5	0.0		0.7	0.2	0.4	0.4		1.4	0.2	
Delay (s)		7.9	6.3		8.5	7.0	11.3	11.9		13.1	11.0	
Level of Service		A	A		A	A	B	B		B	B	
Approach Delay (s)		7.7			7.8			11.7			11.9	
Approach LOS		A			A			B			B	
Intersection Summary												
HCM 2000 Control Delay		9.5			HCM 2000 Level of Service			A				
HCM 2000 Volume to Capacity ratio		0.49										
Actuated Cycle Length (s)		44.3			Sum of lost time (s)			8.0				
Intersection Capacity Utilization		52.2%			ICU Level of Service			A				
Analysis Period (min)		15										
c Critical Lane Group												

Existing Conditions-Without Barricade
3: Washington St & 12th St

AM Peak Hour
HCM 2010 TWSC

Intersection												
Intersection Delay, s/veh	6.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	15	14	67	0	26	23	166	485	6	18	361	33
Conflicting Peds, #/hr	18	0	3	3	0	18	6	0	4	4	0	6
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	100	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	27	2	5	2	2	4	5	4	2	6	6	2
Mvmt Flow	17	16	76	0	30	26	189	551	7	20	410	38
Major/Minor	Minor2		Minor1			Major1			Major2			
Conflicting Flow All	1466	1441	453	1484	1457	579	466	0	0	576	0	0
Stage 1	488	488	-	950	950	-	-	-	-	-	-	-
Stage 2	978	953	-	534	507	-	-	-	-	-	-	-
Follow-up Headway	4	4	3	4	4	3	2	-	-	2	-	-
Pot Capacity-1 Maneuver	93	133	601	103	130	511	1080	-	-	978	-	-
Stage 1	517	550	-	312	339	-	-	-	-	-	-	-
Stage 2	272	338	-	530	539	-	-	-	-	-	-	-
Time blocked-Platoon, %								-	-		-	-
Mov Capacity-1 Maneuver	58	104	589	66	102	501	1075	-	-	973	-	-
Mov Capacity-2 Maneuver	58	104	-	66	102	-	-	-	-	-	-	-
Stage 1	420	531	-	253	275	-	-	-	-	-	-	-
Stage 2	189	274	-	436	520	-	-	-	-	-	-	-
Approach	EB		WB			NB			SB			
HCM Control Delay, s	47		38			2			0			
Minor Lane / Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	1075	-	-	189	163	973	-	-				
HCM Lane V/C Ratio	0.175	-	-	0.577	0.342	0.021	-	-				
HCM Control Delay (s)	9.06	-	-	47.2	38.1	8.779	-	-				
HCM Lane LOS	A			E	E	A						
HCM 95th %tile Q(veh)	0.635	-	-	3.121	1.409	0.064	-	-				

Notes

~ : Volume Exceeds Capacity; \$: Delay Exceeds 300 Seconds; Error : Computation Not Defined

Existing Conditions-Without Barricade
8: 14th St & Washington St

AM Peak Hour
HCM Signalized Intersection Capacity Analysis

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	178	26	106	5	24	2	287	223	8	3	301	229
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor		1.00	1.00		1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes		1.00	0.98		1.00		1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00	1.00		1.00		1.00	1.00		1.00	1.00	
Frt		1.00	0.85		0.99		1.00	0.99		1.00	0.94	
Flt Protected		0.96	1.00		0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1785	1490		1805		1770	1767		1766	1699	
Flt Permitted		0.73	1.00		0.96		0.22	1.00		0.60	1.00	
Satd. Flow (perm)		1360	1490		1745		410	1767		1119	1699	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	196	29	116	5	26	2	315	245	9	3	331	252
RTOR Reduction (vph)	0	0	55	0	2	0	0	1	0	0	24	0
Lane Group Flow (vph)	0	225	61	0	31	0	315	253	0	3	559	0
Confl. Peds. (#/hr)			1	1					5	5		
Heavy Vehicles (%)	2%	2%	6%	2%	4%	2%	2%	7%	4%	2%	5%	4%
Turn Type	Perm	NA	Perm	Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8		8	4			6			2		
Actuated Green, G (s)		19.0	19.0		19.0		52.2	47.5		37.2	36.5	
Effective Green, g (s)		19.0	19.0		19.0		52.2	47.5		37.2	36.5	
Actuated g/C Ratio		0.24	0.24		0.24		0.66	0.60		0.47	0.46	
Clearance Time (s)		4.0	4.0		4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)		2.5	2.5		2.5		2.3	4.1		2.3	4.1	
Lane Grp Cap (vph)		326	357		418		471	1059		531	782	
v/s Ratio Prot							c0.10	0.14		0.00	0.33	
v/s Ratio Perm		c0.17	0.04		0.02		c0.34			0.00		
v/c Ratio		0.69	0.17		0.08		0.67	0.24		0.01	0.72	
Uniform Delay, d1		27.4	23.9		23.3		9.9	7.4		11.2	17.2	
Progression Factor		1.00	1.00		1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		5.7	0.2		0.1		3.1	0.2		0.0	3.4	
Delay (s)		33.1	24.0		23.4		12.9	7.6		11.2	20.6	
Level of Service		C	C		C		B	A		B	C	
Approach Delay (s)		30.0			23.4			10.5			20.5	
Approach LOS		C			C			B			C	
Intersection Summary												
HCM 2000 Control Delay			19.0									
HCM 2000 Volume to Capacity ratio			0.70									
Actuated Cycle Length (s)			79.2							12.0		
Intersection Capacity Utilization			73.6%									
Analysis Period (min)			15									
c Critical Lane Group												

Existing Conditions-With Barricade
11: Washington St & 7th St

AM Peak Hour
HCM Signalized Intersection Capacity Analysis

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	300	57	0	355	283	176	258	10	153	134	46
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor		1.00	1.00		1.00	1.00	1.00	1.00		1.00	1.00	
Frpb, ped/bikes		1.00	0.98		1.00	0.97	1.00	1.00		1.00	0.99	
Flpb, ped/bikes		1.00	1.00		1.00	1.00	1.00	1.00		1.00	1.00	
Frt		1.00	0.85		1.00	0.85	1.00	0.99		1.00	0.96	
Flt Protected		1.00	1.00		1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1845	1548		1845	1500	1763	1783		1686	1741	
Flt Permitted		1.00	1.00		1.00	1.00	0.63	1.00		0.52	1.00	
Satd. Flow (perm)		1845	1548		1845	1500	1175	1783		915	1741	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	0	330	63	0	390	311	193	284	11	168	147	51
RTOR Reduction (vph)	0	0	33	0	0	163	0	1	0	0	14	0
Lane Group Flow (vph)	0	330	30	0	390	148	193	294	0	168	184	0
Confl. Peds. (#/hr)	13		2	2		13	4		2	1		4
Heavy Vehicles (%)	2%	3%	2%	2%	3%	4%	2%	6%	2%	7%	5%	2%
Turn Type		NA	Perm		NA	Perm	Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases			2			6	8			4		
Actuated Green, G (s)		20.9	20.9		20.9	20.9	15.1	15.1		15.1	15.1	
Effective Green, g (s)		20.9	20.9		20.9	20.9	15.1	15.1		15.1	15.1	
Actuated g/C Ratio		0.47	0.47		0.47	0.47	0.34	0.34		0.34	0.34	
Clearance Time (s)		4.0	4.0		4.0	4.0	4.0	4.0		4.0	4.0	
Vehicle Extension (s)		4.7	4.7		4.7	4.7	2.5	2.5		2.5	2.5	
Lane Grp Cap (vph)		876	735		876	712	403	611		314	597	
v/s Ratio Prot		0.18			c0.21			0.16			0.11	
v/s Ratio Perm			0.02			0.10	0.16			c0.18		
v/c Ratio		0.38	0.04		0.45	0.21	0.48	0.48		0.54	0.31	
Uniform Delay, d1		7.4	6.2		7.7	6.7	11.4	11.4		11.6	10.6	
Progression Factor		1.00	1.00		1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.5	0.0		0.7	0.3	0.7	0.4		1.4	0.2	
Delay (s)		7.9	6.2		8.4	7.0	12.0	11.8		13.0	10.8	
Level of Service		A	A		A	A	B	B		B	B	
Approach Delay (s)		7.6			7.8			11.9			11.8	
Approach LOS		A			A			B			B	
Intersection Summary												
HCM 2000 Control Delay		9.5			HCM 2000 Level of Service			A				
HCM 2000 Volume to Capacity ratio		0.48										
Actuated Cycle Length (s)		44.0			Sum of lost time (s)			8.0				
Intersection Capacity Utilization		51.4%			ICU Level of Service			A				
Analysis Period (min)		15										
c Critical Lane Group												

Existing Conditions-With Barricade
3: Washington St & 12th St

AM Peak Hour
HCM 2010 TWSC

Intersection												
Intersection Delay, s/veh	1.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	0	0	63	0	0	45	0	638	5	0	337	32
Conflicting Peds, #/hr	16	0	2	0	0	16	0	0	4	0	0	1
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	86	86	86	86	86	86	86	86	86	86	86	86
Heavy Vehicles, %	2	2	3	2	2	4	2	6	2	2	6	2
Mvmt Flow	0	0	73	0	0	52	0	742	6	0	392	37
Major/Minor	Minor2		Minor1			Major1			Major2			
Conflicting Flow All	1187	1190	430	1187	1206	762	445	0	0	764	0	0
Stage 1	426	426	-	761	761	-	-	-	-	-	-	-
Stage 2	761	764	-	426	445	-	-	-	-	-	-	-
Follow-up Headway	4	4	3	4	4	3	2	-	-	2	-	-
Pot Capacity-1 Maneuver	165	188	623	165	184	402	1115	-	-	849	-	-
Stage 1	606	586	-	398	414	-	-	-	-	-	-	-
Stage 2	398	413	-	606	575	-	-	-	-	-	-	-
Time blocked-Platoon, %								-	-		-	-
Mov Capacity-1 Maneuver	141	183	613	143	179	396	1111	-	-	848	-	-
Mov Capacity-2 Maneuver	141	183	-	143	179	-	-	-	-	-	-	-
Stage 1	598	578	-	393	408	-	-	-	-	-	-	-
Stage 2	345	407	-	532	567	-	-	-	-	-	-	-
Approach	EB		WB			NB			SB			
HCM Control Delay, s	12		16			0			0			
Minor Lane / Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	1111	-	-	613	396	848	-	-				
HCM Lane V/C Ratio	-	-	-	0.12	0.132	-	-	-				
HCM Control Delay (s)	0	-	-	11.7	15.5	0	-	-				
HCM Lane LOS	A			B	C	A						
HCM 95th %tile Q(veh)	0	-	-	0.405	0.452	0	-	-				
Notes												

Existing Conditions-With Barricade
8: 14th St & Washington St

AM Peak Hour
HCM Signalized Intersection Capacity Analysis

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	145	36	93	6	38	3	414	266	5	4	275	220
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor		1.00	1.00		1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes		1.00	0.98		1.00		1.00	1.00		1.00	0.99	
Flpb, ped/bikes		1.00	1.00		1.00		1.00	1.00		1.00	1.00	
Frt		1.00	0.85		0.99		1.00	1.00		1.00	0.93	
Flt Protected		0.96	1.00		0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1704	1476		1722		1736	1755		1768	1666	
Flt Permitted		0.78	1.00		0.96		0.22	1.00		0.57	1.00	
Satd. Flow (perm)		1374	1476		1665		395	1755		1066	1666	
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	165	41	106	7	43	3	470	302	6	5	312	250
RTOR Reduction (vph)	0	0	56	0	2	0	0	0	0	0	26	0
Lane Group Flow (vph)	0	206	50	0	51	0	470	308	0	5	536	0
Confl. Peds. (#/hr)	1		1	1		1			2	2		
Confl. Bikes (#/hr)												1
Heavy Vehicles (%)	8%	3%	7%	2%	8%	33%	4%	8%	2%	2%	5%	6%
Turn Type	Perm	NA	Perm	Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8		8	4			6			2		
Actuated Green, G (s)		17.6	17.6		17.6		55.2	50.4		36.2	35.4	
Effective Green, g (s)		17.6	17.6		17.6		55.2	50.4		36.2	35.4	
Actuated g/C Ratio		0.22	0.22		0.22		0.68	0.62		0.45	0.44	
Clearance Time (s)		4.0	4.0		4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)		2.5	2.5		2.5		2.3	4.1		2.3	4.1	
Lane Grp Cap (vph)		299	321		362		532	1094		484	729	
v/s Ratio Prot							c0.17	0.18		0.00	0.32	
v/s Ratio Perm		c0.15	0.03		0.03		c0.43			0.00		
v/c Ratio		0.69	0.15		0.14		0.88	0.28		0.01	0.73	
Uniform Delay, d1		29.1	25.6		25.5		14.1	6.9		12.3	18.8	
Progression Factor		1.00	1.00		1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		5.9	0.2		0.1		15.7	0.2		0.0	4.2	
Delay (s)		35.0	25.7		25.6		29.8	7.1		12.3	23.0	
Level of Service		D	C		C		C	A		B	C	
Approach Delay (s)		31.9			25.6			20.9			22.9	
Approach LOS		C			C			C			C	
Intersection Summary												
HCM 2000 Control Delay			23.7			HCM 2000 Level of Service				C		
HCM 2000 Volume to Capacity ratio			0.87									
Actuated Cycle Length (s)			80.8			Sum of lost time (s)			12.0			
Intersection Capacity Utilization			77.4%			ICU Level of Service				D		
Analysis Period (min)			15									
c Critical Lane Group												

Existing Conditions-Without Barricade
11: Washington St & 7th St

PM Peak Hour
HCM Signalized Intersection Capacity Analysis

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	428	104	0	330	276	109	228	10	327	291	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor		1.00	1.00		1.00	1.00	1.00	1.00		1.00	1.00	
Frpb, ped/bikes		1.00	0.96		1.00	0.96	1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00	1.00		1.00	1.00	0.99	1.00		1.00	1.00	
Frt		1.00	0.85		1.00	0.85	1.00	0.99		1.00	0.99	
Flt Protected		1.00	1.00		1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1863	1521		1863	1515	1745	1851		1770	1834	
Flt Permitted		1.00	1.00		1.00	1.00	0.49	1.00		0.57	1.00	
Satd. Flow (perm)		1863	1521		1863	1515	893	1851		1054	1834	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	465	113	0	359	300	118	248	11	355	316	25
RTOR Reduction (vph)	0	0	55	0	0	181	0	2	0	0	3	0
Lane Group Flow (vph)	0	465	58	0	359	119	118	257	0	355	338	0
Confl. Peds. (#/hr)	14		10			14	13					13
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	4%
Turn Type		NA	Perm		NA	Perm	Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases			2			6	8			4		
Actuated Green, G (s)		26.5	26.5		26.5	26.5	32.5	32.5		32.5	32.5	
Effective Green, g (s)		26.5	26.5		26.5	26.5	32.5	32.5		32.5	32.5	
Actuated g/C Ratio		0.40	0.40		0.40	0.40	0.49	0.49		0.49	0.49	
Clearance Time (s)		4.0	4.0		4.0	4.0	4.0	4.0		4.0	4.0	
Vehicle Extension (s)		4.7	4.7		4.7	4.7	2.5	2.5		2.5	2.5	
Lane Grp Cap (vph)		736	601		736	599	433	897		511	889	
v/s Ratio Prot		c0.25			0.19			0.14			0.18	
v/s Ratio Perm			0.04			0.08	0.13			c0.34		
v/c Ratio		0.63	0.10		0.49	0.20	0.27	0.29		0.69	0.38	
Uniform Delay, d1		16.3	12.7		15.2	13.3	10.2	10.3		13.4	10.9	
Progression Factor		1.00	1.00		1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		2.3	0.1		1.0	0.3	0.2	0.1		3.8	0.2	
Delay (s)		18.6	12.9		16.1	13.6	10.5	10.4		17.2	11.1	
Level of Service		B	B		B	B	B	B		B	B	
Approach Delay (s)		17.5			15.0			10.5			14.2	
Approach LOS		B			B			B			B	
Intersection Summary												
HCM 2000 Control Delay		14.6			HCM 2000 Level of Service			B				
HCM 2000 Volume to Capacity ratio		0.67										
Actuated Cycle Length (s)		67.0			Sum of lost time (s)			8.0				
Intersection Capacity Utilization		63.2%			ICU Level of Service			B				
Analysis Period (min)		15										
c Critical Lane Group												

Existing Conditions-Without Barricade
3: Washington St & 12th St

PM Peak Hour
HCM 2010 TWSC

Intersection												
Intersection Delay, s/veh	8.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	23	15	130	1	16	24	118	482	3	32	581	15
Conflicting Peds, #/hr	6	0	0	0	0	6	4	0	0	0	0	4
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	100	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	4	5	2	2	2	2	2
Mvmt Flow	24	16	138	1	17	26	126	513	3	34	618	16
Major/Minor	Minor2		Minor1			Major1			Major2			
Conflicting Flow All	1493	1473	636	1548	1479	524	640	0	0	522	0	0
Stage 1	700	700	-	771	771	-	-	-	-	-	-	-
Stage 2	793	773	-	777	708	-	-	-	-	-	-	-
Follow-up Headway	4	4	3	4	4	3	2	-	-	2	-	-
Pot Capacity-1 Maneuver	102	127	478	93	126	549	930	-	-	1044	-	-
Stage 1	430	441	-	393	410	-	-	-	-	-	-	-
Stage 2	382	409	-	390	438	-	-	-	-	-	-	-
Time blocked-Platoon, %								-	-		-	-
Mov Capacity-1 Maneuver	74	105	474	51	104	544	927	-	-	1041	-	-
Mov Capacity-2 Maneuver	74	105	-	51	104	-	-	-	-	-	-	-
Stage 1	370	424	-	338	353	-	-	-	-	-	-	-
Stage 2	298	352	-	256	422	-	-	-	-	-	-	-
Approach	EB		WB			NB			SB			
HCM Control Delay, s	59		30			2			0			
Minor Lane / Major Mvmt	NBL		NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR			
Capacity (veh/h)	927		-	-	231	188	1041	-	-			
HCM Lane V/C Ratio	0.135		-	-	0.774	0.232	0.033	-	-			
HCM Control Delay (s)	9.491		-	-	59.2	29.8	8.575	-	-			
HCM Lane LOS	A				F	D	A					
HCM 95th %tile Q(veh)	0.468		-	-	5.547	0.865	0.101	-	-			
Notes												

Existing Conditions-Without Barricade
8: 14th St & Washington St

PM Peak Hour
HCM Signalized Intersection Capacity Analysis

												
Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	301	32	235	10	37	3	223	288	11	6	388	113
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor		1.00	1.00		1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes		1.00	0.98		1.00		1.00	1.00		1.00	0.99	
Flpb, ped/bikes		1.00	1.00		1.00		1.00	1.00		1.00	1.00	
Frt		1.00	0.85		0.99		1.00	0.99		1.00	0.97	
Flt Protected		0.96	1.00		0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1775	1544		1808		1769	1851		1768	1790	
Flt Permitted		0.71	1.00		0.92		0.23	1.00		0.57	1.00	
Satd. Flow (perm)		1314	1544		1685		420	1851		1059	1790	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	317	34	247	11	39	3	235	303	12	6	408	119
RTOR Reduction (vph)	0	0	68	0	2	0	0	1	0	0	10	0
Lane Group Flow (vph)	0	351	179	0	51	0	235	314	0	6	517	0
Confl. Peds. (#/hr)	2		2	15		2	2		2	2		2
Confl. Bikes (#/hr)												1
Heavy Vehicles (%)	2%	2%	2%	2%	3%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Perm	NA	Perm	Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8		8	4			6			2		
Actuated Green, G (s)		26.6	26.6		26.6		50.8	46.0		36.5	35.7	
Effective Green, g (s)		26.6	26.6		26.6		50.8	46.0		36.5	35.7	
Actuated g/C Ratio		0.31	0.31		0.31		0.59	0.54		0.43	0.42	
Clearance Time (s)		4.0	4.0		4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)		2.5	2.5		2.5		2.3	4.1		2.3	4.1	
Lane Grp Cap (vph)		409	480		524		425	997		459	748	
v/s Ratio Prot							c0.07	0.17		0.00	c0.29	
v/s Ratio Perm		c0.27	0.12		0.03		0.26			0.01		
v/c Ratio		0.86	0.37		0.10		0.55	0.32		0.01	0.69	
Uniform Delay, d1		27.6	22.9		20.9		11.5	10.9		14.0	20.3	
Progression Factor		1.00	1.00		1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		16.0	0.4		0.1		1.1	0.3		0.0	3.0	
Delay (s)		43.6	23.3		20.9		12.6	11.2		14.1	23.4	
Level of Service		D	C		C		B	B		B	C	
Approach Delay (s)		35.2			20.9			11.8			23.3	
Approach LOS		D			C			B			C	
Intersection Summary												
HCM 2000 Control Delay			23.7				HCM 2000 Level of Service			C		
HCM 2000 Volume to Capacity ratio			0.73									
Actuated Cycle Length (s)			85.4				Sum of lost time (s)			12.0		
Intersection Capacity Utilization			74.7%				ICU Level of Service			D		
Analysis Period (min)			15									
c Critical Lane Group												

Existing Conditions-With Barricade
11: Washington St & 7th St

PM Peak Hour
HCM Signalized Intersection Capacity Analysis

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	476	93	0	343	245	102	212	16	279	290	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor		1.00	1.00		1.00	1.00	1.00	1.00		1.00	1.00	
Frpb, ped/bikes		1.00	0.96		1.00	0.97	1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00	1.00		1.00	1.00	0.99	1.00		1.00	1.00	
Frt		1.00	0.85		1.00	0.85	1.00	0.99		1.00	0.98	
Flt Protected		1.00	1.00		1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1863	1522		1863	1528	1748	1775		1766	1793	
Flt Permitted		1.00	1.00		1.00	1.00	0.46	1.00		0.58	1.00	
Satd. Flow (perm)		1863	1522		1863	1528	855	1775		1077	1793	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	0	496	97	0	357	255	106	221	17	291	302	36
RTOR Reduction (vph)	0	0	40	0	0	139	0	3	0	0	4	0
Lane Group Flow (vph)	0	496	57	0	357	116	106	235	0	291	334	0
Confl. Peds. (#/hr)	10		11	11		10	13		2	2		13
Confl. Bikes (#/hr)			1			1						
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	6%	2%	2%	4%	2%
Turn Type		NA	Perm		NA	Perm	Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases			2			6	8			4		
Actuated Green, G (s)		26.1	26.1		26.1	26.1	23.3	23.3		23.3	23.3	
Effective Green, g (s)		26.1	26.1		26.1	26.1	23.3	23.3		23.3	23.3	
Actuated g/C Ratio		0.45	0.45		0.45	0.45	0.41	0.41		0.41	0.41	
Clearance Time (s)		4.0	4.0		4.0	4.0	4.0	4.0		4.0	4.0	
Vehicle Extension (s)		4.7	4.7		4.7	4.7	2.5	2.5		2.5	2.5	
Lane Grp Cap (vph)		847	692		847	694	347	720		437	727	
v/s Ratio Prot		c0.27			0.19			0.13			0.19	
v/s Ratio Perm			0.04			0.08	0.12			c0.27		
v/c Ratio		0.59	0.08		0.42	0.17	0.31	0.33		0.67	0.46	
Uniform Delay, d1		11.6	8.9		10.6	9.2	11.6	11.7		13.9	12.4	
Progression Factor		1.00	1.00		1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		1.5	0.1		0.6	0.2	0.4	0.2		3.4	0.3	
Delay (s)		13.1	9.0		11.2	9.4	11.9	11.9		17.3	12.8	
Level of Service		B	A		B	A	B	B		B	B	
Approach Delay (s)		12.4			10.5			11.9			14.9	
Approach LOS		B			B			B			B	
Intersection Summary												
HCM 2000 Control Delay			12.5				HCM 2000 Level of Service				B	
HCM 2000 Volume to Capacity ratio			0.62									
Actuated Cycle Length (s)			57.4				Sum of lost time (s)			8.0		
Intersection Capacity Utilization			62.8%				ICU Level of Service			B		
Analysis Period (min)			15									
c Critical Lane Group												

Existing Conditions-With Barricade
3: Washington St & 12th St

PM Peak Hour
HCM 2010 TWSC

Intersection												
Intersection Delay, s/veh	2.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	0	0	141	0	0	33	0	566	7	0	575	14
Conflicting Peds, #/hr	3	0	12	0	0	12	2	0	4	4	0	2
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	3	2	2	2	2	2	2
Mvmt Flow	0	0	157	0	0	37	0	629	8	0	639	16
Major/Minor	Minor2		Minor1			Major1			Major2			
Conflicting Flow All	1304	1308	663	1304	1311	649	666	0	0	649	0	0
Stage 1	659	659	-	645	645	-	-	-	-	-	-	-
Stage 2	645	649	-	659	666	-	-	-	-	-	-	-
Follow-up Headway	4	4	3	4	4	3	2	-	-	2	-	-
Pot Capacity-1 Maneuver	137	159	461	137	159	468	923	-	-	937	-	-
Stage 1	453	461	-	461	467	-	-	-	-	-	-	-
Stage 2	461	466	-	453	457	-	-	-	-	-	-	-
Time blocked-Platoon, %								-	-		-	-
Mov Capacity-1 Maneuver	124	156	455	89	156	462	920	-	-	934	-	-
Mov Capacity-2 Maneuver	124	156	-	89	156	-	-	-	-	-	-	-
Stage 1	448	456	-	456	462	-	-	-	-	-	-	-
Stage 2	423	461	-	296	452	-	-	-	-	-	-	-
Approach	EB		WB			NB			SB			
HCM Control Delay, s	17		14			0			0			
Minor Lane / Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	920	-	-	455	462	934	-	-				
HCM Lane V/C Ratio	-	-	-	0.344	0.079	-	-	-				
HCM Control Delay (s)	0	-	-	17	13.5	0	-	-				
HCM Lane LOS	A			C	B	A						
HCM 95th %tile Q(veh)	0	-	-	1.514	0.257	0	-	-				

Notes

~ : Volume Exceeds Capacity; \$: Delay Exceeds 300 Seconds; Error : Computation Not Defined

Existing Conditions-With Barricade
8: 14th St & Washington St

PM Peak Hour
HCM Signalized Intersection Capacity Analysis

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	313	54	204	5	38	9	275	307	10	9	367	152
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor		1.00	1.00		1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes		1.00	0.95		1.00		1.00	1.00		1.00	0.99	
Flpb, ped/bikes		1.00	1.00		1.00		1.00	1.00		1.00	1.00	
Frt		1.00	0.85		0.98		1.00	1.00		1.00	0.96	
Flt Protected		0.96	1.00		1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1725	1501		1737		1752	1818		1767	1722	
Flt Permitted		0.74	1.00		0.97		0.20	1.00		0.56	1.00	
Satd. Flow (perm)		1336	1501		1692		377	1818		1044	1722	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	326	56	212	5	40	9	286	320	10	9	382	158
RTOR Reduction (vph)	0	0	53	0	6	0	0	1	0	0	14	0
Lane Group Flow (vph)	0	382	159	0	48	0	286	329	0	9	526	0
Confl. Peds. (#/hr)	1		12	12		1	6		4	4		6
Confl. Bikes (#/hr)												2
Heavy Vehicles (%)	6%	2%	2%	20%	3%	11%	3%	4%	2%	2%	4%	6%
Turn Type	Perm	NA	Perm	Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8		8	4			6			2		
Actuated Green, G (s)		30.5	30.5		30.5		54.9	50.0		39.2	38.3	
Effective Green, g (s)		30.5	30.5		30.5		54.9	50.0		39.2	38.3	
Actuated g/C Ratio		0.33	0.33		0.33		0.59	0.54		0.42	0.41	
Clearance Time (s)		4.0	4.0		4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)		2.5	2.5		2.5		2.3	4.1		2.3	4.1	
Lane Grp Cap (vph)		436	490		552		407	973		445	706	
v/s Ratio Prot							c0.09	0.18		0.00	0.31	
v/s Ratio Perm		c0.29	0.11		0.03		c0.32			0.01		
v/c Ratio		0.88	0.33		0.09		0.70	0.34		0.02	0.74	
Uniform Delay, d1		29.7	23.7		21.8		14.0	12.3		15.8	23.4	
Progression Factor		1.00	1.00		1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		17.5	0.3		0.0		4.8	0.3		0.0	4.6	
Delay (s)		47.1	24.0		21.8		18.8	12.6		15.8	28.0	
Level of Service		D	C		C		B	B		B	C	
Approach Delay (s)		38.9			21.8			15.5			27.8	
Approach LOS		D			C			B			C	
Intersection Summary												
HCM 2000 Control Delay			27.1				HCM 2000 Level of Service			C		
HCM 2000 Volume to Capacity ratio			0.79									
Actuated Cycle Length (s)			93.4				Sum of lost time (s)			12.0		
Intersection Capacity Utilization			80.8%				ICU Level of Service			D		
Analysis Period (min)			15									
c Critical Lane Group												

HCM 2010 TWSC
3: Washington Street & 12th Street

6/22/2016

Intersection												
Int Delay, s/veh	1.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	55	130	205	5	55	80	185	520	5	115	805	10
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	0	-	-	0	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	5	-	-	5	-	-	-10	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	3	3	3	2	2	2	2	2	2
Mvmt Flow	58	137	216	5	58	84	195	547	5	121	847	11
Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2106	2037	853	2210	2039	550	858	0	0	553	0	0
Stage 1	1095	1095	-	939	939	-	-	-	-	-	-	-
Stage 2	1011	942	-	1271	1100	-	-	-	-	-	-	-
Critical Hdwy	8.12	7.52	6.72	8.13	7.53	6.73	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	7.12	6.52	-	7.13	6.53	-	-	-	-	-	-	-
Critical Hdwy Stg 2	7.12	6.52	-	7.13	6.53	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.527	4.027	3.327	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	~ 21	~ 32	319	17	~ 32	494	783	-	-	1017	-	-
Stage 1	191	214	-	243	263	-	-	-	-	-	-	-
Stage 2	218	263	-	144	211	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	~ 21	319	-	~ 21	494	783	-	-	1017	-	-
Mov Cap-2 Maneuver	-	~ 21	-	-	~ 21	-	-	-	-	-	-	-
Stage 1	143	189	-	182	198	-	-	-	-	-	-	-
Stage 2	96	198	-	11	186	-	-	-	-	-	-	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s							2.9			1.1		
HCM LOS	-											
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	783	-	-	-	-	1017	-	-				
HCM Lane V/C Ratio	0.249	-	-	-	-	0.119	-	-				
HCM Control Delay (s)	11.1	-	-	-	-	9	-	-				
HCM Lane LOS	B	-	-	-	-	A	-	-				
HCM 95th %tile Q(veh)	1	-	-	-	-	0.4	-	-				
Notes												
~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon												

MEMORANDUM

DATE: April 15, 2010

TO: John M. Lewis, PE, City of Oregon City

FROM: Peter L. Coffey, PE, DKS Associates
Robert Spierling, DKS Associates
Michael Tomasini, EIT, DKS Associates

SUBJECT: Washington Street/12th Street Intersection Analysis

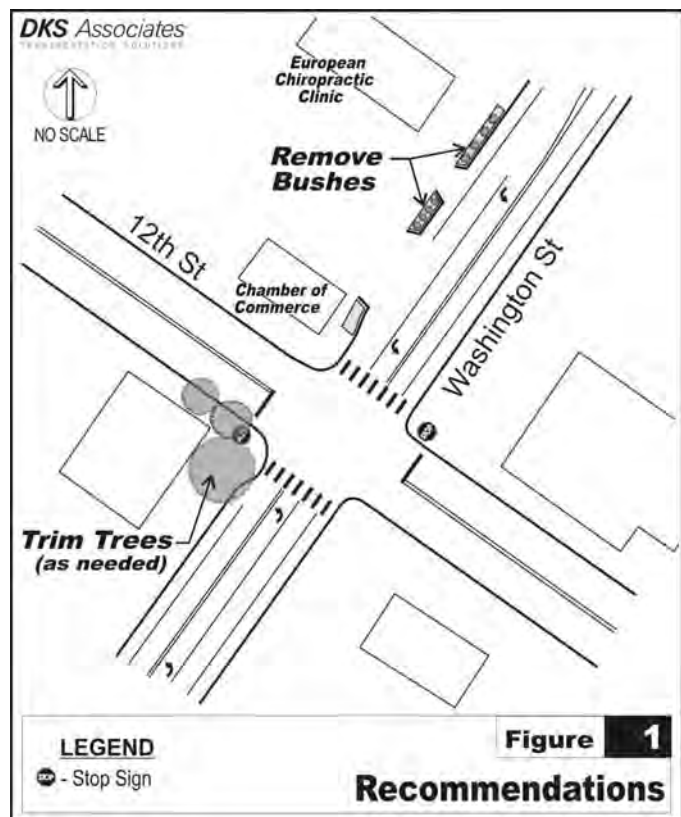
P09138-000

The purpose of this memorandum is to investigate the pedestrian and motor vehicle operating environments at the Washington Street/12th Street intersection in Oregon City, and to determine if any safety or operational improvements are recommended at this time.

Summary/Recommendations

Based on a review of the existing conditions at the intersection of Washington Street/12th Street, the following actions are recommended to improve the pedestrian and motor vehicle environment.

- Increase police enforcement to reduce the 85th percentile speed a value closer to the posted speed limit of 25 mph. Today the 85th percentile speed on Washington Street at 12th Street is 33 mph northbound and 31 mph southbound
- Remove the shrubs from the planter strip located immediately north of the Chamber of Commerce driveway and in front of the European Chiropractic Clinic on the west side of Washington Street. (See Figure 1)



- The large trees near the stop sign on the southwest corner of the intersection should be inspected in the summer and trimmed as necessary to maintain stop sign visibility and intersection sight distance to the south.

Existing Conditions

This section of the memorandum covers the existing pedestrian, transit, and motor vehicle conditions at the intersection of Washington Street/12th Street. The following sections identify the existing pedestrian environment, transit service, intersection geometry and traffic control devices, intersection sight distance evaluation, and crash analysis.

Pedestrian Environment

Sidewalks are provided along on both sides of Washington Street and 12th Street, which lead to ADA compliant curb ramps at all corners of the intersection. Bulb-outs are in use at the northwest and southwest corners of the intersection to facilitate pedestrian crossings of Washington Street at the marked pedestrian cross walks. Pedestrian crossing signs are provided for traffic in both directions on Washington Street upstream in advance of the intersections, as well as at the marked crossings in the intersection. Overhead street lighting is provided at the northwest and southeast corners of the intersection.

Transit Service

Transit service is provided by TriMet bus lines 32 and 34. Inbound busses head northbound on Washington Street and turn left onto 12th Street, and outbound busses head southbound on Washington Street. A near side bus stop is provided on the northern leg of the intersection for outbound busses. While at this stop, the bus partially blocks the southbound through lane (a common practice).

Intersection Geometry and Control

The intersection of Washington Street/12th Street is currently stop controlled for the east-west legs (12th Street), and uncontrolled for the north-south legs (Washington Street). Dedicated left turn lanes are provided for the northbound and southbound approaches on Washington Street, and shared lanes are provided on the remaining approaches. An overhead flashing beacon signal is installed over the intersection for motor vehicles traveling along both roadways. The flashing beacon signal displays red for 12th Street and amber for Washington Street.

85th Percentile Speed Survey

An 85th percentile speed survey was conducted on Washington Street by the City of Oregon City between the 7th and 13th of January, 2010. The posted speed on Washington Street is 25 mph for both northbound and southbound directions at the study intersection. The survey revealed that the 85th percentile speed for northbound and southbound vehicles was 33 mph and 31 mph, respectively. Speed details are included in Appendix A.

Intersection Sight Distance Analysis

An intersection sight distance analysis was conducted for the eastbound and westbound approaches on 12th Street. The minimum intersection sight distance for a direction is based on the speed of the vehicles on the uncontrolled cross street. Based on AASHTO criteria, the intersection sight distances for 31 mph and 33 mph should be 365 feet and 390 feet, respectively.¹ The available intersection sight distance for westbound and eastbound drivers is shown in Figure 2 and Table 1. Table 1 also lists the required intersection sight distance for the stop controlled approaches at this intersection. The following sections supply detail for the westbound and eastbound approaches of the intersection.

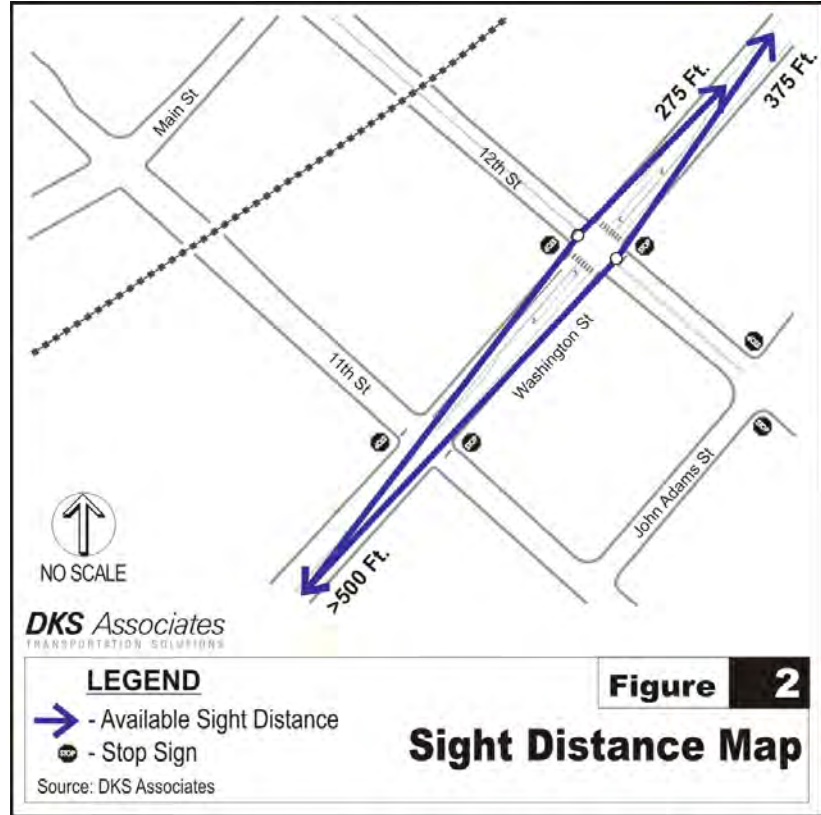


Table 1: Intersection Sight Distance

Approach	North Leg (85 th percentile speed 31mph)		South Leg (85 th percentile speed 31mph)	
	Available (ft)	Required (ft)	Available (ft)	Required (ft)
Eastbound (west leg →)	275	365	>500	390
Westbound (east leg ←)	375	365	>500	390

Note: Grey Shade and **Bold** Indicate the available intersection sight distance is less than the required sight distance.

Source: DKS Associates and AASHTO, *A Policy on Geometric Design of Highways*

¹ *A Policy on Geometric Design of Highways and Streets*, 2004 American Association of State Highway and Transportation Officials, page 661, Exhibit 9-55 and page 659/660 Exhibit 9-54. AASHTO criteria for intersection sight distance sets the driver's eye 14.4 feet

Eastbound Approach (West Leg) – Sight Distance to North

The required intersection sight distance to the north for the eastbound approach is 365 feet. The available intersection sight distance for this approach is currently restricted to 275 feet. The combination of a vertical curve (hill), utility poles, shrubbery (approximately 35 inches tall), and street trees (approximately 10 to 15 feet tall) currently restricts the available intersection sight distance. A single story brick building (City Chamber of Commerce) is located at the northwest corner of the intersection does not limit the intersection sight distance.

The intersection sight distance for the eastbound movement at this intersection was previously improved as part of a project in 2002. In November 2003, after the completion of the project, it was measured to be approximately 370 feet.² This measurement was taken when the shrubs and trees in the planting strip were considerably smaller. Since the measurement was taken in 2003, the plants have grown noticeably and reduced the available intersection sight distance by approximately 95 feet.

Eastbound Approach (West Leg) – Sight Distance to South

The required intersection sight distance to the south for the eastbound approach is 390 feet, and the available intersection sight distance (>500) for this approach exceeds the required distance by more than 100 feet. However, it should be noted that limbs from two large trees near the southwest corner of this intersection have grown over part of the adjacent sidewalk. These trees should be routinely trimmed in order to maintain view of the stop sign and not restrict the intersection sight distance.

Westbound Approach (East Leg) – Sight Distance to North

The required intersection sight distance to the north for the westbound approach is 365 feet. The available intersection sight distance (375 feet) is greater than the required 365 feet, but is restricted by a vertical curve (hill). The property on the northeast corner contains several small to medium sized shrubs and trees, which currently do not restrict the intersection sight distance, and the stop sign and “Cross Traffic Does Not Stop” sign are clearly visible to approaching drivers.

Westbound Approach (East Leg) – Sight Distance to South

The required intersection sight distance to the south for the westbound approach is 390 feet. The available intersection sight distance for this approach exceeds the required intersection sight distance and is approximately 575 feet. The property on the southeast corner of the intersection has as elevated garden with medium to large shrubs and trees, which currently do not restrict the available intersection sight distance

² DKS Associates Memorandum-Intersection Sight Distance at the Washington/12th Intersection, to Nancy Kraushaar, City of Oregon City, January 6, 2004

Intersection Crash Analysis

The intersection crash analysis was performed using the last four years of available data for the years (2006 to 2009).³ Over this time period 14 crashes were recorded in the crash databases for this intersection. This translates to an intersection crash rate of 0.68 crashes per million total entering vehicles (TEV). Intersection crash rates greater than 1.0 per million TEV are generally considered indicators that a further investigation in to the cause of the crashes is needed.

Although the crash rate at this location is well below 1.0, a more in depth crash analysis was conducted. Most of the crashes occurred during the day under dry conditions, and the cause of these crashes was cited as either “no yield” or “passed stop sign.” Figure 5 includes a graphical representation of the crash data. A summary of the crash types reported between 2006 and 2009 is as follows:

- Seven (7) crashes involved drivers traveling eastbound on 12th Street and failing to yield the right of way to the drivers traveling on Washington Street.
- Two (2) crashes involved drivers traveling westbound on 12th Street and failing to yield the right of way to the drivers traveling on Washington Street.
- Two (2) crashes involved drivers traveling northbound on Washington Street turning left onto 12th Street.
- Two (2) crashes were rear end type crashes.
- One (1) Pedestrian crash occurred outside of the intersection.

No bicycle crashes were recorded.

Traffic Signal Warrant Analysis

A traffic signal warrant analysis was conducted in accordance with the MUTCD⁴ for the intersection of Washington Street/12th Street. This analysis utilized motor vehicle counts collected in January 2010⁵, field measurements and observations, and collision data recorded between 2006 and 2009. The MUTCD warrant analysis is a nationally recognized standard for use of traffic control devices and includes studies and factors for justifying traffic control signals. Within the MUTCD are eight separate warrants⁶ used to evaluate various conditions specific to the intersection where a traffic signal is being considered. The most significant of the eight warrants that apply to the Washington Street/12th Street intersection are vehicle volume warrants (warrants 1 and 2), and crash experience (warrant 7).

³ Crash data supplied by the Oregon Department of Transportation and the Oregon City Police Department for January 2006 through December 2009.

⁴ Manual on Uniform Traffic Devices (MUTCD) 2009 Edition

⁵ Motor vehicle turn movement counts were collected for the a.m. and p.m. peak hour periods by All Traffic Data on Thursday January 7, 2010.

⁶ See Appendix for Warrant analysis from evaluation of Washington Street/12th Street

Vehicle Volume Warrants - The existing traffic volume at this intersection is currently below the threshold levels at which traffic signal would generally begin to improve intersection operation and safety for vehicles and pedestrians , Figures 3 and 4 present the existing traffic volume along 12th Street compared with the levels at which a traffic signal installation is generally considered. When considering the installation of a traffic signal based on traffic (and pedestrian) volumes, a traffic signal will generally introduce greater delay and inconvenience to vehicles and pedestrians. This becomes more apparent at lower traffic volumes when vehicles on the side street must wait for a traffic signal phase (i.e. green light) where as under stop sign control those same vehicles can proceed during gaps in the mainline traffic stream.

Crash Experience - The number of reported vehicle crashes of the type susceptible to correction by traffic signal control (3 in 2009) is below the level at which crash experience is a principal reason for considering the installation of a traffic signal (5 per year). Installation of a traffic signal will generally reduce the occurrence of right-angle collisions. However, intersections controlled by traffic signals generally have a higher incidence of rear-end type collisions than those controlled by stop signs. Installing a traffic signal based solely on crash experience at an intersection with a “moderate” incidence of collisions may not reduce the overall number of collisions but will likely change the types of collisions that occur. Figure 5 shows the reported collisions that occurred at the intersection from 2006 to 2009.

Figure 3 - MUTCD 8-Hour Volume Warrants A and B

2010 side street traffic volume compared with threshold for meeting traffic signal warrant.

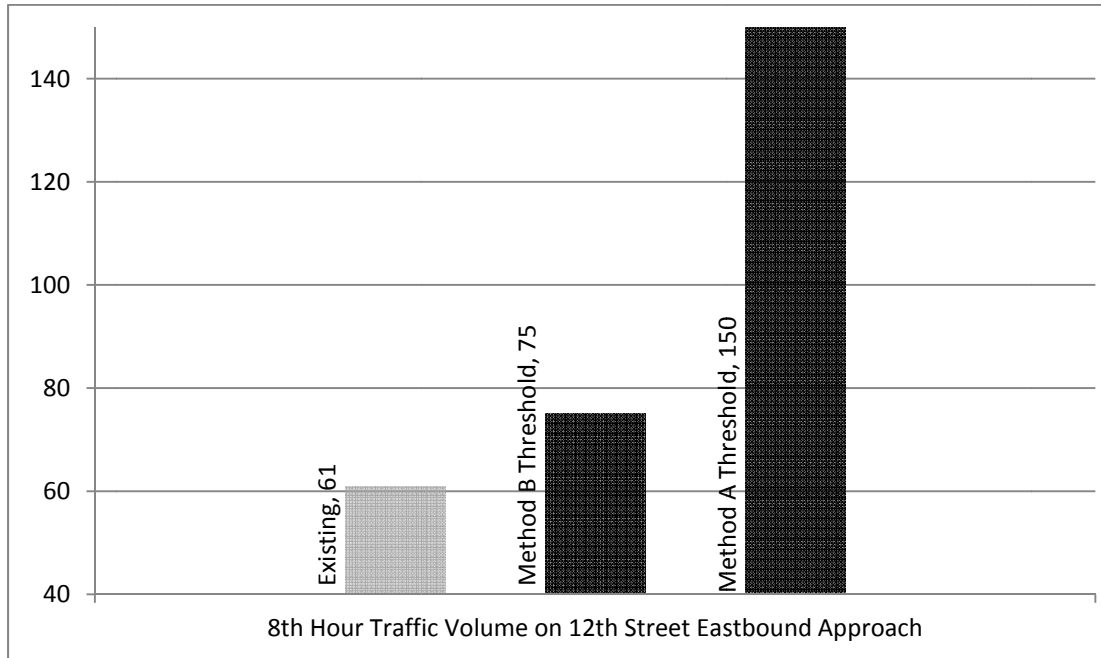
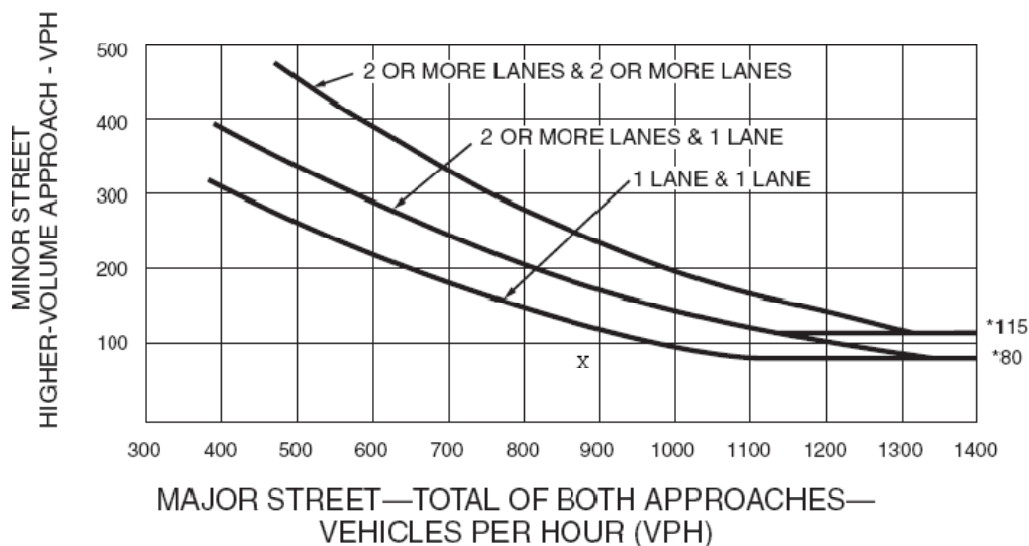


Figure 4 - MUTCD 4-Hour Volume Warrant

2010 traffic volume shown as "X" (892, 78), is below the threshold for meeting the 4-Hour traffic signal warrant.

Figure 4C-1. Warrant 2, Four-Hour Vehicular Volume



Appendix

- Traffic Count Data
- Collision Data
- Traffic Signal Warrant Analysis

Traffic Count Data

City of Oregon City Traffic Study

625 Center Street
Oregon City, OR 97045

Washington St :
1105 Washingt :
NB Only :

Date:

1/7/2010
Thursday

Daily Speed (60 Min.)

Channel: NB

mph	Total	0 - < 15	15 - < 20	20 - < 25	25 - < 30	30 - < 35	35 - < 40	40 - < 45	45 - < 50	50 - < 55	55 - < 60	60 - < 65	65 - < 70	70 - < 200
12:00 AM	20	0	0	4	8	7	0	1	0	0	0	0	0	0
1:00 AM	11	0	0	0	2	7	1	1	0	0	0	0	0	0
2:00 AM	13	0	1	2	3	6	1	0	0	0	0	0	0	0
3:00 AM	14	0	0	1	9	4	0	0	0	0	0	0	0	0
4:00 AM	56	1	1	1	16	29	8	0	0	0	0	0	0	0
5:00 AM	156	0	1	8	42	80	24	1	0	0	0	0	0	0
6:00 AM	361	0	5	16	118	191	30	1	0	0	0	0	0	0
7:00 AM	507	1	3	36	199	244	23	1	0	0	0	0	0	0
8:00 AM	358	0	6	34	159	139	20	0	0	0	0	0	0	0
9:00 AM	327	0	3	35	163	118	8	0	0	0	0	0	0	0
10:00 AM	344	0	2	38	182	107	15	0	0	0	0	0	0	0
11:00 AM	361	0	1	55	169	122	14	0	0	0	0	0	0	0
12:00 PM	347	0	1	46	157	127	15	1	0	0	0	0	0	0
1:00 PM	395	1	6	71	193	107	17	0	0	0	0	0	0	0
2:00 PM	404	0	10	65	198	120	11	0	0	0	0	0	0	0
3:00 PM	416	1	2	41	204	149	18	1	0	0	0	0	0	0
4:00 PM	442	0	4	55	234	134	14	1	0	0	0	0	0	0
5:00 PM	439	2	8	61	232	122	12	0	0	2	0	0	0	0
6:00 PM	269	0	1	28	119	105	16	0	0	0	0	0	0	0
7:00 PM	175	0	1	18	71	78	6	1	0	0	0	0	0	0
8:00 PM	129	0	2	10	66	40	9	2	0	0	0	0	0	0
9:00 PM	142	0	2	17	63	53	7	0	0	0	0	0	0	0
10:00 PM	64	0	1	6	33	21	3	0	0	0	0	0	0	0
11:00 PM	40	0	0	5	12	17	5	0	0	1	0	0	0	0
Total	5790	6	61	653	2652	2127	277	11	0	3	0	0	0	0
%		0.1	1.1	11.3	45.8	36.7	4.8	0.2	0.0	0.1	0.0	0.0	0.0	0.0

Percentile Speeds
(mph)

<u>10.0%</u>	<u>15.0%</u>	<u>50.0%</u>	<u>85.0%</u>	<u>90.0%</u>
24.5	25.5	29.1	32.7	33.2

10 mph Pace Speed
Number in pace

24.5 - 34.5
4974 (85.9 %)

Average
Minimum
Maximum

29.0 mph
5.0 mph
53.2 mph

Speeds Exceeded

<u>45 mph</u>	<u>55 mph</u>	<u>65 mph</u>
0.1 %	0.0 %	0.0 %

Count

3	0	0
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City of Oregon City Traffic Study

625 Center Street
Oregon City, OR 97045

Washington St :
1105 Washingt :
NB Only :

Date:

1/8/2010
Friday

Daily Speed (60 Min.)

Channel: NB

mph	Total	0 - < 15	15 - < 20	20 - < 25	25 - < 30	30 - < 35	35 - < 40	40 - < 45	45 - < 50	50 - < 55	55 - < 60	60 - < 65	65 - < 70	70 - < 200
12:00 AM	24	0	1	3	11	6	3	0	0	0	0	0	0	0
1:00 AM	18	0	0	2	11	4	1	0	0	0	0	0	0	0
2:00 AM	14	0	0	1	5	4	4	0	0	0	0	0	0	0
3:00 AM	15	0	0	2	6	6	1	0	0	0	0	0	0	0
4:00 AM	48	0	0	1	16	22	9	0	0	0	0	0	0	0
5:00 AM	151	0	3	6	59	64	19	0	0	0	0	0	0	0
6:00 AM	326	0	1	20	103	166	31	5	0	0	0	0	0	0
7:00 AM	488	0	1	28	194	225	38	2	0	0	0	0	0	0
8:00 AM	339	1	3	34	167	118	16	0	0	0	0	0	0	0
9:00 AM	270	0	2	27	130	94	16	1	0	0	0	0	0	0
10:00 AM	326	0	5	51	153	110	7	0	0	0	0	0	0	0
11:00 AM	337	0	6	47	181	93	9	1	0	0	0	0	0	0
12:00 PM	360	1	3	48	169	123	15	0	1	0	0	0	0	0
1:00 PM	400	0	6	71	193	119	11	0	0	0	0	0	0	0
2:00 PM	383	0	3	58	191	117	14	0	0	0	0	0	0	0
3:00 PM	441	0	5	59	218	138	18	3	0	0	0	0	0	0
4:00 PM	401	0	5	52	211	113	20	0	0	0	0	0	0	0
5:00 PM	393	0	5	46	204	130	8	0	0	0	0	0	0	0
6:00 PM	290	0	0	28	125	130	7	0	0	0	0	0	0	0
7:00 PM	177	0	3	20	75	66	12	0	0	1	0	0	0	0
8:00 PM	140	0	1	22	56	52	7	2	0	0	0	0	0	0
9:00 PM	154	0	4	15	62	60	13	0	0	0	0	0	0	0
10:00 PM	83	0	1	10	35	34	2	1	0	0	0	0	0	0
11:00 PM	59	0	0	10	23	22	3	1	0	0	0	0	0	0
Total	5637	2	58	661	2598	2016	284	16	1	1	0	0	0	0
%		0.0	1.0	11.7	46.1	35.8	5.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0

Percentile Speeds
(mph)

<u>10.0%</u>	<u>15.0%</u>	<u>50.0%</u>	<u>85.0%</u>	<u>90.0%</u>
24.5	25.5	29.1	32.7	33.2

10 mph Pace Speed
Number in pace

23.9 - 33.9
4805 (85.2 %)

Average
Minimum
Maximum

29.0 mph
8.3 mph
51.7 mph

Speeds Exceeded

<u>45 mph</u>	<u>55 mph</u>	<u>65 mph</u>
0.0 %	0.0 %	0.0 %

Count

2	0	0
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City of Oregon City Traffic Study

625 Center Street
Oregon City, OR 97045

Washington St :
1105 Washingt :
NB Only :

Date:

1/9/2010
Saturday

Daily Speed (60 Min.)

Channel: NB

mph	Total	0 - < 15	15 - < 20	20 - < 25	25 - < 30	30 - < 35	35 - < 40	40 - < 45	45 - < 50	50 - < 55	55 - < 60	60 - < 65	65 - < 70	70 - < 200
12:00 AM	34	0	0	5	14	12	3	0	0	0	0	0	0	0
1:00 AM	15	0	0	3	6	5	0	1	0	0	0	0	0	0
2:00 AM	14	0	0	3	5	4	2	0	0	0	0	0	0	0
3:00 AM	10	0	0	1	3	6	0	0	0	0	0	0	0	0
4:00 AM	25	0	0	0	9	12	3	1	0	0	0	0	0	0
5:00 AM	37	0	0	9	9	15	3	1	0	0	0	0	0	0
6:00 AM	94	0	2	9	27	43	12	1	0	0	0	0	0	0
7:00 AM	119	1	2	11	47	46	9	3	0	0	0	0	0	0
8:00 AM	191	0	1	13	75	84	17	1	0	0	0	0	0	0
9:00 AM	276	0	4	28	112	113	16	3	0	0	0	0	0	0
10:00 AM	361	0	6	40	160	137	17	1	0	0	0	0	0	0
11:00 AM	353	0	4	30	169	128	22	0	0	0	0	0	0	0
12:00 PM	345	1	4	42	164	112	18	4	0	0	0	0	0	0
1:00 PM	365	0	4	30	192	120	19	0	0	0	0	0	0	0
2:00 PM	379	1	8	44	158	146	17	5	0	0	0	0	0	0
3:00 PM	343	0	3	28	149	143	19	1	0	0	0	0	0	0
4:00 PM	323	1	6	28	154	106	25	3	0	0	0	0	0	0
5:00 PM	259	0	3	19	117	108	11	1	0	0	0	0	0	0
6:00 PM	226	0	2	19	111	88	6	0	0	0	0	0	0	0
7:00 PM	158	0	2	15	79	53	7	2	0	0	0	0	0	0
8:00 PM	157	0	1	22	84	45	5	0	0	0	0	0	0	0
9:00 PM	132	0	0	13	67	41	7	4	0	0	0	0	0	0
10:00 PM	94	1	2	8	51	26	4	2	0	0	0	0	0	0
11:00 PM	84	0	1	5	31	34	12	1	0	0	0	0	0	0
Total	4394	5	55	425	1993	1627	254	35	0	0	0	0	0	0
%		0.1	1.3	9.7	45.4	37.0	5.8	0.8	0.0	0.0	0.0	0.0	0.0	0.0

Percentile Speeds
(mph)

<u>10.0%</u>	<u>15.0%</u>	<u>50.0%</u>	<u>85.0%</u>	<u>90.0%</u>
24.8	25.9	29.1	32.7	33.9

10 mph Pace Speed
Number in pace

24.5 - 34.5
3730 (84.9 %)

Average
Minimum
Maximum

29.2 mph
5.0 mph
44.3 mph

Speeds Exceeded

<u>45 mph</u>	<u>55 mph</u>	<u>65 mph</u>
0.0 %	0.0 %	0.0 %

Count

0	0	0
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City of Oregon City Traffic Study
625 Center Street
Oregon City, OR 97045

Washington St :
1105 Washingt :
NB Only :

Date: 1/10/2010
Sunday

Daily Speed (60 Min.) Channel: NB															
mph	Total	0 - < 15	15 - < 20	20 - < 25	25 - < 30	30 - < 35	35 - < 40	40 - < 45	45 - < 50	50 - < 55	55 - < 60	60 - < 65	65 - < 70	70 - < 200	
12:00 AM	32	0	1	3	15	11	2	0	0	0	0	0	0	0	0
1:00 AM	17	0	0	1	8	7	0	0	1	0	0	0	0	0	0
2:00 AM	18	0	1	3	10	2	1	0	0	1	0	0	0	0	0
3:00 AM	9	0	0	1	5	3	0	0	0	0	0	0	0	0	0
4:00 AM	13	0	0	2	6	4	1	0	0	0	0	0	0	0	0
5:00 AM	26	0	0	0	7	13	5	1	0	0	0	0	0	0	0
6:00 AM	58	0	0	3	21	29	4	1	0	0	0	0	0	0	0
7:00 AM	62	0	1	5	19	26	10	1	0	0	0	0	0	0	0
8:00 AM	110	0	1	4	41	53	11	0	0	0	0	0	0	0	0
9:00 AM	218	0	1	8	88	101	19	1	0	0	0	0	0	0	0
10:00 AM	229	0	2	14	89	96	25	3	0	0	0	0	0	0	0
11:00 AM	299	2	5	32	149	94	16	1	0	0	0	0	0	0	0
12:00 PM	389	0	7	44	172	144	21	1	0	0	0	0	0	0	0
1:00 PM	348	1	6	31	148	139	22	1	0	0	0	0	0	0	0
2:00 PM	296	0	6	30	132	106	19	3	0	0	0	0	0	0	0
3:00 PM	266	0	4	33	130	89	10	0	0	0	0	0	0	0	0
4:00 PM	224	0	4	18	105	88	9	0	0	0	0	0	0	0	0
5:00 PM	209	0	2	28	87	80	12	0	0	0	0	0	0	0	0
6:00 PM	177	0	5	15	82	59	14	2	0	0	0	0	0	0	0
7:00 PM	132	0	0	18	59	50	4	1	0	0	0	0	0	0	0
8:00 PM	118	0	1	12	53	39	11	2	0	0	0	0	0	0	0
9:00 PM	96	0	1	6	43	33	13	0	0	0	0	0	0	0	0
10:00 PM	43	0	0	3	20	16	3	1	0	0	0	0	0	0	0
11:00 PM	35	0	0	6	12	13	3	1	0	0	0	0	0	0	0
Total	3424	3	48	320	1501	1295	235	20	1	1	0	0	0	0	0
%		0.1	1.4	9.3	43.8	37.8	6.9	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Percentile Speeds	<u>10.0%</u>	<u>15.0%</u>	<u>50.0%</u>	<u>85.0%</u>	<u>90.0%</u>
(mph)	24.8	25.9	29.6	33.2	33.9

10 mph Pace Speed	24.5 - 34.5	Average	29.4 mph
Number in pace	2900 (84.7 %)	Minimum	7.9 mph
		Maximum	51.7 mph

Speeds Exceeded	<u>45 mph</u>	<u>55 mph</u>	<u>65 mph</u>
	0.1 %	0.0 %	0.0 %
Count	2	0	0

City of Oregon City Traffic Study
625 Center Street
Oregon City, OR 97045

Washington St :
1105 Washingt :
NB Only :

Date: 1/11/2010
Monday

		Daily Speed (60 Min.)													
		Channel: NB													
mph	Total	0 - < 15	15 - < 20	20 - < 25	25 - < 30	30 - < 35	35 - < 40	40 - < 45	45 - < 50	50 - < 55	55 - < 60	60 - < 65	65 - < 70	70 - < 200	
12:00 AM	17	0	1	2	10	2	2	0	0	0	0	0	0	0	
1:00 AM	13	0	0	2	5	6	0	0	0	0	0	0	0	0	
2:00 AM	12	0	0	0	6	3	3	0	0	0	0	0	0	0	
3:00 AM	12	0	0	0	3	7	2	0	0	0	0	0	0	0	
4:00 AM	52	0	0	2	21	20	8	1	0	0	0	0	0	0	
5:00 AM	133	0	0	5	35	71	21	1	0	0	0	0	0	0	
6:00 AM	357	0	2	17	144	168	25	1	0	0	0	0	0	0	
7:00 AM	500	1	1	51	196	226	21	4	0	0	0	0	0	0	
8:00 AM	369	0	1	41	179	136	12	0	0	0	0	0	0	0	
9:00 AM	323	1	9	46	140	97	26	4	0	0	0	0	0	0	
10:00 AM	309	0	2	46	168	81	9	3	0	0	0	0	0	0	
11:00 AM	357	0	7	67	168	105	10	0	0	0	0	0	0	0	
12:00 PM	397	0	8	74	202	98	15	0	0	0	0	0	0	0	
1:00 PM	350	0	7	64	171	95	12	1	0	0	0	0	0	0	
2:00 PM	380	0	5	47	204	107	16	1	0	0	0	0	0	0	
3:00 PM	442	0	5	54	238	130	14	1	0	0	0	0	0	0	
4:00 PM	430	0	7	52	204	155	12	0	0	0	0	0	0	0	
5:00 PM	452	1	7	40	254	139	11	0	0	0	0	0	0	0	
6:00 PM	280	0	2	28	140	92	17	1	0	0	0	0	0	0	
7:00 PM	169	1	3	14	80	59	12	0	0	0	0	0	0	0	
8:00 PM	149	0	3	9	73	51	12	1	0	0	0	0	0	0	
9:00 PM	101	0	2	5	41	45	7	1	0	0	0	0	0	0	
10:00 PM	54	0	0	8	20	21	5	0	0	0	0	0	0	0	
11:00 PM	38	0	0	2	15	16	4	0	0	0	0	1	0	0	
Total	5696	4	72	676	2717	1930	276	20	0	0	0	1	0	0	
%		0.1	1.3	11.9	47.7	33.9	4.8	0.4	0.0	0.0	0.0	0.0	0.0	0.0	

Percentile Speeds	<u>10.0%</u>	<u>15.0%</u>	<u>50.0%</u>	<u>85.0%</u>	<u>90.0%</u>
(mph)	24.5	25.5	29.1	32.7	33.2

10 mph Pace Speed	23.9 - 33.9	Average	28.9 mph
Number in pace	4883 (85.7 %)	Minimum	13.6 mph
		Maximum	60.1 mph

Speeds Exceeded	<u>45 mph</u>	<u>55 mph</u>	<u>65 mph</u>
	0.0 %	0.0 %	0.0 %
Count	1	1	0

City of Oregon City Traffic Study

625 Center Street
Oregon City, OR 97045

Washington St :
1105 Washingt :
NB Only :

Date:

1/12/2010
Tuesday

Daily Speed (60 Min.)

Channel: NB

mph	Total	0 - < 15	15 - < 20	20 - < 25	25 - < 30	30 - < 35	35 - < 40	40 - < 45	45 - < 50	50 - < 55	55 - < 60	60 - < 65	65 - < 70	70 - < 200
12:00 AM	22	0	0	5	9	8	0	0	0	0	0	0	0	0
1:00 AM	16	0	0	3	7	5	0	1	0	0	0	0	0	0
2:00 AM	15	0	0	2	5	5	3	0	0	0	0	0	0	0
3:00 AM	15	0	0	2	3	10	0	0	0	0	0	0	0	0
4:00 AM	50	0	0	2	17	25	5	1	0	0	0	0	0	0
5:00 AM	138	0	0	5	49	62	21	1	0	0	0	0	0	0
6:00 AM	374	0	2	15	152	169	34	2	0	0	0	0	0	0
7:00 AM	496	0	2	37	211	224	22	0	0	0	0	0	0	0
8:00 AM	383	0	3	50	190	115	25	0	0	0	0	0	0	0
9:00 AM	322	0	3	44	145	119	11	0	0	0	0	0	0	0
10:00 AM	298	0	6	27	155	93	17	0	0	0	0	0	0	0
11:00 AM	379	0	8	60	196	106	9	0	0	0	0	0	0	0
12:00 PM	385	1	7	55	210	97	15	0	0	0	0	0	0	0
1:00 PM	388	3	8	53	217	98	8	1	0	0	0	0	0	0
2:00 PM	333	0	3	45	166	105	12	2	0	0	0	0	0	0
3:00 PM	441	0	0	76	225	125	15	0	0	0	0	0	0	0
4:00 PM	386	0	2	51	200	115	17	1	0	0	0	0	0	0
5:00 PM	428	1	4	67	219	127	10	0	0	0	0	0	0	0
6:00 PM	274	0	1	31	137	94	11	0	0	0	0	0	0	0
7:00 PM	167	1	1	18	78	57	12	0	0	0	0	0	0	0
8:00 PM	135	0	1	19	48	56	10	1	0	0	0	0	0	0
9:00 PM	108	0	4	11	45	40	5	2	1	0	0	0	0	0
10:00 PM	56	1	0	2	27	18	7	1	0	0	0	0	0	0
11:00 PM	42	0	0	6	19	14	3	0	0	0	0	0	0	0
Total	5651	7	55	686	2730	1887	272	13	1	0	0	0	0	0
%		0.1	1.0	12.1	48.3	33.4	4.8	0.2	0.0	0.0	0.0	0.0	0.0	0.0

Percentile Speeds (mph)

10.0% 15.0% 50.0% 85.0% 90.0%
24.5 25.2 29.1 32.7 33.2

10 mph Pace Speed Number in pace

23.9 - 33.9
4848 (85.8 %)

Average
Minimum
Maximum

28.8 mph
9.6 mph
46.5 mph

Speeds Exceeded

45 mph 55 mph 65 mph
0.0 % 0.0 % 0.0 %

Count

1 0 0

City of Oregon City Traffic Study

625 Center Street
Oregon City, OR 97045

Washington St :
1105 Washingt :
NB Only :

Date: 1/13/2010
Wednesday

Daily Speed (60 Min.)

Channel: NB

mph	Total	0 - < 15	15 - < 20	20 - < 25	25 - < 30	30 - < 35	35 - < 40	40 - < 45	45 - < 50	50 - < 55	55 - < 60	60 - < 65	65 - < 70	70 - < 200
12:00 AM	18	0	0	2	7	8	1	0	0	0	0	0	0	0
1:00 AM	17	0	0	3	6	7	1	0	0	0	0	0	0	0
2:00 AM	13	0	0	1	5	5	2	0	0	0	0	0	0	0
3:00 AM	16	0	0	1	4	10	1	0	0	0	0	0	0	0
4:00 AM	50	0	0	2	13	27	8	0	0	0	0	0	0	0
5:00 AM	151	0	1	9	59	65	16	1	0	0	0	0	0	0
6:00 AM	360	2	3	21	140	177	15	2	0	0	0	0	0	0
7:00 AM	493	1	3	41	214	207	27	0	0	0	0	0	0	0
8:00 AM	382	0	3	31	180	144	24	0	0	0	0	0	0	0
9:00 AM	312	2	4	53	149	98	6	0	0	0	0	0	0	0
10:00 AM	317	0	8	50	158	92	8	1	0	0	0	0	0	0
11:00 AM	366	0	5	67	181	101	11	1	0	0	0	0	0	0
12:00 PM	360	0	7	41	180	122	9	1	0	0	0	0	0	0
1:00 PM	360	0	10	46	192	96	16	0	0	0	0	0	0	0
2:00 PM	364	0	3	52	174	116	18	1	0	0	0	0	0	0
3:00 PM	417	0	3	78	198	121	16	1	0	0	0	0	0	0
4:00 PM	415	0	2	52	209	134	18	0	0	0	0	0	0	0
5:00 PM	428	0	9	53	195	152	17	2	0	0	0	0	0	0
6:00 PM	289	0	3	32	139	100	15	0	0	0	0	0	0	0
7:00 PM	198	0	6	22	103	62	4	1	0	0	0	0	0	0
8:00 PM	182	1	0	24	84	62	10	1	0	0	0	0	0	0
9:00 PM	127	0	1	22	69	31	4	0	0	0	0	0	0	0
10:00 PM	62	0	3	5	25	27	2	0	0	0	0	0	0	0
11:00 PM	33	0	0	9	9	11	2	2	0	0	0	0	0	0
Total	5730	6	74	717	2693	1975	251	14	0	0	0	0	0	0
%		0.1	1.3	12.5	47.0	34.5	4.4	0.2	0.0	0.0	0.0	0.0	0.0	0.0

Percentile Speeds
(mph)

<u>10.0%</u>	<u>15.0%</u>	<u>50.0%</u>	<u>85.0%</u>	<u>90.0%</u>
24.2	25.2	28.6	32.1	33.2

10 mph Pace Speed
Number in pace

23.3 - 33.3	Average	28.8 mph
4892 (85.4 %)	Minimum	6.3 mph
	Maximum	44.3 mph

Speeds Exceeded

<u>45 mph</u>	<u>55 mph</u>	<u>65 mph</u>
0.0 %	0.0 %	0.0 %
Count	0	0

City of Oregon City Traffic Study
625 Center Street
Oregon City, OR 97045

Washington St :
1105 Washingt :
SB only :

Date: 1/7/2010
Thursday

		Daily Speed (60 Min.)													
		Channel: SB													
mph	Total	0 - < 15	15 - < 20	20 - < 25	25 - < 30	30 - < 35	35 - < 40	40 - < 45	45 - < 50	50 - < 55	55 - < 60	60 - < 65	65 - < 70	70 - < 200	
12:00 AM	42	1	0	9	23	8	1	0	0	0	0	0	0	0	
1:00 AM	27	0	0	4	15	8	0	0	0	0	0	0	0	0	
2:00 AM	23	0	0	5	11	6	1	0	0	0	0	0	0	0	
3:00 AM	12	0	0	2	6	4	0	0	0	0	0	0	0	0	
4:00 AM	17	0	0	0	8	7	0	2	0	0	0	0	0	0	
5:00 AM	42	2	4	5	24	7	0	0	0	0	0	0	0	0	
6:00 AM	130	1	5	22	61	36	5	0	0	0	0	0	0	0	
7:00 AM	318	2	9	90	145	67	5	0	0	0	0	0	0	0	
8:00 AM	294	0	12	78	133	64	5	2	0	0	0	0	0	0	
9:00 AM	274	6	6	65	143	48	6	0	0	0	0	0	0	0	
10:00 AM	334	1	10	103	165	48	6	1	0	0	0	0	0	0	
11:00 AM	363	3	10	79	189	75	7	0	0	0	0	0	0	0	
12:00 PM	398	3	12	101	194	85	3	0	0	0	0	0	0	0	
1:00 PM	428	0	7	110	233	72	6	0	0	0	0	0	0	0	
2:00 PM	488	4	32	120	243	86	3	0	0	0	0	0	0	0	
3:00 PM	546	4	18	145	275	101	3	0	0	0	0	0	0	0	
4:00 PM	613	6	22	164	329	87	4	1	0	0	0	0	0	0	
5:00 PM	588	2	28	181	309	66	2	0	0	0	0	0	0	0	
6:00 PM	470	4	8	78	277	100	3	0	0	0	0	0	0	0	
7:00 PM	295	0	10	62	171	48	3	1	0	0	0	0	0	0	
8:00 PM	196	1	3	35	104	50	3	0	0	0	0	0	0	0	
9:00 PM	178	0	0	41	94	38	5	0	0	0	0	0	0	0	
10:00 PM	117	0	1	26	55	33	1	1	0	0	0	0	0	0	
11:00 PM	52	0	1	12	25	11	3	0	0	0	0	0	0	0	
Total	6245	40	198	1537	3232	1155	75	8	0	0	0	0	0	0	
%		0.6	3.2	24.6	51.8	18.5	1.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	

Percentile Speeds	<u>10.0%</u>	<u>15.0%</u>	<u>50.0%</u>	<u>85.0%</u>	<u>90.0%</u>
(mph)	22.4	23.3	27.0	30.5	31.6

10 mph Pace Speed	22.2 - 32.2	Average	26.8 mph
Number in pace	5346 (85.6 %)	Minimum	6.1 mph
		Maximum	43.3 mph

Speeds Exceeded	<u>45 mph</u>	<u>55 mph</u>	<u>65 mph</u>
	0.0 %	0.0 %	0.0 %
Count	0	0	0

City of Oregon City Traffic Study

625 Center Street

Oregon City, OR 97045

Washington St :
1105 Washingt :
SB only :

Date:

1/8/2010
Friday

Daily Speed (60 Min.)

Channel: SB

mph	Total	0 - < 15	15 - < 20	20 - < 25	25 - < 30	30 - < 35	35 - < 40	40 - < 45	45 - < 50	50 - < 55	55 - < 60	60 - < 65	65 - < 70	70 - < 200
12:00 AM	42	0	0	1	26	14	1	0	0	0	0	0	0	0
1:00 AM	28	0	1	7	15	3	2	0	0	0	0	0	0	0
2:00 AM	19	0	0	3	8	8	0	0	0	0	0	0	0	0
3:00 AM	19	0	0	2	11	2	3	1	0	0	0	0	0	0
4:00 AM	17	1	2	5	6	3	0	0	0	0	0	0	0	0
5:00 AM	39	1	2	9	14	12	1	0	0	0	0	0	0	0
6:00 AM	92	0	2	19	47	21	3	0	0	0	0	0	0	0
7:00 AM	263	0	7	63	145	45	3	0	0	0	0	0	0	0
8:00 AM	283	0	9	85	128	57	4	0	0	0	0	0	0	0
9:00 AM	256	1	6	55	141	48	5	0	0	0	0	0	0	0
10:00 AM	350	0	18	97	172	53	10	0	0	0	0	0	0	0
11:00 AM	365	3	15	107	187	44	8	1	0	0	0	0	0	0
12:00 PM	394	5	10	80	198	95	6	0	0	0	0	0	0	0
1:00 PM	452	2	19	133	231	61	6	0	0	0	0	0	0	0
2:00 PM	444	1	10	113	246	69	5	0	0	0	0	0	0	0
3:00 PM	572	3	31	173	285	80	0	0	0	0	0	0	0	0
4:00 PM	567	2	27	187	266	81	3	1	0	0	0	0	0	0
5:00 PM	601	0	11	153	346	86	5	0	0	0	0	0	0	0
6:00 PM	413	0	18	118	200	69	8	0	0	0	0	0	0	0
7:00 PM	300	1	2	60	161	72	3	1	0	0	0	0	0	0
8:00 PM	228	2	7	40	134	42	3	0	0	0	0	0	0	0
9:00 PM	186	1	7	48	90	36	4	0	0	0	0	0	0	0
10:00 PM	157	0	5	25	77	42	5	3	0	0	0	0	0	0
11:00 PM	99	0	0	16	51	27	4	1	0	0	0	0	0	0
Total	6186	23	209	1599	3185	1070	92	8	0	0	0	0	0	0
%		0.4	3.4	25.8	51.5	17.3	1.5	0.1	0.0	0.0	0.0	0.0	0.0	0.0

Percentile Speeds
(mph)

<u>10.0%</u>	<u>15.0%</u>	<u>50.0%</u>	<u>85.0%</u>	<u>90.0%</u>
22.2	23.3	26.6	30.5	31.0

10 mph Pace Speed
Number in pace

22.2 - 32.2	Average	26.7 mph
5278 (85.3 %)	Minimum	6.9 mph
	Maximum	43.3 mph

Speeds Exceeded

<u>45 mph</u>	<u>55 mph</u>	<u>65 mph</u>
0.0 %	0.0 %	0.0 %
Count	0	0

City of Oregon City Traffic Study
625 Center Street
Oregon City, OR 97045

Washington St :
1105 Washingt :
SB only :

Date: 1/9/2010
Saturday

Daily Speed (60 Min.) Channel: SB															
mph	Total	0 - < 15	15 - < 20	20 - < 25	25 - < 30	30 - < 35	35 - < 40	40 - < 45	45 - < 50	50 - < 55	55 - < 60	60 - < 65	65 - < 70	70 - < 200	
12:00 AM	63	0	1	13	32	15	2	0	0	0	0	0	0	0	
1:00 AM	46	0	5	10	25	6	0	0	0	0	0	0	0	0	
2:00 AM	34	0	0	8	13	10	3	0	0	0	0	0	0	0	
3:00 AM	21	0	0	4	13	4	0	0	0	0	0	0	0	0	
4:00 AM	11	0	1	1	6	3	0	0	0	0	0	0	0	0	
5:00 AM	24	1	6	6	7	4	0	0	0	0	0	0	0	0	
6:00 AM	88	6	21	26	28	6	1	0	0	0	0	0	0	0	
7:00 AM	64	1	1	16	30	15	0	1	0	0	0	0	0	0	
8:00 AM	131	0	8	30	55	34	4	0	0	0	0	0	0	0	
9:00 AM	192	0	7	50	82	47	6	0	0	0	0	0	0	0	
10:00 AM	279	2	3	64	131	75	3	1	0	0	0	0	0	0	
11:00 AM	371	0	13	80	186	86	6	0	0	0	0	0	0	0	
12:00 PM	399	0	15	86	207	86	5	0	0	0	0	0	0	0	
1:00 PM	446	0	18	98	235	86	7	2	0	0	0	0	0	0	
2:00 PM	413	0	12	85	228	80	7	1	0	0	0	0	0	0	
3:00 PM	422	2	17	91	238	70	4	0	0	0	0	0	0	0	
4:00 PM	433	1	8	108	227	84	5	0	0	0	0	0	0	0	
5:00 PM	437	1	10	115	241	66	2	2	0	0	0	0	0	0	
6:00 PM	305	0	7	75	160	52	10	1	0	0	0	0	0	0	
7:00 PM	245	1	6	56	122	58	2	0	0	0	0	0	0	0	
8:00 PM	197	0	0	36	96	59	5	1	0	0	0	0	0	0	
9:00 PM	131	0	1	25	66	36	3	0	0	0	0	0	0	0	
10:00 PM	135	1	5	34	65	24	6	0	0	0	0	0	0	0	
11:00 PM	92	0	3	13	40	33	2	1	0	0	0	0	0	0	
Total	4979	16	168	1130	2533	1039	83	10	0	0	0	0	0	0	
%		0.3	3.4	22.7	50.9	20.9	1.7	0.2	0.0	0.0	0.0	0.0	0.0	0.0	

Percentile Speeds	<u>10.0%</u>	<u>15.0%</u>	<u>50.0%</u>	<u>85.0%</u>	<u>90.0%</u>
(mph)	22.4	23.6	27.4	31.0	31.6

10 mph Pace Speed	22.2 - 32.2	Average	27.1 mph
Number in pace	4214 (84.6 %)	Minimum	10.6 mph
		Maximum	44.3 mph

Speeds Exceeded	<u>45 mph</u>	<u>55 mph</u>	<u>65 mph</u>
	0.0 %	0.0 %	0.0 %
Count	0	0	0

City of Oregon City Traffic Study
625 Center Street
Oregon City, OR 97045

Washington St :
1105 Washingt :
SB only :

Date: 1/10/2010
Sunday

Daily Speed (60 Min.) Channel: SB																
mph	Total	0 - < 15	15 - < 20	20 - < 25	25 - < 30	30 - < 35	35 - < 40	40 - < 45	45 - < 50	50 - < 55	55 - < 60	60 - < 65	65 - < 70	70 - < 200		
12:00 AM	65	0	2	12	35	16	0	0	0	0	0	0	0	0		
1:00 AM	51	0	0	11	31	6	3	0	0	0	0	0	0	0		
2:00 AM	34	0	1	10	13	9	1	0	0	0	0	0	0	0		
3:00 AM	20	0	1	3	12	3	0	0	0	1	0	0	0	0		
4:00 AM	20	0	0	6	11	2	1	0	0	0	0	0	0	0		
5:00 AM	15	0	0	1	10	2	2	0	0	0	0	0	0	0		
6:00 AM	22	0	0	4	11	7	0	0	0	0	0	0	0	0		
7:00 AM	55	0	0	7	30	14	4	0	0	0	0	0	0	0		
8:00 AM	119	0	1	25	56	31	5	0	1	0	0	0	0	0		
9:00 AM	226	0	3	37	123	60	3	0	0	0	0	0	0	0		
10:00 AM	306	0	4	57	152	89	4	0	0	0	0	0	0	0		
11:00 AM	226	0	6	40	103	67	10	0	0	0	0	0	0	0		
12:00 PM	278	0	11	45	138	77	6	1	0	0	0	0	0	0		
1:00 PM	319	0	9	54	171	77	8	0	0	0	0	0	0	0		
2:00 PM	334	1	5	44	178	97	9	0	0	0	0	0	0	0		
3:00 PM	348	1	5	62	173	92	14	1	0	0	0	0	0	0		
4:00 PM	333	1	9	76	170	64	13	0	0	0	0	0	0	0		
5:00 PM	352	2	7	63	211	63	6	0	0	0	0	0	0	0		
6:00 PM	267	0	3	46	149	61	8	0	0	0	0	0	0	0		
7:00 PM	177	0	2	35	97	40	2	1	0	0	0	0	0	0		
8:00 PM	138	0	0	25	75	32	5	0	1	0	0	0	0	0		
9:00 PM	130	4	5	22	65	32	1	1	0	0	0	0	0	0		
10:00 PM	83	0	3	16	44	15	2	1	1	0	1	0	0	0		
11:00 PM	41	1	2	11	16	8	2	1	0	0	0	0	0	0		
Total	3959	10	79	712	2074	964	109	6	3	1	1	0	0	0		
%		0.3	2.0	18.0	52.4	24.3	2.8	0.2	0.1	0.0	0.0	0.0	0.0	0.0		

Percentile Speeds	<u>10.0%</u>	<u>15.0%</u>	<u>50.0%</u>	<u>85.0%</u>	<u>90.0%</u>
(mph)	23.3	24.2	27.8	31.6	32.1

10 mph Pace Speed	23.3 - 33.3	Average	27.8 mph
Number in pace	3352 (84.7 %)	Minimum	5.9 mph
		Maximum	56.4 mph

Speeds Exceeded	<u>45 mph</u>	<u>55 mph</u>	<u>65 mph</u>
	0.1 %	0.0 %	0.0 %
Count	5	1	0

City of Oregon City Traffic Study
625 Center Street
Oregon City, OR 97045

Washington St :
1105 Washingt :
SB only :

Date: 1/11/2010
Monday

Daily Speed (60 Min.)
Channel: SB

mph	Total	0 - < 15	15 - < 20	20 - < 25	25 - < 30	30 - < 35	35 - < 40	40 - < 45	45 - < 50	50 - < 55	55 - < 60	60 - < 65	65 - < 70	70 - < 200
12:00 AM	31	0	1	5	13	11	0	1	0	0	0	0	0	0
1:00 AM	15	0	0	2	8	4	1	0	0	0	0	0	0	0
2:00 AM	12	1	0	0	8	2	1	0	0	0	0	0	0	0
3:00 AM	9	0	0	1	7	1	0	0	0	0	0	0	0	0
4:00 AM	15	0	0	2	10	3	0	0	0	0	0	0	0	0
5:00 AM	42	0	3	6	16	15	2	0	0	0	0	0	0	0
6:00 AM	116	0	2	19	56	34	5	0	0	0	0	0	0	0
7:00 AM	296	0	8	67	164	56	1	0	0	0	0	0	0	0
8:00 AM	279	0	11	54	145	65	4	0	0	0	0	0	0	0
9:00 AM	299	3	14	100	135	42	4	1	0	0	0	0	0	0
10:00 AM	372	4	21	90	197	52	8	0	0	0	0	0	0	0
11:00 AM	345	3	6	79	173	76	8	0	0	0	0	0	0	0
12:00 PM	413	1	12	126	198	72	4	0	0	0	0	0	0	0
1:00 PM	413	1	10	97	233	69	3	0	0	0	0	0	0	0
2:00 PM	449	2	14	130	232	64	6	0	0	0	0	0	0	1
3:00 PM	557	4	11	139	299	96	7	1	0	0	0	0	0	0
4:00 PM	592	4	26	142	318	99	3	0	0	0	0	0	0	0
5:00 PM	602	5	35	132	345	79	6	0	0	0	0	0	0	0
6:00 PM	402	2	17	95	209	77	2	0	0	0	0	0	0	0
7:00 PM	242	1	3	40	147	47	3	1	0	0	0	0	0	0
8:00 PM	194	1	2	26	112	46	6	1	0	0	0	0	0	0
9:00 PM	157	1	3	27	85	35	6	0	0	0	0	0	0	0
10:00 PM	86	0	0	19	41	23	2	0	1	0	0	0	0	0
11:00 PM	69	0	2	13	29	22	3	0	0	0	0	0	0	0
Total	6007	33	201	1411	3180	1090	85	5	1	0	0	0	0	1
%		0.5	3.3	23.5	52.9	18.1	1.4	0.1	0.0	0.0	0.0	0.0	0.0	0.0

Percentile Speeds
(mph)

<u>10.0%</u>	<u>15.0%</u>	<u>50.0%</u>	<u>85.0%</u>	<u>90.0%</u>
22.2	23.3	27.0	30.5	31.6

10 mph Pace Speed
Number in pace

22.2 - 32.2	Average	26.9 mph
5131 (85.4 %)	Minimum	5.4 mph
	Maximum	88.7 mph

Speeds Exceeded

<u>45 mph</u>	<u>55 mph</u>	<u>65 mph</u>
0.0 %	0.0 %	0.0 %
Count	2	1

City of Oregon City Traffic Study
625 Center Street
Oregon City, OR 97045

Washington St :
1105 Washingt :
SB only :

Date: 1/12/2010
Tuesday

Daily Speed (60 Min.) Channel: SB															
mph	Total	0 - < 15	15 - < 20	20 - < 25	25 - < 30	30 - < 35	35 - < 40	40 - < 45	45 - < 50	50 - < 55	55 - < 60	60 - < 65	65 - < 70	70 - < 200	
12:00 AM	35	2	1	7	17	8	0	0	0	0	0	0	0	0	
1:00 AM	19	0	3	2	8	5	1	0	0	0	0	0	0	0	
2:00 AM	16	0	0	4	7	5	0	0	0	0	0	0	0	0	
3:00 AM	13	0	0	3	8	1	0	1	0	0	0	0	0	0	
4:00 AM	15	0	1	4	8	2	0	0	0	0	0	0	0	0	
5:00 AM	39	1	2	13	13	8	2	0	0	0	0	0	0	0	
6:00 AM	133	0	7	31	62	30	3	0	0	0	0	0	0	0	
7:00 AM	296	0	14	81	148	51	1	1	0	0	0	0	0	0	
8:00 AM	328	2	11	86	165	57	7	0	0	0	0	0	0	0	
9:00 AM	315	1	13	77	166	53	4	1	0	0	0	0	0	0	
10:00 AM	307	4	12	61	162	60	7	1	0	0	0	0	0	0	
11:00 AM	327	1	6	74	181	61	4	0	0	0	0	0	0	0	
12:00 PM	437	2	25	134	208	65	3	0	0	0	0	0	0	0	
1:00 PM	449	0	7	123	241	74	4	0	0	0	0	0	0	0	
2:00 PM	448	1	12	137	226	67	4	1	0	0	0	0	0	0	
3:00 PM	541	3	19	127	298	92	2	0	0	0	0	0	0	0	
4:00 PM	613	0	22	172	347	70	2	0	0	0	0	0	0	0	
5:00 PM	592	2	29	182	313	63	3	0	0	0	0	0	0	0	
6:00 PM	395	0	8	113	215	58	1	0	0	0	0	0	0	0	
7:00 PM	227	1	5	50	112	51	8	0	0	0	0	0	0	0	
8:00 PM	203	0	3	44	89	61	6	0	0	0	0	0	0	0	
9:00 PM	174	0	3	34	86	42	5	4	0	0	0	0	0	0	
10:00 PM	86	0	0	20	44	19	3	0	0	0	0	0	0	0	
11:00 PM	58	0	0	15	31	11	1	0	0	0	0	0	0	0	
Total	6066	20	203	1594	3155	1014	71	9	0	0	0	0	0	0	
%		0.3	3.3	26.3	52.0	16.7	1.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	

Percentile Speeds
(mph) 10.0% 15.0% 50.0% 85.0% 90.0%
 22.2 23.3 26.6 30.0 31.0

10 mph Pace Speed 21.6 - 31.6 **Average** 26.6 mph
Number in pace 5192 (85.6 %) **Minimum** 7.4 mph
 Maximum 43.3 mph

Speeds Exceeded 45 mph 55 mph 65 mph
 0.0 % 0.0 % 0.0 %
Count 0 0 0

City of Oregon City Traffic Study

625 Center Street
Oregon City, OR 97045

Washington St :
1105 Washingt :
SB only :

Date: 1/13/2010
Wednesday

Daily Speed (60 Min.)
Channel: SB

mph	Total	0 - < 15	15 - < 20	20 - < 25	25 - < 30	30 - < 35	35 - < 40	40 - < 45	45 - < 50	50 - < 55	55 - < 60	60 - < 65	65 - < 70	70 - < 200
12:00 AM	42	1	0	11	14	12	4	0	0	0	0	0	0	0
1:00 AM	15	0	0	5	7	3	0	0	0	0	0	0	0	0
2:00 AM	17	0	0	5	9	2	1	0	0	0	0	0	0	0
3:00 AM	14	0	0	5	6	3	0	0	0	0	0	0	0	0
4:00 AM	17	0	0	6	7	4	0	0	0	0	0	0	0	0
5:00 AM	36	1	0	10	17	7	1	0	0	0	0	0	0	0
6:00 AM	129	0	2	23	74	25	4	1	0	0	0	0	0	0
7:00 AM	279	1	17	68	139	50	4	0	0	0	0	0	0	0
8:00 AM	310	3	11	82	158	54	2	0	0	0	0	0	0	0
9:00 AM	302	4	11	64	161	58	4	0	0	0	0	0	0	0
10:00 AM	308	2	13	77	156	57	3	0	0	0	0	0	0	0
11:00 AM	363	0	9	98	182	69	5	0	0	0	0	0	0	0
12:00 PM	422	4	17	117	213	65	6	0	0	0	0	0	0	0
1:00 PM	398	2	16	90	212	72	6	0	0	0	0	0	0	0
2:00 PM	453	2	15	144	212	76	4	0	0	0	0	0	0	0
3:00 PM	484	7	28	116	227	96	9	1	0	0	0	0	0	0
4:00 PM	612	3	20	194	309	81	3	1	1	0	0	0	0	0
5:00 PM	670	11	22	191	375	70	1	0	0	0	0	0	0	0
6:00 PM	482	3	21	133	259	65	1	0	0	0	0	0	0	0
7:00 PM	253	0	5	61	135	47	5	0	0	0	0	0	0	0
8:00 PM	202	0	6	54	100	30	11	1	0	0	0	0	0	0
9:00 PM	176	2	12	55	81	23	3	0	0	0	0	0	0	0
10:00 PM	97	0	2	21	45	27	2	0	0	0	0	0	0	0
11:00 PM	53	0	2	14	26	10	0	1	0	0	0	0	0	0
Total	6134	46	229	1644	3124	1006	79	5	1	0	0	0	0	0
%		0.7	3.7	26.8	50.9	16.4	1.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0

Percentile Speeds
(mph)

<u>10.0%</u>	<u>15.0%</u>	<u>50.0%</u>	<u>85.0%</u>	<u>90.0%</u>
21.9	23.0	26.6	30.0	31.0

10 mph Pace Speed
Number in pace

21.6 - 31.6	Average	26.5 mph
5183 (84.5 %)	Minimum	5.4 mph
	Maximum	49.0 mph

Speeds Exceeded

<u>45 mph</u>	<u>55 mph</u>	<u>65 mph</u>
0.0 %	0.0 %	0.0 %
Count	1	0

City of Oregon City Traffic Study

320 Warner Milne Rd

Oregon City, OR 97045

Washington St :
At 1215 Washin :
NB Only :

Date:

1/7/2010
Thursday

Daily Speed (60 Min.)

Channel: NB

mph	Total	0 - < 15	15 - < 20	20 - < 25	25 - < 30	30 - < 35	35 - < 40	40 - < 45	45 - < 50	50 - < 55	55 - < 60	60 - < 65	65 - < 70	70 - < 200
12:00 AM	19	0	1	3	8	6	0	1	0	0	0	0	0	0
1:00 AM	11	0	1	0	4	4	2	0	0	0	0	0	0	0
2:00 AM	12	0	1	4	3	2	2	0	0	0	0	0	0	0
3:00 AM	11	0	0	1	8	2	0	0	0	0	0	0	0	0
4:00 AM	54	0	1	4	17	27	5	0	0	0	0	0	0	0
5:00 AM	149	1	1	7	70	61	9	0	0	0	0	0	0	0
6:00 AM	329	0	0	16	186	116	11	0	0	0	0	0	0	0
7:00 AM	443	3	2	44	236	138	20	0	0	0	0	0	0	0
8:00 AM	329	0	0	49	191	81	8	0	0	0	0	0	0	0
9:00 AM	319	1	3	58	169	85	3	0	0	0	0	0	0	0
10:00 AM	349	1	4	65	197	73	9	0	0	0	0	0	0	0
11:00 AM	348	0	2	94	188	60	4	0	0	0	0	0	0	0
12:00 PM	331	1	3	59	177	84	7	0	0	0	0	0	0	0
1:00 PM	389	0	10	99	209	64	7	0	0	0	0	0	0	0
2:00 PM	388	1	6	102	204	72	3	0	0	0	0	0	0	0
3:00 PM	403	0	2	85	211	95	9	1	0	0	0	0	0	0
4:00 PM	441	0	5	93	266	74	2	0	1	0	0	0	0	0
5:00 PM	432	2	12	116	233	65	3	0	1	0	0	0	0	0
6:00 PM	270	0	7	43	153	60	7	0	0	0	0	0	0	0
7:00 PM	167	0	6	28	83	49	1	0	0	0	0	0	0	0
8:00 PM	136	0	0	25	75	30	6	0	0	0	0	0	0	0
9:00 PM	136	0	3	24	67	41	1	0	0	0	0	0	0	0
10:00 PM	61	0	0	10	36	13	2	0	0	0	0	0	0	0
11:00 PM	37	0	0	6	12	16	2	0	0	1	0	0	0	0
Total	5564	10	70	1035	3003	1318	123	2	2	1	0	0	0	0
%		0.2	1.3	18.6	54.0	23.7	2.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Percentile Speeds
(mph)

<u>10.0%</u>	<u>15.0%</u>	<u>50.0%</u>	<u>85.0%</u>	<u>90.0%</u>
23.6	24.5	27.8	31.0	32.1

10 mph Pace Speed
Number in pace

22.7 - 32.7	Average	27.7 mph
4885 (87.8 %)	Minimum	9.5 mph
	Maximum	50.3 mph

Speeds Exceeded

<u>45 mph</u>	<u>55 mph</u>	<u>65 mph</u>
0.1 %	0.0 %	0.0 %
Count	3	0

City of Oregon City Traffic Study

320 Warner Milne Rd

Oregon City, OR 97045

Washington St :
At 1215 Washin :
NB Only :

Date:

1/8/2010
Friday

Daily Speed (60 Min.)

Channel: NB

mph	Total	0 - < 15	15 - < 20	20 - < 25	25 - < 30	30 - < 35	35 - < 40	40 - < 45	45 - < 50	50 - < 55	55 - < 60	60 - < 65	65 - < 70	70 - < 200
12:00 AM	21	0	0	7	9	3	2	0	0	0	0	0	0	0
1:00 AM	17	0	0	4	9	3	1	0	0	0	0	0	0	0
2:00 AM	15	0	0	1	9	2	3	0	0	0	0	0	0	0
3:00 AM	16	0	1	2	8	4	1	0	0	0	0	0	0	0
4:00 AM	49	0	1	1	20	21	6	0	0	0	0	0	0	0
5:00 AM	145	1	1	16	66	53	8	0	0	0	0	0	0	0
6:00 AM	299	0	1	13	158	111	14	2	0	0	0	0	0	0
7:00 AM	427	1	0	42	233	135	14	2	0	0	0	0	0	0
8:00 AM	307	0	1	63	163	76	4	0	0	0	0	0	0	0
9:00 AM	270	0	5	49	147	61	7	1	0	0	0	0	0	0
10:00 AM	317	0	6	61	175	70	5	0	0	0	0	0	0	0
11:00 AM	318	0	4	72	172	67	3	0	0	0	0	0	0	0
12:00 PM	361	2	14	53	196	85	10	1	0	0	0	0	0	0
1:00 PM	400	0	7	96	216	73	8	0	0	0	0	0	0	0
2:00 PM	368	0	1	81	203	80	3	0	0	0	0	0	0	0
3:00 PM	430	1	7	107	210	94	11	0	0	0	0	0	0	0
4:00 PM	390	1	4	102	221	56	6	0	0	0	0	0	0	0
5:00 PM	396	0	2	101	225	66	2	0	0	0	0	0	0	0
6:00 PM	272	0	0	35	154	77	6	0	0	0	0	0	0	0
7:00 PM	174	0	1	36	90	43	3	1	0	0	0	0	0	0
8:00 PM	143	0	3	32	68	35	5	0	0	0	0	0	0	0
9:00 PM	156	0	3	27	83	38	5	0	0	0	0	0	0	0
10:00 PM	79	0	0	9	49	17	4	0	0	0	0	0	0	0
11:00 PM	53	0	0	8	31	12	1	0	1	0	0	0	0	0
Total	5423	6	62	1018	2915	1282	132	7	1	0	0	0	0	0
%		0.1	1.1	18.8	53.8	23.6	2.4	0.1	0.0	0.0	0.0	0.0	0.0	0.0

Percentile Speeds (mph)

10.0% 15.0% 50.0% 85.0% 90.0%
23.6 24.2 27.8 31.0 32.1

10 mph Pace Speed Number in pace

22.7 - 32.7
4761 (87.8 %)

Average
Minimum
Maximum

27.7 mph
11.4 mph
46.5 mph

Speeds Exceeded

45 mph 55 mph 65 mph
0.0 % 0.0 % 0.0 %

Count

1 0 0

City of Oregon City Traffic Study

320 Warner Milne Rd

Oregon City, OR 97045

Washington St :
At 1215 Washin :
NB Only :

Date:

1/9/2010
Saturday

Daily Speed (60 Min.)

Channel: NB

mph	Total	0 - < 15	15 - < 20	20 - < 25	25 - < 30	30 - < 35	35 - < 40	40 - < 45	45 - < 50	50 - < 55	55 - < 60	60 - < 65	65 - < 70	70 - < 200
12:00 AM	34	0	0	5	25	4	0	0	0	0	0	0	0	0
1:00 AM	18	1	1	2	8	4	1	1	0	0	0	0	0	0
2:00 AM	17	0	1	3	8	4	1	0	0	0	0	0	0	0
3:00 AM	9	0	0	1	3	5	0	0	0	0	0	0	0	0
4:00 AM	24	0	0	1	11	9	3	0	0	0	0	0	0	0
5:00 AM	38	1	1	6	15	14	1	0	0	0	0	0	0	0
6:00 AM	94	0	1	11	49	28	5	0	0	0	0	0	0	0
7:00 AM	115	0	1	14	55	36	9	0	0	0	0	0	0	0
8:00 AM	180	0	1	20	90	57	11	1	0	0	0	0	0	0
9:00 AM	273	0	2	44	142	75	10	0	0	0	0	0	0	0
10:00 AM	353	1	3	61	180	96	12	0	0	0	0	0	0	0
11:00 AM	355	0	1	39	202	104	9	0	0	0	0	0	0	0
12:00 PM	354	0	0	69	186	86	11	1	1	0	0	0	0	0
1:00 PM	352	0	2	47	193	104	6	0	0	0	0	0	0	0
2:00 PM	376	0	5	65	204	90	11	1	0	0	0	0	0	0
3:00 PM	329	0	0	42	173	101	13	0	0	0	0	0	0	0
4:00 PM	315	0	2	57	173	74	9	0	0	0	0	0	0	0
5:00 PM	243	0	1	44	129	64	5	0	0	0	0	0	0	0
6:00 PM	220	0	3	29	124	62	2	0	0	0	0	0	0	0
7:00 PM	152	0	2	26	81	37	5	1	0	0	0	0	0	0
8:00 PM	141	0	2	30	77	28	4	0	0	0	0	0	0	0
9:00 PM	130	0	2	28	65	28	5	1	0	1	0	0	0	0
10:00 PM	89	0	1	19	45	23	1	0	0	0	0	0	0	0
11:00 PM	81	1	1	7	42	25	5	0	0	0	0	0	0	0
Total	4292	4	33	670	2280	1158	139	6	1	1	0	0	0	0
%		0.1	0.8	15.6	53.1	27.0	3.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0

Percentile Speeds
(mph)

<u>10.0%</u>	<u>15.0%</u>	<u>50.0%</u>	<u>85.0%</u>	<u>90.0%</u>
23.9	24.8	28.2	31.6	32.7

10 mph Pace Speed
Number in pace

23.3 - 33.3	Average	28.2 mph
3730 (86.9 %)	Minimum	11.1 mph
	Maximum	50.3 mph

Speeds Exceeded

<u>45 mph</u>	<u>55 mph</u>	<u>65 mph</u>
0.0 %	0.0 %	0.0 %
Count	2	0

City of Oregon City Traffic Study

320 Warner Milne Rd

Oregon City, OR 97045

Washington St :
At 1215 Washin :
NB Only :

Date:

1/10/2010
Sunday

Daily Speed (60 Min.)

Channel: NB

mph	Total	0 - < 15	15 - < 20	20 - < 25	25 - < 30	30 - < 35	35 - < 40	40 - < 45	45 - < 50	50 - < 55	55 - < 60	60 - < 65	65 - < 70	70 - < 200
12:00 AM	31	0	1	6	20	3	1	0	0	0	0	0	0	0
1:00 AM	17	0	0	1	9	5	1	1	0	0	0	0	0	0
2:00 AM	19	0	2	2	11	3	0	0	1	0	0	0	0	0
3:00 AM	8	0	0	1	5	1	1	0	0	0	0	0	0	0
4:00 AM	12	0	0	3	5	2	2	0	0	0	0	0	0	0
5:00 AM	25	0	0	0	11	9	4	1	0	0	0	0	0	0
6:00 AM	61	0	0	3	26	28	4	0	0	0	0	0	0	0
7:00 AM	65	0	2	7	29	21	5	1	0	0	0	0	0	0
8:00 AM	101	0	0	9	41	46	5	0	0	0	0	0	0	0
9:00 AM	209	0	1	19	84	97	8	0	0	0	0	0	0	0
10:00 AM	222	1	1	18	108	82	12	0	0	0	0	0	0	0
11:00 AM	274	0	2	53	137	71	10	1	0	0	0	0	0	0
12:00 PM	377	0	4	66	198	96	13	0	0	0	0	0	0	0
1:00 PM	335	0	1	38	172	107	15	1	1	0	0	0	0	0
2:00 PM	272	1	1	33	137	86	13	1	0	0	0	0	0	0
3:00 PM	267	0	1	40	151	71	4	0	0	0	0	0	0	0
4:00 PM	228	0	2	35	126	60	5	0	0	0	0	0	0	0
5:00 PM	200	0	2	38	112	45	3	0	0	0	0	0	0	0
6:00 PM	173	0	1	38	91	35	8	0	0	0	0	0	0	0
7:00 PM	126	1	1	30	59	33	2	0	0	0	0	0	0	0
8:00 PM	109	0	1	13	54	33	7	1	0	0	0	0	0	0
9:00 PM	90	0	0	11	48	24	6	1	0	0	0	0	0	0
10:00 PM	41	0	1	6	21	12	1	0	0	0	0	0	0	0
11:00 PM	31	1	0	6	14	8	2	0	0	0	0	0	0	0
Total	3293	4	24	476	1669	978	132	8	2	0	0	0	0	0
%		0.1	0.7	14.5	50.7	29.7	4.0	0.2	0.1	0.0	0.0	0.0	0.0	0.0

Percentile Speeds
(mph)

<u>10.0%</u>	<u>15.0%</u>	<u>50.0%</u>	<u>85.0%</u>	<u>90.0%</u>
24.2	24.8	28.2	32.1	33.2

10 mph Pace Speed
Number in pace

23.3 - 33.3	Average	28.5 mph
2843 (86.3 %)	Minimum	11.1 mph
	Maximum	49.0 mph

Speeds Exceeded

<u>45 mph</u>	<u>55 mph</u>	<u>65 mph</u>
0.1 %	0.0 %	0.0 %
Count	2	0

City of Oregon City Traffic Study
 320 Warner Milne Rd
 Oregon City, OR 97045

Washington St :
 At 1215 Washin :
 NB Only :

Date: 1/11/2010
 Monday

Daily Speed (60 Min.) Channel: NB															
mph	Total	0 - < 15	15 - < 20	20 - < 25	25 - < 30	30 - < 35	35 - < 40	40 - < 45	45 - < 50	50 - < 55	55 - < 60	60 - < 65	65 - < 70	70 - < 200	
12:00 AM	21	0	0	4	12	3	2	0	0	0	0	0	0	0	0
1:00 AM	14	0	2	3	4	5	0	0	0	0	0	0	0	0	0
2:00 AM	10	0	0	0	7	0	3	0	0	0	0	0	0	0	0
3:00 AM	12	0	0	1	6	4	1	0	0	0	0	0	0	0	0
4:00 AM	51	0	0	3	28	15	4	1	0	0	0	0	0	0	0
5:00 AM	120	1	0	5	45	63	6	0	0	0	0	0	0	0	0
6:00 AM	329	0	0	21	172	124	11	1	0	0	0	0	0	0	0
7:00 AM	446	1	5	65	240	124	11	0	0	0	0	0	0	0	0
8:00 AM	339	0	6	44	195	85	7	2	0	0	0	0	0	0	0
9:00 AM	316	1	12	58	153	79	12	1	0	0	0	0	0	0	0
10:00 AM	304	1	3	46	184	64	4	2	0	0	0	0	0	0	0
11:00 AM	349	2	5	60	218	61	3	0	0	0	0	0	0	0	0
12:00 PM	377	0	4	91	191	88	3	0	0	0	0	0	0	0	0
1:00 PM	348	0	4	76	194	66	8	0	0	0	0	0	0	0	0
2:00 PM	383	2	2	66	241	66	5	1	0	0	0	0	0	0	0
3:00 PM	440	0	3	88	252	89	8	0	0	0	0	0	0	0	0
4:00 PM	421	1	9	70	248	89	4	0	0	0	0	0	0	0	0
5:00 PM	444	2	7	103	262	61	9	0	0	0	0	0	0	0	0
6:00 PM	282	0	6	55	147	63	9	1	1	0	0	0	0	0	0
7:00 PM	169	0	1	31	89	44	4	0	0	0	0	0	0	0	0
8:00 PM	174	0	2	36	98	28	8	2	0	0	0	0	0	0	0
9:00 PM	101	0	2	12	51	34	2	0	0	0	0	0	0	0	0
10:00 PM	49	0	0	6	22	18	2	1	0	0	0	0	0	0	0
11:00 PM	39	0	0	7	19	11	1	0	0	0	1	0	0	0	0
Total	5538	11	73	951	3078	1284	127	12	1	0	1	0	0	0	0
%		0.2	1.3	17.2	55.6	23.2	2.3	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Percentile Speeds	<u>10.0%</u>	<u>15.0%</u>	<u>50.0%</u>	<u>85.0%</u>	<u>90.0%</u>
(mph)	23.6	24.5	27.8	31.0	32.1

10 mph Pace Speed	22.7 - 32.7	Average	27.8 mph
Number in pace	4870 (87.9 %)	Minimum	8.5 mph
		Maximum	56.4 mph

Speeds Exceeded	<u>45 mph</u>	<u>55 mph</u>	<u>65 mph</u>
	0.0 %	0.0 %	0.0 %
Count	2	1	0

City of Oregon City Traffic Study
 320 Warner Milne Rd
 Oregon City, OR 97045

Washington St :
 At 1215 Washin :
 NB Only :

Date: 1/12/2010
 Tuesday

		Daily Speed (60 Min.)													
		Channel: NB													
mph	Total	0 - < 15	15 - < 20	20 - < 25	25 - < 30	30 - < 35	35 - < 40	40 - < 45	45 - < 50	50 - < 55	55 - < 60	60 - < 65	65 - < 70	70 - < 200	
12:00 AM	23	0	0	9	9	4	1	0	0	0	0	0	0	0	
1:00 AM	15	0	1	4	6	3	0	0	1	0	0	0	0	0	
2:00 AM	17	0	1	2	9	3	2	0	0	0	0	0	0	0	
3:00 AM	13	0	0	3	6	4	0	0	0	0	0	0	0	0	
4:00 AM	46	0	0	4	18	21	3	0	0	0	0	0	0	0	
5:00 AM	132	1	1	12	58	49	10	1	0	0	0	0	0	0	
6:00 AM	348	0	1	19	192	128	8	0	0	0	0	0	0	0	
7:00 AM	467	0	6	52	282	125	2	0	0	0	0	0	0	0	
8:00 AM	347	0	1	53	191	94	8	0	0	0	0	0	0	0	
9:00 AM	316	0	6	50	182	75	3	0	0	0	0	0	0	0	
10:00 AM	282	1	5	34	158	76	7	1	0	0	0	0	0	0	
11:00 AM	362	0	8	91	190	67	6	0	0	0	0	0	0	0	
12:00 PM	366	0	5	94	199	63	5	0	0	0	0	0	0	0	
1:00 PM	366	0	7	84	196	72	7	0	0	0	0	0	0	0	
2:00 PM	337	0	4	66	182	78	5	2	0	0	0	0	0	0	
3:00 PM	434	0	7	86	241	94	6	0	0	0	0	0	0	0	
4:00 PM	403	4	7	97	221	69	5	0	0	0	0	0	0	0	
5:00 PM	436	1	15	63	278	74	5	0	0	0	0	0	0	0	
6:00 PM	265	0	3	45	147	65	5	0	0	0	0	0	0	0	
7:00 PM	165	0	2	28	78	51	6	0	0	0	0	0	0	0	
8:00 PM	130	1	4	20	60	36	9	0	0	0	0	0	0	0	
9:00 PM	100	0	1	18	50	27	2	2	0	0	0	0	0	0	
10:00 PM	53	0	2	5	31	12	3	0	0	0	0	0	0	0	
11:00 PM	38	0	0	6	17	13	2	0	0	0	0	0	0	0	
Total	5461	8	87	945	3001	1303	110	6	1	0	0	0	0	0	
%		0.1	1.6	17.3	55.0	23.9	2.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	

Percentile Speeds	<u>10.0%</u>	<u>15.0%</u>	<u>50.0%</u>	<u>85.0%</u>	<u>90.0%</u>
(mph)	23.6	24.5	27.8	31.0	32.1

10 mph Pace Speed	22.7 - 32.7	Average	27.8 mph
Number in pace	4814 (88.2 %)	Minimum	10.8 mph
		Maximum	46.5 mph

Speeds Exceeded	<u>45 mph</u>	<u>55 mph</u>	<u>65 mph</u>
	0.0 %	0.0 %	0.0 %
Count	1	0	0

City of Oregon City Traffic Study
 320 Warner Milne Rd
 Oregon City, OR 97045

Washington St :
 At 1215 Washin :
 NB Only :

Date: 1/13/2010
 Wednesday

Daily Speed (60 Min.) Channel: NB															
mph	Total	0 - < 15	15 - < 20	20 - < 25	25 - < 30	30 - < 35	35 - < 40	40 - < 45	45 - < 50	50 - < 55	55 - < 60	60 - < 65	65 - < 70	70 - < 200	
12:00 AM	18	0	0	4	9	5	0	0	0	0	0	0	0	0	0
1:00 AM	16	0	1	1	7	6	1	0	0	0	0	0	0	0	0
2:00 AM	12	0	0	2	4	5	1	0	0	0	0	0	0	0	0
3:00 AM	13	0	0	0	6	6	1	0	0	0	0	0	0	0	0
4:00 AM	49	0	0	3	21	18	7	0	0	0	0	0	0	0	0
5:00 AM	143	1	1	14	60	59	7	1	0	0	0	0	0	0	0
6:00 AM	340	0	2	25	208	99	5	1	0	0	0	0	0	0	0
7:00 AM	438	0	1	57	245	128	7	0	0	0	0	0	0	0	0
8:00 AM	355	1	0	45	196	106	7	0	0	0	0	0	0	0	0
9:00 AM	311	2	3	67	160	74	5	0	0	0	0	0	0	0	0
10:00 AM	293	0	1	84	150	53	5	0	0	0	0	0	0	0	0
11:00 AM	358	0	10	89	189	65	4	1	0	0	0	0	0	0	0
12:00 PM	344	0	7	56	184	90	7	0	0	0	0	0	0	0	0
1:00 PM	360	0	5	74	204	68	9	0	0	0	0	0	0	0	0
2:00 PM	353	2	2	66	206	67	10	0	0	0	0	0	0	0	0
3:00 PM	408	1	1	106	212	84	4	0	0	0	0	0	0	0	0
4:00 PM	400	0	9	61	235	90	5	0	0	0	0	0	0	0	0
5:00 PM	421	1	2	92	252	69	5	0	0	0	0	0	0	0	0
6:00 PM	281	0	5	51	153	70	2	0	0	0	0	0	0	0	0
7:00 PM	198	0	7	39	100	50	0	1	1	0	0	0	0	0	0
8:00 PM	189	0	4	33	106	40	5	1	0	0	0	0	0	0	0
9:00 PM	132	0	0	34	75	22	1	0	0	0	0	0	0	0	0
10:00 PM	58	0	2	6	32	16	2	0	0	0	0	0	0	0	0
11:00 PM	34	0	3	8	15	6	2	0	0	0	0	0	0	0	0
Total	5524	8	66	1017	3029	1296	102	5	1	0	0	0	0	0	0
%		0.1	1.2	18.4	54.8	23.5	1.8	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Percentile Speeds	<u>10.0%</u>	<u>15.0%</u>	<u>50.0%</u>	<u>85.0%</u>	<u>90.0%</u>
(mph)	23.6	24.5	27.8	31.0	32.1

10 mph Pace Speed	22.7 - 32.7	Average	27.7 mph
Number in pace	4873 (88.2 %)	Minimum	7.7 mph
		Maximum	46.5 mph

Speeds Exceeded	<u>45 mph</u>	<u>55 mph</u>	<u>65 mph</u>
	0.0 %	0.0 %	0.0 %
Count	1	0	0

City of Oregon City Traffic Study

625 Center Street
Oregon City, OR 97045

Washington St :
1215 Washingt :
SB Only :

Date:

1/7/2010
Thursday

Daily Speed (60 Min.)

Channel: SB

mph	Total	0 - < 15	15 - < 20	20 - < 25	25 - < 30	30 - < 35	35 - < 40	40 - < 45	45 - < 50	50 - < 55	55 - < 60	60 - < 65	65 - < 70	70 - < 200
12:00 AM	42	0	1	6	28	6	1	0	0	0	0	0	0	0
1:00 AM	26	0	0	6	12	7	1	0	0	0	0	0	0	0
2:00 AM	25	0	0	5	9	11	0	0	0	0	0	0	0	0
3:00 AM	12	0	0	3	6	3	0	0	0	0	0	0	0	0
4:00 AM	17	0	0	0	8	7	1	1	0	0	0	0	0	0
5:00 AM	39	1	0	6	18	13	1	0	0	0	0	0	0	0
6:00 AM	121	0	0	16	66	31	6	2	0	0	0	0	0	0
7:00 AM	332	1	2	77	185	60	7	0	0	0	0	0	0	0
8:00 AM	318	0	2	54	173	83	5	0	1	0	0	0	0	0
9:00 AM	298	3	4	47	165	72	7	0	0	0	0	0	0	0
10:00 AM	322	0	6	62	178	66	9	1	0	0	0	0	0	0
11:00 AM	355	1	10	63	197	78	6	0	0	0	0	0	0	0
12:00 PM	385	0	7	77	213	79	7	2	0	0	0	0	0	0
1:00 PM	433	2	2	104	234	83	8	0	0	0	0	0	0	0
2:00 PM	478	0	8	125	242	94	9	0	0	0	0	0	0	0
3:00 PM	525	1	7	134	274	104	5	0	0	0	0	0	0	0
4:00 PM	590	0	10	153	341	77	8	1	0	0	0	0	0	0
5:00 PM	553	4	13	178	294	59	5	0	0	0	0	0	0	0
6:00 PM	445	0	6	100	254	82	3	0	0	0	0	0	0	0
7:00 PM	284	0	3	64	169	44	4	0	0	0	0	0	0	0
8:00 PM	188	0	0	27	107	50	4	0	0	0	0	0	0	0
9:00 PM	178	0	1	26	104	43	4	0	0	0	0	0	0	0
10:00 PM	115	0	0	13	66	33	3	0	0	0	0	0	0	0
11:00 PM	52	0	1	8	25	18	0	0	0	0	0	0	0	0
Total	6133	13	83	1354	3368	1203	104	7	1	0	0	0	0	0
%		0.2	1.4	22.1	54.9	19.6	1.7	0.1	0.0	0.0	0.0	0.0	0.0	0.0

Percentile Speeds
(mph)

<u>10.0%</u>	<u>15.0%</u>	<u>50.0%</u>	<u>85.0%</u>	<u>90.0%</u>
23.3	23.9	27.4	30.5	31.6

10 mph Pace Speed
Number in pace

22.2 - 32.2	Average	27.3 mph
5429 (88.5 %)	Minimum	5.3 mph
	Maximum	46.5 mph

Speeds Exceeded

<u>45 mph</u>	<u>55 mph</u>	<u>65 mph</u>
0.0 %	0.0 %	0.0 %
Count	1	0

City of Oregon City Traffic Study

625 Center Street
Oregon City, OR 97045

Washington St :
1215 Washingt :
SB Only :

Date:

1/8/2010
Friday

Daily Speed (60 Min.)

Channel: SB

mph	Total	0 - < 15	15 - < 20	20 - < 25	25 - < 30	30 - < 35	35 - < 40	40 - < 45	45 - < 50	50 - < 55	55 - < 60	60 - < 65	65 - < 70	70 - < 200
12:00 AM	42	0	0	2	23	17	0	0	0	0	0	0	0	0
1:00 AM	26	0	2	2	14	7	0	1	0	0	0	0	0	0
2:00 AM	21	0	0	1	14	4	2	0	0	0	0	0	0	0
3:00 AM	21	0	0	2	11	4	3	1	0	0	0	0	0	0
4:00 AM	18	0	0	1	12	5	0	0	0	0	0	0	0	0
5:00 AM	38	0	0	8	16	14	0	0	0	0	0	0	0	0
6:00 AM	90	0	0	10	51	26	3	0	0	0	0	0	0	0
7:00 AM	273	0	1	59	156	53	4	0	0	0	0	0	0	0
8:00 AM	299	3	1	82	147	58	8	0	0	0	0	0	0	0
9:00 AM	260	0	1	59	131	66	3	0	0	0	0	0	0	0
10:00 AM	339	0	5	81	197	47	9	0	0	0	0	0	0	0
11:00 AM	354	0	3	101	187	54	9	0	0	0	0	0	0	0
12:00 PM	402	1	6	75	208	105	7	0	0	0	0	0	0	0
1:00 PM	426	0	7	102	227	81	9	0	0	0	0	0	0	0
2:00 PM	421	1	3	101	236	75	5	0	0	0	0	0	0	0
3:00 PM	536	1	15	130	300	88	2	0	0	0	0	0	0	0
4:00 PM	547	8	15	145	309	67	3	0	0	0	0	0	0	0
5:00 PM	588	0	18	191	304	71	3	1	0	0	0	0	0	0
6:00 PM	397	0	8	117	200	70	2	0	0	0	0	0	0	0
7:00 PM	286	1	2	39	164	72	8	0	0	0	0	0	0	0
8:00 PM	208	0	4	41	105	54	4	0	0	0	0	0	0	0
9:00 PM	169	0	1	29	98	38	3	0	0	0	0	0	0	0
10:00 PM	148	0	0	19	76	46	5	2	0	0	0	0	0	0
11:00 PM	96	0	0	17	47	27	4	1	0	0	0	0	0	0
Total	6005	15	92	1414	3233	1149	96	6	0	0	0	0	0	0
%		0.2	1.5	23.5	53.8	19.1	1.6	0.1	0.0	0.0	0.0	0.0	0.0	0.0

Percentile Speeds
(mph)

<u>10.0%</u>	<u>15.0%</u>	<u>50.0%</u>	<u>85.0%</u>	<u>90.0%</u>
23.0	23.9	27.0	30.5	31.6

10 mph Pace Speed
Number in pace

22.2 - 32.2	Average	27.1 mph
5251 (87.4 %)	Minimum	6.1 mph
	Maximum	44.3 mph

Speeds Exceeded

<u>45 mph</u>	<u>55 mph</u>	<u>65 mph</u>
0.0 %	0.0 %	0.0 %
Count	0	0

City of Oregon City Traffic Study
625 Center Street
Oregon City, OR 97045

Washington St :
1215 Washingt :
SB Only :

Date: 1/9/2010
Saturday

Daily Speed (60 Min.)															
Channel: SB															
mph	Total	0 - < 15	15 - < 20	20 - < 25	25 - < 30	30 - < 35	35 - < 40	40 - < 45	45 - < 50	50 - < 55	55 - < 60	60 - < 65	65 - < 70	70 - < 200	
12:00 AM	68	0	1	4	45	14	4	0	0	0	0	0	0	0	0
1:00 AM	45	0	0	10	23	11	1	0	0	0	0	0	0	0	0
2:00 AM	34	0	1	5	13	13	2	0	0	0	0	0	0	0	0
3:00 AM	17	0	0	1	13	3	0	0	0	0	0	0	0	0	0
4:00 AM	11	0	0	1	7	2	1	0	0	0	0	0	0	0	0
5:00 AM	32	0	4	13	9	6	0	0	0	0	0	0	0	0	0
6:00 AM	137	1	9	64	51	11	1	0	0	0	0	0	0	0	0
7:00 AM	67	0	1	15	27	21	2	1	0	0	0	0	0	0	0
8:00 AM	128	0	0	19	70	37	2	0	0	0	0	0	0	0	0
9:00 AM	207	0	2	35	103	59	7	1	0	0	0	0	0	0	0
10:00 AM	288	0	0	53	157	75	3	0	0	0	0	0	0	0	0
11:00 AM	360	0	6	57	197	87	12	1	0	0	0	0	0	0	0
12:00 PM	390	0	3	76	212	91	8	0	0	0	0	0	0	0	0
1:00 PM	426	0	3	75	232	111	5	0	0	0	0	0	0	0	0
2:00 PM	402	1	3	66	222	104	6	0	0	0	0	0	0	0	0
3:00 PM	402	2	7	92	212	84	5	0	0	0	0	0	0	0	0
4:00 PM	427	1	4	75	248	93	6	0	0	0	0	0	0	0	0
5:00 PM	420	0	6	90	258	60	6	0	0	0	0	0	0	0	0
6:00 PM	293	0	3	59	167	55	8	1	0	0	0	0	0	0	0
7:00 PM	238	0	0	51	130	54	3	0	0	0	0	0	0	0	0
8:00 PM	205	0	0	30	117	55	3	0	0	0	0	0	0	0	0
9:00 PM	135	0	0	20	75	38	2	0	0	0	0	0	0	0	0
10:00 PM	129	0	2	17	75	34	1	0	0	0	0	0	0	0	0
11:00 PM	91	1	2	13	45	25	3	2	0	0	0	0	0	0	0
Total	4952	6	57	941	2708	1143	91	6	0	0	0	0	0	0	0
%		0.1	1.2	19.0	54.7	23.1	1.8	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Percentile Speeds	<u>10.0%</u>	<u>15.0%</u>	<u>50.0%</u>	<u>85.0%</u>	<u>90.0%</u>
(mph)	23.3	24.2	27.8	31.0	31.6

10 mph Pace Speed	22.7 - 32.7	Average	27.6 mph
Number in pace	4351 (87.9 %)	Minimum	8.2 mph
		Maximum	44.3 mph

Speeds Exceeded	<u>45 mph</u>	<u>55 mph</u>	<u>65 mph</u>
	0.0 %	0.0 %	0.0 %
Count	0	0	0

City of Oregon City Traffic Study
625 Center Street
Oregon City, OR 97045

Washington St :
1215 Washingt :
SB Only :

Date: 1/10/2010
Sunday

Daily Speed (60 Min.)															
Channel: SB															
mph	Total	0 - < 15	15 - < 20	20 - < 25	25 - < 30	30 - < 35	35 - < 40	40 - < 45	45 - < 50	50 - < 55	55 - < 60	60 - < 65	65 - < 70	70 - < 200	
12:00 AM	73	0	2	10	39	21	1	0	0	0	0	0	0	0	0
1:00 AM	50	0	0	7	32	9	2	0	0	0	0	0	0	0	0
2:00 AM	32	0	0	4	21	7	0	0	0	0	0	0	0	0	0
3:00 AM	18	0	0	2	12	3	0	0	0	1	0	0	0	0	0
4:00 AM	18	0	1	0	10	5	1	1	0	0	0	0	0	0	0
5:00 AM	15	0	0	3	8	3	0	1	0	0	0	0	0	0	0
6:00 AM	23	0	0	2	15	3	3	0	0	0	0	0	0	0	0
7:00 AM	52	0	0	3	28	18	2	1	0	0	0	0	0	0	0
8:00 AM	119	0	1	19	55	36	7	0	1	0	0	0	0	0	0
9:00 AM	235	0	3	31	112	82	7	0	0	0	0	0	0	0	0
10:00 AM	306	0	0	39	182	75	9	1	0	0	0	0	0	0	0
11:00 AM	212	1	1	41	96	63	10	0	0	0	0	0	0	0	0
12:00 PM	278	0	0	36	151	83	8	0	0	0	0	0	0	0	0
1:00 PM	316	0	3	42	176	86	9	0	0	0	0	0	0	0	0
2:00 PM	321	0	2	26	176	105	11	0	0	0	1	0	0	0	0
3:00 PM	335	0	4	47	173	103	6	2	0	0	0	0	0	0	0
4:00 PM	339	0	8	55	179	86	11	0	0	0	0	0	0	0	0
5:00 PM	343	0	3	60	196	81	3	0	0	0	0	0	0	0	0
6:00 PM	264	0	5	42	154	58	5	0	0	0	0	0	0	0	0
7:00 PM	168	0	2	16	112	35	2	1	0	0	0	0	0	0	0
8:00 PM	138	1	3	21	80	27	6	0	0	0	0	0	0	0	0
9:00 PM	128	0	3	20	68	35	2	0	0	0	0	0	0	0	0
10:00 PM	75	0	0	12	35	24	2	0	2	0	0	0	0	0	0
11:00 PM	40	0	0	9	20	8	1	2	0	0	0	0	0	0	0
Total	3898	2	41	547	2130	1056	108	9	3	1	1	0	0	0	0
%		0.1	1.1	14.0	54.6	27.1	2.8	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0

Percentile Speeds	<u>10.0%</u>	<u>15.0%</u>	<u>50.0%</u>	<u>85.0%</u>	<u>90.0%</u>
(mph)	24.2	24.8	28.2	31.6	32.7

10 mph Pace Speed	23.3 - 33.3	Average	28.3 mph
Number in pace	3462 (88.8 %)	Minimum	14.8 mph
		Maximum	56.4 mph

Speeds Exceeded	<u>45 mph</u>	<u>55 mph</u>	<u>65 mph</u>
	0.1 %	0.0 %	0.0 %
Count	5	1	0

City of Oregon City Traffic Study
625 Center Street
Oregon City, OR 97045

Washington St :
1215 Washingt :
SB Only :

Date: 1/11/2010
Monday

		Daily Speed (60 Min.)													
		Channel: SB													
mph	Total	0 - < 15	15 - < 20	20 - < 25	25 - < 30	30 - < 35	35 - < 40	40 - < 45	45 - < 50	50 - < 55	55 - < 60	60 - < 65	65 - < 70	70 - < 200	
12:00 AM	30	0	0	2	19	8	0	0	1	0	0	0	0	0	
1:00 AM	14	0	1	1	6	6	0	0	0	0	0	0	0	0	
2:00 AM	12	0	0	3	5	2	2	0	0	0	0	0	0	0	
3:00 AM	10	0	0	3	5	2	0	0	0	0	0	0	0	0	
4:00 AM	16	0	0	3	10	3	0	0	0	0	0	0	0	0	
5:00 AM	42	0	1	7	14	18	2	0	0	0	0	0	0	0	
6:00 AM	120	0	0	15	71	30	4	0	0	0	0	0	0	0	
7:00 AM	317	0	1	65	188	62	1	0	0	0	0	0	0	0	
8:00 AM	297	0	0	58	169	66	4	0	0	0	0	0	0	0	
9:00 AM	301	1	12	79	148	56	5	0	0	0	0	0	0	0	
10:00 AM	356	3	6	89	184	70	4	0	0	0	0	0	0	0	
11:00 AM	350	0	7	82	184	71	6	0	0	0	0	0	0	0	
12:00 PM	400	1	9	82	226	79	3	0	0	0	0	0	0	0	
1:00 PM	410	0	5	86	228	86	5	0	0	0	0	0	0	0	
2:00 PM	440	2	9	96	247	80	6	0	0	0	0	0	0	0	
3:00 PM	534	0	6	102	308	109	8	1	0	0	0	0	0	0	
4:00 PM	573	0	12	94	347	114	6	0	0	0	0	0	0	0	
5:00 PM	594	0	13	140	347	90	4	0	0	0	0	0	0	0	
6:00 PM	425	0	12	104	253	55	1	0	0	0	0	0	0	0	
7:00 PM	239	0	3	39	135	59	3	0	0	0	0	0	0	0	
8:00 PM	189	0	0	20	110	55	3	0	1	0	0	0	0	0	
9:00 PM	154	0	1	18	93	39	3	0	0	0	0	0	0	0	
10:00 PM	84	0	0	8	48	24	3	0	1	0	0	0	0	0	
11:00 PM	66	0	0	9	38	16	3	0	0	0	0	0	0	0	
Total	5973	7	98	1205	3383	1200	76	1	3	0	0	0	0	0	
%		0.1	1.6	20.2	56.6	20.1	1.3	0.0	0.1	0.0	0.0	0.0	0.0	0.0	

Percentile Speeds	<u>10.0%</u>	<u>15.0%</u>	<u>50.0%</u>	<u>85.0%</u>	<u>90.0%</u>
(mph)	23.3	24.2	27.4	30.5	31.6

10 mph Pace Speed	22.7 - 32.7	Average	27.3 mph
Number in pace	5302 (88.8 %)	Minimum	7.8 mph
		Maximum	49.0 mph

Speeds Exceeded	<u>45 mph</u>	<u>55 mph</u>	<u>65 mph</u>
	0.1 %	0.0 %	0.0 %
Count	3	0	0

City of Oregon City Traffic Study
625 Center Street
Oregon City, OR 97045

Washington St :
1215 Washingt :
SB Only :

Date: 1/12/2010
Tuesday

		Daily Speed (60 Min.)													
		Channel: SB													
mph	Total	0 - < 15	15 - < 20	20 - < 25	25 - < 30	30 - < 35	35 - < 40	40 - < 45	45 - < 50	50 - < 55	55 - < 60	60 - < 65	65 - < 70	70 - < 200	
12:00 AM	32	0	1	3	16	12	0	0	0	0	0	0	0	0	
1:00 AM	16	0	0	5	6	5	0	0	0	0	0	0	0	0	
2:00 AM	17	0	0	4	7	5	1	0	0	0	0	0	0	0	
3:00 AM	13	0	1	2	5	4	1	0	0	0	0	0	0	0	
4:00 AM	14	0	0	4	8	2	0	0	0	0	0	0	0	0	
5:00 AM	38	0	1	9	18	8	1	1	0	0	0	0	0	0	
6:00 AM	128	1	0	20	73	30	4	0	0	0	0	0	0	0	
7:00 AM	297	0	1	73	163	57	3	0	0	0	0	0	0	0	
8:00 AM	350	0	0	70	196	81	3	0	0	0	0	0	0	0	
9:00 AM	312	1	6	58	185	55	5	2	0	0	0	0	0	0	
10:00 AM	312	0	6	74	176	52	4	0	0	0	0	0	0	0	
11:00 AM	318	0	2	82	166	61	7	0	0	0	0	0	0	0	
12:00 PM	436	0	15	103	249	65	4	0	0	0	0	0	0	0	
1:00 PM	420	0	4	97	231	84	4	0	0	0	0	0	0	0	
2:00 PM	425	0	3	122	216	75	9	0	0	0	0	0	0	0	
3:00 PM	510	6	16	124	268	92	4	0	0	0	0	0	0	0	
4:00 PM	602	7	8	178	329	78	2	0	0	0	0	0	0	0	
5:00 PM	587	1	10	198	314	60	4	0	0	0	0	0	0	0	
6:00 PM	374	1	6	77	223	65	2	0	0	0	0	0	0	0	
7:00 PM	226	1	1	35	135	46	8	0	0	0	0	0	0	0	
8:00 PM	196	0	3	28	96	63	5	1	0	0	0	0	0	0	
9:00 PM	177	0	2	15	109	42	6	3	0	0	0	0	0	0	
10:00 PM	88	0	1	12	43	25	7	0	0	0	0	0	0	0	
11:00 PM	60	0	0	10	30	18	2	0	0	0	0	0	0	0	
Total	5948	18	87	1403	3262	1085	86	7	0	0	0	0	0	0	
%		0.3	1.5	23.6	54.8	18.2	1.4	0.1	0.0	0.0	0.0	0.0	0.0	0.0	

Percentile Speeds	<u>10.0%</u>	<u>15.0%</u>	<u>50.0%</u>	<u>85.0%</u>	<u>90.0%</u>
(mph)	23.0	23.9	27.0	30.5	31.6

10 mph Pace Speed	22.2 - 32.2	Average	27.1 mph
Number in pace	5276 (88.7 %)	Minimum	7.6 mph
		Maximum	44.3 mph

Speeds Exceeded	<u>45 mph</u>	<u>55 mph</u>	<u>65 mph</u>
	0.0 %	0.0 %	0.0 %
Count	0	0	0

City of Oregon City Traffic Study

625 Center Street
Oregon City, OR 97045

Washington St :
1215 Washingt :
SB Only :

Date: 1/13/2010
Wednesday

Daily Speed (60 Min.)

Channel: SB

mph	Total	0 - < 15	15 - < 20	20 - < 25	25 - < 30	30 - < 35	35 - < 40	40 - < 45	45 - < 50	50 - < 55	55 - < 60	60 - < 65	65 - < 70	70 - < 200
12:00 AM	40	0	0	5	21	13	1	0	0	0	0	0	0	0
1:00 AM	14	0	0	1	8	4	1	0	0	0	0	0	0	0
2:00 AM	17	0	1	3	7	5	1	0	0	0	0	0	0	0
3:00 AM	14	0	0	2	7	5	0	0	0	0	0	0	0	0
4:00 AM	19	0	1	4	10	4	0	0	0	0	0	0	0	0
5:00 AM	36	0	0	6	22	7	1	0	0	0	0	0	0	0
6:00 AM	126	0	2	21	69	31	1	1	1	0	0	0	0	0
7:00 AM	294	5	2	84	138	57	8	0	0	0	0	0	0	0
8:00 AM	344	0	9	75	182	74	3	1	0	0	0	0	0	0
9:00 AM	316	1	8	70	167	64	6	0	0	0	0	0	0	0
10:00 AM	293	1	6	84	140	60	2	0	0	0	0	0	0	0
11:00 AM	355	0	3	76	203	70	3	0	0	0	0	0	0	0
12:00 PM	407	0	8	99	221	75	4	0	0	0	0	0	0	0
1:00 PM	388	0	5	73	232	75	3	0	0	0	0	0	0	0
2:00 PM	435	5	4	88	243	89	6	0	0	0	0	0	0	0
3:00 PM	470	0	10	100	252	100	8	0	0	0	0	0	0	0
4:00 PM	586	0	4	138	351	89	4	0	0	0	0	0	0	0
5:00 PM	653	0	5	171	383	90	4	0	0	0	0	0	0	0
6:00 PM	464	0	7	126	271	55	5	0	0	0	0	0	0	0
7:00 PM	256	0	4	49	147	54	2	0	0	0	0	0	0	0
8:00 PM	183	0	3	36	86	51	7	0	0	0	0	0	0	0
9:00 PM	162	1	4	38	91	24	4	0	0	0	0	0	0	0
10:00 PM	94	0	2	9	47	35	1	0	0	0	0	0	0	0
11:00 PM	49	0	0	3	32	12	1	1	0	0	0	0	0	0
Total	6015	13	88	1361	3330	1143	76	3	1	0	0	0	0	0
%		0.2	1.5	22.6	55.4	19.0	1.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Percentile Speeds
(mph)

10.0%	15.0%	50.0%	85.0%	90.0%
23.0	23.9	27.0	30.5	31.6

10 mph Pace Speed
Number in pace

22.2 - 32.2	Average	27.1 mph
5334 (88.7 %)	Minimum	11.1 mph
	Maximum	45.4 mph

Speeds Exceeded

45 mph	55 mph	65 mph
0.0 %	0.0 %	0.0 %
Count	1	0

Total Vehicle Summary

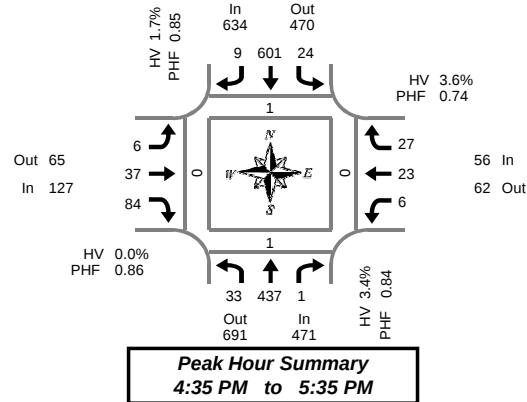


Clay Carney
(503) 833-2740

Washington St & 12th St

Thursday, January 07, 2010

4:00 PM to 6:00 PM



5-Minute Interval Summary

4:00 PM to 6:00 PM

Interval Start Time	Northbound Washington St				Southbound Washington St				Eastbound 12th St				Westbound 12th St				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
4:00 PM	4	23	0	0	3	46	1	0	0	4	5	0	0	1	6	0	93	0	0	0	3
4:05 PM	3	33	0	0	4	51	2	0	2	3	5	0	0	3	4	0	110	0	0	0	0
4:10 PM	1	36	0	0	2	45	0	0	2	2	5	0	2	2	5	0	102	1	0	0	0
4:15 PM	6	36	0	0	4	56	1	0	0	2	2	0	0	1	4	0	112	0	0	0	0
4:20 PM	2	38	1	0	0	40	1	0	0	2	4	0	0	4	7	0	99	0	0	0	0
4:25 PM	2	27	1	0	0	39	1	0	0	1	5	0	0	4	2	0	82	0	0	1	1
4:30 PM	4	36	0	0	1	48	1	0	0	2	6	0	0	4	1	0	103	1	0	0	1
4:35 PM	1	35	0	0	1	52	1	0	1	1	8	0	1	3	6	0	110	0	0	0	0
4:40 PM	2	37	0	0	2	40	1	0	1	4	3	0	0	2	2	0	94	0	0	0	0
4:45 PM	3	19	0	0	2	44	1	0	0	4	7	0	2	2	1	0	85	0	0	0	0
4:50 PM	6	41	0	0	2	48	2	0	0	3	4	0	0	0	0	0	106	0	0	0	0
4:55 PM	3	28	0	0	1	55	1	1	0	7	4	0	0	1	0	0	100	0	0	0	0
5:00 PM	3	48	0	0	1	50	0	0	0	0	7	0	0	3	3	0	115	0	0	0	0
5:05 PM	0	42	1	0	1	52	1	0	0	3	9	0	0	3	2	0	114	0	0	0	0
5:10 PM	5	40	0	0	0	41	0	0	0	6	10	0	1	2	3	0	108	0	1	0	0
5:15 PM	1	47	0	1	2	46	0	0	0	2	6	0	1	3	1	0	109	0	0	0	0
5:20 PM	1	46	0	0	4	52	1	0	1	0	8	0	0	1	4	0	118	0	0	0	0
5:25 PM	3	28	0	0	4	51	0	0	2	4	9	0	1	2	1	0	105	1	0	0	0
5:30 PM	5	26	0	0	4	70	1	0	1	3	9	0	0	1	4	0	124	0	0	0	0
5:35 PM	2	32	0	0	4	43	0	0	0	1	4	0	0	1	4	0	91	0	0	0	0
5:40 PM	4	27	1	0	2	48	2	0	1	1	11	0	0	2	2	0	101	0	0	0	0
5:45 PM	7	30	0	0	1	38	3	0	1	3	7	0	0	4	1	0	95	0	0	0	0
5:50 PM	2	22	0	0	3	37	0	0	0	4	6	0	0	1	5	0	80	0	0	0	1
5:55 PM	0	32	0	0	3	18	1	0	1	4	5	0	0	2	3	0	69	0	0	0	0
Total Survey	70	809	4	1	51	1,110	22	1	13	66	149	0	8	52	71	0	2,425	3	1	1	6

15-Minute Interval Summary

4:00 PM to 6:00 PM

Interval Start Time	Northbound Washington St				Southbound Washington St				Eastbound 12th St				Westbound 12th St				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
4:00 PM	8	92	0	0	9	142	3	0	4	9	15	0	2	6	15	0	305	1	0	0	3
4:15 PM	10	101	2	0	4	135	3	0	0	5	11	0	0	9	13	0	293	0	0	1	1
4:30 PM	7	108	0	0	4	140	3	0	2	7	17	0	1	9	9	0	307	1	0	0	1
4:45 PM	12	88	0	0	5	147	4	1	0	14	15	0	2	3	1	0	291	0	0	0	0
5:00 PM	8	130	1	0	2	143	1	0	0	9	26	0	1	8	8	0	337	0	1	0	0
5:15 PM	5	121	0	1	10	149	1	0	3	6	23	0	2	6	6	0	332	1	0	0	0
5:30 PM	11	85	1	0	10	161	3	0	2	5	24	0	0	4	10	0	316	0	0	0	0
5:45 PM	9	84	0	0	7	93	4	0	2	11	18	0	0	7	9	0	244	0	0	0	1
Total Survey	70	809	4	1	51	1,110	22	1	13	66	149	0	8	52	71	0	2,425	3	1	1	6

Peak Hour Summary

4:35 PM to 5:35 PM

By Approach	Northbound Washington St				Southbound Washington St				Eastbound 12th St				Westbound 12th St				Total	Pedestrians Crosswalk			
	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes		North	South	East	West
Volume	471	691	1,162	1	634	470	1,104	1	127	65	192	0	56	62	118	0	1,288	1	1	0	0
%HV	3.4%				1.7%				0.0%				3.6%				2.3%				
PHF	0.84				0.85				0.86				0.74				0.93				

By Movement	Northbound Washington St				Southbound Washington St				Eastbound 12th St				Westbound 12th St				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	33	437	1	471	24	601	9	634	6	37	84	127	6	23	27	56	1,288
%HV	6.1%	3.2%	0.0%	3.4%	0.0%	1.8%	0.0%	1.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	7.4%	3.6%	2.3%
PHF	0.69	0.82	0.25	0.84	0.50	0.87	0.56	0.85	0.38	0.66	0.81	0.86	0.50	0.72	0.75	0.74	0.93

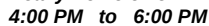
Rolling Hour Summary

4:00 PM to 6:00 PM

Interval Start Time	Northbound Washington St				Southbound Washington St				Eastbound 12th St				Westbound 12th St				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
4:00 PM	37	389	2	0	22	564	13	1	6	35	58	0	5	27	38	0	1,196	2	0	1	5
4:15 PM	37	427	3	0	15	565	11	1	2	35	69	0	4	29	31	0	1,228	1	1	1	2
4:30 PM	32	447	1	1	21	579	9	1	5	36	81	0	6	26	24	0	1,267	2	1	0	1
4:45 PM	36	424	2	1	27	600	9	1	5	34	88	0	5	21	25	0	1,276	1	1	0	0
5:00 PM	33	420	2	1	29	546	9	0	7	31	91	0	3	25	33	0	1,229	1	1	0	1

All Traffic Data
Services Inc.

4:00 PM to 6:00 PM



4:00 PM to 6:00 PM

4:35 PM to 5:35 PM

4:00 PM to 6:00 PM

Interval Start Time	Northbound Washington St				Southbound Washington St				Eastbound 12th St				Westbound 12th St				Interval Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
4:00 PM	2	18	0	20	0	17	0	17	0	0	2	0	0	0	0	1	40
4:15 PM	2	15	0	17	0	10	0	10	0	0	0	0	0	0	0	1	27
4:30 PM	1	14	0	15	0	9	0	9	0	0	0	0	0	0	1	1	25
4:45 PM	2	15	0	17	0	9	0	9	0	0	0	0	0	0	2	2	28
5:00 PM	1	11	0	12	0	7	0	7	0	0	0	0	0	0	2	2	21

Peak Hour Summary

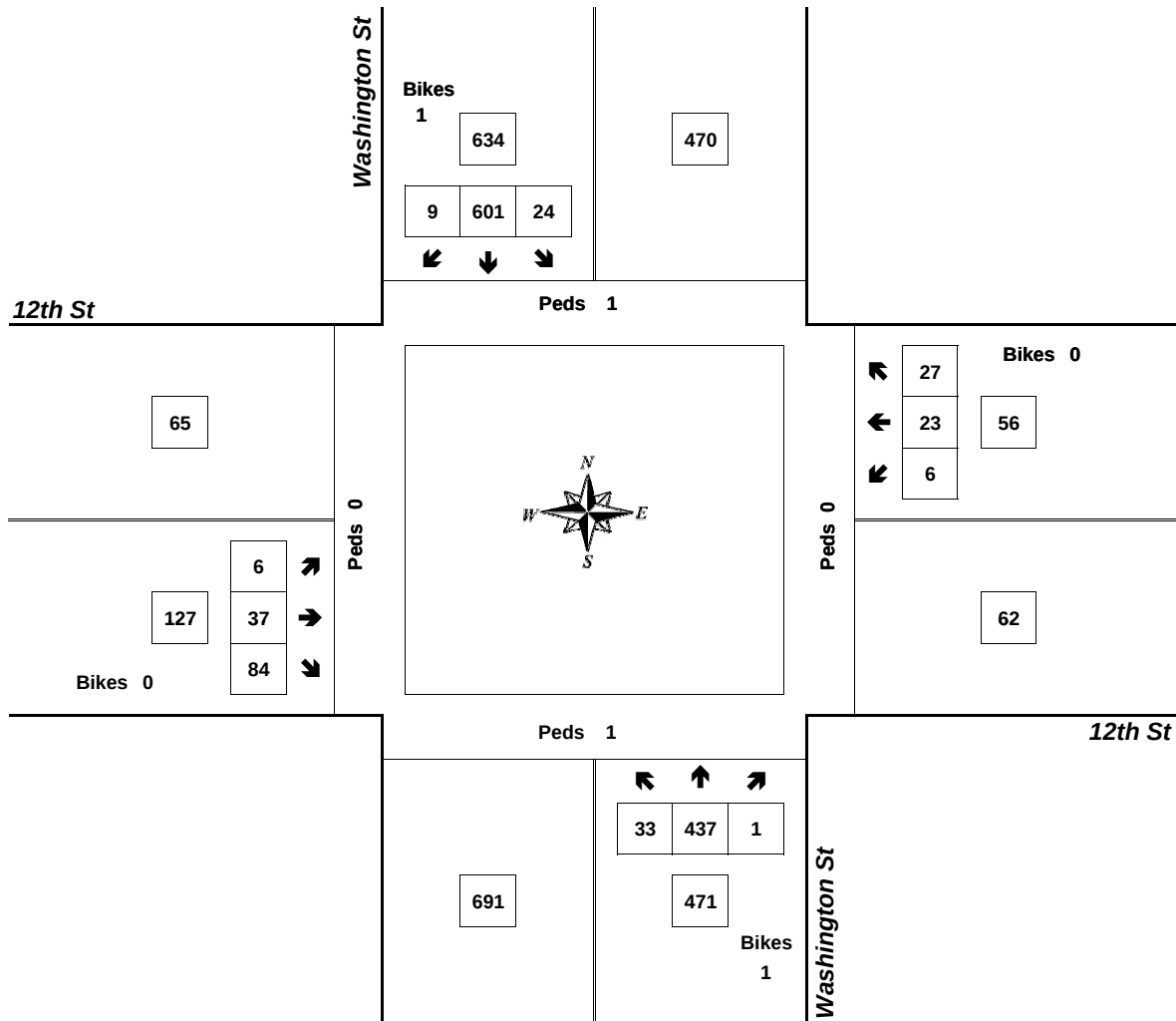


Clay Carney
(503) 833-2740

Washington St & 12th St

4:35 PM to 5:35 PM

Thursday, January 07, 2010



Approach	PHF	HV%	Volume
EB	0.86	0.0%	127
WB	0.74	3.6%	56
NB	0.84	3.4%	471
SB	0.85	1.7%	634
Intersection	0.93	2.3%	1,288

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

Total Vehicle Summary

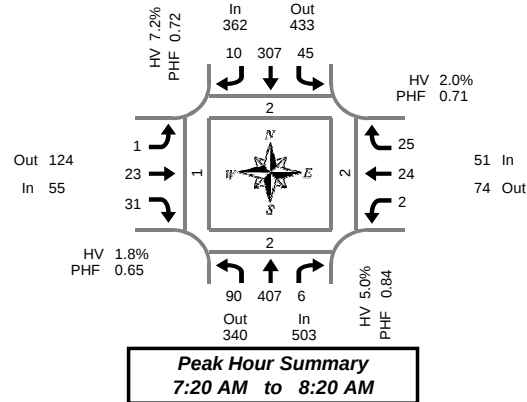


Clay Carney
(503) 833-2740

Washington St & 12th St

Thursday, January 07, 2010

7:00 AM to 9:00 AM



Peak Hour Summary
7:20 AM to 8:20 AM

5-Minute Interval Summary

7:00 AM to 9:00 AM

Interval Start Time	Northbound Washington St				Southbound Washington St				Eastbound 12th St				Westbound 12th St				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
7:00 AM	1	34	1	0	3	13	2	0	0	0	1	0	0	3	0	0	58	0	0	0	0
7:05 AM	3	38	0	0	0	18	0	0	0	0	1	0	0	2	0	0	62	0	0	0	0
7:10 AM	6	20	0	0	1	19	1	0	1	0	1	0	1	4	0	0	54	0	0	0	0
7:15 AM	5	38	0	0	1	20	0	0	0	1	2	0	0	2	1	0	70	0	0	0	0
7:20 AM	7	39	0	0	3	19	1	0	0	2	1	0	0	0	6	0	78	0	0	0	0
7:25 AM	7	26	0	0	3	21	0	0	0	1	1	0	0	2	0	0	61	0	0	0	0
7:30 AM	5	28	0	0	2	24	2	0	0	3	0	0	0	3	1	0	68	1	0	0	0
7:35 AM	9	29	0	1	2	15	3	0	0	1	2	0	1	3	2	0	67	1	0	0	0
7:40 AM	16	45	1	0	5	15	0	0	0	1	5	0	0	4	1	0	93	0	0	0	0
7:45 AM	15	34	0	0	4	28	0	0	1	2	5	0	0	2	3	0	94	0	0	0	0
7:50 AM	5	31	0	0	2	36	1	0	0	4	0	0	0	5	3	0	87	0	0	1	0
7:55 AM	5	45	3	0	5	40	1	0	0	3	5	0	1	2	1	0	111	0	0	0	0
8:00 AM	4	39	1	0	4	35	1	0	0	3	5	0	0	0	3	0	95	0	1	0	0
8:05 AM	8	23	1	0	4	24	0	1	0	2	3	0	0	1	0	0	66	0	0	0	0
8:10 AM	5	33	0	0	6	26	1	0	0	0	2	0	0	1	4	0	78	0	0	1	1
8:15 AM	4	35	0	1	5	24	0	0	0	1	2	0	0	1	1	0	73	0	1	0	0
8:20 AM	3	26	0	0	1	19	0	0	1	3	2	0	0	6	3	0	64	0	0	0	0
8:25 AM	6	18	0	0	5	21	0	0	0	1	4	0	0	2	2	0	59	0	0	0	0
8:30 AM	3	15	0	0	2	22	2	0	0	1	2	0	0	1	4	1	52	0	0	0	0
8:35 AM	4	31	0	0	0	19	2	0	0	1	4	0	0	3	1	0	65	0	0	0	0
8:40 AM	5	34	2	0	2	19	1	0	1	4	1	0	0	2	2	0	73	0	0	0	0
8:45 AM	1	23	0	0	2	19	2	0	1	1	1	0	0	4	2	0	56	0	0	0	0
8:50 AM	3	23	0	0	5	18	0	0	2	2	7	0	1	0	0	0	61	0	0	0	0
8:55 AM	4	19	0	0	8	22	0	0	0	2	5	0	0	2	1	0	63	0	0	0	0
Total Survey	134	726	9	2	75	536	20	1	7	39	62	0	4	55	41	1	1,708	2	2	2	1

15-Minute Interval Summary

7:00 AM to 9:00 AM

Interval Start Time	Northbound Washington St				Southbound Washington St				Eastbound 12th St				Westbound 12th St				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
7:00 AM	10	92	1	0	4	50	3	0	1	0	3	0	1	9	0	0	174	0	0	0	0
7:15 AM	19	103	0	0	7	60	1	0	0	4	4	0	0	4	7	0	209	0	0	0	0
7:30 AM	30	102	1	1	9	54	5	0	0	5	7	0	1	10	4	0	228	2	0	0	0
7:45 AM	25	110	3	0	11	104	2	0	1	9	10	0	1	9	7	0	292	0	0	1	0
8:00 AM	17	95	2	0	14	85	2	1	0	5	10	0	0	2	7	0	239	0	1	1	1
8:15 AM	13	79	0	1	11	64	0	0	1	5	8	0	0	9	6	0	196	0	1	0	0
8:30 AM	12	80	2	0	4	60	5	0	1	6	7	0	0	6	7	1	190	0	0	0	0
8:45 AM	8	65	0	0	15	59	2	0	3	5	13	0	1	6	3	0	180	0	0	0	0
Total Survey	134	726	9	2	75	536	20	1	7	39	62	0	4	55	41	1	1,708	2	2	2	1

Peak Hour Summary

7:20 AM to 8:20 AM

By Approach	Northbound Washington St				Southbound Washington St				Eastbound 12th St				Westbound 12th St				Total	Pedestrians Crosswalk			
	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes		North	South	East	West
Volume	503	340	843	2	362	433	795	1	55	124	179	0	51	74	125	0	971	2	2	2	1
%HV	5.0%				7.2%				1.8%				2.0%				5.5%				
PHF	0.84				0.72				0.65				0.71				0.83				

By Movement	Northbound Washington St				Southbound Washington St				Eastbound 12th St				Westbound 12th St				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	90	407	6	503	45	307	10	362	1	23	31	55	2	24	25	51	971
%HV	3.3%	5.4%	0.0%	5.0%	2.2%	7.8%	10.0%	7.2%	0.0%	0.0%	3.2%	1.8%	0.0%	0.0%	4.0%	2.0%	5.5%
PHF	0.56	0.88	0.30	0.84	0.75	0.69	0.50	0.72	0.25	0.58	0.60	0.65	0.50	0.55	0.89	0.71	0.83

Rolling Hour Summary

7:00 AM to 9:00 AM

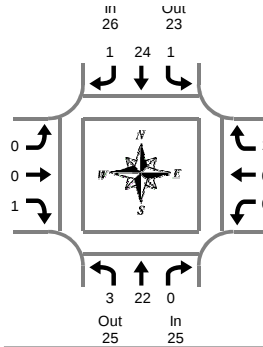
Interval Start Time	Northbound Washington St				Southbound Washington St				Eastbound 12th St				Westbound 12th St				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
7:00 AM	84	407	5	1	31	268	11	0	2	18	24	0	3	32	18	0	903	2	0	1	0
7:15 AM	91	410	6	1	41	303	10	1	1	23	31	0	2	25	25	0	968	2	1	2	1
7:30 AM	85	386	6	2	45	307	9	1	2	24	35	0	2	30	24	0	955	2	2	2	1
7:45 AM	67	364	7	1	40	313	9	1	3	25	35	0	1	26	27	1	917	0	2	2	1
8:00 AM	50	319	4	1	44	268	9	1	5	21	38	0	1	23	23	1	805	0	2	1	1

Heavy Vehicle Summary



Clay Carney
(503) 833-2740

Out 4
In 1



Washington St & 12th St

Thursday, January 07, 2010

7:00 AM to 9:00 AM

Peak Hour Summary
7:20 AM to 8:20 AM

Heavy Vehicle 5-Minute Interval Summary

7:00 AM to 9:00 AM

Interval Start Time	Northbound Washington St				Southbound Washington St				Eastbound 12th St				Westbound 12th St				Interval Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
7:00 AM	1	2	0	3	0	1	0	1	0	0	0	0	0	0	0	0	4
7:05 AM	0	3	0	3	0	2	0	2	0	0	0	0	0	0	0	0	5
7:10 AM	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
7:15 AM	0	2	0	2	0	3	0	3	0	0	0	0	0	0	0	0	5
7:20 AM	0	2	0	2	0	3	0	3	0	0	0	0	0	0	0	0	5
7:25 AM	0	4	0	4	1	0	0	1	0	0	0	0	0	0	0	0	5
7:30 AM	0	1	0	1	0	3	1	4	0	0	0	0	0	0	1	1	6
7:35 AM	0	0	0	0	0	1	0	1	0	0	1	1	0	0	0	0	2
7:40 AM	0	3	0	3	0	1	0	1	0	0	0	0	0	0	0	0	4
7:45 AM	1	1	0	2	0	4	0	4	0	0	0	0	0	0	0	0	6
7:50 AM	0	3	0	3	0	0	0	0	0	0	0	0	0	0	0	0	3
7:55 AM	1	2	0	3	0	3	0	3	0	0	0	0	0	0	0	0	6
8:00 AM	0	2	0	2	0	1	0	1	0	0	0	0	0	0	0	0	3
8:05 AM	0	2	0	2	0	5	0	5	0	0	0	0	0	0	0	0	7
8:10 AM	0	1	0	1	0	1	0	1	0	0	0	0	0	0	0	0	2
8:15 AM	1	1	0	2	0	2	0	2	0	0	0	0	0	0	0	0	4
8:20 AM	0	3	0	3	1	2	0	3	0	0	0	0	0	0	0	0	6
8:25 AM	1	3	0	4	0	1	0	1	0	0	0	0	0	0	0	0	5
8:30 AM	0	1	0	1	0	5	0	5	0	0	0	0	0	0	0	0	6
8:35 AM	0	2	0	2	0	3	0	3	0	0	0	0	0	0	0	0	5
8:40 AM	0	3	1	4	0	0	0	0	0	0	1	1	0	0	0	0	5
8:45 AM	0	3	0	3	0	1	0	1	0	1	0	1	0	0	0	0	5
8:50 AM	0	2	0	2	1	1	0	2	0	0	0	0	1	0	0	1	5
8:55 AM	1	2	0	3	1	1	0	2	0	0	0	0	0	0	0	0	5
Total Survey	7	48	1	56	4	44	1	49	0	1	2	3	1	0	1	2	110

Heavy Vehicle 15-Minute Interval Summary

7:00 AM to 9:00 AM

Interval Start Time	Northbound Washington St				Southbound Washington St				Eastbound 12th St				Westbound 12th St				Interval Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
7:00 AM	2	5	0	7	0	3	0	3	0	0	0	0	0	0	0	0	10
7:15 AM	0	8	0	8	1	6	0	7	0	0	0	0	0	0	0	0	15
7:30 AM	0	4	0	4	0	5	1	6	0	0	1	1	0	0	1	1	12
7:45 AM	2	6	0	8	0	7	0	7	0	0	0	0	0	0	0	0	15
8:00 AM	0	5	0	5	0	7	0	7	0	0	0	0	0	0	0	0	12
8:15 AM	2	7	0	9	1	5	0	6	0	0	0	0	0	0	0	0	15
8:30 AM	0	6	1	7	0	8	0	8	0	0	1	1	0	0	0	0	16
8:45 AM	1	7	0	8	2	3	0	5	0	1	0	1	1	0	0	1	15
Total Survey	7	48	1	56	4	44	1	49	0	1	2	3	1	0	1	2	110

Heavy Vehicle Peak Hour Summary

7:20 AM to 8:20 AM

By Approach	Northbound Washington St			Southbound Washington St			Eastbound 12th St			Westbound 12th St			Total
	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	
Volume	25	25	50	26	23	49	1	4	5	1	1	2	53
PHF	0.78			0.72			0.25			0.25			0.83

By Movement	Northbound Washington St				Southbound Washington St				Eastbound 12th St				Westbound 12th St				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	3	22	0	25	1	24	1	26	0	0	1	1	0	0	1	1	53
PHF	0.38	0.79	0.00	0.78	0.25	0.67	0.25	0.72	0.00	0.00	0.25	0.25	0.00	0.00	0.25	0.25	0.83

Heavy Vehicle Rolling Hour Summary

7:00 AM to 9:00 AM

Interval Start Time	Northbound Washington St				Southbound Washington St				Eastbound 12th St				Westbound 12th St				Interval Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
7:00 AM	4	23	0	27	1	21	1	23	0	0	1	1	0	0	1	1	52
7:15 AM	2	23	0	25	1	25	1	27	0	0	1	1	0	0	1	1	54
7:30 AM	4	22	0	26	1	24	1	26	0	0	1	1	0	0	1	1	54
7:45 AM	4	24	1	29	1	27	0	28	0	0	1	1	0	0	0	0	58
8:00 AM	3	25	1	29	3	23	0	26	0	1	1	2	1	0	0	1	58

Peak Hour Summary

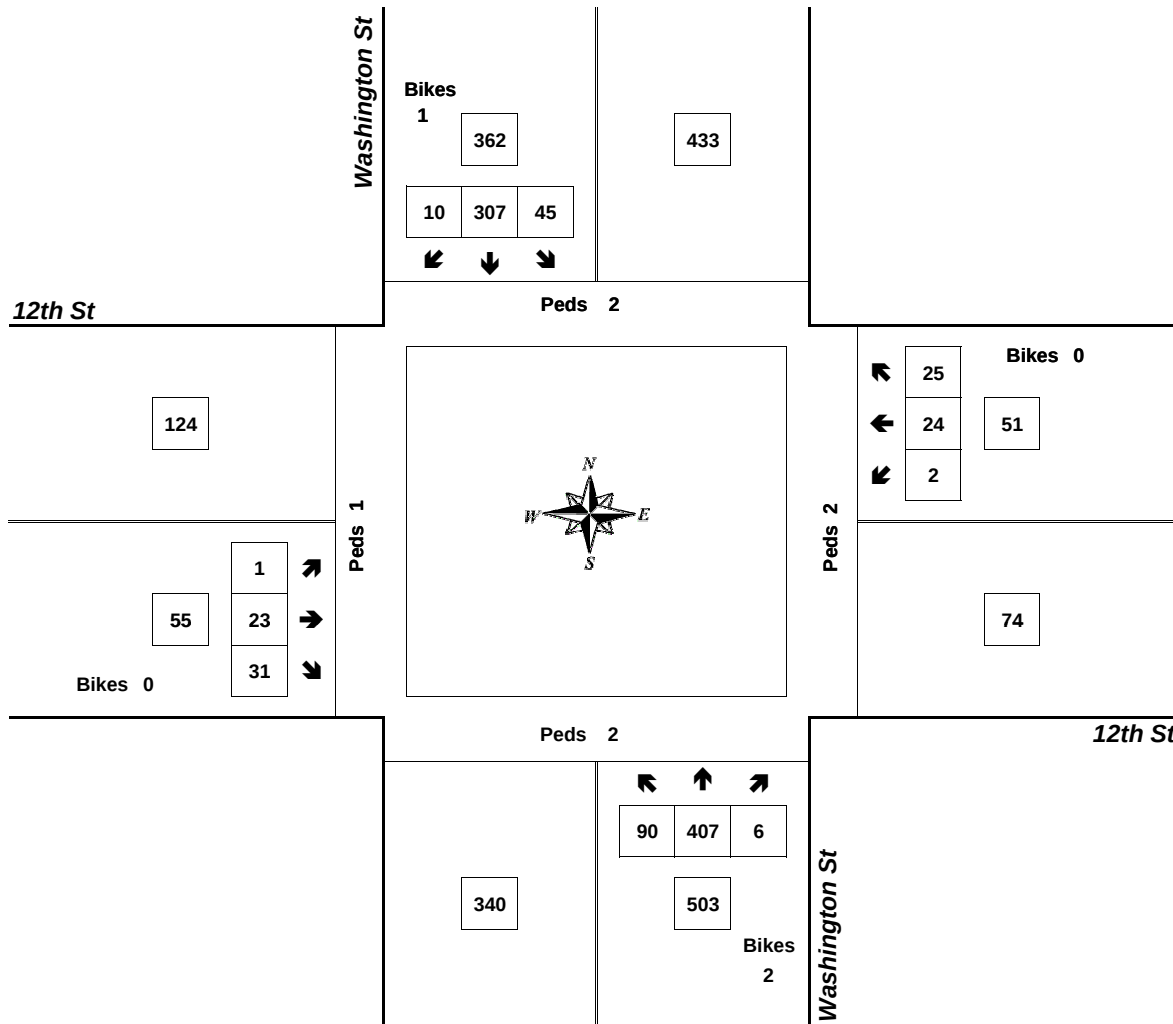


Clay Carney
(503) 833-2740

Washington St & 12th St

7:20 AM to 8:20 AM

Thursday, January 07, 2010



Approach	PHF	HV%	Volume
EB	0.65	1.8%	55
WB	0.71	2.0%	51
NB	0.84	5.0%	503
SB	0.72	7.2%	362
Intersection	0.83	5.5%	971

Count Period: 7:00 AM to 9:00 AM

Collision Data

General Data			Street Names		From Intersection		Overall										Vehicle			
Crash ID	Serial #	Crash Date	1st Street	2nd Street	Distance	Direction	Impact Location	Collision	Crash	Weather	Road	Light	Cause 1	Vehicle Movement		From - To	Vehicle Type	Vehicle Movement	From - To	Vehicle Action
1196497	1856	5/3/2006	12TH ST	WASHINGTON ST	15	NW		5 PED	INJ	CLEAR	DRY	DAYLIGHT	NON-MOTORIST - ILLEGALLY IN RDWY	STRGHT	x	NE to SW				
1197583	2185	5/22/2006	WASHINGTON ST	12TH ST	0	CN		2 ANGL	PDO	CLEAR	DRY	DARK-ST LIGHTS	PASSED STOP SIGN	STRGHT	x	E to W	PSNGR CAR	STRGHT	S to N	NONE
1212195	4474	10/23/2006	WASHINGTON ST	12TH ST	0	CN		4 ANGL	INJ	CLEAR	DRY	DARK-NO ST LIGHTS	NO YIELD	STRGHT	x	SE to NW	PSNGR CAR	STRGHT	SW to NE	NONE
1216889	5000	11/20/2006	12TH ST	WASHINGTON ST	100	SW		8 REAR	PDO	RAIN	WET	DARK-ST LIGHTS	FOLLOW TOO CLOSE	STRGHT	x	SW to NE	PSNGR CAR	STOP	SW to NE	STOPPED
1253623	3326	8/1/2007	WASHINGTON ST	12TH ST	0	CN		4 ANGL	INJ	CLEAR	DRY	DAYLIGHT	NO YIELD	STRGHT	x	NW to SE	PSNGR CAR	STRGHT	SW to NE	NONE
1257380	3833	9/4/2007	WASHINGTON ST	12TH ST	0	CN		3 ANGL	PDO	CLEAR	DRY	DAYLIGHT	PASSED STOP SIGN	STRGHT	x	NW to SE	PSNGR CAR	STRGHT	NE to SW	NONE
1268521	5532	12/15/2007	WASHINGTON ST	12TH ST	0	CN		1 TURN	INJ	CLEAR	DRY	DAYLIGHT	NO YIELD	STRGHT	x	N to S	PSNGR CAR	TURN-L	S to W	NONE
1290165	2307	6/19/2008	WASHINGTON ST	12TH ST	0	CN		3 ANGL	PDO	CLEAR	DRY	DAYLIGHT	NO YIELD	STRGHT	x	W to E	PSNGR CAR	STRGHT	N to S	NONE
1293240	2714	7/17/2008	12TH ST	WASHINGTON ST	55	SE		8 REAR	PDO	CLEAR	DRY	DAYLIGHT	TOO FAST FOR COND	STRGHT	x	SE to NW	PSNGR CAR	STOP	SE to NW	STOPPED
1306429	3971	10/18/2008	WASHINGTON ST	12TH ST	0	CN		4 ANGL	INJ	CLEAR	DRY	DAYLIGHT	NO YIELD	STRGHT	x	SW to NE	PSNGR CAR	STRGHT	NW to SE	NONE
1309070	4548	11/25/2008	WASHINGTON ST	12TH ST	0	CN		3 ANGL	PDO	RAIN	WET	DAYLIGHT	NO YIELD	STRGHT	x	N to S	PSNGR CAR	STRGHT	W to E	NONE
	9867	3/9/2009	WASHINGTON ST	12TH ST	0	CN		ANGL	PDO	CLOUDY	WET	DARK-ST LIGHTS	NO YIELD	STRGHT	x	W to E	PSNGR CAR	STRGHT	S to N	STOPPED
	92744	8/23/2009	WASHINGTON ST	12TH ST	0	CN		ANGL	PDO	CLEAR	DRY	DAYLIGHT	PASSED STOP SIGN	STRGHT	x	W to E	PSNGR CAR	STRGHT	S to N	NONE
	92780	8/26/2009	WASHINGTON ST	12TH ST	0	CN			INJ		DRY	DARK-ST LIGHTS	NO YIELD	Turn	x	S to W	PSNGR CAR	STRGHT	N to S	NONE

DMV

OREGON POLICE TRAFFIC CRASH REPORT

PAGE 1 OF 3

POLICE INCIDENT / CASE NUMBER 09-2780		CRASH DATE 8/26/09		DAY OF WEEK M T W T F S S		CRASH TIME 2038 AM PM		POLICE NOTIFIED 2038 AM PM		POLICE ARRIVAL 2044 AM PM		DMV FILE NUMBER							
COUNTY Clackamas		ROAD ON WHICH CRASH OCCURRED Washington St.				LATITUDE		LONGITUDE		MILE POST		DMV CODE							
☐ WITHIN _____ FEET N S OF NEAREST INTERSECTING ROAD ☒ NEAR _____ MILES E W 12th St.						☐ WITHIN _____ FEET N S OF NEAREST CITY / TOWN ☐ NEAR _____ MILES E W Oregon City													
☒ PROPERTY DAMAGE ☐ PUBLIC PROPERTY DAMAGE ESTIMATE: ☐ UNDER \$1500 ☐ OVER \$1500 ☒ UNKNOWN						☐ HAZ. MATERIALS ☒ PHOTOS TAKEN ☐ TRAIN R/R ☐ TRUCK / BUS													
UNIT #1		NAME (LAST, FIRST, MIDDLE) Benton, Tony Mark				DRIVER LICENSE NUMBER 9194742		STATE OR		SEX M		RACE W		DOB 6/30/80					
PED		ADDRESS 302 Madison St. Oregon City OR 97045				PHONE: ☐ HOME ☐ WORK ☐ CELL (971) 221-7773													
BIC		VEHICLE OWNER SAME				PHONE: ☐ HOME ☐ WORK ☐ CELL ()													
PRK																			
PRP																			
FIRE Y N		STD SPD		PST SPD		INSURANCE COMPANY ☐ NONE Progressive		INSURANCE POLICY NUMBER 204071380											
EJECTED Y P N		EXTRCTD Y N		VEHICLE IDENTIFICATION NUMBER (VIN) JT8UF11E0M0046898		LICENSE PLATE NUMBER 224CLD		STATE OR		YEAR 91		MAKE Lexus		MODEL 400		STYLE 90		COLOR Silver	
VEHICLE TOWED DUE TO VEHICLE DAMAGE ☒ Y ☐ N ☐ UNKNOWN						DRIVER TAKEN: ☒ Y ☐ N ☐ UNKNOWN													
BY: Bud's Towing						TO:													
VEHICLE DAMAGE FRONT						MARK ALL THAT APPLY: DAMAGE ESTIMATE ☐ ROLLOVER ☐ NONE ☐ UNDERCAR ☐ UNDER \$1500 ☐ TOTALED ☐ OVER \$1500 ☒ UNKNOWN						INJURY: Scratch ☐ NONE ☐ COMPLAINT OF PAIN ☐ VISIBLE INJURY ☐ INCAPACITATED ☐ FATAL							
						EQUIPMENT: ☐ NO EQP USED ☐ LAP ONLY ☐ LAP / SHLDR ☐ CHLD RST-PRP ☒ A/BAG-DEPLYD ☐ NONE INSTLD ☐ UNKNOWN ☐ SHLDR ONLY ☐ HELMET ☐ CHLD RST-IMPR ☐ A/BAG-NOT DP													
						ACTION / ARREST / CITES													
USE ARROW TO SHOW FIRST IMPACT (SHADE IN DAMAGED AREA)																			
SUSPECT NAME						AKA						IN CUSTODY Y N							
ADDRESS						OTHER INFORMATION:													
SEX RACE DOB HT WT HAIR EYES LOCAL ID																			
HIT AND RUN																			
UNIT #2		NAME (LAST, FIRST, MIDDLE) Powell, Carol Lynn				DRIVER LICENSE NUMBER 5103576		STATE OR		SEX F		RACE W		DOB 7/30/62					
PED		ADDRESS 15640 S. Halcomb Blvd. Oregon City OR 97045				PHONE: ☐ HOME ☐ WORK ☐ CELL (971) 212-1778													
BIC		VEHICLE OWNER Powell, Tracy				PHONE: ☐ HOME ☐ WORK ☐ CELL (971) 212-1778													
PRK																			
PRP																			
FIRE Y N		STD SPD		PST SPD		INSURANCE COMPANY ☐ NC Hallmark Insurance		INSURANCE POLICY NUMBER 03610446200											
EJECTED Y P N		EXTRCTD Y N		VEHICLE IDENTIFICATION NUMBER (VIN) 1FTDX1863VRK10674		LICENSE PLATE NUMBER 4UQ664		STATE OR		YEAR 97		MAKE Ford		MODEL F150		STYLE P4		COLOR Blue	
VEHICLE TOWED DUE TO VEHICLE DAMAGE ☒ Y ☐ N ☐ UNKNOWN						DRIVER TAKEN: ☒ Y ☐ N ☐ UNKNOWN													
BY: Bud's Towing						TO:													
VEHICLE DAMAGE FRONT						MARK ALL THAT APPLY: DAMAGE ESTIMATE ☐ ROLLOVER ☐ NONE ☐ UNDERCAR ☐ UNDER \$1500 ☐ TOTALED ☐ OVER \$1500 ☒ UNKNOWN						INJURY: ☐ NONE ☒ COMPLAINT OF PAIN ☐ VISIBLE INJURY ☐ INCAPACITATED ☐ FATAL							
						EQUIPMENT: ☐ NO EQP USED ☐ LAP ONLY ☐ LAP / SHLDR ☐ CHLD RST-PRP ☐ A/BAG-DEPLYD ☐ NONE INSTLD ☐ UNKNOWN ☐ SHLDR ONLY ☐ HELMET ☐ CHLD RST-IMPR ☐ A/BAG-NOT DP													
						ACTION / ARREST / CITES													
USE ARROW TO SHOW FIRST IMPACT (SHADE IN DAMAGED AREA)																			
UNIT #2						PASSENGER NAME Terkelson, Alice Marlene						ADDRESS 15640 S. Halcomb Blvd O.C. OR 97045							
SEX RACE DOB PHONE: ☐ HOME ☐ WORK ☐ CELL F W 7/30/86 (971) 255-2784						INJURY ☒ COMPLAINT OF PAIN ☐ INCAPACITATED ☐ FATAL ☐ NONE ☐ VISIBLE INJURY						LOCATION LF CF RF LR CR RR OTHER: EJECTED EXTRCTD Y P N Y N							
PASSENGER TAKEN: ☒ Y ☐ UNKNOWN						EQUIPMENT ☐ NO EQP USED ☐ LAP ONLY ☐ LAP / SHLDR ☐ CHLD RST-PRP ☐ A/BAG-DEPLYD ☐ NONE INSTLD ☐ UNKNOWN ☐ SHLDR ONLY ☐ HELMET ☐ CHLD RST-IMPR ☐ A/BAG-NOT DP													
BY:						TO:													
UNIT #2						PASSENGER NAME Terkelson, Cameron						ADDRESS							
SEX RACE DOB PHONE: ☐ HOME ☐ WORK ☐ CELL M 12/22/01 ()						INJURY ☐ COMPLAINT OF PAIN ☐ INCAPACITATED ☐ FATAL ☐ NONE ☐ VISIBLE INJURY						LOCATION LF CF RF LR CR RR OTHER: EJECTED EXTRCTD Y P N Y N							
PASSENGER TAKEN: ☐ Y ☐ UNKNOWN						EQUIPMENT ☐ NO EQP USED ☐ LAP ONLY ☐ LAP / SHLDR ☐ CHLD RST-PRP ☐ A/BAG-DEPLYD ☐ NONE INSTLD ☐ UNKNOWN ☐ SHLDR ONLY ☐ HELMET ☐ CHLD RST-IMPR ☐ A/BAG-NOT DP													
BY:						TO:													
UNIT #2						PASSENGER NAME Terkelson, Kena						ADDRESS							
SEX RACE DOB PHONE: ☐ HOME ☐ WORK ☐ CELL F 12/22/01 ()						INJURY ☐ COMPLAINT OF PAIN ☐ INCAPACITATED ☐ FATAL ☐ NONE ☐ VISIBLE INJURY						LOCATION LF CF RF LR CR RR OTHER: EJECTED EXTRCTD Y P N Y N							
PASSENGER TAKEN: ☐ Y ☐ UNKNOWN						EQUIPMENT ☐ NO EQP USED ☐ LAP ONLY ☐ LAP / SHLDR ☐ CHLD RST-PRP ☐ A/BAG-DEPLYD ☐ NONE INSTLD ☐ UNKNOWN ☐ SHLDR ONLY ☐ HELMET ☐ CHLD RST-IMPR ☐ A/BAG-NOT DP													
BY:						TO:													

DISTRIBUTION

OFFICER NAME / NUMBER

735-46 (6-07)

DATE

AGENCY

APPROVED BY

STK# 300017

Check ONE box in all categories. Check ALL boxes that apply in categories with (*).

FIRST HARMFUL EVENT	WEATHER	ROAD CHARACTER	*VEH RELATED FACTORS	TRUCK CONFIGURATION	PEDESTRIAN TYPE
NON COLLISION ☐ OVERTURN ☐ FIRE / EXPLOSION ☐ IMMERSION ☐ GAS INHALATION ☐ OTHER NON COLLISION ☐ MEDICAL (Explain)	☐ CLEAR ☐ CLOUDY (OVERCAST) ☐ RAIN ☐ SNOW ☐ SLEET / HAIL / ETC ☐ FOG / SMOG ☐ SMOKE ☐ BLOWING SAND / DIRT ☐ SEVERE CROSSWIND ☒ OTHER / UNKNOWN	#1 #2 ☐ STRAIGHT and LEVEL ☒ STRAIGHT w/ GRADE ☐ CURVED and LEVEL ☐ CURVED w/ GRADE VEH #1 — NUMBER OF LANES VEH #2 — NUMBER OF LANES — TOTAL NUMBER OF LANES ROAD FLOW #1 #2 ☐ ONE WAY TRAFFIC ☒ NOT PHYSLY DIVIDED MEDIAN TYPE ☐ UNPAVED ☐ BARRIER ☐ PAVED ☐ CONT LEFT TURN DRIVER LICENSE VIOLATION DRIVER #1 #2 ☐ NONE ☐ INSTRUCTION PERMIT ☐ LICENSE RESTRICTION ☐ EXPIRED LICENSE ☐ OUT OF CLASS ☐ SUSPENDED / REVOKED ☐ UNLICENSED	#1 #2 ☐ NONE ☐ BRAKES ☐ STEERING ☐ POWER PLANT ☐ SUSPENSION ☐ TIRES ☐ EXHAUST ☐ LIGHTS ☐ SIGNALS ☐ WINDOWS / WINDSHLD ☐ RESTRAINT SYSTEM ☐ WHEELS ☐ COUPLING ☐ CARGO ☐ OTHER VEHICLE MOVEMENT #1 #2 ☐ BACKING ☐ STOPPED ☒ STRAIGHT AHEAD ☐ TURNING RIGHT ☒ TURNING LEFT ☐ MAKING U-TURN ☐ ENTER TRAFFIC LANE ☐ LEAVE TRAFFIC LANE ☐ OVERTAKING ☐ CHANGING LANES ☐ AVOIDING MANEUVER ☐ MERGING ☐ PARKING ☐ NEGOTIATING A CURVE ☐ OTHER TRAILER TYPE #1 #2 ☐ LOG BUNK ☐ SEMITRAILER ☐ POLE TRAILER ☐ FULL TRAILER ☐ MOBILE HOME ☐ UTILITY TRAILER ☐ TRAVEL TRAILER ☐ BOAT TRAILER ☐ FARM EQUIPMENT ☐ HORSE TRAILER ☐ VEHICLE IN TOW ☐ OTHER / UNKNOWN	#1 #2 ☐ TRUCK (2 or 3 AXLE) ☐ TRUCK / TRACTOR-SEMI ☐ TRUCK and TRAILER ☐ DOUBLE TRAILERS ☐ TRIPLE TRAILERS ☐ DROMEDARY and SEMI ☐ HEAVY HAUL CONFIG ☐ BUS ☐ OTHER (Explain) * PASSENGER FACTORS PASS #1 #2 ☐ NONE ☐ INTERFERED w/DRIVER ☐ UNDER INFL - DRUGS ☐ UNDER INFL - ALCOHOL ☐ UNKNOWN ☐ OTHER (Explain) UNIT #1 #1 #2 ☐ NONE ☐ INTERFERED w/DRIVER ☐ UNDER INFL - DRUGS ☐ UNDER INFL - ALCOHOL ☐ UNKNOWN ☐ OTHER (Explain) UNIT #2 #1 #2 ☐ NONE ☐ INTERFERED w/DRIVER ☐ UNDER INFL - DRUGS ☐ UNDER INFL - ALCOHOL ☐ UNKNOWN ☐ OTHER (Explain) PEDESTRIAN LOCATION IN ROAD ☐ IN X-WALK ☐ NOT IN X-WALK ☐ NO X-WALK AVAILABLE INTERSECTION ☐ IN X-WALK ☐ NOT IN X-WALK ☐ NO X-WALK AVAILABLE OTHER ☐ NOT IN ROADWAY ☐ SHOULDER ☐ MEDIAN ☐ BIKE LANE ☒ UNKNOWN	☐ NONE ☐ PEDESTRIAN ☐ BICYCLIST ☐ CONVEYANCE ☐ WHEELCHAIR ☐ ANIMAL RIDER ☐ RIDER of ANIM DRAWN VEH ☐ UNKNOWN ☐ OTHER (Explain) * PEDESTRIAN ACTION ☐ ENTER / CROSS ROAD ☐ WALK / RIDE w/TRAFF ☐ WALK / RIDE AGAINST ☐ STEP ON / OFF VEHICLE ☐ STEP ON / OFF SCH BUS ☐ APPROCH / LEAVE SC BUS ☐ APPROACH / LEAVE VEH ☐ WORK / PUSHING VEHICLE ☐ OTHER WORKING ☐ PLAYING ☐ STANDING ☐ LYING DOWN ☐ UNKNOWN PED / BIKE VISIBILITY CLOTHING ☐ NO CONTRAST w/BKGRND ☐ CONTRASTED w/BKGRND ☐ REFLECTIVE OTHER ☐ OTHER LIGHT SOURCE ☐ UNKNOWN * PED / BIKE FACTORS ☐ NONE ☐ FAILED TO YIELD ROW ☐ DISREGARD TRAFFIC SIGN ☐ ILLEGALLY IN ROAD ☐ EQUIPMENT VIOLATION ☐ CLOTHING NOT VISIBLE ☐ UNDER INFL - DRUGS ☐ UNDER INFL - ALCOHOL ☐ UNKNOWN ☐ OTHER (Explain)
COLLISION WITH ☐ PEDESTRIAN ☐ PARKED MOTOR VEHICLE ☐ RAILWAY TRAIN ☐ BICYCLIST CRASH TYPE ☐ HEAD ON ☐ REAR END ☐ ANGLE ☐ SIDESWIPE ☐ MANNER UNKNOWN FIXED OBJECT ☐ BARRICADE ☐ BOULDER / ROCK ☐ BRIDGE O/PASS or RAILING ☐ BUILDING ☐ CULVERT HEADWALL ☐ CURBING ☐ DITCH ☐ DIVIDER - CNCRT or STEEL ☐ FENCE - NOT MEDIAN ☐ FIRE HYDRANT ☐ HIGHWAY GUARDRAIL ☐ HIGHWAY SIGN ☐ IMPACT ABSORBER ☐ LIGHT STANDARD ☐ MAILBOX ☐ OVERHEAD SIGN POST ☐ OVERHEAD STRUCTURE ☐ PIER or COLUMN ☐ RETAINING WALL ☐ SIDESLOPE EARTH ☐ SIDESLOPE ROCK or STONE ☐ TRAFFIC SIGNAL POST ☐ TREE ☐ UNDERPASS TUNNEL ☐ UTILITY POLE ☐ OTHER FIXED (Explain) OTHER OBJECT (NOT FIXED) ☐ ANIMAL ☐ THROWN / FALLING OBJECT ☐ UNKNOWN ☒ OTHER OBJECT (Explain) <u>vehicle</u> EVENT LOCATION ON ROADWAY ☐ NON-INTERSECTION ☒ INTERSECTION ☐ INTERSECTION RELATED ☐ DRIVEWAY ACCESS ☐ INTERCHANGE AREA ☐ RAILROAD CROSSING ☐ BRIDGE ☐ TUNNEL ☐ OTHER ON-ROAD AREA OFF ROADWAY ☐ SHOULDER ☐ TURNOUT ☐ ROADSIDE ☐ BEYOND RIGHT OF WAY ☐ MEDIAN ☐ DRIVEWAY ☐ PRIVATE DRIVE ☐ RAILROAD CROSSING ☐ OTHER OFF ROAD ☐ PARKING LOT ☐ UNKNOWN SPECIAL ZONE ☐ NONE ☐ CONSTRUCTION ☐ MAINTENANCE ☐ UTILITY ☐ SNOW ☐ SCHOOL ☐ UNKNOWN WORK ☒ OTHER	SURFACE CONDITION #1 #2 ☒ DRY ☒ WET ☐ SNOW / SLUSH ☐ ICY ☐ MUDDY ☐ DEBRIS ☐ RUTS / HOLES / BUMPS ☐ WORN / POLISHED ☐ LOW / SOFT SHOULDER ☐ OTHER (Explain) SURFACE TYPE #1 #2 ☐ CONCRETE ☒ BLACKTOP / ASPHALT ☐ GRAVEL ☐ DIRT ☐ OTHER LIGHT ☐ FULL DAYLIGHT ☐ DAWN ☐ DUSK ☒ DARK - LIGHTED WAY ☐ DARK - NOT LIGHTED ☐ UNKNOWN TRAFFIC CONTROL TYPE #1 #2 ☐ NONE ☐ SCHOOL BUS LIGHTS ☐ OFFICER / CROSSING GUARD or FLAGGER ☐ TRAFFIC SIGNAL w/ PEDESTRIAN CONTROL ☐ TRAFFIC SIGNAL ☒ FLASHING BEACON ☐ STOP SIGN ☐ YIELD SIGN ☐ RR CROSSING GATES ☐ RR CROSSING BUCKS ☐ RR FLASHING SIGNAL ☐ RR CROSSING w/ PAVEMENT MARKINGS ☐ LANE CONTRLS / LINES / STRIPES / DEVICES ☐ SCHOOL SIGNAL ☐ OTHER REG SIGN ☐ TURN LANES ☐ UNKNOWN TRAFFIC CONTROL DEVICE CONDITION #1 #2 ☐ NO MALFUNCTION ☐ DOWN / MISSING ☐ TURNED FROM PROPER POSITION ☐ OBSCURED BY OTHER SIGNS ☐ OBSCURED BY PARKED VEHICLE ☐ OBSCURED BY VEGETATION ☐ LIGHTS MALFUNCTION ☐ LIGHTS STUCK ☐ GATES INOPERATIVE ☐ GATE ARM MISSING ☐ OTHER RR MALFUNCTION ☐ OTHER IMPAIRMENT ☐ UNKNOWN	* DRIVER FACTORS DRIVER #1 #2 ☐ NONE ☐ CELL PHONE USE ☐ OBSTRUCTED VIEW ☐ FAILED TO YIELD ROW ☐ DISGRD TRAF SIGN ☐ TOO FAST FOR COND ☐ MADE IMPROPER TURN ☐ WRONG SIDEWAY ☐ FOLLOW TOO CLOSELY ☐ IMPROPER LANE CHNG ☐ IMPROPER BACKING ☐ IMPROPER PASSING ☐ IMPROPER SIGNAL ☐ IMPROPER PARKING ☐ FATIGUE / DROWSY ☐ E/L / BLACKOUT ☐ UNKNOWN ☐ OTHER (Explain) * IMPAIRMENT DRIVER #1 #2 ☐ NONE ☐ UNDER INFL - DRUGS ☐ UNDER INFL - ALCOHOL ☐ UNDER INFL - MEDS ☐ UNKNOWN DETERMINED BY: ☐ INTOXILYZER TEST ☐ BLOOD OR URINE TEST ☐ FIELD SOB. TEST ☐ OBSERVED SPEECH, ODOR, ETC.) ☐ DRE EVALUATION ☐ STATEMENTS ☐ UNKNOWN ☐ OTHER (Explain) RESULTS OF TEST: D1 <u>—</u> % D2 <u>—</u> % ☐ NO TEST GIVEN ☒ TEST REFUSED ☐ TESTED FOR DRUGS ☐ RESULTS NOT AVAILABLE	SKETCH & NARRATIVE UNIT 1 2 SKID MARKS TO (FEET) _____ DISTANCE AFTER (FEET) _____ <u>SEE ATTACHED NARRATIVE</u>		

Page # 1	C.L.A.S.S. OREGON CITY POLICE DEPT. 320 Warner Milne Road, Oregon City, Oregon 97045 Continuation Report	Case # 09-2780

MENTIONED

Benton, Tony Mark- Driver Vehicle #1

DOB: 6/30/80

Address: 302 Madison St. Oregon City OR. 97045

Phone: (971) 221-7773

Powell, Carol Lynn-Driver Vehicle #2

DOB: 7/30/62

Address: 15640 S. Holcomb Blvd Oregon City OR.

Phone: (971) 212-1778

Terkelson, Alice Marlene- Passenger Vehicle #2

DOB: 7/30/86

Address: 15640 S. Holcomb Blvd Oregon City OR.

Phone: (971) 255-2784

Terkelson, Cameron- Passenger Vehicle #2

DOB: 12/22/01

Terkelson, Kendra- Passenger Vehicle #2

DOB: 5/15/00

Velasquez, Lacy- Passenger Vehicle #2

DOB: 9/11/06

Velasquez, Landon- Passenger Vehicle #2

ACTION TAKEN

On 8/26/09 around 2039 hours I was dispatched to a traffic accident at 12th St. and Washington St. in Oregon City. I arrived on scene at around 2044 hours and there were two vehicles blocking the roadways at the intersection, a silver Lexus 400 bearing Oregon Plate 224CLD and a Blue Ford F150 bearing Oregon plate UUQ664. Both vehicles had substantial damage. I quickly learned it was an injury accident. Clackamas County Fire and AMR Paramedics responded to the scene.

I spoke to a female subject, Carol Powell, who was identified as the driver of the Ford F150. Ms. Powell was taken to the hospital by AMR, but gave me a brief statement. Ms. Powell told me she was driving up the hill on Washington St. (Southbound) and a vehicle turned in front of her. Ms. Powell told me she put on her brakes, but said they hit each other. Ms. Powell told me she had her seatbelt on. Ms. Powell complained of mid-back pain and pain to her right shoulder.

Officer: Michael Day	DPSST# 48355	Agency: OCPD
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Page # 2	C.L.A.S.S. OREGON CITY POLICE DEPT. 320 Warner Milne Road, Oregon City, Oregon 97045 Continuation Report	Case # 09-2780

I spoke to a male subject, Tony Benton, who was identified as the driver of the silver Lexus 400. Mr. Benton told me he was driving down Washington St. (Northbound) and was turning left on 12th St. Mr. Benton told turned left. Mr. Benton told me when he was around perpendicular to Washington St. he got hit by a vehicle coming up the hill on Washington St. Mr. Benton said he did not see the truck coming.

Mr. Benton said after the crash he got out of the car and a lady from the other vehicle was screaming to help. Mr. Benton said he pulled open the passenger side door so the people inside the vehicle could get out. Mr. Benton said he didn't think he had any injuries aside from a scratch on his leg.

I also spoke to a female, Alice Terkelson, who was identified as the front seat passenger of the Ford F150. Ms. Terkelson told me they were going up Washington St. and a vehicle traveling down Washington St. slowed and she thought it was coming to a stop. Ms. Terkelson said the vehicle did not stop and turned left on 12th St. and they crashed into it. Ms. Terkelson said she could not get out of the car because the door was jammed. Ms. Terkelson said she screamed and the driver of the other involved vehicle opened her door. Ms. Terkelson said her mother, Ms. Powell, got out of the vehicle and at some point fell to the ground. Ms. Terkelson complained of pain to her chest and said her left arm was numb.

Ms. Terkelson told me her niece Kendra Terkelson, nephew Cameron Terkelson, and her children Lacy and Landon Velasquez were also in the truck. Ms. Terkelson said Kendra and Lacy were buckled in together in the back seat and Cameron was buckled in by himself in the back seat. Ms. Terkelson said Landon was buckled in his car seat.

I briefly spoke to Cameron and he told me his neck hurt at first. Kendra told me she hurt on her right leg and left shoulder, but said she didn't hurt now. I took photographs of the vehicles (SEE PICTURES)

On 9/3/09 I spoke to Ms. Terkelson over the phone and she told me Lacy when to the hospital the night of the accident and had a large lump on her head. Ms. Terkelson's said the next day Lacy had black eyes and a swollen face.

ACTION RECOMMENDED

Forward to DMV

Officer: Michael Day	DPSST# 48355	Agency: OCPD
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DMV

OREGON POLICE TRAFFIC CRASH REPORT

PAGE 1 OF 2

POLICE INCIDENT / CASE NUMBER 09-2744		CRASH DATE 8/23/09	DAY OF WEEK M T W T F S S S	CRASH TIME 6:28 AM	POLICE NOTIFIED 6:29 AM	POLICE ARRIVAL 6:36 AM	DMV FILE NUMBER				
COUNTY Clackamas		ROAD ON WHICH CRASH OCCURRED Washington St.			LATITUDE	LONGITUDE	MILE POST	DMV CODE			
☒ WITHIN _____ FEET N S OF NEAREST INTERSECTING ROAD ☐ NEAR _____ MILES E W 12th St.				☐ WITHIN _____ FEET N S OF NEAREST CITY / TOWN ☐ NEAR _____ MILES E W Oregon City, OR							
☒ PROPERTY DAMAGE ☐ PUBLIC PROPERTY DAMAGE ESTIMATE: ☐ UNDER \$1500 ☐ OVER \$1500 ☐ UNKNOWN				☐ HAZ. MATERIALS ☐ PHOTOS TAKEN ☐ TRAIN R/R ☐ TRUCK / BUS							
UNIT #1	NAME (LAST, FIRST, MIDDLE) McCabe, Ruth Carolie				DRIVER LICENSE NUMBER 798578		STATE OR	SEX F	RACE W	DOB 1/30/31	
PED	ADDRESS 2137 NE 8th Ave Portland, OR 97212						PHONE: ☒ HOME ☐ WORK ☐ CELL (503) 232-3887				
BIC	VEHICLE OWNER						PHONE: ☐ HOME ☐ WORK ☐ CELL ()				
PRK	VEHICLE DAMAGE										
PRP	VEHICLE DAMAGE										
FIRE	STD SPD 20	PST SPD 25	INSURANCE COMPANY ☐ NONE Safeco Insurance		INSURANCE POLICY NUMBER 546 5462774						
EJECTED Y P	EXTCTD Y N	VEHICLE IDENTIFICATION NUMBER (VIN) FAFPSS324G190688		LICENSE PLATE NUMBER 578 BTX		STATE OR	YEAR 04	MAKE Ford	MODEL Taurus	STYLE 2-Dr	COLOR Tan
VEHICLE TOWED DUE TO VEHICLE DAMAGE ☒ N ☐ UNKNOWN				DRIVER TAKEN: Y ☒ ☐ UNKNOWN		BY: TO:					
VEHICLE DAMAGE				MARK ALL THAT APPLY: DAMAGE ESTIMATE ☐ ROLLOVER ☐ NONE ☐ UNDERCARR ☐ UNDER \$1500 ☐ TOTALED ☒ OVER \$1500 ☐ UNKNOWN		INJURY: ☒ NONE ☐ COMPLAINT OF PAIN ☐ VISIBLE INJURY ☐ INCAPACITATED ☐ FATAL					
VEHICLE DAMAGE				EQUIPMENT: ☐ NO EQP USED ☐ LAP ONLY ☒ LAP / SHLDR ☐ CHLD RST-PRP ☐ A/BAG-DEPLYD ☐ NONE INSTLD ☐ UNKNOWN ☐ SHLDR ONLY ☐ HELMET ☐ CHLD RST-IMPR ☐ A/BAG-NOT DP		ACTION / ARREST / CITES # 88878 Fail to obey Traffic Control Dev.					
USE ARROW TO SHOW FIRST IMPACT (SHADE IN DAMAGED AREA)				SUSPECT NAME		AKA		IN CUSTODY Y N			
HIT AND RUN				ADDRESS		OTHER INFORMATION:					
SEX RACE DOB HT WT HAIR EYES LOCAL ID											
UNIT #2	NAME (LAST, FIRST, MIDDLE) Pocan, Lamonte				DRIVER LICENSE NUMBER 2475891		STATE OR	SEX M	RACE W	DOB 10/22/52	
PED	ADDRESS 505 Washington St Oregon City, OR						PHONE: ☐ HOME ☐ WORK ☐ CELL ()				
BIC	VEHICLE OWNER						PHONE: ☐ HOME ☐ WORK ☐ CELL ()				
PRK	VEHICLE DAMAGE										
PRP	VEHICLE DAMAGE										
FIRE	STD SPD 25	PST SPD 25	INSURANCE COMPANY ☐ NONE Unitrin Direct		INSURANCE POLICY NUMBER 1126880						
EJECTED Y P	EXTCTD Y N	VEHICLE IDENTIFICATION NUMBER (VIN) 1GNDM157XHB257449		LICENSE PLATE NUMBER 863 ADV		STATE OR	YEAR 87	MAKE Chevy	MODEL Astro	STYLE Van	COLOR Multi
VEHICLE TOWED DUE TO VEHICLE DAMAGE ☒ N ☐ UNKNOWN				DRIVER TAKEN: Y ☒ ☐ UNKNOWN		BY: TO:					
VEHICLE DAMAGE				MARK ALL THAT APPLY: DAMAGE ESTIMATE ☐ ROLLOVER ☐ NONE ☐ UNDERCARR ☐ UNDER \$1500 ☐ TOTALED ☒ OVER \$1500 ☐ UNKNOWN		INJURY: ☒ NONE ☐ COMPLAINT OF PAIN ☐ VISIBLE INJURY ☐ INCAPACITATED ☐ FATAL					
VEHICLE DAMAGE				EQUIPMENT: ☐ NO EQP USED ☐ LAP ONLY ☒ LAP / SHLDR ☐ CHLD RST-PRP ☐ A/BAG-DEPLYD ☐ NONE INSTLD ☐ UNKNOWN ☐ SHLDR ONLY ☐ HELMET ☐ CHLD RST-IMPR ☐ A/BAG-NOT DP		ACTION / ARREST / CITES None					
USE ARROW TO SHOW FIRST IMPACT (SHADE IN DAMAGED AREA)				PASSENGER NAME		ADDRESS					
HIT AND RUN				WITNESS McCabe, Joseph		2225 NW Gleason #3, Portland, 97210					
SEX RACE DOB PHONE: ☐ HOME ☐ WORK ☒ CELL M W 1/19/65 (503) 544-0008				INJURY ☐ COMPLAINT OF PAIN ☐ INCAPACITATED ☒ NONE ☐ VISIBLE INJURY ☐ FATAL		LOCATION LF CF RF LR CR RR		OTHER: ☒ EJECTED Y P N ☒ EXTCTD Y N			
PASSENGER TAKEN: Y ☒ ☐ UNKNOWN				EQUIPMENT ☐ NO EQP USED ☐ LAP ONLY ☐ LAP / SHLDR ☐ CHLD RST-PRP ☐ A/BAG-DEPLYD ☐ NONE INSTLD ☐ UNKNOWN ☐ SHLDR ONLY ☐ HELMET ☐ CHLD RST-IMPR ☐ A/BAG-NOT DP							
BY: TO:											
UNIT #3	PASSENGER NAME				ADDRESS						
WITNESS Scoggins, Charles				21480 S. Clearview Ct.							
SEX RACE DOB PHONE: ☐ HOME ☐ WORK ☒ CELL M W 8/5/83 (971) 409-7341				INJURY ☐ COMPLAINT OF PAIN ☐ INCAPACITATED ☐ NONE ☐ VISIBLE INJURY ☐ FATAL		LOCATION LF CF RF LR CR RR		OTHER: ☐ EJECTED Y P N ☐ EXTCTD Y N			
PASSENGER TAKEN: Y N ☐ UNKNOWN				EQUIPMENT ☐ NO EQP USED ☐ LAP ONLY ☐ LAP / SHLDR ☐ CHLD RST-PRP ☐ A/BAG-DEPLYD ☐ NONE INSTLD ☐ UNKNOWN ☐ SHLDR ONLY ☐ HELMET ☐ CHLD RST-IMPR ☐ A/BAG-NOT DP							
BY: TO:											
UNIT #4	PASSENGER NAME				ADDRESS						
WITNESS Holveck, Robert				21480 S. Clearview Ct.							
SEX RACE DOB PHONE: ☐ HOME ☐ WORK ☒ CELL M W 5/23/70 (503) 596-0976				INJURY ☐ COMPLAINT OF PAIN ☐ INCAPACITATED ☐ NONE ☐ VISIBLE INJURY ☐ FATAL		LOCATION LF CF RF LR CR RR		OTHER: ☐ EJECTED Y P N ☐ EXTCTD Y N			
PASSENGER TAKEN: Y N ☐ UNKNOWN				EQUIPMENT ☐ NO EQP USED ☐ LAP ONLY ☐ LAP / SHLDR ☐ CHLD RST-PRP ☐ A/BAG-DEPLYD ☐ NONE INSTLD ☐ UNKNOWN ☐ SHLDR ONLY ☐ HELMET ☐ CHLD RST-IMPR ☐ A/BAG-NOT DP							
BY: TO:											
DISTRIBUTION DMV MC 888780											
OFFICER NAME / NUMBER B. Smith #37871				DATE 8/23/09		AGENCY OCPD		APPROVED BY GAF			

Check ONE box in all categories. Check ALL boxes that apply in categories with (★).

FIRST HARMFUL EVENT NON COLLISION ☐ OVERTURN ☐ FIRE / EXPLOSION ☐ IMMERSION ☐ GAS INHALATION ☐ OTHER NON COLLISION ☐ MEDICAL (Explain) COLLISION WITH ☐ PEDESTRIAN ☐ PARKED MOTOR VEHICLE ☐ RAILWAY TRAIN ☐ BICYCLIST CRASH TYPE ☐ HEAD ON ☐ REAR END ☒ ANGLE ☐ SIDESWIPE ☐ MANNER UNKNOWN FIXED OBJECT ☐ BARRICADE ☐ BOULDER / ROCK ☐ BRIDGE O/PASS or RAILING ☐ BUILDING ☐ CULVERT HEADWALL ☐ CURBING ☐ DITCH ☐ DIVIDER - CNCRT or STEEL ☐ FENCE - NOT MEDIAN ☐ FIRE HYDRANT ☐ HIGHWAY GUARDRAIL ☐ HIGHWAY SIGN ☐ IMPACT ABSORBER ☐ LIGHT STANDARD ☐ MAILBOX ☐ OVERHEAD SIGN POST ☐ OVERHEAD STRUCTURE ☐ PIER or COLUMN ☐ RETAINING WALL ☐ SIDESLOPE EARTH ☐ SIDESLOPE ROCK or STONE ☐ TRAFFIC SIGNAL POST ☐ TREE ☐ UNDERPASS TUNNEL ☐ UTILITY POLE ☐ OTHER FIXED (Explain) OTHER OBJECT (NOT FIXED) ☐ ANIMAL ☐ THROWN / FALLING OBJECT ☐ UNKNOWN ☐ OTHER OBJECT (Explain) EVENT LOCATION ON ROADWAY ☐ NON-INTERSECTION ☒ INTERSECTION ☐ INTERSECTION RELATED ☐ DRIVEWAY ACCESS ☐ INTERCHANGE AREA ☐ RAILROAD CROSSING ☐ BRIDGE ☐ TUNNEL ☐ OTHER ON-ROAD AREA OFF ROADWAY ☐ SHOULDER ☐ TURNOUT ☐ ROADSIDE ☐ BEYOND RIGHT OF WAY ☐ MEDIAN ☐ DRIVEWAY ☐ PRIVATE DRIVE ☐ RAILROAD CROSSING ☐ OTHER OFF ROAD ☐ PARKING LOT ☐ UNKNOWN SPECIAL ZONE ☒ NONE ☐ CONSTRUCTION ☐ MAINTENANCE ☐ UTILITY ☐ SNOW ☐ SCHOOL ☐ UNKNOWN WORK ☐ OTHER	WEATHER ☒ CLEAR ☐ CLOUDY (OVERCAST) ☐ RAIN ☐ SNOW ☐ SLEET / HAIL / ETC ☐ FOG / SMOG ☐ SMOKE ☐ BLOWING SAND / DIRT ☐ SEVERE CROSSWIND ☐ OTHER / UNKNOWN SURFACE CONDITION ☒ #1 #2 DRY ☐ WET ☐ SNOW / SLUSH ☐ ICY ☐ MUDDY ☐ DEBRIS ☐ RUTS / HOLES / BUMPS ☐ WORN / POLISHED ☐ LOW / SOFT SHOULDER ☐ OTHER (Explain) SURFACE TYPE ☒ #1 #2 CONCRETE ☒ BLACKTOP / ASPHALT ☐ GRAVEL ☐ DIRT ☐ OTHER LIGHT ☒ FULL DAYLIGHT ☐ DAWN ☐ DUSK ☐ DARK - LIGHTED WAY ☐ DARK - NOT LIGHTED ☐ UNKNOWN TRAFFIC CONTROL TYPE ☒ #1 #2 NONE ☐ SCHOOL BUS LIGHTS ☐ OFFICER / CROSSING GUARD or FLAGGER ☐ TRAFFIC SIGNAL w/ PEDESTRIAN CONTROL ☐ TRAFFIC SIGNAL ☒ FLASHING BEACON ☐ STOP SIGN ☐ YIELD SIGN ☐ RR CROSSING GATES ☐ RR CROSSING BUCKS ☐ RR FLASHING SIGNAL ☐ RR CROSSING w/ PAVEMENT MARKINGS ☐ LANE CONTRLS / LINES / STRIPES / DEVICES ☐ SCHOOL SIGNAL ☐ OTHER REG SIGN ☐ TURN LANES ☐ UNKNOWN TRAFFIC CONTROL DEVICE CONDITION ☒ #1 #2 NO MALFUNCTION ☐ DOWN / MISSING ☐ TURNED FROM PROPER POSITION ☐ OBSCURED BY OTHER SIGNS ☐ OBSCURED BY PARKED VEHICLE ☐ OBSCURED BY VEGETATION ☐ LIGHTS MALFUNCTION ☐ LIGHTS STUCK ☐ GATES INOPERATIVE ☐ GATE ARM MISSING ☐ OTHER RR MALFUNCTN ☐ OTHER IMPAIRMENT ☐ UNKNOWN	ROAD CHARACTER ☐ #1 #2 STRAIGHT and LEVEL ☒ STRAIGHT w/ GRADE ☐ CURVED and LEVEL ☐ CURVED w/ GRADE VEH #1 <u>1</u> NUMBER OF LANES VEH #2 <u>1</u> NUMBER OF LANES TOTAL NUMBER OF LANES <u>2</u> ROAD FLOW ☐ #1 #2 ONE WAY TRAFFIC ☒ NOT PHYSLY DIVIDED MEDIAN TYPE ☐ UNPAVED ☐ BARRIER ☐ PAVED ☐ CONT LEFT TURN DRIVER LICENSE VIOLATION DRIVER ☒ #1 #2 NONE ☐ INSTRUCTION PERMIT ☐ LICENSE RESTRICTION ☐ EXPIRED LICENSE ☐ OUT OF CLASS ☐ SUSPND / REVOKED ☐ UNLICENSED ★ DRIVER FACTORS DRIVER ☒ #1 #2 NONE ☐ CELL PHONE USE ☐ OBSTRUCTED VIEW ☐ FAILED TO YIELD ROW ☒ DISRGRD TRAF SIGN ☐ TOO FAST FOR COND ☐ MADE IMPROPER TURN ☐ WRONG SIDEWAY ☐ FOLLOW TOO CLOSELY ☐ IMPROPER LANE CHNG ☐ IMPROPER BACKING ☐ IMPROPER PASSING ☐ IMPROPER SIGNAL ☐ IMPROPER PARKING ☐ FATIGUE / DROWSY ☐ ILL / BLACKOUT ☐ UNKNOWN ☐ OTHER (Explain) ★ IMPAIRMENT DRIVER ☒ #1 #2 NONE ☐ UNDER INFL - DRUGS ☐ UNDER INFL - ALCOHOL ☐ UNDER INFL - MEDS ☐ UNKNOWN DETERMINED BY: ☐ INTOXILYZER TEST ☐ BLOOD OR URINE TEST ☐ FIELD SOB. TEST ☐ OBSERVED (SPEECH, ODOR, ETC.) ☐ DRE EVALUATION ☒ STATEMENTS ☐ UNKNOWN ☐ OTHER (Explain) RESULTS OF TEST: D1 <u>0</u> % D2 <u>0</u> % ☒ NO TEST GIVEN ☐ TEST REFUSED ☐ TESTED FOR DRUGS ☐ RESLTS NOT AVAILABLE	★ VEH RELATED FACTORS ☒ #1 #2 NONE ☐ BRAKES ☐ STEERING ☐ POWER PLANT ☐ SUSPENSION ☐ TIRES ☐ EXHAUST ☐ LIGHTS ☐ SIGNALS ☐ WINDOWS / WINDSHLD ☐ RESTRAINT SYSTEM ☐ WHEELS ☐ COUPLING ☐ CARGO ☐ OTHER VEHICLE MOVEMENT ☒ #1 #2 BACKING ☐ STOPPED ☒ STRAIGHT AHEAD ☐ TURNING RIGHT ☐ TURNING LEFT ☐ MAKING U-TURN ☐ ENTER TRAFFIC LANE ☐ LEAVE TRAFFIC LANE ☐ OVERTAKING ☐ CHANGING LANES ☐ AVOIDING MANEUVER ☐ MERGING ☐ PARKING ☐ NEGOTIATING A CURVE ☐ OTHER TRAILER TYPE ☒ #1 #2 LOG BUNK ☐ SEMITRAILER ☐ POLE TRAILER ☐ FULL TRAILER ☐ MOBILE HOME ☐ UTILITY TRAILER ☐ TRAVEL TRAILER ☐ BOAT TRAILER ☐ FARM EQUIPMENT ☐ HORSE TRAILER ☐ VEHICLE IN TOW ☐ OTHER / UNKNOWN	TRUCK CONFIGURATION ☐ #1 #2 TRUCK (2 or 3 AXLE) ☐ TRUCK / TRACTOR-SEMI ☐ TRUCK and TRAILER ☐ DOUBLE TRAILERS ☐ TRIPLE TRAILERS ☐ DROMEDARY and SEMI ☐ HEAVY HAUL CONFIG ☐ BUS ☐ OTHER (Explain) ★ PASSENGER FACTORS PASS UNIT #1 ☒ #1 #2 NONE ☐ INTERFERED w/DRIVER ☐ UNDER INFL - DRUGS ☐ UNDER INFL - ALCOHOL ☐ UNKNOWN ☐ OTHER (Explain) PASS UNIT #2 ☒ #1 #2 NONE ☐ INTERFERED w/DRIVER ☐ UNDER INFL - DRUGS ☐ UNDER INFL - ALCOHOL ☐ UNKNOWN ☐ OTHER (Explain) PEDESTRIAN LOCATION IN ROAD ☐ IN X-WALK ☐ NOT IN X-WALK ☐ NO X-WALK AVAILABLE INTERSECTION ☐ IN X-WALK ☐ NOT IN X-WALK ☐ NO X-WALK AVAILABLE OTHER ☐ NOT IN ROADWAY ☐ SHOULDER ☐ MEDIAN ☐ BIKE LANE ☐ UNKNOWN	PEDESTRIAN TYPE ☐ NONE ☐ PEDESTRIAN ☐ BICYCLIST ☐ CONVEYANCE ☐ WHEELCHAIR ☐ ANIMAL RIDER ☐ RIDER of ANIM DRAWN VEH ☐ UNKNOWN ☐ OTHER (Explain) ★ PEDESTRIAN ACTION ☐ ENTER / CROSS ROAD ☐ WALK / RIDE w/TRAFF ☐ WALK / RIDE AGAINST ☐ STEP ON / OFF VEHICLE ☐ STEP ON / OFF SCH BUS ☐ APPRCH / LEAVE SC BUS ☐ APPROACH / LEAVE VEH ☐ WORK / PUSHING VEHICLE ☐ OTHER WORKING ☐ PLAYING ☐ STANDING ☐ LYING DOWN ☐ UNKNOWN PED / BIKE VISIBILITY ☐ NO CONTRAST w/BKGRND ☐ CONTRASTED w/BKGRND ☐ REFLECTIVE OTHER ☐ OTHER LIGHT SOURCE ☐ UNKNOWN ★ PED / BIKE FACTORS ☐ NONE ☐ FAILED TO YIELD ROW ☐ DISREGARD TRAFFIC SIGN ☐ ILLEGALLY IN ROAD ☐ EQUIPMENT VIOLATION ☐ CLOTHING NOT VISIBLE ☐ UNDER INFL - DRUGS ☐ UNDER INFL - ALCOHOL ☐ UNKNOWN ☐ OTHER (Explain)
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North

(NOT TO SCALE)

SKETCH & NARRATIVE

UNIT 1 2

SKID MARKS TO (FEET)

DISTANCE AFTER (FEET)

Page # 1	C.L.A.S.S. OREGON CITY POLICE DEPT. 320 Warner Milne Road, Oregon City, Oregon 97045 Continuation Report	Case # 09-2744
		Traffic Crash

MENTIONED

Victim:
 Pocano, Lamonte
 10/22/52

Suspect:
 McCabe, Ruth
 1/30/31

Joseph McCabe-passenger

Charles Scoggins-Witness
 Robert Holveck-Witness

Officer Kramer-OCPD
 Officer Johnston-OCPD

ACTION TAKEN

On August 23, 2009 at about 6:30 p.m. we responded to the intersection of Washington St. and 12th St. on a report of a traffic crash. When we arrived on scene, paramedics told me there were no injuries.

I contacted the driver of the Chevy Van, Mr. Pocano. He stated he was travelling north on Washington St. and when he was passing through the intersection of Washington and 12th St., the driver of the Ford Taurus passenger car, hit him broad-side. He said it caused his vehicle to hit the power pole at that location. I observed no damage to the pole.

I spoke with the passenger in the Ford Taurus, Joseph McCabe. He said he was in the front-passenger seat when the driver, his mother, "missed the stop sign" and hit the van. When asked, he said she was travelling "twenty-something" miles per hour prior to the crash.

I then spoke with Mrs. McCabe, the driver of the Ford Taurus. She said she was travelling about 20 miles per hour, eastbound on 12th St., approaching Washington St. when she said she "didn't see the stop sign" and hit the van.

A witness at the scene, Charles Scoggins said he was in a vehicle travelling southbound on Washington St, near 12th St when he saw the van traveling northbound on Washington and saw the Ford Taurus run the stop sign, eastbound on 12th St and hit the van.

Officer Bryan M. Smith	DPSST# 37871	Agency: OCPD
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Page # 2	C.L.A.S.S. OREGON CITY POLICE DEPT. 320 Warner Milne Road, Oregon City, Oregon 97045 Continuation Report	Case # 09-2744
		Traffic Crash

Another witness at the scene, Robert Holveck, said he was sitting near the northwest corner of the intersection when he saw the Ford Taurus run the stop sign and hit the van that was coming down the hill.

After interviewing the people involved, I issued Mrs. McCabe a traffic citation for Failure to Obey a Traffic Control Device. I explained to her that she disregarded not only the posted stop sign, but also the flashing red beacon in the intersection.

Both vehicles were towed from the scene by Buds Towing.

ACTION RECOMMENDED

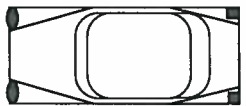
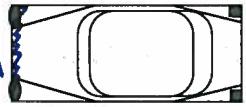
Forward to DMV

Officer Bryan M. Smith	DPSST# 37871	Agency: OCPD
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DMV

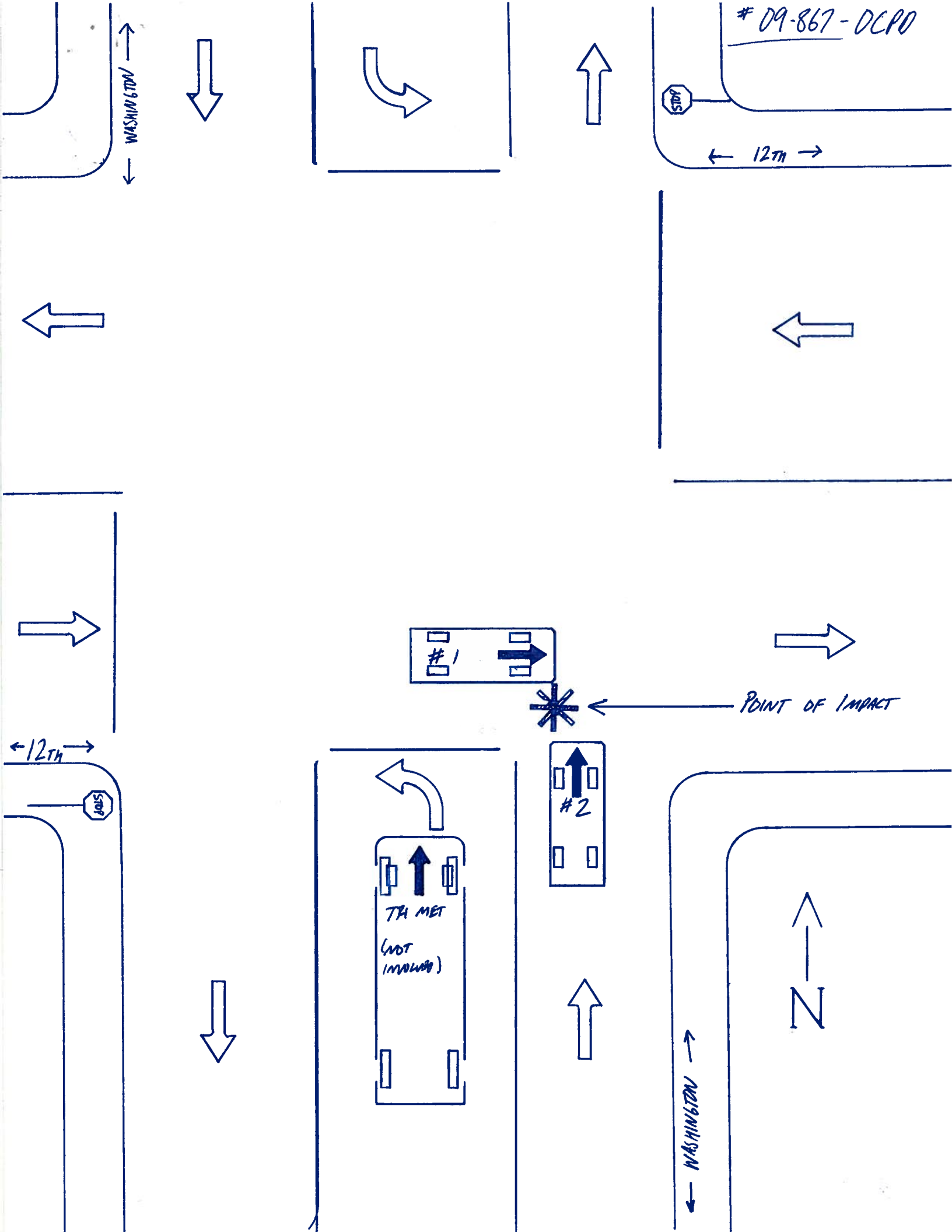
OREGON POLICE TRAFFIC CRASH REPORT

PAGE 1 OF 2

POLICE INCIDENT / CASE NUMBER 09-867		CRASH DATE 030909		DAY OF WEEK M T W T F S S N		CRASH TIME 2008		AM PM AM PM		POLICE NOTIFIED 2008		AM PM AM PM		POLICE ARRIVAL 2009		AM PM AM PM		DMV FILE NUMBER					
COUNTY CLACKAMAS		ROAD ON WHICH CRASH OCCURRED WASHINGTON ST						LATITUDE		LONGITUDE		MILE POST		DMV CODE									
☐ WITHIN _____ FEET N S OF NEAREST INTERSECTING ROAD ☒ NEAR _____ MILES E W 12 TH ST										☐ WITHIN _____ FEET N S OF NEAREST CITY / TOWN ☐ NEAR _____ MILES E W OREGON CITY													
☐ PROPERTY DAMAGE ☐ PUBLIC PROPERTY DAMAGE ESTIMATE: ☐ UNDER \$1500 ☒ OVER \$1500 ☒ UNKNOWN										☐ HAZ. MATERIALS ☐ PHOTOS TAKEN ☐ TRAIN R/R ☐ TRUCK / BUS													
UNIT #1		NAME (LAST, FIRST, MIDDLE) UNKNOWN HIT + RUN										DRIVER LICENSE NUMBER		STATE		SEX		RACE		DOB			
PED		ADDRESS										PHONE: ☐ HOME ☐ WORK ☐ CELL ()											
BIC		VEHICLE OWNER										PHONE: ☐ HOME ☐ WORK ☐ CELL ()											
PRK		☐ SAME																					
PRP																							
FIRE		STD SPD		PST SPD		INSURANCE COMPANY		INSURANCE POLICY NUMBER															
Y N						☐ NONE																	
EJECTED		EXTRCTD		VEHICLE IDENTIFICATION NUMBER (VIN)		LICENSE PLATE NUMBER		STATE		YEAR		MAKE		MODEL		STYLE		COLOR					
Y P N		Y N																					
VEHICLE TOWED DUE TO VEHICLE DAMAGE Y N ☐ UNKNOWN BY: TO:										DRIVER TAKEN: Y N ☐ UNKNOWN BY: TO:													
VEHICLE DAMAGE FRONT 										MARK ALL THAT APPLY: DAMAGE ESTIMATE ☐ NONE ☐ UNDER \$1500 ☐ OVER \$1500 ☐ ROLLOVER ☐ UNDERCARR ☐ TOTALED ☐ UNKNOWN													
USE ARROW TO SHOW FIRST IMPACT (SHADE IN DAMAGED AREA)										INJURY: ☐ NONE ☐ COMPLAINT OF PAIN ☐ VISIBLE INJURY ☐ INCAPACITATED ☐ FATAL													
EQUIPMENT: ☐ NO EQP USED ☐ LAP ONLY ☐ LAP / SHLDR ☐ CHLD RST-PRP ☐ A/BAG-DEPLYD ☐ NONE INSTLD ☐ UNKNOWN ☐ SHLDR ONLY ☐ HELMET ☐ CHLD RST-IMPR ☐ A/BAG-NOT DP										ACTION / ARREST / CITES													
HIT AND RUN		SUSPECT NAME UNKNOWN										AKA		IN CUSTODY Y N ☒									
		ADDRESS										OTHER INFORMATION: SMALLER CAR, UNK PLATE											
		SEX		RACE		DOB		HT		WT		HAIR		EYES		LOCAL ID							
UNIT #2		NAME (LAST, FIRST, MIDDLE) INMAN, CHARMIAN MAY										DRIVER LICENSE NUMBER 1461768		STATE OR		SEX F		RACE W		DOB 021247			
PED		ADDRESS 19056 BEDFORD DR OREGON CITY, OR 97045										PHONE: ☒ HOME ☐ WORK ☐ CELL (503) 344-6860											
BIC		VEHICLE OWNER										PHONE: ☐ HOME ☐ WORK ☐ CELL ()											
PRK		☒ SAME																					
PRP																							
FIRE		STD SPD		PST SPD		INSURANCE COMPANY		INSURANCE POLICY NUMBER															
Y N		25		25		ALL STATE		920040436															
EJECTED		EXTRCTD		VEHICLE IDENTIFICATION NUMBER (VIN)		LICENSE PLATE NUMBER		STATE		YEAR		MAKE		MODEL		STYLE		COLOR					
Y P N		Y N		KMH0N46D14H836737		018 DGR		OR		09		HYUNDAI		ELANTRA		4DR		SLV					
VEHICLE TOWED DUE TO VEHICLE DAMAGE Y N ☐ UNKNOWN BY: TO:										DRIVER TAKEN: Y N ☐ UNKNOWN BY: TO:													
VEHICLE DAMAGE FRONT 										MARK ALL THAT APPLY: DAMAGE ESTIMATE ☐ NONE ☐ UNDER \$1500 ☐ OVER \$1500 ☐ ROLLOVER ☐ UNDERCARR ☐ TOTALED ☒ UNKNOWN													
USE ARROW TO SHOW FIRST IMPACT (SHADE IN DAMAGED AREA)										INJURY: ☐ NONE ☒ COMPLAINT OF PAIN ☐ VISIBLE INJURY ☐ INCAPACITATED ☐ FATAL													
EQUIPMENT: ☐ NO EQP USED ☐ LAP ONLY ☐ LAP / SHLDR ☐ CHLD RST-PRP ☐ A/BAG-DEPLYD ☐ NONE INSTLD ☐ UNKNOWN ☐ SHLDR ONLY ☐ HELMET ☐ CHLD RST-IMPR ☐ A/BAG-NOT DP										ACTION / ARREST / CITES													
UNIT #		PASSENGER NAME NEVIS, DON										ADDRESS 0514 SW NEVADA ST PORTLAND OR 97219											
SEX		RACE		DOB		PHONE: ☐ HOME ☐ WORK ☐ CELL (503) 977-0394		INJURY		COMPLAINT OF PAIN		INCAPACITATED		LOCATION LF CF RF LR CR RR		OTHER:		EJECTED Y P N		EXTRCTD Y N			
M		W		100452				☐ NONE		☐ VISIBLE INJURY		☐ FATAL											
PASSENGER TAKEN: Y N ☐ UNKNOWN BY: TO:										EQUIPMENT: ☐ NO EQP USED ☐ LAP ONLY ☐ LAP / SHLDR ☐ CHLD RST-PRP ☐ A/BAG-DEPLYD ☐ NONE INSTLD ☐ UNKNOWN ☐ SHLDR ONLY ☐ HELMET ☐ CHLD RST-IMPR ☐ A/BAG-NOT DP													
UNIT #		PASSENGER NAME										ADDRESS											
SEX		RACE		DOB		PHONE: ☐ HOME ☐ WORK ☐ CELL ()		INJURY		COMPLAINT OF PAIN		INCAPACITATED		LOCATION LF CF RF LR CR RR		OTHER:		EJECTED Y P N		EXTRCTD Y N			
								☐ NONE		☐ VISIBLE INJURY		☐ FATAL											
PASSENGER TAKEN: Y N ☐ UNKNOWN BY: TO:										EQUIPMENT: ☐ NO EQP USED ☐ LAP ONLY ☐ LAP / SHLDR ☐ CHLD RST-PRP ☐ A/BAG-DEPLYD ☐ NONE INSTLD ☐ UNKNOWN ☐ SHLDR ONLY ☐ HELMET ☐ CHLD RST-IMPR ☐ A/BAG-NOT DP													
UNIT #		PASSENGER NAME										ADDRESS											
SEX		RACE		DOB		PHONE: ☐ HOME ☐ WORK ☐ CELL ()		INJURY		COMPLAINT OF PAIN		INCAPACITATED		LOCATION LF CF RF LR CR RR		OTHER:		EJECTED Y P N		EXTRCTD Y N			
								☐ NONE		☐ VISIBLE INJURY		☐ FATAL											
PASSENGER TAKEN: Y N ☐ UNKNOWN BY: TO:										EQUIPMENT: ☐ NO EQP USED ☐ LAP ONLY ☐ LAP / SHLDR ☐ CHLD RST-PRP ☐ A/BAG-DEPLYD ☐ NONE INSTLD ☐ UNKNOWN ☐ SHLDR ONLY ☐ HELMET ☐ CHLD RST-IMPR ☐ A/BAG-NOT DP													
DISTRIBUTION		DMV																					
OFFICER NAME / NUMBER CRIVELLONE										DATE 3-9-9		AGENCY OREGON CITY PD				APPROVED BY DA							

POLICE INCIDENT / CASE NUMBER	EMS NOTIFIED	EMS ARRIVAL	LOCAL CODES	PAGE	OF
09-867			A B C D E		
Check ONE box in all categories. Check ALL boxes that apply in categories with (*).					
FIRST HARMFUL EVENT NON COLLISION ☐ OVERTURN ☐ FIRE / EXPLOSION ☐ IMMERSION ☐ GAS INHALATION ☐ OTHER NON COLLISION ☐ MEDICAL (Explain) COLLISION WITH ☐ PEDESTRIAN ☐ PARKED MOTOR VEHICLE ☐ RAILWAY TRAIN ☐ BICYCLIST CRASH TYPE ☐ HEAD ON ☐ REAR END ☒ ANGLE ☐ SIDESWIPE ☐ MANNER UNKNOWN FIXED OBJECT ☐ BARRICADE ☐ BOULDER / ROCK ☐ BRIDGE O/PASS or RAILING ☐ BUILDING ☐ CULVERT HEADWALL ☐ CURBING ☐ DITCH ☐ DIVIDER - CNCRT or STEEL ☐ FENCE - NOT MEDIAN ☐ FIRE HYDRANT ☐ HIGHWAY GUARDRAIL ☐ HIGHWAY SIGN ☐ IMPACT ABSORBER ☐ LIGHT STANDARD ☐ MAILBOX ☐ OVERHEAD SIGN POST ☐ OVERHEAD STRUCTURE ☐ PIER or COLUMN ☐ RETAINING WALL ☐ SIDESLOPE EARTH ☐ SIDESLOPE ROCK or STONE ☐ TRAFFIC SIGNAL POST ☐ TREE ☐ UNDERPASS TUNNEL ☐ UTILITY POLE ☐ OTHER FIXED (Explain) OTHER OBJECT (NOT FIXED) ☐ ANIMAL ☐ THROWN / FALLING OBJECT ☐ UNKNOWN ☐ OTHER OBJECT (Explain) EVENT LOCATION ON ROADWAY ☐ NON-INTERSECTION ☒ INTERSECTION ☐ INTERSECTION RELATED ☐ DRIVEWAY ACCESS ☐ INTERCHANGE AREA ☐ RAILROAD CROSSING ☐ BRIDGE ☐ TUNNEL ☐ OTHER ON-ROAD AREA OFF ROADWAY ☐ SHOULDER ☐ TURNOUT ☐ ROADSIDE ☐ BEYOND RIGHT OF WAY ☐ MEDIAN ☐ DRIVEWAY ☐ PRIVATE DRIVE ☐ RAILROAD CROSSING ☐ OTHER OFF ROAD ☐ PARKING LOT ☐ UNKNOWN SPECIAL ZONE ☒ NONE ☐ CONSTRUCTION ☐ MAINTENANCE ☐ UTILITY ☐ SNOW ☐ SCHOOL ☐ UNKNOWN WORK ☐ OTHER	WEATHER ☐ CLEAR ☒ CLOUDY (OVERCAST) ☐ RAIN ☐ SNOW ☐ SLEET / HAIL / ETC ☐ FOG / SMOG ☐ SMOKE ☐ BLOWING SAND / DIRT ☐ SEVERE CROSSWIND ☐ OTHER / UNKNOWN SURFACE CONDITION #1 #2 ☐ DRY ☒ WET ☐ SNOW / SLUSH ☐ ICY ☐ MUDDY ☐ DEBRIS ☐ RUTS / HOLES / BUMPS ☐ WORN / POLISHED ☐ LOW / SOFT SHOULDER ☐ OTHER (Explain) SURFACE TYPE #1 #2 ☐ CONCRETE ☒ BLACKTOP / ASPHALT ☐ GRAVEL ☐ DIRT ☐ OTHER LIGHT ☐ FULL DAYLIGHT ☐ DAWN ☐ DUSK ☒ DARK - LIGHTED WAY ☐ DARK - NOT LIGHTED ☐ UNKNOWN TRAFFIC CONTROL TYPE #1 #2 ☐ NONE ☐ SCHOOL BUS LIGHTS ☐ OFFICER / CROSSING GUARD or FLAGGER ☐ TRAFFIC SIGNAL w/ PEDESTRIAN CONTROL ☐ TRAFFIC SIGNAL ☒ FLASHING BEACON ☐ STOP SIGN ☐ YIELD SIGN ☐ RR CROSSING GATES ☐ RR CROSSING BUCKS ☐ RR FLASHING SIGNAL ☐ RR CROSSING w/ PAVEMENT MARKINGS ☐ LANE CONTRLS / LINES / STRIPES / DEVICES ☐ SCHOOL SIGNAL ☐ OTHER REG SIGN ☐ TURN LANES ☐ UNKNOWN TRAFFIC CONTROL DEVICE CONDITION #1 #2 ☒ NO MALFUNCTION ☒ DOWN / MISSING ☐ TURNED FROM PROPER POSITION ☐ OBSCURED BY OTHER SIGNS ☐ OBSCURED BY PARKED VEHICLE ☐ OBSCURED BY VEGETATION ☐ LIGHTS MALFUNCTION ☐ LIGHTS STUCK ☐ GATES INOPERATIVE ☐ GATE ARM MISSING ☐ OTHER RR MALFUNCTN ☐ OTHER IMPAIRMENT ☐ UNKNOWN	ROAD CHARACTER #1 #2 ☐ STRAIGHT and LEVEL ☒ STRAIGHT w/ GRADE ☐ CURVED and LEVEL ☐ CURVED w/ GRADE VEH #1 — NUMBER OF LANES VEH #2 — NUMBER OF LANES — TOTAL NUMBER OF LANES ROAD FLOW #1 #2 ☐ ONE WAY TRAFFIC ☒ NOT PHYSLY DIVIDED MEDIAN TYPE ☐ UNPAVED ☐ BARRIER ☐ PAVED ☐ CONT LEFT TURN DRIVER LICENSE VIOLATION DRIVER #1 #2 ☒ NONE ☐ INSTRUCTION PERMIT ☐ LICENSE RESTRICTION ☐ EXPIRED LICENSE ☐ OUT OF CLASS ☐ SUSPENDED / REVOKED ☐ UNLICENSED * DRIVER FACTORS DRIVER #1 #2 ☒ NONE ☐ CELL PHONE USE ☒ OBSTRUCTED VIEW ☐ FAILED TO YIELD ROW ☐ DISREGD TRAF SIGN ☐ TOO FAST FOR COND ☐ MADE IMPROPER TURN ☐ WRONG SIDE/WAY ☐ FOLLOW TOO CLOSELY ☐ IMPROPER LANE CHNG ☐ IMPROPER BACKING ☐ IMPROPER PASSING ☐ IMPROPER SIGNAL ☐ IMPROPER PARKING ☐ FATIGUE / DROWSY ☐ ILL / BLACKOUT ☐ UNKNOWN ☐ OTHER (Explain) * IMPAIRMENT DRIVER #1 #2 ☒ NONE ☐ UNDER INFL - DRUGS ☐ UNDER INFL - ALCOHOL ☐ UNDER INFL - MEDS ☒ UNKNOWN DETERMINED BY: ☐ INTOXILYZER TEST ☐ BLOOD OR URINE TEST ☐ FIELD SOB. TEST ☐ OBSERVED (SPEECH, ODOR, ETC.) ☐ DRE EVALUATION ☐ STATEMENTS ☐ UNKNOWN ☐ OTHER (Explain) RESULTS OF TEST: D1 % D2 % ☐ NO TEST GIVEN ☐ TEST REFUSED ☐ TESTED FOR DRUGS ☐ RESLTS NOT AVAILABLE	* VEH RELATED FACTORS #1 #2 ☒ NONE ☒ BRAKES ☐ STEERING ☐ POWER PLANT ☐ SUSPENSION ☐ TIRES ☐ EXHAUST ☐ LIGHTS ☐ SIGNALS ☐ WINDOWS / WINDSHLD ☐ RESTRAINT SYSTEM ☐ WHEELS ☐ COUPLING ☐ CARGO ☐ OTHER VEHICLE MOVEMENT #1 #2 ☐ BACKING ☐ STOPPED ☒ STRAIGHT AHEAD ☐ TURNING RIGHT ☐ TURNING LEFT ☐ MAKING U-TURN ☐ ENTER TRAFFIC LANE ☐ LEAVE TRAFFIC LANE ☐ OVERTAKING ☐ CHANGING LANES ☐ AVOIDING MANEUVER ☐ MERGING ☐ PARKING ☐ NEGOTIATING A CURVE ☐ OTHER TRAILER TYPE #1 #2 ☐ LOG BUNK ☐ SEMITRAILER ☐ POLE TRAILER ☐ FULL TRAILER ☐ MOBILE HOME ☐ UTILITY TRAILER ☐ TRAVEL TRAILER ☐ BOAT TRAILER ☐ FARM EQUIPMENT ☐ HORSE TRAILER ☐ VEHICLE IN TOW ☒ OTHER / UNKNOWN	TRUCK CONFIGURATION #1 #2 ☐ TRUCK (2 or 3 AXLE) ☐ TRUCK / TRACTOR-SEMI ☐ TRUCK and TRAILER ☐ DOUBLE TRAILERS ☐ TRIPLE TRAILERS ☐ DROMEDARY and SEMI ☐ HEAVY HAUL CONFIG ☐ BUS ☒ OTHER (Explain) * PASSENGER FACTORS PASS UNIT #1 #1 #2 ☒ NONE ☐ INTERFERED w/DRIVER ☐ UNDER INFL - DRUGS ☐ UNDER INFL - ALCOHOL ☒ UNKNOWN ☐ OTHER (Explain) PASS UNIT #2 #1 #2 ☒ NONE ☐ INTERFERED w/DRIVER ☐ UNDER INFL - DRUGS ☐ UNDER INFL - ALCOHOL ☐ UNKNOWN ☐ OTHER (Explain) PEDESTRIAN LOCATION IN ROAD ☐ IN X-WALK ☐ NOT IN X-WALK ☐ NO X-WALK AVAILABLE INTERSECTION ☐ IN X-WALK ☐ NOT IN X-WALK ☐ NO X-WALK AVAILABLE OTHER ☐ NOT IN ROADWAY ☐ SHOULDER ☐ MEDIAN ☐ BIKE LANE ☒ UNKNOWN	PEDESTRIAN TYPE #1 #2 ☐ NONE ☐ PEDESTRIAN ☐ BICYCLIST ☐ CONVEYANCE ☐ WHEELCHAIR ☐ ANIMAL RIDER ☐ RIDER / ANIM DRAWN VEH ☐ UNKNOWN ☐ OTHER (Explain) * PEDESTRIAN ACTION ☐ ENTER / CROSS ROAD ☐ WALK / RIDE w/TRAFF ☐ WALK / RIDE AGAINST STEP ON / OFF VEHICLE ☐ STEP ON / OFF SCH BUS ☐ APPROCH / LEAVE SC BUS ☐ APPROACH / LEAVE VEH ☐ WORK / PUSHING VEHICLE ☐ OTHER WORKING ☐ PLAYING ☐ STANDING ☐ LYING DOWN ☐ UNKNOWN PED / BIKE VISIBILITY CLOTHING ☐ NO CONTRAST w/BKGRND ☐ CONTRASTED w/BKGRND ☐ REFLECTIVE OTHER ☐ OTHER LIGHT SOURCE ☐ UNKNOWN * PED / BIKE FACTORS ☒ NONE ☐ FAILED TO YIELD ROW ☐ DISREGARD TRAFFIC SIGN ☐ ILLEGALLY IN ROAD ☐ EQUIPMENT VIOLATION ☐ CLOTHING NOT VISIBLE ☐ UNDER INFL - DRUGS ☐ UNDER INFL - ALCOHOL ☐ UNKNOWN ☐ OTHER (Explain)
SKETCH & NARRATIVE UNIT 1 2 North (NOT TO SCALE) SKID MARKS TO (FEET) _____ DISTANCE AFTER (FEET) _____ SUMMARY: ON 3-9-9 AROUND 8:02pm DRIVER #2 WAS NB WASHINGTON CROSSING THE 12th ST INTERSECTION. DRIVER #1 FAILED TO YIELD RIGHT OF WAY CAUSING THE: FRONT BUMPER OF VEHICLE #2 TO SIDE SWIPE THE PASSENGER SIDE OF VEH #1. VEHICLE #2 WAS HEADON EMB ON 12th AT WASHINGTON. VEHICLE #1 WAS AN UNKNOWN MAKE SMALLER CAR. THE WITNESSES REPORTED IT TO BE GREEN, DRIVER #2 SAID IT WAS SILVER AND I FOUND RED PAINT TRANSFER. VEHICLE #1 WAS NEVER LOCATED. ACTION REC: FORWARD TO DMV					

09-867-DCPD



Traffic Signal Warrant Analysis

TRAFFIC SIGNAL WARRANT ANALYSIS

PROJECT LOCATION/CHARACTERISTICS

Major Street: SE Washington Street

Minor Street: SE 12th Street

Number of lanes on each approach of major street: 1

Number of lanes on each approach of minor street: 1

85th percentile speed of major-street traffic $\geq$ 40 mph ☐

-or-

In built-up area of an isolated community of < 10,000 pop. ☐, then use Rural Requirements

Analysis Scenario (Year): 2010

Date of Analysis: April 15, 2010

SUMMARY OF RESULTS

WARRANT 1:	Eight-Hour Vehicular Volume	☐ YES	☒ NO
WARRANT 2:	Four-Hour Vehicular Volume	☐ YES	☒ NO
WARRANT 3:	Peak Hour	☐ YES	☒ NO
WARRANT 4:	Pedestrian Volume	☐ YES	☒ NO
WARRANT 5:	School Crossing	☐ YES	☒ NO
WARRANT 6:	Coordinated Signal System	☐ YES	☒ NO
WARRANT 7:	Crash Experience	☐ YES	☒ NO
WARRANT 8:	Roadway Network	☐ YES	☒ NO

TRAFFIC SIGNAL INSTALLATION RECOMMENDED ☐ YES ☒ NO

Other Outstanding Issues

1. Recommendation has been given to clear ground foliage in order to provide adequate sight distance from the west leg of the subject intersection.
2. The State guidelines for calculating right-turn discount on minor street volumes was determined to be too aggressive for the subject intersection. The right-turn discount rate applied for calculations of Warrants 1, 2, and 3 was limited to 33% for this analysis.

WARRANT 1: Eight-Hour Vehicular Volume

Condition A: 100% SATISFIED ☐ YES ☒ NO 80% SATISFIED ☐ YES ☒ NO 70% SATISFIED ☐ YES ☒ NO 56% SATISFIED ☐ YES ☒ NO
 Condition B: ☐ YES ☒ NO ☐ YES ☒ NO ☐ YES ☒ NO ☐ YES ☒ NO
 Conditions A & B: ☐ YES ☒ NO ☐ YES ☒ NO ☐ YES ☒ NO

Condition A – Minimum Vehicular Volume

Number of lanes for moving traffic on each approach		Vehicles per hour on major street (total of both approaches)				Vehicles per hour on higher-volume minor-street approach (one direction only)			
<u>Major Street</u>	<u>Minor Street</u>	<u>100%^a</u>	<u>80%^b</u>	<u>70%^c</u>	<u>56%^d</u>	<u>100%^a</u>	<u>80%^b</u>	<u>70%^c</u>	<u>56%^d</u>
1.....	1.....	500	400	350	280	150	120	105	84
2 or more...	1.....	600	480	420	336	150	120	105	84
2 or more...	2 or more...	600	480	420	336	200	160	140	112
1.....	2 or more...	500	400	350	280	200	160	140	112

Condition B – Interruption of Continuous Traffic

Number of lanes for moving traffic on each approach		Vehicles per hour on major street (total of both approaches)				Vehicles per hour on higher-volume minor-street approach (one direction only)			
<u>Major Street</u>	<u>Minor Street</u>	<u>100%^a</u>	<u>80%^b</u>	<u>70%^c</u>	<u>56%^d</u>	<u>100%^a</u>	<u>80%^b</u>	<u>70%^c</u>	<u>56%^d</u>
1.....	1.....	750	600	525	420	75	60	53	42
2 or more...	1.....	900	720	630	504	75	60	53	42
2 or more...	2 or more...	900	720	630	504	100	80	70	56
1.....	2 or more...	750	600	525	420	100	80	70	56

^a Basic minimum hourly volume.

^b Used for combination of Conditions A and B after adequate trial of other remedial measures.

^c May be used when the major street speed exceeds 40 mph (70 km/h) or in an isolated community with a population of less than 10,000.

^d May be used for combination of Conditions A and B after adequate trial of other remedial measures when the major street speed exceeds 40 mph (70 km/h) or in an isolated community with a population of less than 10,000.

Warrant 1 Worksheet

	Eight Highest Hours (1 st – 8 th)							
	1	2	3	4	5	6	7	8
Time Period (Hour)	4:00 PM	5:00 PM	3:00 PM	2:00 PM	1:00PM	7:00AM	12:00 PM	6:00 PM
Major Street (Both Approaches)	1055	1027	962	892	823	825	739	745
Minor Street (Highest Approach)	81	86	78	77	68	31	86	61

WARRANT 2: Four-Hour Vehicular Volume

SATISFIED ☐ YES ☒ NO

Warrant 2 Worksheet

	Approach Lanes		Four Highest Hours (1 st – 4 th)			
	1	2 or more	1	2	3	4
Time Period (Hour)			4:00 PM	5:00 PM	3:00 PM	2:00 PM
Major Street (Both Approaches)	X		1055	1027	962	892
Minor Street (Highest Approach)	X		81	86	78	77

* Refer to MUTCD Figure 4C-1 (Standard) or Figure 4C-2 (70% Factor)

WARRANT 3: Peak Hour

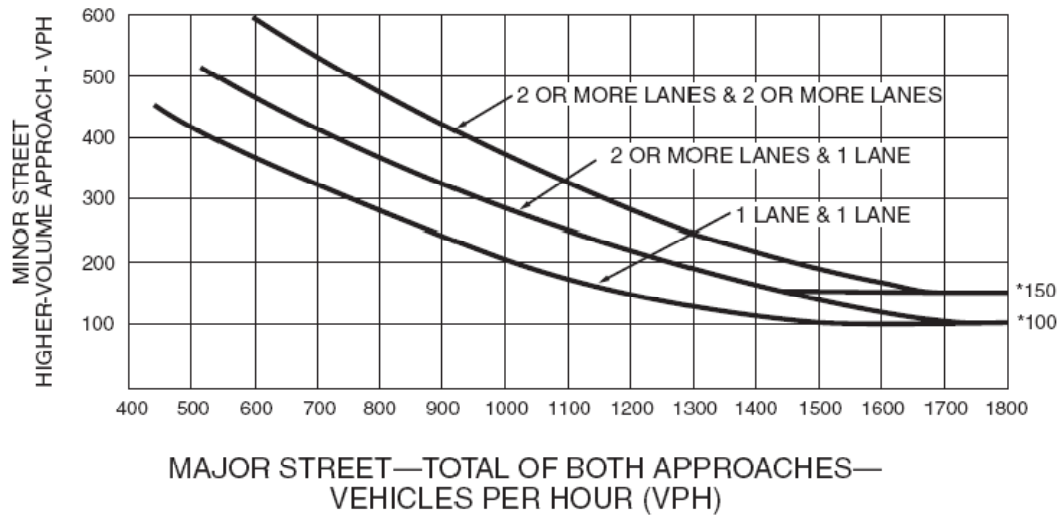
SATISFIED ☐ YES ☒ NO

REQUIREMENT FOR 1 HOUR (any four consecutive 15-minute periods)		FULFILLED
FULFILLED		Yes ☐ No ☒
Total stopped time delay on one minor-street approach (one direction only) controlled by a stop sign exceeds 4 veh-hr for one-lane approach or 5 veh-hr for two-lane approach; AND	Yes ☐ No ☒	
Volume on same minor-street approach (one direction only) equals or exceeds 100 vph for one moving lane or 150 vph for two moving lanes; AND	Yes ☐ No ☒	
Total entering volume equals or exceeds 650 vph for intersections with three approaches or 800 vph for intersections with four or more approaches.	Yes ☒ No ☐	
Requirements of MUTCD Figure 4C-3 (Standard) or Figure 4C-4 (70% Factor), if applicable, are met.		Yes ☐ No ☒

Warrant 3 Worksheet

	Approach Lanes		Peak Hour Volumes	
	1	2 or more	AM Peak	PM Peak
Time Period (Hour)			7:20-8:20	16:35-17:35
Major Street (Both Approaches)	X		865	1,105
Minor Street (Highest Approach)	X		55	127

Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

WARRANT 4: Pedestrian Volume

100% SATISFIED ☐ YES ☒ NO

REQUIREMENT	FULFILLED
Pedestrian volume crossing the major street is 100 or more for each of any four hours or is 190 or more during any one hour; AND	Yes ☐ No ☒
There are less than 60 gaps per hour in the traffic stream of adequate length for pedestrians to cross during the same period when the pedestrian volume criterion is satisfied; AND	Yes ☐ No ☒
The nearest traffic signal along the major street is greater than 300 feet (90 meters); AND	Yes ☒ No ☐
The new traffic signal would not unduly restrict platooned flow of traffic.	Yes ☒ No ☐

Note: The first requirement above may be reduced by as much as 50 percent of values when the predominant pedestrian crossing speed is below 4 ft/sec (1.2 m/sec).

WARRANT 5: School Crossing

NOT APPLICABLE ☒
WARRANT SATISFIED ☐

REQUIREMENT	FULFILLED
A traffic control signal may be warranted at an established school crossing when a traffic engineering study of the frequency and adequacy of gaps in the vehicular traffic stream as related to the number and size of groups of school children at the school crossing shows that the number of adequate gaps in the traffic stream during the period when the children are using the crossing is less than the number of minutes in the same period and there are a minimum of 20 students during the highest crossing hour; AND	Yes ☐ No ☒
The nearest traffic signal along the major street is greater than 300 feet (90 meters); AND	Yes ☒ No ☐
The new traffic signal would not unduly restrict platooned flow of traffic.	Yes ☒ No ☐

WARRANT 6: Coordinated Signal System

100% SATISFIED ☐ YES ☒ NO

MINIMUM REQUIREMENTS	DISTANCE TO NEAREST SIGNAL	FULFILLED
> 1,000 feet (300 meters) to adjacent signal	N <u>600</u> ft, S <u>1,530</u> ft, E <u>N/A</u> ft, W <u>609</u> ft	Yes ☐ No ☒
On a one-way street or a street with predominately unidirectional traffic, the adjacent signals are so far apart that they do not provide the necessary degree of vehicle platooning and speed control, OR		Yes ☐ No ☐
On a two-way street, adjacent signals do not provide the necessary degree of platooning and speed control and the proposed and adjacent signals could constitute a progressive signal system.		

WARRANT 7: Crash Experience

100% SATISFIED ☐ YES ☒ NO

REQUIREMENTS	WARRANT	FULFILLED
ONE WARRANT SATISFIED 80 %	Warrant 1: Eight-Hour Vehicular Volume (Conditions A and B); OR	Yes ☐ No ☒
	Warrant 4: Pedestrian Volume	
Adequate trial of less restrictive remedies has failed to reduce the accident frequency; AND		Yes ☐ No ☒
Signal will not seriously disrupt progressive traffic flow; AND		Yes ☒ No ☐
5 or more accidents susceptible to correction by traffic signal control occurring within a 12-month period and involving injury or property damage exceeding the applicable requirements for a reportable accident.		Yes ☐ No ☒
Minimum Requirement	Number of Accidents	
5 or more accidents	3	

WARRANT 8: Roadway Network

100% SATISFIED ☐ YES ☒ NO

MINIMUM VOLUME REQUIREMENTS	ENTERING VOLUMES- ALL APPROACHES (Total existing or immediately projected)			FULFILLED
> 1,000 veh/hr entering intersection	During typical weekday peak hour <u>1,232</u> veh/hr and within five years meet one or more of Warrants 1,2, and 3 during an average day; OR			Yes ☐ No ☒
	During each of any 5 hours of a Sat and/or Sun veh/hr			
Characteristics of Major Routes		Major St	Minor St	Any Major Route characteristic met Yes ☒ No ☐
Part of a street or highway system serving as principal network for through traffic flow		X		
Includes rural or suburban highways outside, entering, or traversing a city				
Appears as major route on an official plan		X		

A 1% per year growth rate was assumed for five year volume projection



720 SW Washington St.
Suite 500
Portland, OR 97205
503.243.3500
www.dksassociates.com

MEMORANDUM

DATE: September 11, 2014

TO: John Burrell, City of Oregon City

FROM: Carl D. Springer, P.E. PTOE, Julie Sosnovske, P.E.

SUBJECT: Traffic Signal Warrant Evaluation for Washington Street/12th Street Intersection P# 14014-000

This memorandum reports the traffic signal warrant and operations analysis conducted by DKS Associates for the intersection of Washington Street/12th Street, in Oregon City, Oregon. The traffic signal warrant analysis evaluates if upgraded traffic controls can be justified.

Background

The Washington Street/12th Street intersection is a two-way stop controlled intersection, with stop control on 12th Street. There is also a flashing signal showing yellow on Washington Street and red on 12th Street. There are vertical curves at the intersection on both Washington Street and 12th Street. Curb extensions were installed on the west side of Washington Street in 2003 in order to move the stop bar on 12th Street closer to the intersection and provide additional sight distance for vehicles on 12th Street.

Summary

Traffic signal warrants were evaluated for both 2014 and 2035 traffic volume conditions. One warrant is met currently (Warrant 7) and additional volume warrants are likely to be met by 2017 (Warrants 1, 2 and 3). Installation of a traffic signal should be considered based on these results. If it is determined that a traffic signal should not be installed immediately, traffic volumes and collision data should continue to be monitored. Based on expected growth trends, it is likely that a traffic signal will meet multiple traffic volume related warrants at this location in the near future.

Table 1: Traffic Signal Warrant Summary (2014 and 2035)

<i>Warrant</i>	<i>Description</i>	<i>2014</i>	<i>Anticipated Year Met</i>	<i>2035</i>
1	Eight-Hour Vehicular Volume	No	2015	Yes
2	Four-Hour Vehicular Volume	No	2017	Yes
3	Peak Hour	No	2017	Yes
4	Pedestrian	No		No
5	School Crossing	No		No



Warrant	Description	2014	Anticipated Year Met	2035
6	Coordinated Signal System	No		No
7	Crash Experience	Yes		Yes
8	Roadway Network	No		No
9	Intersection Near a Grade Crossing	No		No
Total	Number of Warrants Met	1		4

Traffic Signal Warrant Analysis

The Manual on Uniform Traffic Control Devices (MUTCD) includes nine traffic signal warrants that must be evaluated to determine whether a traffic signal is warranted at a given location. While one or more of the warrants must be met in order to install a traffic control signal, an engineering study must indicate that installing a traffic control signal will improve the overall safety and operation of the intersection. The study must present a careful analysis of traffic operations, pedestrian and bicyclist needs, as well as other factors. Engineering judgment must be applied to determine whether a traffic signal is an appropriate solution.

The nine traffic signal warrants were evaluated at the study intersection for both 2014 and 2035 traffic volume conditions, where applicable. 2014 turn movement counts were conducted for the 12th Street/Washington Street intersection on April 14, 2014.¹ 2035 traffic volume data (PM Peak hour intersection turn movements) was obtained from the City of Oregon City Transportation System Plan (TSP), and was assumed to have a similar daily profile as 2014.

Each of the traffic signal warrants were evaluated for both 2014 and 2035 traffic volume conditions. Based on engineering judgment, 25 percent of right turning minor street traffic was removed for warrant analysis. The results of these analyses were summarized in Table 1A discussion related to each signal warrant follows.

Warrant 1 – Eight-Hour Vehicular Volume (Met in Approximately 2015)

This warrant includes two conditions, one of which must be met for each of eight hours:

- *Condition A: Minimum Vehicular Volume*
- *Condition B: Interruption of Continuous Traffic*

If either of these conditions is met with 100 percent of major and minor street volumes, the warrant is considered to be met. If neither condition is met with 100 percent of major and minor street volumes, a combination

¹ Traffic counts conducted from 7:00 AM to 9:00 PM on April 24, 2014 at 12th Street/Washington Street, Oregon City, Oregon.



warrant is possible. The combination warrant requires that both condition A and condition B are met at 80 percent for both major and minor street volumes.

The intersection does not meet Warrant 1 in 2014, but could meet it as soon as 2015 and will meet it in 2035. In 2015, the warrant is met based on Condition B (interruption of continuous traffic) with the minimum required eight hours of the day. In 2035 the warrant is expected to be met based on both Condition A (minimum vehicular volume) and Condition B.

Warrant 2 – Four-Hour Vehicular Volume (Met in Approximately 2017)

The Four-Hour Vehicular Volume signal warrant conditions are intended to be applied where the volume of intersecting traffic is the principal reason to consider installing a traffic control signal. For each of 4 hours of an average day, the plotted points representing the vehicles per hour on the major street (total of both approaches) and the corresponding vehicles per hour on the higher-volume minor-street approach (one direction only) all fall above the applicable curve in Figure 4C-1.

This warrant is not met in 2014, although it is close, meeting the required conditions for three hours of the day (four are required). It could be met as soon as 2017 and will be met in 2035.

Warrant 3 – Peak Hour (Met in Approximately 2017)

The Peak Hour signal warrant is intended for use at a location where traffic conditions are such that for a minimum of one hour of an average day, the minor-street traffic suffers undue delay when entering or crossing the major street.

This warrant is not met under 2014 traffic volume conditions, although it is very close. It may be met as soon as 2017 and is expected to easily be met under 2035 traffic volume conditions.

Warrant 4 – Pedestrian (2014 – Not Met, 2035 – No Forecasts Available)

The Pedestrian Volume signal warrant is intended for application where the traffic volume on a major street is so heavy that pedestrians experience excessive delay in crossing the major street.

There were not enough pedestrians to meet the minimum threshold for this warrant for any hour of the day. Since forecasted pedestrian volumes were not available for 2035, only 2014 volumes were evaluated. Therefore, this warrant is not met.

Warrant 5 – School Crossing (Not Applicable)

The School Crossing signal warrant is intended for application where the fact that schoolchildren cross the major street is the principal reason to consider installing a traffic control signal. For purposes of this warrant, the word “schoolchildren” includes elementary through high school students.

There is not an active elementary, middle or high school in the immediate vicinity of the 12th Street/Washington Street intersection. Therefore, this warrant is not met.



Warrant 6 – Coordinated Signal System (Not Applicable)

Progressive movement in a coordinated signal system sometimes necessitates installing traffic control signals at intersections where they would not otherwise be needed in order to maintain proper platooning of vehicles.

The 12th Street/Washington Street intersection is not located within a coordinated signal system. Therefore, this warrant is not met.

Warrant 7 – Crash Experience (Currently Met)

The Crash Experience signal warrant conditions are intended for application where the severity and frequency of crashes are the principal reasons to consider installing a traffic control signal. A traffic signal should be considered if all of the following criteria are met:

- *Adequate trial of alternatives with satisfactory observance and enforcement has failed to reduce the crash frequency; and*
- *Five or more reported crashes, of types susceptible to correction by a traffic control signal, have occurred within a 12-month period; and*
- *For each of any 8 hours of an average day, the vehicles per hour given in both of the 80 percent columns of Warrant 1 Condition A or Condition B*

Each of these conditions is addressed below:

Condition A: Alternatives that have been tested include reconstruction of the intersection in 2003 to improve the approach grades and install curb extensions on the west side of Washington Street to move the stop bar on 12th Street closer to the intersection in order to improve sight distance. Crash data prior to 2003 is not currently available on ODOT's website, however, DKS records indicate eight angle/turning collisions occurred in 1999 and five in 2000. When compared with the total angle/turning collisions in years following the improvements (See Table 2 below for years 2008 – 2012), it appears that collisions of this type have not substantially decreased.

Condition B: Table 2 below summarizes the number of crashes that are either angle or turning collisions, which could potentially be corrected with the installation of a traffic signal. As shown, five or more crashes of these types have been observed at the intersection during four of the previous five years. In 2011, eight angle or turning crashes were related to the eastbound approach, which would most benefit from a traffic signal at this location due to the approach grade.

Table 2: Collisions of Types Susceptible to Correction by Traffic Signal Installation (2008-2012)

<i>Crash Type</i>	<i>2008</i>	<i>2009</i>	<i>2010</i>	<i>2011</i>	<i>2012</i>
Angle	3	8	4	7	6
Turning	0	0	1	3	1
Total Angle/Turning	3	8	5	10	7
Angle/Turning related to eastbound approach	3	4	4	8	4



Condition C: This condition is met for both 2014 and 2035 traffic volume conditions.

Since all three conditions are met in 2014, this warrant is met. In addition, an intersection crash analysis was also conducted and is summarized below.

Intersection Crash Analysis

The intersection crash analysis was performed using the last five years of available data for the years (2008 to 2012).² Over this time period 35 crashes were recorded for this intersection. This translates to an intersection crash rate of 1.55 crashes per million total entering vehicles (TEV). Intersection crash rates greater than 1.0 per million TEV are generally considered indicators that a further investigation in to the cause of the crashes is needed.

Since the crash rate at this location is above 1.0, a more in depth crash analysis was conducted. Most of the crashes occurred during the day under dry conditions, and the cause of these crashes was cited as either “turn” or “angle.” A summary of the crash types reported between 2008 and 2012 is as follows:

- Twenty-three (23) crashes involved drivers traveling eastbound on 12th Street and failing to yield the right of way to the drivers traveling on Washington Street.
- Six (6) crashes involved drivers traveling westbound on 12th Street and failing to yield the right of way to the drivers traveling on Washington Street.
- Two (2) crashes involved drivers traveling northbound on Washington Street turning left onto 12th Street.
- One (1) crash was a rear-end crash.
- One (1) vehicle hit a fixed object.
- The direction could not be determined for two (2) crashes since the intersection is skewed relative to north and more specific (i.e. NW, SE) directions were not provided.

Warrant 8 – Roadway Network (Not Applicable)

Installing a traffic control signal at some intersections might be justified to encourage concentration and organization of traffic flow on a roadway network.

This warrant is not relevant at this location.

Warrant 9 – Intersection Near a Grade Crossing (Not Applicable)

The Intersection Near a Grade Crossing signal warrant is intended for use at a location where none of the conditions described in the other eight traffic signal warrants are met, but the proximity to the intersection of a

² Crash data supplied by the Oregon Department of Transportation for January 2009 through December 2012.



grade crossing on an intersection approach controlled by a STOP or YIELD sign is the principal reason to consider installing a traffic control signal.

This warrant is not relevant at this location.

Traffic Operations

In addition to traffic signal warrants, traffic operations at the study intersection were evaluated for both 2014 and 2035 traffic volume conditions. The results are summarized in Table 3. As shown, the intersection fails for the minor street approach in 2014, although the volume-to-capacity ratio for the minor street (eastbound approach) is still well below 1.0, indicating that relatively few vehicles are affected by this condition. The estimated volume far exceeds the capacity for several turn movements in 2035 resulting in excessive delay and v/c ratios.

Table 3: Intersection Operations at 12th Street/Washington Street without Traffic Signal Controls

<i>Year</i>	<i>Average Delay Per Vehicle</i>	<i>Level of Service for Major Street / Minor Street Approach</i>	<i>Volume to Capacity Ratio of Most Delayed Approach</i>
2014	>60.0	A/F	0.80
2035	>60.0	B/F	>2.0

Conclusion

Based on this analysis, one warrant was determined to be met currently (Warrant 7) and additional volume warrants are likely to be met by 2017 (Warrants 1, 2 and 3). Installation of a traffic signal at 12th Street/Washington Street should be considered based on the results of this analysis. If it is determined that a traffic signal should not be installed immediately, traffic volumes and collision data should continue to be monitored. It is likely that a traffic signal will meet multiple traffic volume related warrants at this location in the near future.

Please contact either of us with any questions regarding this study.



720 SW Washington St.
Suite 500
Portland, OR 97205
503.243.3500
www.dksassociates.com

APPENDIX

2014 PM Peak Hour Traffic Counts

2035 PM Peak Hour Traffic Counts

2014 Hourly Major/Minor Street Traffic Volumes

Signal Warrant Analysis Summaries

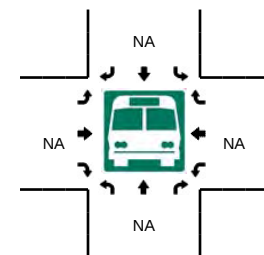
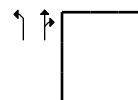
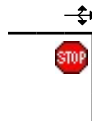
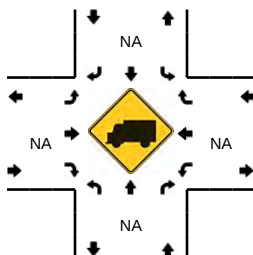
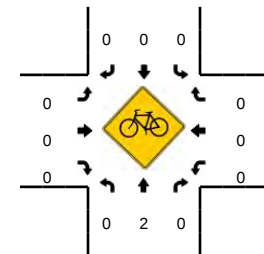
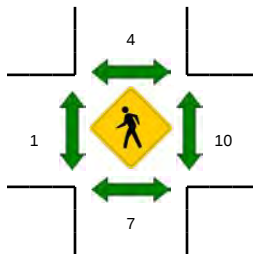
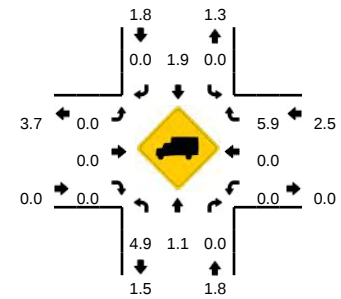
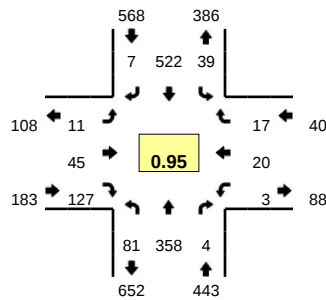
Collision Data

Synchro Output

LOCATION: Washington St -- 12th St
CITY/STATE: Oregon City, OR

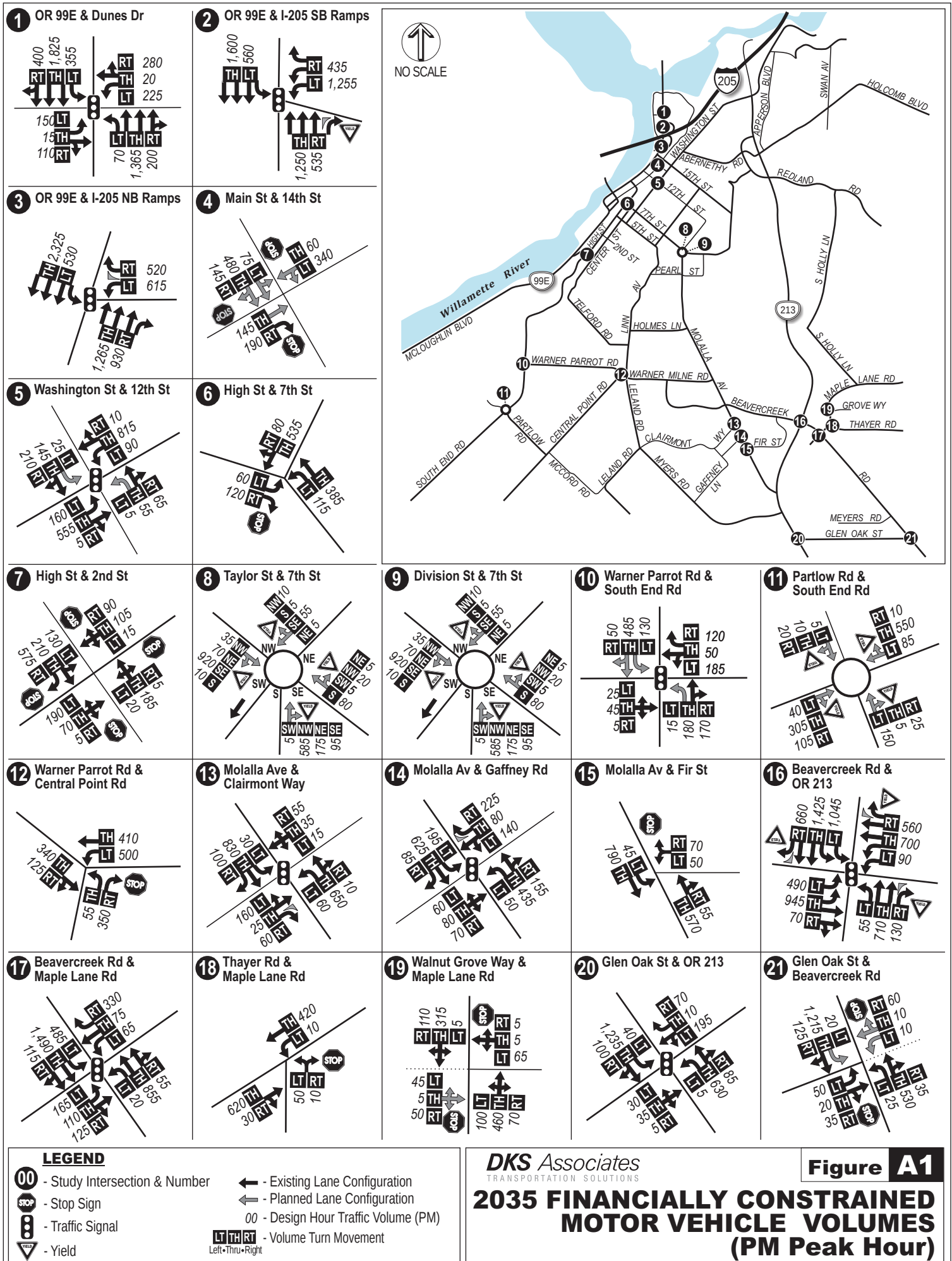
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DATE: Thu, Apr 24 2014

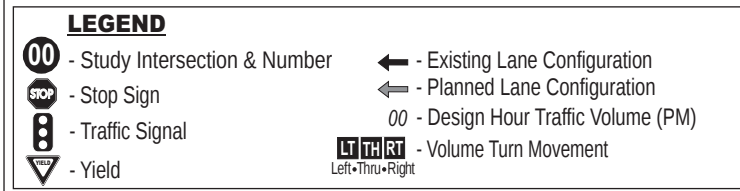
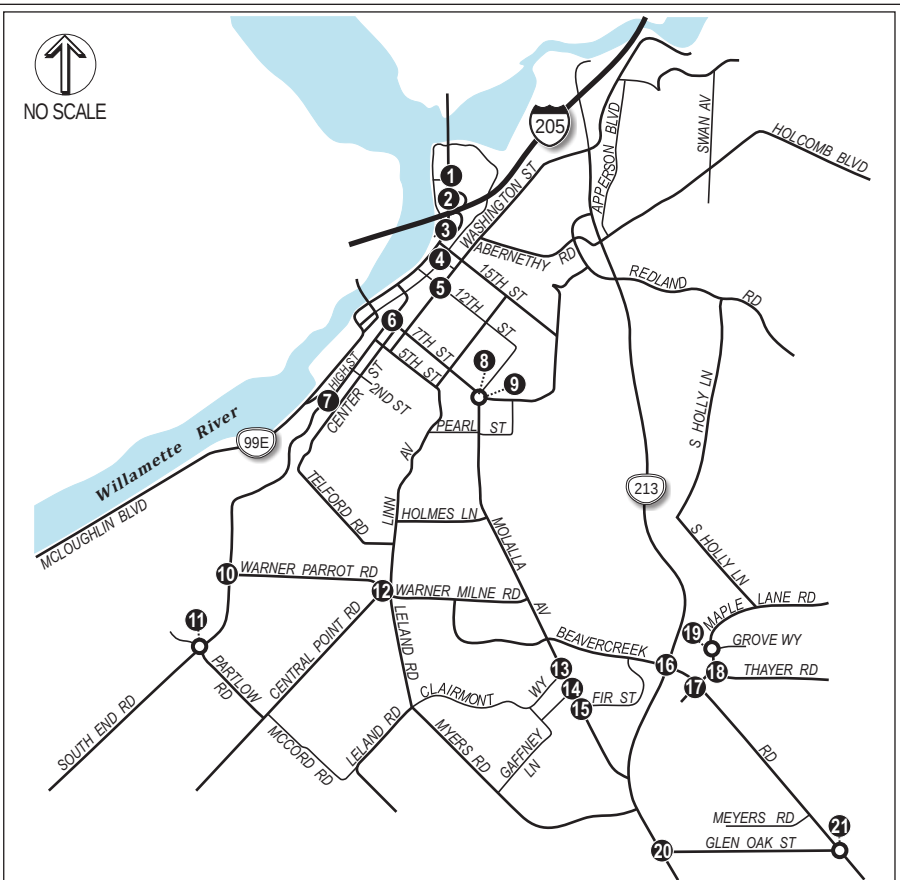
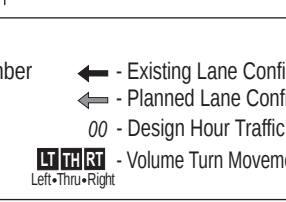
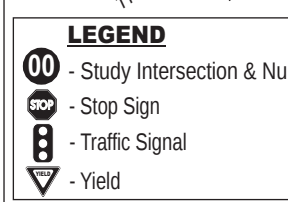
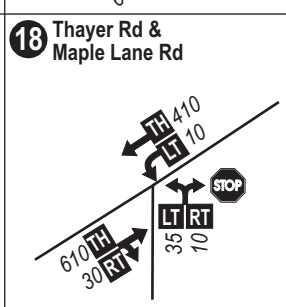
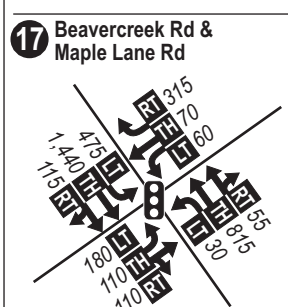
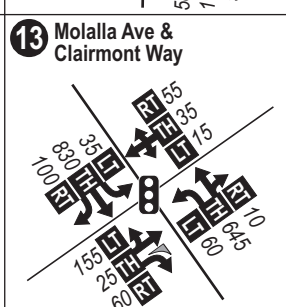
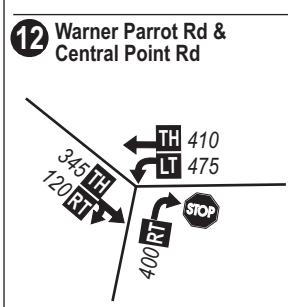
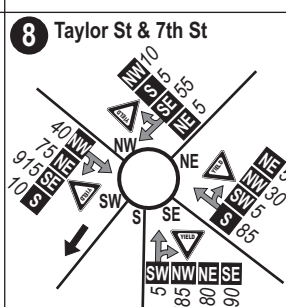
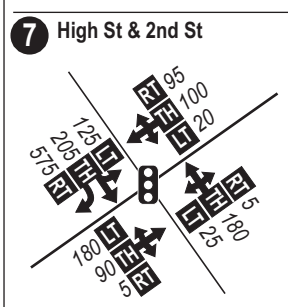
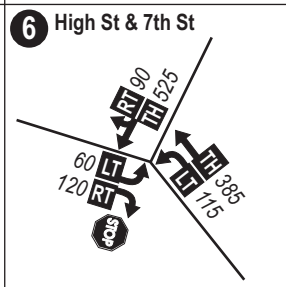
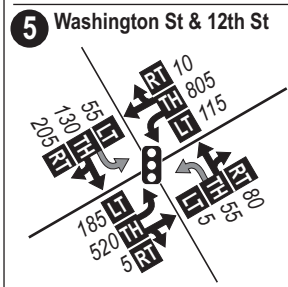
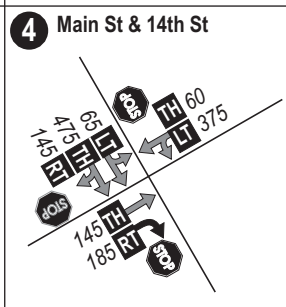
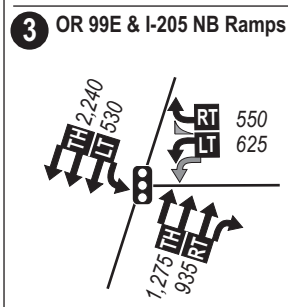
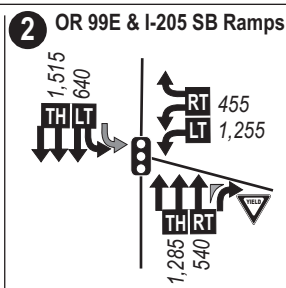
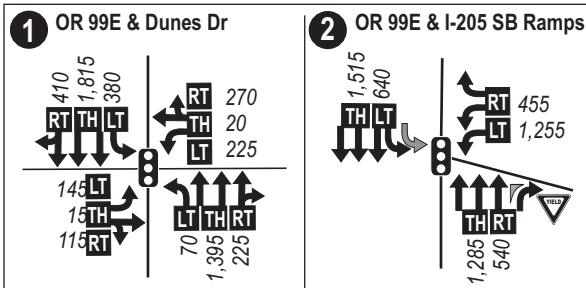
Peak-Hour: 5:00 PM -- 6:00 PM
Peak 15-Min: 5:00 PM -- 5:15 PM



15-Min Count Period Beginning At	Washington St (Northbound)				Washington St (Southbound)				12th St (Eastbound)				12th St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
1:00 PM	21	78	1	0	1	101	2	0	1	5	13	0	2	16	8	0	249	944
1:15 PM	16	75	2	0	7	72	4	0	1	6	18	0	0	7	1	0	209	931
1:30 PM	22	88	0	0	12	84	4	0	0	6	13	0	2	4	2	0	237	959
1:45 PM	13	84	0	0	4	94	5	0	4	5	14	0	0	7	4	0	234	929
2:00 PM	14	78	2	0	9	80	3	0	2	6	20	0	2	12	5	0	233	913
2:15 PM	19	84	3	0	10	101	1	0	5	13	6	0	2	3	5	0	252	956
2:30 PM	26	71	0	0	5	106	6	0	2	11	16	0	2	18	6	0	269	988
2:45 PM	23	78	2	0	9	107	2	0	2	15	12	0	0	9	7	0	266	1020
3:00 PM	18	103	1	0	5	95	2	0	4	9	23	0	3	12	4	0	279	1066
3:15 PM	13	80	2	0	14	115	4	0	3	8	20	0	2	8	6	0	275	1089
3:30 PM	23	114	0	0	5	132	6	0	1	7	27	0	0	6	11	0	332	1152
3:45 PM	17	84	0	0	6	139	4	0	3	7	18	0	2	2	3	0	285	1171
4:00 PM	22	103	1	0	6	114	0	0	2	8	21	0	3	15	11	0	306	1198
4:15 PM	21	88	2	0	7	121	9	0	4	6	19	0	1	11	9	0	298	1221
4:30 PM	22	97	1	0	7	135	3	0	4	3	18	0	0	7	7	0	304	1193
4:45 PM	23	91	0	0	10	97	4	0	2	12	30	0	1	2	8	0	280	1188
5:00 PM	17	107	0	0	5	132	2	0	1	6	42	0	0	5	7	0	324	1206
5:15 PM	20	86	0	0	3	148	0	0	5	8	23	0	1	5	1	0	300	1208
5:30 PM	20	91	0	0	15	120	4	0	3	14	34	0	2	4	4	0	311	1215
5:45 PM	24	74	4	0	16	122	1	0	2	17	28	0	0	6	5	0	299	1234
6:00 PM	17	72	1	0	20	99	1	0	4	22	31	0	0	1	6	0	274	1184
6:15 PM	18	76	0	0	10	90	1	0	1	12	22	0	0	9	8	0	247	1131
6:30 PM	14	73	1	0	2	91	2	0	0	2	19	0	1	3	1	0	209	1029
6:45 PM	14	73	1	0	8	96	2	0	2	11	16	0	0	5	1	0	229	959
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
All Vehicles	68	428	0	0	20	528	8	0	4	24	168	0	0	20	28	0	1296	
Heavy Trucks	8	4	0	0	0	8	0	0	0	0	0	0	0	0	4	0	24	
Pedestrians	8	8	0	0	8	8	0	0	0	0	0	0	0	0	0	0	16	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Railroad																		
Stopped Buses																		

Comments:





ALL-VEHICLE VOLUMES		2014 Hourly Volumes				2035					
Time Period	Hourly Total	Major	Min-WB	Min-EB	EB RTs	EB-25% RTs	Major	WB	EB	EB RTs	EB-25% RTs
7:00 AM	940	828	41	71	55	57	1339	144	147	114	119
8:00 AM	906	761	49	96	44	85	1231	172	199	92	176
9:00 AM	778	653	67	58	29	51	1056	235	120	60	105
10:00 AM	768	675	33	60	39	50	1092	116	125	81	104
11:00 AM	872	738	44	90	54	77	1194	154	187	112	159
12:00 PM	913	788	42	83	51	70	1274	147	172	106	146
1:00 PM	929	790	53	86	58	72	1278	186	179	121	148
2:00 PM	1020	839	71	110	54	97	1357	249	228	112	200
3:00 PM	1171	982	59	130	88	108	1588	207	270	183	224
4:00 PM	1188	984	75	129	88	107	1591	263	268	183	222
5:00 PM	1234	1011	40	183	127	151	1635	140	380	264	314
6:00 PM	959	782	35	142	88	120	1265	123	295	183	249
7:00 PM	659	528	73	58	42	48	854	256	120	87	99
8:00 PM	534	411	53	70	39	60	665	186	145	81	125

2014	Meets Warrant 1?	No																				
	Eight-Hour Vehicular Volume																					
	Hourly Volumes				Warrant 1 - Condition A								Warrant 1 - Condition B								Both A & B	
Hour	Hourly Totals	Major	Min-WB	Min-EB	Major	Min-WB	Min-EB	Maj/WB	Maj/EB	Maj/WB	Maj/EB	Major	Min-WB	Min-EB	Maj/WB	Maj/EB	Maj/WB	Maj/EB	WB	EB		
								100%	100%	80%	80%				100%	100%	80%	80%	A&B 80%	A&B 80%		
7:00 AM	940	828	41	57	100%	No	No	No	No	No	No	100%	No	No	No	No	No	No	No	No		
8:00 AM	906	761	49	85	100%	No	No	No	No	No	No	100%	No	100%	No	Yes	No	Yes	No	No		
9:00 AM	1606	653	67	51	100%	No	No	No	No	No	No	80%	80%	No	No	No	Yes	No	No	No		
10:00 AM	768	675	33	50	100%	No	No	No	No	No	No	80%	No	No	No	No	No	No	No	No		
11:00 AM	872	738	44	77	100%	No	No	No	No	No	No	80%	No	100%	No	No	No	Yes	No	No		
12:00 PM	913	788	42	70	100%	No	No	No	No	No	No	100%	No	80%	No	No	No	Yes	No	No		
1:00 PM	929	790	53	72	100%	No	No	No	No	No	No	100%	No	80%	No	No	No	Yes	No	No		
2:00 PM	1020	839	71	97	100%	No	No	No	No	No	No	100%	80%	100%	No	Yes	Yes	Yes	No	No		
3:00 PM	1171	982	59	108	100%	No	No	No	No	No	No	100%	No	100%	No	Yes	No	Yes	No	No		
4:00 PM	1188	984	75	107	100%	No	No	No	No	No	No	100%	100%	100%	Yes	Yes	Yes	Yes	No	No		
5:00 PM	1234	1011	40	151	100%	No	100%	No	Yes	No	Yes	100%	No	100%	No	Yes	No	Yes	No	Yes		
6:00 PM	959	782	35	120	100%	No	80%	No	No	No	Yes	100%	No	100%	No	Yes	No	Yes	No	Yes		
7:00 PM	659	528	73	48	100%	No	No	No	No	No	No	No	80%	No	No	No	No	No	No	No		
8:00 PM	534	411	53	60	80%	No	No	No	No	No	No	No	No	80%	No	No	No	No	No	No		
					Hours 100% Met =			0	1						1	6				2		
					Warrant Met			No	No						No	No				No		

2035	Meets Warrant 1?	Yes																			
	Eight-Hour Vehicular Volume																				
		Hourly Volumes			Warrant 1 - Condition A							Warrant 1 - Condition B							Both A & B		
Hour	Hourly Totals	Major	Min-WB	Min-EB	Major	Min-WB	Min-EB	Maj/WB	Maj/EB	Maj/WB	Maj/EB	Major	Min-WB	Min-EB	Maj/WB	Maj/EB	Maj/WB	Maj/EB	WB	EB	
								100%	100%	80%	80%				100%	100%	80%	80%	A&B 80%	A&B 80%	
7:00 AM		1339	144	119	100%	80%	No	No	No	Yes	No	100%	100%	100%	Yes	Yes	Yes	Yes	Yes	No	
8:00 AM		1231	172	176	100%	100%	100%	Yes	Yes	Yes	Yes	100%	100%	100%	Yes	Yes	Yes	Yes	Yes	Yes	
9:00 AM		1056	235	105	100%	100%	No	Yes	No	Yes	No	100%	100%	100%	Yes	Yes	Yes	Yes	Yes	No	
10:00 AM		1092	116	104	100%	No	No	No	No	No	No	100%	100%	100%	Yes	Yes	Yes	Yes	No	No	
11:00 AM		1194	154	159	100%	100%	100%	Yes	Yes	Yes	Yes	100%	100%	100%	Yes	Yes	Yes	Yes	Yes	Yes	
12:00 PM		1274	147	146	100%	80%	80%	No	No	Yes	Yes	100%	100%	100%	Yes	Yes	Yes	Yes	Yes	Yes	
1:00 PM		1278	186	148	100%	100%	80%	Yes	No	Yes	Yes	100%	100%	100%	Yes	Yes	Yes	Yes	Yes	Yes	
2:00 PM		1357	249	200	100%	100%	100%	Yes	Yes	Yes	Yes	100%	100%	100%	Yes	Yes	Yes	Yes	Yes	Yes	
3:00 PM		1588	207	224	100%	100%	100%	Yes	Yes	Yes	Yes	100%	100%	100%	Yes	Yes	Yes	Yes	Yes	Yes	
4:00 PM		1591	263	222	100%	100%	100%	Yes	Yes	Yes	Yes	100%	100%	100%	Yes	Yes	Yes	Yes	Yes	Yes	
5:00 PM		1635	140	314	100%	80%	100%	No	Yes	Yes	Yes	100%	100%	100%	Yes	Yes	Yes	Yes	Yes	Yes	
6:00 PM		1265	123	249	100%	80%	100%	No	Yes	Yes	Yes	100%	100%	100%	Yes	Yes	Yes	Yes	Yes	Yes	
7:00 PM		854	256	99	100%	100%	No	Yes	No	Yes	No	100%	100%	100%	Yes	Yes	Yes	Yes	Yes	No	
8:00 PM		665	186	125	100%	100%	80%	Yes	No	Yes	Yes	80%	100%	100%	No	No	Yes	Yes	Yes	Yes	
					Hours 100% Met =			9	7						13	13				23	
					Warrant Met			Yes	Yes						Yes	Yes				Yes	

[illegible]

2014	Warrant 4 Met?		No					
	Pedestrian							
	PEDESTRIAN VOLUMES							
	Time Period	North	South	East	West	Total	Hourly	Meets Minimum (107)?
	7:00 AM	1	0	0	0	1		
	7:15 AM	2	0	0	0	2		
	7:30 AM	0	0	0	1	1		
	7:45 AM	1	1	0	0	2	6	No
	8:00 AM	2	3	2	0	7	12	No
	8:15 AM	4	2	2	0	8	18	No
	8:30 AM	1	0	2	0	3	20	No
	8:45 AM	4	1	1	0	6	24	No
	9:00 AM	4	0	2	0	6	23	No
	9:15 AM	4	1	0	0	5	20	No
	9:30 AM	2	0	3	0	5	22	No
	9:45 AM	1	0	0	0	1	17	No
	10:00 AM	1	0	1	0	2	13	No
	10:15 AM	0	2	0	0	2	10	No
	10:30 AM	2	1	2	1	6	11	No
	10:45 AM	1	0	1	0	2	12	No
	11:00 AM	0	1	0	0	1	11	No
	11:15 AM	2	0	0	0	2	11	No
	11:30 AM	3	2	0	0	5	10	No
	11:45 AM	9	1	1	2	13	21	No
	12:00 PM	3	0	0	0	3	23	No
	12:15 PM	0	0	1	1	2	23	No
	12:30 PM	1	0	1	0	2	20	No
	12:45 PM	1	0	0	0	1	8	No
	1:00 PM	2	0	1	0	3	8	No
	1:15 PM	6	1	1	1	9	15	No
	1:30 PM	3	1	0	0	4	17	No
	1:45 PM	6	0	0	1	7	23	No
	2:00 PM	8	0	0	0	8	28	No
	2:15 PM	0	1	0	0	1	20	No
	2:30 PM	4	0	0	0	4	20	No
	2:45 PM	6	0	0	0	6	19	No
	3:00 PM	2	1	0	0	3	14	No
	3:15 PM	2	0	1	0	3	16	No
	3:30 PM	6	0	2	3	11	23	No
	3:45 PM	1	1	0	4	6	23	No
	4:00 PM	1	1	1	1	4	24	No
	4:15 PM	5	1	0	0	6	27	No
	4:30 PM	0	0	0	2	2	18	No
	4:45 PM	2	5	1	0	8	20	No
	5:00 PM	2	2	0	0	4	20	No
	5:15 PM	1	3	0	1	5	19	No
	5:30 PM	1	1	7	0	9	26	No
	5:45 PM	0	1	3	0	4	22	No
	6:00 PM	0	0	2	0	2	20	No
	6:15 PM	0	2	2	0	4	19	No
	6:30 PM	0	0	1	0	1	11	No
	6:45 PM	0	0	0	2	2	9	No
	Meets Minimum Pedestrian Threshold (107 pph)?							0
	Meets Warrant?							No

2014	Meets Warrant 7?		Yes			
	Crash Experience					
	A.					
	Alternatives have failed					
	to reduce crash frequency	Meets?	Yes			
	B.	Type	2010	2011	2012	3-year
	>=5 crashes in 12 months	Angle	4	7	6	17
	Correctable by Signal	Turning	1	3	1	5
		Rear End	0	1	0	1
		Fixed Object	1	0	0	1
		Total (Angle/Turning)	5	10	7	22
		Meets?	Yes			
	C.					
	Meets 8-hour Warrant 1 -A		No			
	or 8-hour Warrant 1 - B		Yes			
		Meets?	Yes			

YEAR_NO	COLLISION TYPE	FATAL CRASHES	NON-FATAL CRASHES	PROP DAMAGE ONLY	CRASHES TOTAL	PEOPLE KILLED	PEOPLE INJURED	TRUCKS	DRY SURF	WET SURF	DAY	DARK	INTERSECTION	INTERSECTION RELATED	OFFROAD
2011	ANGLE	0	2	5	7	0	2	0	6	0	6	1	7	0	0
2011	REAR-END	0	0	1	1	0	0	1	1	0	1	0	1	0	0
2011	TURNING MOVEMENTS	0	2	1	3	0	2	0	3	0	3	0	3	0	0
2011	YEAR 2011 TOTAL	0	4	7	11	0	4	1	10	0	10	1	11	0	0
2010	ANGLE	0	2	2	4	0	4	0	2	2	4	0	4	0	0
2010	FIXED / OTHER OBJECT	0	0	1	1	0	0	0	0	1	1	0	1	0	1
2010	TURNING MOVEMENTS	0	0	1	1	0	0	0	1	0	1	0	1	0	0
2010	YEAR 2010 TOTAL	0	2	4	6	0	4	0	3	3	6	0	6	0	1
2009	ANGLE	0	2	6	8	0	4	0	8	0	5	3	8	0	0
2009	YEAR 2009 TOTAL	0	2	6	8	0	4	0	8	0	5	3	8	0	0
2008	ANGLE	0	1	2	3	0	2	0	2	1	3	0	3	0	0
2008	YEAR 2008 TOTAL	0	1	2	3	0	2	0	2	1	3	0	3	0	0
9999	FINAL TOTAL	0	9	19	28	0	14	1	23	4	24	4	28	0	1

HCM 2010 TWSC
3: Washington Street & 12th Street

5/7/2014

Intersection												
Intersection Delay, s/veh	11.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	11	45	127	3	20	17	81	358	4	39	522	7
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	0	-	-	0	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	5	-	-	5	-	-	-10	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	3	3	3	2	2	2	2	2	2
Mvmt Flow	12	47	134	3	21	18	85	377	4	41	549	7
Major/Minor	Minor2		Minor1			Major1			Major2			
Conflicting Flow All	1204	1187	553	1275	1188	379	557	0	0	381	0	0
Stage 1	635	635	-	549	549	-	-	-	-	-	-	-
Stage 2	569	552	-	726	639	-	-	-	-	-	-	-
Follow-up Headway	3.518	4.018	3.318	3.527	4.027	3.327	2.218	-	-	2.218	-	-
Pot Capacity-1 Maneuver	115	135	493	100	135	632	1014	-	-	1177	-	-
Stage 1	391	396	-	445	442	-	-	-	-	-	-	-
Stage 2	433	442	-	339	393	-	-	-	-	-	-	-
Time blocked-Platoon, %								-	-		-	-
Mov Capacity-1 Maneuver	88	119	493	46	119	632	1014	-	-	1177	-	-
Mov Capacity-2 Maneuver	88	119	-	46	119	-	-	-	-	-	-	-
Stage 1	358	382	-	408	405	-	-	-	-	-	-	-
Stage 2	365	405	-	209	379	-	-	-	-	-	-	-
Approach	EB		WB			NB			SB			
HCM Control Delay, s	60.9		36.9			1.6			0.6			
HCM LOS	F		E									
Minor Lane / Major Mvmt	NBL		NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR			
Capacity (veh/h)	1014		-	-	241	154	1177	-	-			
HCM Lane V/C Ratio	0.084		-	-	0.799	0.273	0.035	-	-			
HCM Control Delay (s)	8.876		-	-	60.9	36.9	8.169	-	-			
HCM Lane LOS	A				F	E	A					
HCM 95th %tile Q(veh)	0.275		-	-	5.998	1.05	0.108	-	-			
Notes												
~ : Volume Exceeds Capacity; \$: Delay Exceeds 300 Seconds; Error : Computation Not Defined												

HCM 2010 TWSC
3: Washington Street & 12th Street

5/8/2014

Intersection									
Int Delay, s/veh		1.4							
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR
Vol, veh/h	55	130	205	5	55	80	185	520	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	0	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-
Grade, %	-	5	-	-	5	-	-	-10	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	3	3	3	2	2	2
Mvmt Flow	58	137	216	5	58	84	195	547	5
Major/Minor	Minor2			Minor1			Major1		
Conflicting Flow All	2106	2037	853	2210	2039	550	858	0	0
Stage 1	1095	1095	-	939	939	-	-	-	-
Stage 2	1011	942	-	1271	1100	-	-	-	-
Critical Hdwy	8.12	7.52	6.72	8.13	7.53	6.73	4.12	-	-
Critical Hdwy Stg 1	7.12	6.52	-	7.13	6.53	-	-	-	-
Critical Hdwy Stg 2	7.12	6.52	-	7.13	6.53	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.527	4.027	3.327	2.218	-	-
Pot Cap-1 Maneuver	~ 21	~ 32	319	17	~ 32	494	783	-	-
Stage 1	191	214	-	243	263	-	-	-	-
Stage 2	218	263	-	144	211	-	-	-	-
Platoon blocked, %								-	-
Mov Cap-1 Maneuver	-	~ 21	319	-	~ 21	494	783	-	-
Mov Cap-2 Maneuver	-	~ 21	-	-	~ 21	-	-	-	-
Stage 1	143	189	-	182	198	-	-	-	-
Stage 2	96	198	-	11	186	-	-	-	-
Approach	EB			WB			NB		
HCM Control Delay, s							2.9		
HCM LOS		-							
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR	
Capacity (veh/h)	783	-	-	-	-	1017	-	-	
HCM Lane V/C Ratio	0.249	-	-	-	-	0.119	-	-	
HCM Control Delay (s)	11.1	-	-	-	-	9	-	-	
HCM Lane LOS	B	-	-	-	-	A	-	-	
HCM 95th %tile Q(veh)	1	-	-	-	-	0.4	-	-	
Notes									
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined		*: All major volume in platoon			

Intersection			
Int Delay, s/veh			
Movement	SBL	SBT	SBR
Vol, veh/h	115	805	10
Conflicting Peds, #/hr	0	0	0
Sign Control	Free	Free	Free
RT Channelized	-	-	None
Storage Length	0	-	-
Veh in Median Storage, #	-	0	-
Grade, %	-	0	-
Peak Hour Factor	95	95	95
Heavy Vehicles, %	2	2	2
Mvmt Flow	121	847	11
Major/Minor	Major2		
Conflicting Flow All	553	0	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	4.12	-	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	2.218	-	-
Pot Cap-1 Maneuver	1017	-	-
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	1017	-	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-
Approach	SB		
HCM Control Delay, s	1.1		
HCM LOS			
Minor Lane/Major Mvmt			